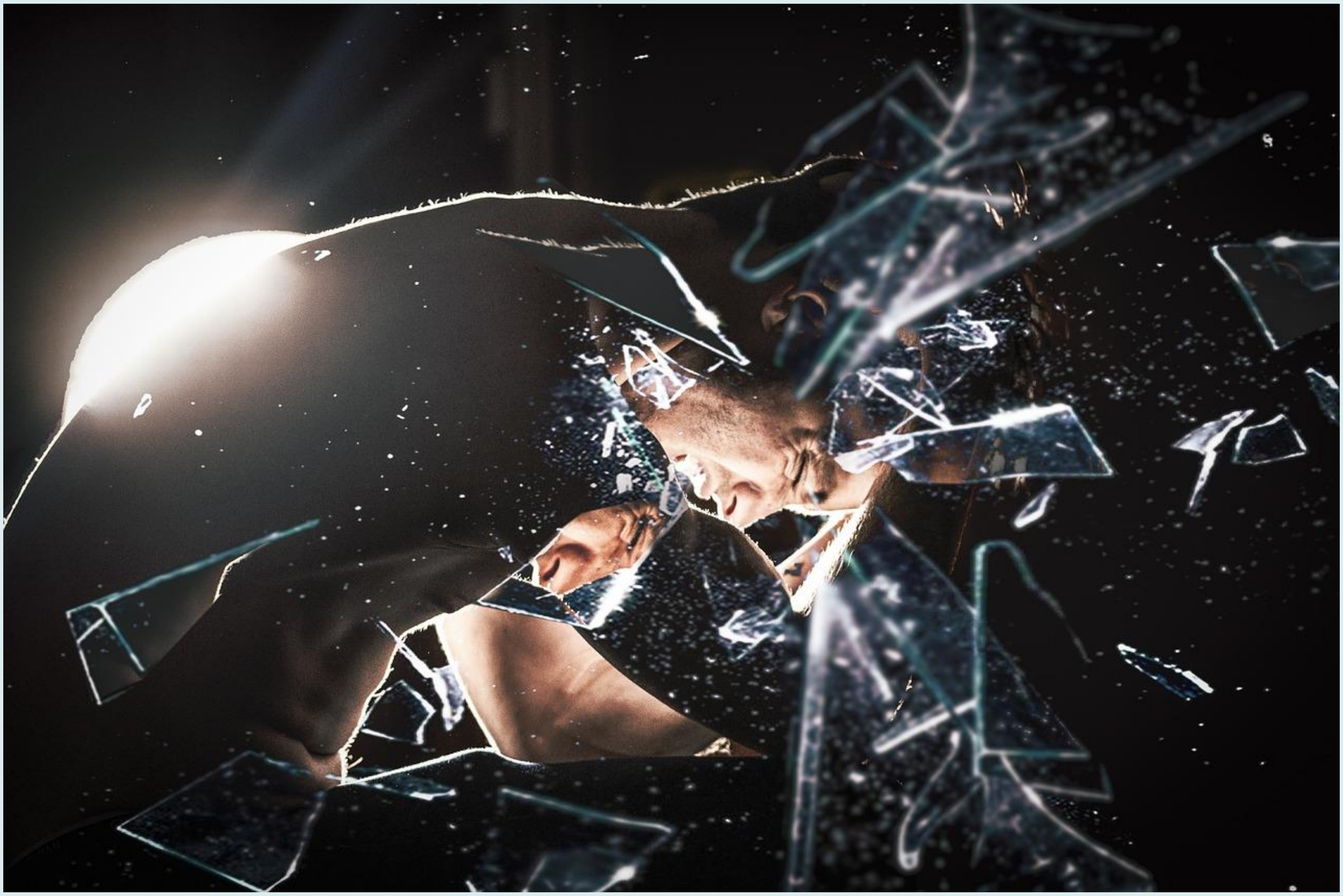
Issue No. 23, Winter 2025

ThinkTWENTY20

The Magazine for Financial Professionals



Insights from Those Who Have Been There: Accountants' Observations on Mental Health

Making Possible the Unthinkable – Integrated Thinking

Solutions For Creating Ethical Standards in Virtual Environments

International Clearing and Settlement and the Blockchain

Table of Contents

Editorial……………………………………………………………………………………………Pg. 3

Insights from Those Who Have Been There: Accountants' Observations on Mental Health……………………………………………………………………………………..Pg. 4
By Merridee Bujaki, Ph.D., FCPA, FCA, Darlene Himick, Ph.D., CFA, LLB, and Suzanne Paquette, Ph.D., CPA, CA
This article examines interviews from 17 accountants with significant mental health concerns to learn more about the challenges and consequences of their experiences, as well as the implications for the accounting profession.

Making Possible the Unthinkable – Integrated Thinking…………………………Pg. 20
By Alan Willis, FCPA, FCA
The article offers a collection of thoughts, as we enter 2025, about what it would take to jump-shift or at least accelerate the evolution and uptake of a genuine global baseline of corporate reporting standards for presenting to all stakeholders information that they are or should be entitled to receive.

Making Virtual Reality Ready for the Financial Professional: Questions to Ask……………………………………………………………………………… Pg. 33
By Eric E. Cohen, CPA
Considering the questions asked in this article, the author wants to know if readers of this article see the potential, the relevance, the need for VR/AR/MR in the profession? What can this community do to help blaze the path to the future of VR/AR/MR as part of tomorrow's financial technology suite? What else should the community consider in preparing today's (and tomorrow's) financial professionals for a world where VR/AR/MR are part of business as we know it?

International Clearing and Settlement and the Blockchain………………………Pg. 41
By Bob Tapscott
The days of physical cash or gold being moved between countries' vaults at the US Fed for international payments is so early last century. Today, even letters of credit are exchanged with password-protected files, if not (more securely) digitally signed portable document format (PDF) files, as trusted bits representing documents. For reasons from mitigating risk to optimizing profitability, financial institutions have been slow to change. But changing they are.

Number 23, Winter 2025

Editor in Chief: Gerald Trites, Managing Editor: Gundi Jeffrey, Contributing Editor: Eric E Cohen

Email: info@thinktwenty30.com Telephone: (416) 602-3931

We are a community joined to learn about and discuss important issues: To join us, please go to our website at https://www.thinktwenty20.com. Regular subscription – free. Premium subscription, One year - $30, Two years - $50.

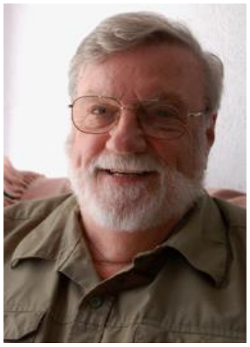
ISSN 2563-0113

Cover picture from Pixabay.com.

FOUNDING PARTNER

CPA CHARTERED PROFESSIONAL ACCOUNTANTS CANADA
COMPTABLES PROFESSIONNELS AGRÉÉS CANADA

University of Waterloo Centre for Information Systems Security and Assurance



Gerald Trites, FCPA, FCA, CISA
Editor-in-Chief

Our issue this quarter is special because it contains four long and in-depth articles on subjects of considerable importance to all accountants and financial professionals – mental health, integrated thinking, virtual reality and the international payments systems. The issue continues our mission to present thought-invoking materials for the benefit of financial professionals.

The article on mental health was prepared By Merridee Bujaki, Ph.D., FCPA, FCA, Darlene Himick, Ph.D., CFA, LLB, and Suzanne Paquette, Ph.D., CPA, CA, all of whom are full professors with extensive research backgrounds. It is a report on a subset of the interviews they conducted as part of a larger study of knowledge workers and their mental health across several professions, including more than 300 accounting professionals. In this article, they examine the interviews from 17 individuals with significant mental health concerns to learn more about the challenges and consequences of their experiences, as well as the implications for the profession.

The second article is by Alan Willis, FCPA, FCA, who has written extensively for us in previous issues on the subject of sustainability and ESG reporting. It focuses on integrated thinking - the active consideration by an organization of the relationships between its various operating and functional units. Integrated thinking takes into account the connectivity and interdependencies between the range of factors that affect an organization's ability to create value over time.

In Eric Cohen's article – Solutions for Creating Ethical Standards in Virtual Environments – Eric explores the key ethical concerns surrounding VR and other virtual environments, focusing on privacy, behavior and security, but also extending into the broader concept of reality itself, examining how both immersive and non-immersive environments, such as Second Life and Facebook, have shaped user experiences. Finally, he proposes solutions for ethical standards in virtual environments.

On the topic of International Clearing and Settlement and the Blockchain, Bob Tapscott presents the second part of his three-part opus that explains the current projects underway to modernize the clearing systems. The third (to be published in our Spring issue) will explain how blockchain could create a better system with near immediate transfers.

Gerald Trites, FCPA, FCA
Editor in Chief

Insights from Those Who Have Been There: Accountants’ Observations on Mental Health

By Merridee Bujaki, Ph.D., FCPA, FCA, Darlene Himick, Ph.D., CFA, LLB, and Suzanne Paquette, Ph.D., CPA, CA

Merridee Bujaki, Ph.D., FCPA, FCA, is a Full Professor of Accounting at the Sprott School of Business, Carleton University. Her research addresses disclosures in corporate annual reports, the accounting history of the Rideau Canal, and accounting careers in Canada, including diversity in accounting firm recruitment documents, women in the profession and, as a member of the Healthy Professional Worker Project, the mental health experiences of professional accountants.

Darlene Himick, Ph.D., CFA, LLB, is a Full Professor of Accounting at the Telfer School of Management, University of Ottawa. She conducts research on a variety of accounting topics such as accounting and finance ethics, the accounting profession and the use of experts in standard setting. She is currently involved with the Healthy Professional Worker Project, investigating the mental health issues that accountants face in their many roles.

Suzanne Paquette, Ph.D., CPA, CA, is a Full Professor at the School of Accounting of the Faculty of Business Administration at Université Laval. Suzanne is a research member of The Healthy Professional Worker Partnership. Her other areas of interest include the role of taxation in financial planning for retirement, ethics and tax practitioners, audit committee financial expertise and the provision of non-audit tax services, and the economic effects of tax policies.

> “When I went …for counseling, my guy was brilliant. And he got me in a nanosecond… So, he basically told me, he said, ‘You're bankrupt, buddy, you've been spending all your energy, all your outflows, and you got no significant inflow, you went bankrupt. You're an accountant, figure it out, fix your balance sheet.’ That was the most powerful message he gave me: ‘fix your balance sheet, you're going backwards.’ And that's what I do every so often to check my balance sheet and when I’m starting to go off the rails, like it was not that long ago,…I said, why am I going off the rails on not doing the good stuff? I need to do some more good stuff, get some of the more positive energy flowing back into the balance sheet here.” (Male interviewee, early 60s, recently retired)

There have been a number of recent articles written on accountants’ mental health (e.g., Ghio & Moulang, 2024; Hameli et al., 2024; Çollaku et al., 2023), including two previous articles in this series (Bujaki et al., 2022; 2021). These articles provide a high-level overview of the range of mental health challenges professional accountants face and some of the strategies they and their organizations use to address the challenges. This article differs somewhat from recent research in that it focuses specifically on a subset of accountants experiencing significant mental health issues. In this case we define “significant” mental health issues as those that prompted the affected individuals to reach out to one or more external supports (i.e., outside their family, peers and organization). “Significant” does not mean that the individuals were necessarily diagnosed with mental health illnesses (though some were), but that support and interventions by professionals in mental health and wellbeing were sought. No previous research on accountants has focused specifically on individuals in these circumstances.

We believe insights from these interviewees may be useful to others in understanding more about mental health in the accounting profession.

We report here on a subset of the interviews we conducted as part of a larger study of knowledge workers and their mental health across several professions (Healthy Professional Worker project, 2021, healthyprofwork.com). Bujaki et al. (2021) reported early results from a survey of more than 300 accounting professionals about their mental health. Bujaki et al. (2024) provided an overview of findings from interviews conducted with 23 Canadian public accounting professionals who volunteered in 2020 – 2021 to speak to us about mental health. In this article, we examine the interviews from 17 individuals with significant mental health concerns to learn more about the challenges and consequences of their experiences, as well as the implications for the profession.

Profile of Interviewees, Mental Health Concerns and Supports Accessed

The profile of the interviewees is fairly representative of the Canadian accounting profession overall (see Table 1 below), though women make up a larger percentage of interviewees than their representation among accountants (Jamero 2021). We do not claim, however, that these interviewees’ experiences are representative of all accountants, or indeed of all accountants with mental health concerns. Rather, these individuals generously offered their personal narratives about their mental health journeys. We believe insights from these interviewees may be useful to others in understanding more about mental health in the accounting profession. In particular, we hope understanding more about significant mental health concerns and their consequences will encourage individuals and their organizations to attend more closely to early warning signs and precursors to significant mental health concerns and hopefully prevent issues becoming significant or address symptoms at an early stage.

Table 1: Profile of Interviewees

Characteristic	Distribution
Employment Sector	Accounting Association – 6% Consulting – 6% Government – 18% Industry – 23% Public Accounting – 35% Self-employed – 12%
Sex	Female 59% Male 41%

Age	In 20s – 18% In 30s – 41% In 40s – 18% In 50s – 23%
Marital Status	Single – 47% Married/Marriage-like – 53%
Minority Status	Visible Minority – 41% Not a Visible Minority – 53% No Response – 6%

Among the mental health concerns self-disclosed by interviewees, depression, followed by stress and anxiety were the most commonly mentioned (see Table 2). Frequently more than one health concern was mentioned by a single individual, with an average of 1.6 health concerns per individual being disclosed (range 1 to 4).

Table 2: Significant Mental Health Concerns Identified by Interviewees

Mental Health Concern (listed alphabetically)	Percentage
Anxiety Attacks or Panic Attacks	11%
Anxiety	15%
Depression	33%
Stress	19%
Suicidal Ideation	11%
Other (includes burnout, bipolar disorder, etc.)	11%
Total (based on all concerns mentioned, not number of individuals)	100%

Among the external supports that individuals indicated they had accessed, the following were identified (see Table 3). Accessing employee assistance programs and taking prescription medications were the most commonly mentioned external supports, followed by connecting with either a psychiatrist or therapist. Note that psychiatrists are medical doctors specializing in mental health (and are thus able to prescribe medications); psychologists hold doctoral degrees in psychology (and often focus on psychotherapy or cognitive behavioural therapy).

Table 3: External Supports Accessed by Interviewees with Significant Mental Health Concerns

Support Accessed (listed alphabetically)	Percentage
CBD Oil	3%
Counselling	3%
Employee Assistance Program	22%
Group Therapy	3%
Hospitalization	9%

Prescription Medications	22%
Psychiatrist	13%
Psychologist	3%
Social Worker	3%
Therapist	13%
Labour Union	3%
Other	3%
Total (based on all supports mentioned, not number of individuals)	100%

Many individuals were unsure about where to reach out for help.

> "I don't think I was knowledgeable about the possibility of a leave of absence…if somebody had even said…here are the alternatives….And if somebody had connected me to [an] Employee Assistance Program (EAP) or even just educated me [that] there are some options. That would have been really, really helpful." [1] (Female, early 50s, on permanent disability leave)

While many accountants started with reaching out to their EAP, several found the EAP to be of limited benefit. As one individual said,

> "I did contact them [EAP]. And they essentially…[assigned] me a counselor for one session. And she wasn't really helpful…if they had provided more counseling services, or they followed up or something like that, it would have been better." (Female, mid-30, recently left public accounting for government)

Many accounting workplaces are characterized by client- or employer-focused priorities and timelines, competitive environments and unreasonable expectations.

The Context in Which Mental Health Concerns in Accounting Arise

The culture in many accounting workplaces is characterized by client- or employer-focused priorities and timelines (Lupu & Empson, 2015), competitive environments based on organizational compensation schemes and evaluation practices (Andioloa et al., 2020) and expectations that accountants maintain their expertise and always be ready to respond to client or employer demands (Anderson-Gough et al., 2001). We heard from interviewees about the effects of each of these characteristics on their mental health.

[1] Some language has been omitted or edited from quotations. This helps to preserve interviewee's anonymity and enhances the readability of the quotations (for example, removing repeated words and hesitations or hedges (e.g., like, you know, uh, yeah, so, etc.)). We do this while recognizing that some of these repetitions or hesitations may be important in signaling the challenging nature of comments and reflections offered by interviewees.

Regarding client demands, one interviewee described the effects of these demands on her mental health as follows:

> "All the time that I had [booked off for vacation] that summer ended up getting cancelled because of client demands. I was on for the rest of the summer and up until the end of October. I didn't really get a chance to have any time [off]…And I think by then, when I was starting to work 80 to 100 hours [per week], my body couldn't handle it. I could not handle the demands and the unreasonable expectations, and everything that was contained within that period of time. Something happened in my brain. I wasn't normal anymore. I couldn't work properly anymore. I would stare at my screen and wouldn't be able to do things anymore." (Female, late-20s, moved from a Big 4 to a smaller public accounting firm)

One interviewee commented on the competitive nature of the work environment in both public accounting firms she had worked in:

> "They compare you directly to your colleagues. I feel like there's a lot of competition amongst colleagues as well. Even if you're trying to work with somebody or try to ask them for help and assistance, if you're new, or there's something new that you're working on, they're less likely to want to help you…because of how they compensate you. It's based on how hard you work, regardless of your personality and how you treat other people." (Female, mid-30s, left public accounting for government)

Regarding the pressures associated with maintaining her expertise, one interviewee observed:

> "A lot of the stress throughout my career probably [came] from wanting to be the person who really feels comfortable with what they're doing, people can come to you and you really feel like the expert." (Female, mid-30s, left public accounting for industry)

Together, these workplace characteristics result in environments that encourage and reward overwork (like the 80 – 100 hours of work referred to in the quotation above) (Lupu & Empson, 2015). Such environments are linked to stress, anxiety, depression and burnout (Herda & Lavelle, 2012; Boyer-Davis, 2019). As one interviewee commented:

> "I've always had a lot of anxiety with my work. But I think I ended up burning out in a way that really scared me. It was a situation where I've never been more energized at work, it was actually a very good year. And yet, I was burning out." (Female, mid-30s, left public accounting for industry)

Neoliberal Pressures to Address Mental Health Concerns

Neoliberalism encourages individuals to accept responsibility for their own wellbeing – financial and otherwise (Brown, 2021; Fougère & Solitander, 2023). This may result in individual accountants believing that they must solve all their own problems. Yet, the very skills, habits and practices that accountants are known for can contribute to their challenges when they encounter mental health concerns. Accountants' focus on work means that many (especially younger accountants) may have not developed the necessary knowledge, skills or habits for maintaining their mental health and fostering their wellbeing.

At the same time, accountants' reputations for being experts dedicated to helping others solve problems means that many believe they should be able to address their own concerns as well. Thus, they frequently do not recognize that they are approaching a mental health crisis, do not know how (or to whom) to reach out for help or believe they should be strong enough to weather every crisis on their own. Consequently, they may find themselves striving to manage a mental health concern on their own at a time when their ability to research the supports they need is itself diminished.

The profession's socialization and training mean that many accountants expect to navigate through mental health concerns on their own.

One interviewee's comments reflected aspects of this neoliberal view regarding being responsible for your own mental health:

> "So, I think you can take all of the responsibility for caring about your mental health, because nobody else has to care about your own wellbeing and you're the one that ends up living it. I'm the only one that really suffered from everything that happened to me…regardless of [whether] it might have been caused by anybody else, I was the one that had to live with it. I was also the one that pulled myself out of it." (Female, late-20s, moved from a Big 4 to a smaller public accounting firm)

A second interviewee was even more direct in echoing a neoliberal perspective, saying:

> "I think any hesitation on my part to divulge [my struggles] or take time off or anything like that is probably my own perceptions of how that would look. And, if anything, *that's on me*, not on the company itself….I'm not sure that I'm going to be taking any time off for anxiety or stress-induced mental health challenges….I am very stressed. And I am very anxious about everything. I don't think I'm going to be doing anything about it, other than just trying to do the things that I think will help me cope….I think if anything, I'm the one who needs to work on myself and, and help myself work through the improvement, the coping mechanisms and really spend time focusing on getting my mind right. Rather than expecting my employer to…do anything there, from what I've learned about my own challenges is that I have to [do it], I can't really rely on anyone else to fix myself, I have to do it for myself." (Male, late-30s, numerous career changes, emphasis added)

Inadequate Preparation for Addressing Mental Health Concerns

In the accounting profession, accountants can experience mental health challenges, such as stress, anxiety and burnout (Herda & Lavelle, 2012; Boyer-Davis, 2019). Others experience mental health crises related to clinical depression, bipolar disorder or suicidal ideation (see

Table 2). Frequently, accountants' socialization has not prepared them for the mental health challenges that they find themselves addressing (Ison et al., 2020). During a period of significant mental health issues, the profession's socialization and training result in many accountants expecting to navigate through mental health concerns on their own, without an adequate degree of knowledge or background in the mental health field. As a result, many accountants struggle with mental health concerns silently and alone.

Insights from French Sociologist Pierre Bourdieu's writings help to understand various reasons why accountants may be inadequately prepared for addressing the mental health concerns that one in two adults are likely to face (CMHA, 2021). Accountants, regardless of where they work, have made significant investments in various forms of capital (resources or knowledge) to get to where they are. Bourdieu described four key types of capital: economic, cultural, social and symbolic (Bourdieu, 1986). While focused on acquiring the forms of capital valued in the field of accounting, accountants may not have made investments in what might be considered the types of capital necessary for managing their mental health or accessing mental health resources. We consider each of Bourdieu's forms of capital in turn.

Economic Capital

When experiencing mental health concerns, accountants may find themselves ill-equipped in terms of their ability to access various forms of capital. For example, their access to economic capital may be reduced if they need to take unpaid or reduced-pay time off to address their mental health concerns. As one interviewee indicated, financial concerns prevented her from taking time off work until it was almost too late.

Some begin to believe that their family's financial situation could be addressed only if they took their own lives and their life insurance paid out:

> "I started getting counseling and the counselor, the psychologist kept saying that I needed to take time off work. But, at that point in time, my family was pretty much 100% dependent on me financially….And so, for me to consider taking time off work, knowing that I wouldn't have the income level and the family's needs wouldn't be [met], I kept pressing to not do that. 'Til it got to the point where I just couldn't continue working anymore, because I was so unstable, and suicidal." (Not attributed to maintain confidentiality)

Another interviewee also commented on the need to return to work prematurely from a mental health leave of absence due to financial considerations:

> "It got to the point where I was so anxious about things, like going to a client site, that I just was freaking out at the end of the year. Like, panic attacks, and then I took another leave and stopped [early] because of the financial side…it ran out after a specific period of time." (Male, late-20s, public accounting)

Social Capital

When accountants are struggling with their mental health, they may lose access to their social capital supports (network of friends and colleagues) (Andiola et al., 2020; Bujaki et al., 2024). This may be especially true for individuals taking a leave of absence from work as, for many accountants, their social networks may be heavily linked to their workplace. As one interviewee noted:

> "During my burnout period, there was one manager whom I really trusted and I would go to [and] say that I wasn't okay. And [he was] like, the best manager I've had in my entire career. I still think very highly of [him]…but I remember a moment, when I came back [from a mental health leave of absence] and he didn't even get why I needed that time [off]. That really upset me." (Female, late-20s, moved from a Big 4 to a smaller public accounting firm)

Cultural Capital

Accountants' accumulated cultural capital (including their training and expertise) may not have prepared them to understand and respond to mental health concerns. For example, despite loving their job, one interviewee commented on her inability to understand and address what was happening to her:

> "I remember, one of those weekends, I ended up crying so much….I would sit in my car in front of this [workplace] building. And I would just cry, because I didn't want to go into the office. [I was] somebody who loved my job, like I absolutely love my job. And now I'm so confused [about] what was happening and why I was feeling this way." (Female, late-20s, moved from a Big 4 firm to a smaller public accounting firm)

Symbolic Capital

Finally, in terms of symbolic capital (reputation, prestige or recognition), while accountants carry a great deal of this type of capital due to the prestige associated with the profession, this form of capital might diminish for those with mental health concerns. For instance, following disclosure of their mental health challenges or taking a leave of absence, the biases and stigma associated with issues of mental health might cause others to perceive that individual's reputation to be diminished (Ison et al., 2020). The interviewees were aware of how individuals with mental health concerns were perceived and the stigma they might encounter, as reflected in the following quotations.

The first quotation illustrates that individuals needing a leave of absence to address mental health concerns are seen as weak:

> "People who took leave, like it was like, 'Oh my god, they can't handle their workload.'…And a lot of people who took leave, because of the pressure to come back [early] from leave, they would just not come back. So, it was it was viewed negatively." (Female, mid-30s, left public accounting for government)

Another individual also referred to stigma and preconceptions around mental health in choosing to make a full, rather than a gradual, return to work following a leave:

> "So, there was a gradual process to be brought back in [to work] offered, but I felt like it was [going to] impact my outlook negatively. So, I chose not to take that path. I just felt like…I would be seen as lazy or whatever if I chose that option." (Male, late-20s, primarily public accounting)

Questioning the Illusio and Reconsidering their Role

Bourdieu's concept of illusio (Bourdieu, 2000) represents individuals' commitment to a field and to participating in that field. Experiencing mental health struggles can cause the illusio under which individuals have worked to be made visible and to be questioned. Mental health experiences, and others' reactions to them, may cause individuals to question the field of accounting – how it operates, its norms and priorities – and their own place in the field. Once they observe how they or others with mental health concerns are treated by their firms or employers, some accountants may begin to question whether the sacrifices they are/have been making to participate in the field of accounting are worth it. As one individual put it,

> "The hard work I was putting in, it was being noticed…to the extent that they were putting me on a track to become a partner….And I just remember the walls closing in on me and thinking, I don't know if this is the path I want. I don't know if this sort of life, work life, is what I'm looking for. I love the firm, and I love what it stood for. But I felt like there was more out there." (Female, mid-30, left public accounting for industry)

If numerous individuals leave their jobs to focus on their own wellbeing, this may have adverse consequences for those who remain.

For some, this questioning becomes the spark that causes them to reconsider their particular work role and, possibly, their involvement in the profession overall. According to one interviewee,

> "When I was taking some time off [work] I think I got a real chance to really recalibrate and…reflect on things and how I wanted my mental health to look." (Female, mid-30s, left public accounting for industry)

Another interviewee described it as:

> "And it was kind of like all of a sudden…the Kool-Aid wore off, and the rose-colored glasses came off. And it was liberating, scary and somewhat horrific at the same time." (Male interviewee, early 60s, recently retired)

These reflections may lead some to express strong intentions to leave their job (Nouri & Parker, 2020) and, possibly, to leave the accounting profession (Bujaki et al., 2021). Yet, if numerous individuals leave their jobs to focus on their own wellbeing, this may have adverse consequences for those who remain and who may be expected to pick up the tasks of those who needed to leave (Bujaki et al., 2024).

Returning to Work after a Mental Health Crisis

Individual accountants who successfully navigate a mental health concern have two broad alternatives – return to the accounting field or find another field of work. For those who return to their previous employment, their relationship to the field may differ from what it was previously. Some will be less taken in by the illusio of the field and will try to negotiate a different, more sustainable and healthy long-term relationship with the field of accounting. One individual, who was ready to return from a six-month leave of absence for mental health reasons, described this process as follows:

> "I called my boss and I said, 'I need to come to you, I'm coming back in, and we got to talk because I'm not doing this [working the same way I had been before my leave] anymore, ever again. And you can't make me. So, we've got to figure it out….'" (Male, early 60s, recently retired)

They may be aware of (and angry or frustrated about) the power imbalances they encountered when navigating through the policies, practices and procedures of their employer while unwell. One individual observed:

> "I never really had a good conversation with either my boss or any of the other leadership team [after my return from a mental health-related leave]. As to… was there a path back into it [the partnership track]? So, I almost felt it was, I don't know if they were avoiding the topic, but it felt like I was kind of viewed as [having] a weakness now.…So…I was restructured out [of the firm]. (Male, late-30s, left public accounting involuntarily)

Striving for Systemic Change in the Profession

An interviewee described how practices that are harmful to individual's mental health can be perpetuated:

> "The people who stay [in the Big 4 firms] are the ones who are essentially saying the same things as the partners: '[we] have no issues, everything's good. I suffered through it. I made it this far. So, it's possible.' Things like that." (Female, mid-30s, left public accounting for government)

Another interviewee echoed this point of view, arguing that it needs to be changed:

> "It can't be the way that things have always been done, or 'I went through this, and now everybody has to suffer in the same way that I did.' And things like that. Those things just hold back a company, organization…from what is truly possible." (Female, late-20s, moved from a Big 4 firm to a smaller public accounting firm)

Based on their own workplace mental health challenges, some individuals strive to change the field's norms and practices and thus to spare others their difficult experiences. When asked to indicate how they would like their honorarium for participating in an interview to be sent to them, one interviewee responded:

> "Oh, I don't want it [honorarium for participating in the interview]. I just appreciate the opportunity to be able to contribute somehow and perhaps have it better for someone else in the future." (Female, mid-50s, retired early for medical reasons)

Telling their own personal stories, sharing their experiences and becoming champions for change are various ways to change the profession. One interviewee was quite deliberate in choosing to share their experience with mental health challenges, both with their colleagues and in their conversation with us:

> "And you learn from people that have been there and I, I said this when I gave my talks to my communities [at work], and I said if it prevents one single one of you from being on the couch [suffering severe depression], like I was for six weeks…then anything that I kind of might have put myself through, embarrassment-wise or you know, whatever-wise, it's worth it [because] I don't want to see anybody go there. It's…a bad, bad place….I've come back, thank God, but I almost didn't [referring to suicidal ideation], so if I can keep one other person from hitting that wall and maybe not getting over, [or] through it successfully, it's almost like…an obligation. So, thank you for allowing me to share." (Not attributed to maintain confidentiality)

Seeking a Different Environment

For other individuals, their mental health challenges may prompt them to seek out a new field or environment. At times this may lead them to change employer or sector, seeking a better alignment of their values with the norms and practices of a new field or employer, even though moving to a new field frequently requires additional investments in cultural, social, symbolic and economic capital to re-position themselves in the new field.

One interviewee described her journey as follows:

> "I got burned out of it. And I really changed how I saw a lot of things, public accounting, how firms are run, and a lot of things changed, changed my view of it really. It made me re-evaluate everything that I thought of at that point. And then I had to take a lot of time off, because my mental state at that point [was] kind of destroyed by it. And then, [when] I got better, I took a lot of measures to kind of deal with it. And then I went to a different firm. And now I'm not necessarily interested in going down the management path anymore, because now I've kind of re-evaluated exactly what I want from life." (Female, late-20s, moved from a Big 4 to a smaller public accounting firm)

This sense of accounting as an unhealthy environment is reinforced by another interviewee:

> "If nobody likes working there, everybody just feels like there [are] just unreasonable demands, it's a very unhealthy and unproductive environment. I think you end up…trying to squeeze out like the worst of somebody by kind of putting…very unreasonable demands and expectations on them. And blaming, the employee for it, as opposed to looking at other things that could facilitate an environment that could really get the best out of an employee." (Female, late-20s, moved from a Big 4 to a smaller public accounting firm)

One other interviewee suggested a more personal role for organizational leaders in making it more acceptable to have conversations about mental health challenges in the workplace.

Implications for the Profession and Beyond

The implications of this Bourdieusian interpretation of mental health suggest that mental health and workplace outcomes are jointly determined by individual, organizational and social factors. As such, initiatives to support accountants experiencing mental health concerns need to be introduced at all these levels (Ghio & Moulang, 2024). Indeed, many of these initiatives should be introduced for all accountants, even before mental health concerns are identified.

This could include changing the investments accountants make in their own cultural capital (i.e., learning about mental health even before a concern arises). Such initiatives could lead to refinements to the socialization of accountants, for example, by downplaying the heroic image of an excessive focus on work and providing mental health training. As one interviewee propose:,

> "I think would be a good idea, in the curriculum for the CPA [Chartered Professional Accountants] program, building in perhaps mental health coping strategies to help students going through the program, because that's, that's another layer of stress that they go through…teaching them in that moment when they're learning about all of these other things that are all useful for their career…[such as] mental health coping strategies to help them deal with some

> stress in their life that they haven't yet experienced. Or maybe they have. I think that would also be useful…" (Male, late-30s, numerous career changes)

In addition, the field's illusio could be examined and explored, allowing it to be critically evaluated and assessed. This might require a rethinking of the balance of power between clients/employers and employees (Carlisle et al., 2023; Anderson-Gough et al., 2000). One interviewee noted the importance of organizational leaders in setting the tone for a mentally healthy workplace:

> "You rely on your leadership to protect you, or perhaps sheltering you from some of the politics, the demands….So you really rely on the people that you work for to have a very deep understanding and appreciation for how much work goes into your job, and how difficult it can be, or perhaps how important it is for you to have clear priorities and have the landscape created where you can succeed….Because if you don't have a leader, if you don't have the leadership that can push back, or that can shelter you from those things, it makes it very difficult for you to bring your best self to work and not get exhausted by having to pivot constantly." (Female, mid-30, left public accounting for industry)

One other interviewee suggested a more personal role for organizational leaders in making it more acceptable to have conversations about mental health challenges in the workplace:

> "Having more leaders, having authentic story shares, over their own struggles, would go a long way in breaking down the stigma of having other people feel comfortable enough to have those conversations [about their own mental health challenges]." (Male, late-30, left public accounting involuntarily)

A different perspective highlighted how the responsibility for healthy workplaces needs to be addressed at all levels of the organization:

> "It has to be completely designed from the top down. It's not just a manager's responsibility. It's not just an employee level [responsibility], it's the ways that the partners deal with client expectations, the way that they communicate on down to managers, the way that they, like everybody, talk to everybody, at every level. It's the ways that you if you have an awful client…that's extremely rude, and causes a lot of distress to employees, it's what do you [do], how [does it] reflect on an organization to have those types of clients?" (Female, late-20s, moved from a Big 4 to a smaller public accounting firm)

Many of the observations made by accountants who have themselves experienced significant mental health concerns reflect the importance of treating individuals with care and respect and of organization's living out their values themselves, for example, in their choice of clients and service providers.

One individual reflected on the harm that can be caused by some of the practices employed by the insurance providers selected by accounting employers:

> "I don't know if there's any way to not get them [insurance providers] to play hardball with you, because they set back your recovery….It was incredibly

stressful them cutting me off [during] the two times they did and initially denying the claim, and just every conversation was about 'How do we get you back to work?' And, you know, once I was off (though I resisted going off), once I was off, I was like, 'Okay, now I've done this [taken a mental health leave], I want to be well when I go back; like stop pressuring.' But that's the insurance company, and they're trying to minimize costs. And so they have a totally different [objective], but they're harmful. They're not accomplishing their goal. They're extending people's leaves, because they are playing these hardball tactics…which is unfortunate." (Female, early 50s, on permanent disability leave)

Another interviewee commented on the importance of a firm focusing its responses and policies on care, not economics:

"So, I don't know how much I actually like accounting anymore, honestly. But one of the reasons that I joined this firm, in particular, was their approach to how they treat their employees' need [for] mental health and things like that. The leadership was one of the reasons,…actually the only reason, I joined. So, it's very cool to me to be part of a firm that really values those things in a way. I think people tend to claim that they care about mental health.…But I work in a firm that actually does, in every aspect of their communication, at every level, and how they actually talk. It's very fun for me to be a part of it." (Female, late-20s, moved from a Big 4 to a smaller public accounting firm)

In Their Own Words

While many accountants experience mental health concerns, rarely do we have an opportunity to hear directly from individuals who have first-hand experience with significant mental health concerns. In this article, we hear from 17 individual accountants, from across sectors, ages and genders, about their own experiences and observations. We introduce Bourdieu's concepts of capital and illusio to provide a framework for the interviewees' insights. We include extensive quotations in the article as we believe it is important to hear from individuals in their own words.

What we heard is that, among the accountants we interviewed, a full range of significant mental health concerns were experienced and a range of sources of support have been sought, though some wished they had known more about available sources of support prior to experiencing their own concerns. The culture of accounting practices and service providers, and the expectations of clients and professional expertise, can contribute to some of the mental health concerns that accountants experience – and these can be exacerbated by a sense that individual accountants should be able to address mental health concerns themselves. Further, we observed that interviewees' mental health experiences can have adverse consequences on their economic, social and symbolic capitals, and that their acquired cultural capital may not prepare them adequately for addressing their mental health concerns.

Individuals' experiences of significant mental health issues frequently prompt them to reflect on their life, work and career, and may lead them to rethink their commitment to the field of accounting and their definitions of career and life success (as suggested in the opening quotation). In addition, some interviewees came to question the nature of work in the field of accounting, the way accountants are trained and socialized and the values of their (former) employer. Interviewees also highlighted the important role of organizations and organizational leaders in selecting clients and service providers (such as EAP and insurance companies), determining the nature and intensity of work demands, supporting individuals with mental health concerns and combatting stigma. There is still much that can be done, across all sectors in which accountants work, to foster caring, supportive environments where individuals want to work and feel comfortable bringing their authentic selves to work.

End Notes

Anderson-Gough, F., Grey, C., & Robson, K. (2000). In the name of the client: The service ethic in two professional services firms. *Human relations*, *53*(9), 1151-1174.

Andiola, L. M., Downey, D. H., & Westermann, K. D. (2020). Examining climate and culture in audit firms: Insights, practice implications, and future research directions. *Auditing: A Journal of Practice & Theory*, *39*(4), 1-29.

Bourdieu, Pierre. 1986. *Outline of a Theory of Practice*. Cambridge University Press.

Bourdieu, P. (2000). *Pascalian Meditations*. Stanford University Press.

Boyer-Davis, S. (2019). Technostress: An Antecedent of Job Turnover Intention in the Accounting Profession. *Journal of Business and Accounting*, *12*(1), 49-63.

Brown, B. (2021). Responsibilization and recovery: shifting responsibilities on the journey through mental health care to social engagement. *Social Theory & Health*, *19*(1), 92-109.

Bujaki, M., Himick, D., Paquette, S. (2024). On Being an 'Ideal Worker' in a 'Greedy Institution': Accountants' Observations on Mental Health. Working Paper.

Bujaki, M., Himick, D., Paquette, S. (2022). Mental Health and the Accounting Profession – Insights and Interventions from Recent Canadian Research, *ThinkTwenty20*. Summer 2022.

Bujaki, M., Himick, D., Paquette, S. (2021). Fostering the Mental Health of Accountants: Recent Initiatives and Research, *ThinkTwenty20*. Summer 2021.

Canadian Mental Health Association (CHMA). (2021). Fast Facts about Mental Health and Mental Illness. https://cmha.ca/brochure/fast-facts-about-mental-illness/

Carlisle, M., Gimbar, C., & Jenkins, J. G. (2023). Auditor-Client interactions—An exploration of power dynamics during audit evidence collection. *Auditing: A Journal of Practice & Theory*, *42*(1), 27-51.

Çollaku, L., Aliu, M., & Ahmeti, S. (2023). The relationship between job burnout and intention to change occupation in the accounting profession: the mediating role of psychological well-being. *Management Research Review*, *46*(12), 1694-1710.

Fougère, M., & Solitander, N. (2023). Homo responsabilis as an extension of the neoliberal hidden curriculum: The triple responsibilization of responsible management education. *Management Learning*, *54*(3), 396-417.

Ghio, A., & Moulang, C. (2024). Women Accountants and Wellbeing, *Accounting Horizons*, 1-11.

Hameli, K., Çollaku, L., & Ukaj, L. (2024). The impact of job burnout on job satisfaction and intention to change occupation among accountants: the mediating role of psychological well-being. *Industrial and Commercial Training*, *56*(1), 24-40.

Herda, D. N., & Lavelle, J. J. (2012). The auditor-audit firm relationship and its effect on burnout and turnover intention. *Accounting Horizons, 26*(4), 707-723.

Ison, I., Shonhiwa, T., & Hogan, M. (2020). Advancing mental health awareness and resilience in accounting students. *Journal of Accounting, Ethics and Public Policy*, *21*(3), 389-398.

Jamero, M.L. (2021). Is there a gender gap in the accounting profession? The Accounting Bytes. https://theaccountingbytes.com/the-gender-gap-in-the-accounting-profession/

Lupu, I., & Empson, L. (2015). Illusio and overwork: Playing the game in the accounting field. *Accounting, Auditing & Accountability Journal*, *28*(8), 1310-1340.

Nouri, H., & Parker, R. J. (2020). Turnover in public accounting firms: a literature review. *Managerial Auditing Journal*, *35*(2), 294-321.

Making Possible the Unthinkable – Integrated Thinking

By Alan Willis, FCPA, FCA

Alan Willis, FCPA, FCA, a former partner in one of the Big Four accounting firms, has since 1991 been an independent researcher, writer and advisor on corporate reporting and performance measurement beyond the scope of financial statements alone, and the implications of such reporting for corporate governance, internal control and assurance. He became an early pioneer in the concept, development and practice of sustainability reporting and later of integrated reporting.

"Make possible the unthinkable" (President Macron, December 2024)

A Call for Enlightened Paradigm Shifts and Mindsets about Value Creation, Corporate Purpose, Governance and Accountability (and where's the global baseline for sustainability reporting standards?)

The following article is a collection of thoughts as we enter 2025, about what it would take to jump-shift or at least accelerate the evolution and uptake of a genuine global baseline of corporate reporting standards for presenting to all stakeholders information that they are or should be entitled to receive. It is not a detailed analysis of current sustainability reporting standards or guidance about their practical implications – there's already an abundance of that. I simply offer some food for thought and even debate, with ideas and a few unusual suggestions that might be a catalyst for transforming corporate governance and reporting or at least hasten the universal adoption of sustainability-related reporting standards. We need new mindsets and paradigm shifts that will enable, not impede, progress in matters of accountability and transparency – not just fine-tuning and tinkering with obsolete standards, laws and practices. We need to imagine making possible what today may seem unthinkable!

Snapshot: Current State of Play with Sustainability Reporting Standards

How close are capital market jurisdictions to implementing the International Sustainability Standards Board (ISSB)[i] global baseline standards for sustainability reporting? Is hoped-for convergence in the global disclosure landscape any nearer? What can speed it up? What is holding it back?

As of year-end 2024, with strong encouragement from the International Organization of Securities Commissions (IOSCO),[ii] the ISSB's two standards,[iii] IFRS S1 and S2, have been adopted wholly or partly in many jurisdictions around the world, and are under consideration or in progress towards adoption in many others.

In Europe, meanwhile, under the Corporate Sustainability Reporting Directive (CSRD),[iv] the European Sustainability Reporting Directive (ESRS)[v] are coming into effect in EU countries for financial reporting years ending in 2024. These will impact not only companies above a certain size in the EU, but also many foreign companies operating and trading in the EU. In the USA, the SEC's final TCFD-based climate related disclosure rule, akin to IFRS S2, issued in March 2024 is on hold, pending court decisions, or even congress hearings, to confirm the SEC's authority to issue and enforce it.[vi] Progress under the new administration is unlikely to speed this up. And a broader sustainability reporting rule like IFRS S1 is probably far away on the SEC horizon.

Are we seeing the adoption and implementation of a global baseline of sustainability reporting standards for disclosures by public companies? Not exactly! Not yet!

In Canada, the Canadian Securities Administrators' (CSA) proposed NI 51-107 on climate-related disclosures is still on hold.[vii] The CSA has yet to decide whether to adopt one or both of the ISSB standards as new National Instruments, with or without modification, and what to do with draft NI 51-207, first issued for consideration in 2021. These deliberations will no doubt take into account the first two final standards of the Canadian Sustainability Standards Board (CSSB),[viii] issued in December 2024 (which have no legislated authority), and also look south to see what is happening in the USA.

Distinct from the above somewhat fragmented scenario regarding "outside in" reporting to inform investors (providers of financial capital) about future financial prospects, "inside out reporting," i.e., disclosures to stakeholders in general about company impact on the environment and society, continue to be guided primarily by the GRI standards, followed at present (voluntarily) by a very large number of listed companies around the world, except in Europe, where the "double materiality" ESRS will apply under the CSRD.

When "inside out" reporting might be seen as material to investors and, therefore, become mandatory outside the EU is unclear but, interestingly, ISSB's IFRS S1 at least hints at such a future possibility by incorporating indirect reference to the Integrated Reporting (<IR>) concepts of value creation and capitals. More on this below!

Does all this look like the adoption and implementation of a global baseline of sustainability reporting standards for disclosures by public companies? Not exactly! Not yet! Still patchy, but maybe with some signs of eventual convergence. Faster progress calls for some notable shifts in mindsets concerning value creation, corporate governance and accountability. Integrated thinking and fundamental concepts in integrated reporting will be instrumental for making this progress.

Thoughts on Paradigm Shifts and Mindset Transitions

In 2019, when speaking to class in Financial Accountability at York University in Toronto, I said "We are undergoing a transformation in how we see and understand the relationships between business, society and the planet. It's a fundamental shift over the last 30 years in the context for doing business, and it's a fundamental shift affecting our collective mindset and values about corporate accountability and business responsibility, with the interests of future generations in mind."

I added that this fundamental transformation in the global, societal context for doing business and our understanding of value creation for stakeholders has significant implications for how we look at corporate purpose, governance, accountability and transparency - i.e., external reporting.

Flashback - a few examples of paradigm shifts and mindset transitions that made possible the unthinkable

Consider: 500 years ago, Copernicus posited a revolutionary theory that the earth (and planets) revolve around the sun – mind-shattering thinking in its day, challenging all scientific thought and religious doctrine of the time, yet proven by Galileo et al to be reality. Copernicus had the insights and courage to “make possible the unthinkable” (a phrase used by President Macron in December 2024, speaking about his 2019 commitment to restore the 800-year-old Notre Dame Cathedral within five years). Likewise, Einstein and others took us bewilderingly beyond the realm of Newtonian physics in understanding the universe and energy – making possible some hitherto unthinkable possibilities. And Kennedy’s 1962 pledge to put a man on the moon within a decade was yet another example of a mindset that made possible the unthinkable.

So, why today do we persist in thinking about corporate value creation, accountability and reporting within the confines of a narrow, blinkered mindset shaped by a mental model derived from concepts and governance principles enshrined in Victorian era company law? That mindset was not (and could not have been) informed by foresight about the future global scale and reach of environmental impacts caused by business enterprises and the industrial revolution. The concept of value was expressed strictly in terms of financial gain or loss accruing to owners and investors. Accountability to parties other than shareholders? Unthinkable.

Isn’t it time that we adopted a systems-based empirical model of how a company creates value over time? How it needs to be accountable to all interested parties (stakeholders) for stewardship of the resources it depends on and impacts, financially or otherwise? Shouldn’t fit-for-purpose 21st. century corporate reporting satisfy broader accountability obligations?

For this to occur, significant paradigm shifts and mindset transitions are critical for all present-day business leaders, investors, legislators and accountants. Hopefully, the education of future generations will not perpetuate adherence to obsolete concepts, models and laws. Adverse corporate impacts on the planet, its climate and society simply cannot allow that to happen.

Thoughts on Value Creation

It seems the time may have already arrived for re-thinking how value is created and for whom, because the International Sustainability Standards Board (ISSB) established by the IFRS Foundation has embedded the following text in its 2023 IFRS S1 Standard, "General Requirements for Disclosure of Sustainability-related Financial Information" – disclosures to accompany GAAP-based financial statements.[ix] Here is paragraph 2 of IFRS S1:

"Information about sustainability-related risks and opportunities is useful to primary users because an entity's ability to generate cash flows over the short, medium and long term is inextricably linked to the interactions between the entity and its stakeholders, society, the economy and the natural environment throughout the entity's value chain. Together, the entity and the resources and relationships throughout its value chain form an interdependent system in which the entity operates. The entity's dependencies on those resources and relationships and its impacts on those resources and relationships give rise to sustainability-related risks and opportunities for the entity."

One could add that the entity's impacts on those resources also give rise to risks to the future, broader well-being of society and the environment which depend on them.

Further, the Educational Material published by ISSB in November 2024[x] states: **"**To identify its sustainability-related risks and opportunities, an entity considers its interactions with stakeholders, society, the economy and the natural environment throughout its value chain (see paragraph 2 of IFRS S1)." These interactions occur as the entity operates its business model and from the external environment in which the entity operates.

In the last few decades, our view has shifted to one that recognizes the unique contributions a company makes to fulfilment of societal needs and the broader, true nature of value creation.

An entity's ability to generate cash flows is inextricably linked to these interactions. That is, an entity cannot generate cash flows without interacting with stakeholders, society, the economy and/or the natural environment throughout its value chain." (See page23, "Interactions throughout the entity's value chain.")

Please carefully read again both these two excerpts about interactions within an entity's value chain that impact stakeholders, society, the economy and the natural environment. So much hinges upon them. They represent a paradigm shift away from anything we ever learnt in school or since, and certainly never in the minds of Victorian-era legislators drafting company law.

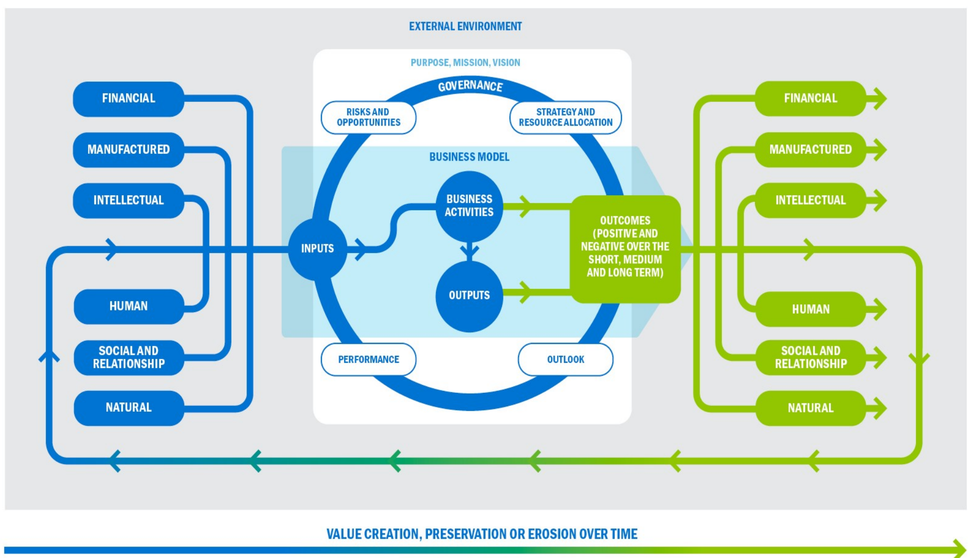
Seemingly consistent with paragraph 2 of IFRS S1, the IIRC <IR> Framework explains on page 16: "Providers of financial capital are interested in the value an organization creates for itself. They are also interested in the value an organization creates for others when it affects the ability of the organization to create value for itself, or relates to a stated objective of the organization (e.g., an explicit social purpose) that affects their assessments."

All organizations depend on various forms of capital for their success. In the <IR> Framework, the capitals comprise financial, manufactured, intellectual, human, social and relationship, and natural.

“Value created, preserved or eroded by an organization over time manifests itself in increases, decreases or transformations of the capitals caused by the organization’s business activities and outputs.”[xi]

The IIRC <IR> Framework provides, on page 22, Figure 2 (“Process through which value is created, preserved or eroded”), a compelling graphic that almost intuitively captures the essence of this new concept of value creation through business models that depend on and have an impact on the six capitals (and the interests of the stakeholders in each):

<IR> Six Capitals



“International <IR> Framework,” International Integrated Reporting Council (IIRC), January 2021.

Compliance with ISSB’s IFRS S1 therefore requires directors in boardrooms in particular and business leaders in general to adopt mindsets that embrace the fundamental reality that corporate value creation is different for different stakeholders, and depends on an entity’s access to and use of multiple types of capital or resources for which it is accountable to multiple stakeholders, present and future. Prudent management and meaningful, decision-relevant corporate reporting both to investors and to other stakeholders need to reflect this reality.

Such a holistic view of value creation was certainly not on the minds of Victorian era drafters of company law and concomitant reporting obligations. Indeed, the concepts about value creation in the IIRC <IR> Framework, while not yet by any means universally accepted or acclaimed, are reflected in the latest (2024) book by the Nobel-prize winning economist Joseph Stiglitz. He offers promising support for this view of value creation on page 277 of *The Road to Freedom - Economics and the Good Society*.[xii]

He writes: “The capital that is central to twenty-first century progressive capitalism is not just physical or financial but includes human capital, intellectual capital, organizational capital, social capital, and natural capital. Indeed, this broadening of our understanding of the term is essential and corresponds to the changing nature of our economy and society."

Thoughts on Corporate Purpose and Governance

The IIRC <IR> Framework states that a company's governance structure should support its ability to create value in the short, medium and long term.[xiii] To this I would add that it should first support its ability to achieve its purpose.

For too long, we have been taught and felt obliged by the dogma that a company's purpose was to maximize profit and shareholder returns. Fortunately, in the last few decades, this view has shifted to one that recognizes the unique contributions a company makes to fulfilment of societal needs and the broader, true nature of value creation. Indeed, B Corps are now a corporate form recognized by law in several jurisdictions worldwide.

This fundamental paradigm shift results in new formulation of the duties of corporate directors and a new mindset about them. To act in the best interests of a corporation, directors are increasingly required to consider a broader set of criteria than just maximizing shareholder returns. For example, Section 122 of the Canada Business Corporations Act (CBCA) states:

> **"1.1)** When acting with a view to the best interests of the corporation under paragraph (1)(a), the directors and officers of the corporation may consider, but are not limited to, the following factors:
>
> - **(a)** the interests of
>   - **(i)** shareholders,
>   - **(ii)** employees,
>   - **(iii)** retirees and pensioners,
>   - **(iv)** creditors,
>   - **(v)** consumers, and
>   - **(vi)** governments;
> - **(b)** the environment; and
> - **(c)** the long-term interests of the corporation."

Corporate governance fit for the 21st. century was carefully studied by the Corporation 20/20 initiative launched in Boston, USA in 2004.[xiv] The rationale for this was expressed in a Preamble as follows: "In the course of human events, seminal moments arise when it becomes imperative to redesign major social institutions. We face such a moment in the case of the corporation. Conceived in the era of kings, refashioned in the industrial era, corporations now wield dominant power over the lives of people and the quality of the environment. We face a moment of both urgency and opportunity to begin a transformation of this powerful institution, redesigning it to stand on a foundation of service to the public interest."

Corporation 20/20's proposals for corporate purpose, design and other aspects of corporate governance were expressed in six Principles for Corporate Design, the first of which stated: "The purpose of the corporation is to harness private interests to serve the public interest."

The rationale for this Principle seems as compelling today as it seemed 20 years ago:
*"*Why does society create laws that allow corporations to exist? To serve the general welfare, which should be the purpose of all democratic law. Corporations have a unique role as private

organizations, created by those motivated to create wealth and rewarding livelihoods for themselves through the production of goods and services. We must retain private interests as a major engine of economic prosperity. At the same time, we must insist that corporations concurrently serve society and protect the biosphere, which are the foundation of all future wealth creation. Thus, all corporate actions must be consistent with the public interest, and where private and public interests conflict, the public interest must prevail. Thus, Principle 1 positions the corporation in relation to the broader aims of society, to which it must contribute."

Within the last five years, there has been renewed attention to the need for corporations to refocus and state their purpose in more specific terms than a vague generality rooted in the doctrine of shareholder primacy and profit maximization.

For example, in 2019 the Business Roundtable of America announced the release of a new Statement on the Purpose of a Corporation signed by 181 prominent CEOs who commit to lead their companies for the benefit of all stakeholders — customers, employees, suppliers, communities and shareholders.[xv] According to an October 2021 *Harvard Business Review* article by H. Joly, *Creating a Meaningful Corporate Purpose*, "Today, most company leaders believe that their firms' larger purpose is to make a positive difference in the world — not just to maximize shareholder value."

This belief was reiterated in 2023 by the Canadian Purpose Economy Project in its "Call to Purpose' statement: "Canadians expect businesses and their leaders to deliver a positive social impact, enhance environmental sustainability, create value for stakeholders, demonstrate good governance, and generate profits. Increasingly, stakeholders, including customers and colleagues, investors and shareholders, community leaders and stewards of the environment, expect the business sector to be a positive force in society."[xvi]

Moreover, in Canada in May, 2024, a private member's senate bill was tabled, S-285, "The 21st. Century Business Act, proposing further fundamental changes to the Canada Business Corporations Act (the "CBCA").[xvii] The proposed amendments would impose an overarching, universal "purpose" on every CBCA corporation, namely to pursue its best interests while operating in a manner that benefits, and minimizes harm to, the wider society and the environment. The bill, which did not progress beyond first reading, also proposed new transparency and accountability measures in relation to the new concept of corporate purpose.

This all seems to echo and build on the landmark 2008 Supreme Court of Canada BCE decision about directors' duty to serve the best interests of the corporation, subsequently codified by changes to the CBCA in 2019 providing that, in acting in the best interests of the corporation, directors and officers "may," but are not required to, consider the interests of various stakeholders, such as shareholders, employees, consumers, as well as the environment.

In other words, in Canada, the US and the EU, under the European Commission's Corporate Social Responsibility Directive (CSRD), there has been a significant shift in thinking and, increasingly, practice about the purpose of any corporation, from a focus solely on shareholder primacy and maximizing shareholder returns to serve the needs of society along with a multi-stakeholder accountability for social and environmental impacts – the public good. A recent blog by Bob Willard (Sustainability Advantage) – Purpose Drives Governance, Governance Drives Everything" – succinctly underscores this trend.[xviii] Mark Carney in Value(s) says "Purpose is what an organization stands for, why it does what it does and what is should be trusted to deliver….And so it is that the purpose of companies is always broader than a simple bottom line….They have a deep interest in and share responsibility for the economic, social and environmental systems in which they operate.”[xix]

Corporate law bestows valuable privileges on corporations, including indefinite life, existence as independent legal persona and limitation of shareholders' liability to the amounts they have invested. The terms of such a corporate contract with society for enjoying the benefits of these privileges surely need to reflect 21st. century values about the well-being of all society and the global environment, not those outdated Victorian values dating from a time when slavery was still widely practiced, women and children worked unthinkable hours in intolerable conditions and environmental protection was simply unheard of.

All the above suggests that, to be fit for the 21st. century, corporate governance legislation in most jurisdictions needs a fundamental re-think and re-write, with a totally fresh mindset that recognizes and reflects the 21st. century paradigm shifts outlined above about purpose, governance and accountability. Corporate reporting needs to reflect this.

Thoughts on Corporate Transparency and External Reporting

Despite (i) the commendable work of the IFRS Foundation's ISSB to supplement the International Accounting Standards Board's (IASB's) IFRS for financial accounting with (so far) two sustainability "outside in" reporting standards to better satisfy investor needs for information about the impact of sustainability risk and opportunities on a company's performance, future cash flows and prospects; and (ii) the availability and uptake of the Global Reporting Initiative's (GRI's) voluntary "inside-out" focused sustainability reporting standards[xx] to meet stakeholders' needs to understand and evaluate the present and future impacts of a company's business model and performance on the environment and society, the world still lacks a comprehensive and globally accepted conceptual reporting model that underpins reporting by corporations to their stakeholders. The closest we have to creating such a model is the International Integrated Reporting Council's (IIRC) <IR> Framework, developed and released by the IRRC in 2013 (updated somewhat in 2021), but that aimed to address only the information needs of "providers of financial capital."

In 2019, in an article I wrote for *ThinkTWENTY20* about the future of corporate reporting, I suggested that we need two reporting "bundles," one for investors that I called the "Value Creation Report" (to accompany and supplement financial statements) and one for all other stakeholders that I called the "Accountability and Sustainability Report" (anchored in the GRI Standards). Both would be presented under a common overarching statement to describe (based on IIRC <IR> Framework concepts and principles about value creation, purpose and governance) the reporting entity's business model for value creation and its dependencies and impacts on the six capitals.[xxi]

To this day, I still believe that it may turn out to be more practical and user-friendly for companies to produce one reporting package that is decision-useful for investors ("outside in" reporting) and a related one that better serves the interests and needs of other stakeholders (“inside out” reporting). These two packages would be linked (“integrated”) by the overarching statement I recommend. ISSB standards and GRI standards would co-exist under the unifying umbrella of <IR> concepts and principles, leaving it to worldwide jurisdictions to make one or both of those two sets of standards mandatory. Many of the “sustainability-related risks and opportunities” disclosed in the investor-focused Value Creation Report would be related to or arise from the broader universe of sustainability issues disclosed in the “Accountability and Sustainability” report about an entity’s impacts on the environment, society and the economy.

Unfortunately, the <IR> Framework has never achieved its full potential of not only enabling corporations to report to “providers of financial capital,” primarily investors, on aspects of value creation they consider of particular concern to them, but also to other stakeholders on aspects of value creation and erosion of particular concern to them regarding value creation relative to the six “capitals.” The primary focus of Integrated Reporting in accordance with the <IR> Framework was stated to be investors’ information needs, while acknowledging that it might also benefit other stakeholders and their information needs. But the <IR> Framework could be invaluable for enabling and providing a common value creation context and overarching statement linking the two-part reporting scheme I envisage.

Today’s corporate reporting and related standards, along with present and proposed financial and non-financial disclosure requirements in the US and UK respectively, have all evolved from corporate reporting practices and mindsets originating in Victorian times. These suffer from an incomplete, contemporary understanding of corporate purpose and value creation, and a narrow concept of corporate accountability, measured in financial terms and rooted in shareholder primacy.

So, imagine that the < IR> Framework had existed at the time when corporate law was first enacted regarding limited liability over 150 years ago. Imagine, too, that Victorian entrepreneurs and legislators clearly recognized that a thriving business entity depended not only on financial capital but also on access to a communal pool of human, physical and man-made infrastructure resources as well as the global commons of air, water and biodiversity. Imagine further that secondary and post-secondary business education taught that achievement of an entity’s purpose and earning a return for its investors were outcomes of executing a business model that depended on the availability of external resources (the six capitals) as inputs to produce revenue-earning outputs, which in turn impacted the same resources it drew upon.

The IIRC <IR> concepts of value creation and the six capitals seem to be foundational mindset shifts, essential in all future standard setting for corporate reporting to stakeholders.

Accountability and transparency in such a scenario might have called for a version of the <IR> Framework, modified as needed to meet the information needs not just of “providers of financial capital” but also of stakeholders other than providers of financial capital. Happily, in the year 2025, we may find that the seeds for adopting such a reporting model already exist in the text of the IFRS S1 Standard “General Requirements for Disclosure of Sustainability-related Financial Information” quoted earlier. Here again is the vital, enlightened paragraph 2 of IFRS S1 I referred to earlier:

“Information about sustainability-related risks and opportunities is useful to primary users because an entity’s ability to generate cash flows over the short, medium and long term is inextricably linked to the interactions between the entity and its stakeholders, society, the economy and the natural environment throughout the entity’s value chain. Together, the entity and the resources and relationships throughout its value chain form an interdependent system in which the entity operates. The entity’s dependencies on those resources and relationships and its impacts on those resources and relationships give rise to sustainability-related risks and opportunities for the entity.”

It is therefore not impossible to contemplate the possibilities that (i) before long, far-sighted investors will recognize that an entity’s external impacts on the capitals, including the natural environment and society (and the interests of stakeholders in these matters), may turn out sooner or later to present sustainability-related risks and opportunities for the entity itself; and (ii) boards of directors and management, in following the process required by IFRS S1 to identify “outside in” sustainability-related risks and opportunities relevant to investor decision making, will also identify hitherto unseen “inside out” impacts that are either of immediate concern to stakeholders and therefore need timely management attention, or could become investor-relevant risks and opportunities in the reasonably foreseeable future. Indeed, such impacts could also represent opportunities for immediate business model adjustments or performance-enhancing actions by management.

The IIRC’s <IR> Framework, and all related IIRC intellectual property, is now owned and hosted by the IFRS Foundation and is therefore available to be drawn upon both in future revisions to the IASB’s IFRS financial accounting standards (and its accompanying 2010 Practice Statement on Management Commentary, a.k.a MD&A) and, as noted earlier, in drafting additional ISSB standards (such as for biodiversity and human capital, already in progress) or in, in due course, any revisions to IFRS S1 and S2.

The IIRC <IR> concepts of value creation and the six capitals seem to be foundational mindset shifts, essential in all future standard setting for corporate reporting to stakeholders. Indeed, the IIRC <IR> Framework we have today could over time evolve to become the overarching framework for all external corporate reporting to stakeholders – investors and beyond.

(Radical!) Thoughts on Climate Change Disclosures

Would it be useful to uncouple investor-facing disclosures about GHG emissions and climate change risks and opportunities from disclosures about other sustainability issues?

We have three fundamental domains for life on Planet Earth: land, water (mainly oceans, but also freshwater in rivers and lakes) and the atmosphere. The atmosphere and the climatic conditions and phenomena that occur in it affect the habitats of all living things on land, in water and in the oceans. We already see abundant scientific evidence of this fact.

We need to recall the 1987 Montreal Protocol: a successful global accord to prevent life-threatening ozone depletion in the atmosphere due to man-made pollution, namely emissions of Ozone Depleting Substances (ODS). Worldwide economies and corporations all seem to have survived the consequences of complying with the Montreal Protocol.

“The Montreal protocol is a model of cooperation. It is a product of the recognition and international consensus that ozone depletion is a global problem, both in terms of its causes and its effects. The protocol is the result of an extraordinary process of scientific study, negotiations

among representatives of the business and environmental communities, and international diplomacy. It is a monumental achievement." President Ronald Reagan***, 1988***

The Montreal Protocol was agreed to by UN member states in 1987, the same year that the UNCED Brundtland Report "Our Common Future" was published (introducing us to the now famous term and definition of sustainable development). Brundtland did not, however, highlight the overarching urgency of addressing climate change and reducing GHG emissions. Rather, it boldly sought to describe achievement of a balance between economic development (growth) and environmental protection that would meet today's societal needs without compromising the needs of future generations.

Integrated thinking takes into account the connectivity and interdependencies between the range of factors that affect an organization's ability to create value over time.

But, compared to man-made emissions of ODS, the greenhouse effect of man-made GHG emissions into the atmosphere has even more pervasive short- and long-term (and for all practical purposes, irreversible) impacts on the condition and behaviour of the atmosphere, such as global warming and extreme weather events. This, in turn, affects the habitats of all life-forms (humans included) on land, in freshwater and in the oceans, and threatens their wellbeing and ultimate survival.

If companies were to measure and report nothing else about their environmental (or social) impacts, their reporting of verifiable data about their GHG emissions and the steps they are taking to mitigate and manage them would be a distinct aspect of corporate disclosure that is not perfect but already well developed. It is largely a science-based practice that informs investors (and should inform policy makers). It need not and must not be embroiled in and hindered by ignorance, ideological or political debates.

So, we need a second Montreal Protocol, whereby nations and corporations commit to eliminate atmospheric GHG emissions. If we could achieve this for ODS, then why not for GHGs? Why did the Kyoto and 2015 Paris agreements not achieve this? Unlike both these treaties, I believe the Montreal Protocol eventually achieved the full support of business corporations worldwide – as well as government, investor and NGO interests. A second Montreal Protocol for GHG's would need similar support. GHG elimination is surely humanity's number one challenge today. In 2021, at COP26, an initiative called the Global Methane Pledge[xxii] was launched by the EU and US to reduce methane gas emissions – one of the most powerful greenhouse gases – significantly by 2030, and has been joined since by many countries, with support from several major international institutions such as the World Bank. It is too soon to tell whether this will achieve the same success as the Montreal Protocol, but 2030 is only five years away!

Bottom line: we need corporate GHG emitters and enterprises of all sizes, as well as citizens, communities and nations worldwide, to prioritize elimination of GHG's – urgently.

But is it realistic to expect this from the fossil fuel sector? Only if the fossil fuel industry can be shown to have a very limited life expectancy. New energy sources are driving innovation, employment and economic development. Investors (and governments?) will reward companies that recognize this energy transition and are leading the way to net zero carbon emissions while pursuing competitive business models and strategies for long term value creation.

Uncoupling the reporting of climate change from reporting on other sustainability issues is a somewhat radical suggestion, conceptually awkward because of the interconnectedness of all planetary systems, but in the short term it might accelerate progress towards GHG elimination. The investor-initiated CDP (formerly Carbon Disclosure Project) and the GHG Protocol have long been the global pioneers in corporate GHG disclosures and measurement standards respectively, enabling concerned investors to obtain reliable decision-useful information about corporate GHG performance and governance – a fact already recognized by the ISSB. Net zero commitments and progress towards them are greatly informed by the CDP and use of the globally accepted GHG Protocol. Climate policy development by governments can also benefit from reliable, consistent and comparable climate disclosures.

Thanks to the CDP, the Task Force on Climate related Financial Disclosures (TCFD) and IFRS S2, we are remarkably close to achieving global consensus on mandatory climate change disclosures by corporations. Even the SEC in the US may eventually catch up. Let's not hold up progress on mandating climate related disclosures while striving for global consensus on standards for reporting on the other, broader aspects of sustainability-related risks and opportunities material for investors.

Concluding Thoughts on Making Possible the Unthinkable – Integrated Thinking

Underlying the thoughts and suggestions presented above about value creation, purpose, governance and accountability, and applying concepts and principles from the <IR> Framework to accelerate progress to a global baseline of sustainability reporting standards, is the essential need for an integrated thinking mindset.

The Preface to the <IR> Framework defines integrated thinking as: "The active consideration by an organization of the relationships between its various operating and functional units and the capitals that the organization uses or affects. Integrated thinking leads to integrated decision making and actions that consider the creation, preservation or erosion of value over the short, medium and long term."

The Preface to the <IR> Framework further explains: "Integrated thinking takes into account the connectivity and interdependencies between the range of factors that affect an organization's ability to create value over time, including:

• The capitals that the organization uses or affects, and the critical interdependencies, including trade-offs, between them
• The capacity of the organization to respond to key stakeholders' legitimate needs and interests
• How the organization tailors its business model and strategy to respond to its external environment and the risks and opportunities it faces
• The organization's activities, performance (financial and other) and outcomes in terms of the capitals – past, present and future."

To this I would add the capacity to understand the connections between value creation, corporate purpose, governance, and accountability to multiple stakeholders – all to preserve for future generations a planet that provides habitat for humanity and all living species.

Integrated thinking is, therefore, an essential mindset for boards and management to adopt, both for internal decision making and for the preparation of external reports to stakeholders, linking sustainability issues with value creation and business models, the achievement of corporate purpose and financial performance.

I like to imagine the day, perhaps a decade or two hence, when an article like this would seem superfluous – even ridiculous and astonishing, because the concepts, principles and practices it espouses would already have become entrenched in everyday corporate business, in governance and reporting, in investor decision making, in national economic policy development and in all business, legal, economic and accounting education. Today's leaders will have been superseded by a new generation of leaders for whom all this is second nature, learned at school, enshrined in law and embedded in their integrated-thinking mindsets.

What today might seem unthinkable will by then have been made possible, indeed, normal around the world!

End Notes

[i] https://www.ifrs.org/news-and-events/news/2023/06/issb-issues-ifrs-s1-ifrs-s2/.
[ii] https://www.iosco.org/news/pdf/IOSCONEWS703.pdf.
[iii] https://www.ifrs.org/sustainability/knowledge-hub/introduction-to-issb-and-ifrs-sustainability-disclosure-standards/.
[iv] https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en.
[v] https://ec.europa.eu/commission/presscorner/detail/en/qanda_23_4043.
[vi] https://www.bcg.com/publications/2024/what-to-know-sec-climate-regulation.
[vii] https://www.osc.ca/sites/default/files/2021-10/csa_20211018_51-107_disclosure-update.pdf.
[viii] frascanada.ca/en/sustainability/projects/adoption-csds1-csds2/cssb-in-brief-csds-1-and-csds-2.
[ix] https://www.ifrs.org/issued-standards/ifrs-sustainability-standards-navigator/ifrs-s1-general-requirements/.
[x] https://www.ifrs.org/news-and-events/news/2024/11/ifrs-foundation-publishes-guide-companies-sustainability-risks-opportunities/.
[xi] https://integratedreporting.ifrs.org/resource/international-ir-framework/.
[xii] https://wwnorton.com/books/9781324074373.
[xiii] https://integratedreporting.ifrs.org/resource/international-ir-framework/ (see 2.22 on page 21).
[xiv] https://www.corporation2020.org/.
[xv] https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans.
[xvi] https://purposeeconomy.ca/a-call-to-purpose/.
[xvii] https://www.parl.ca/documentviewer/en/44-1/bill/S-285/first-reading.
[xviii] https://sustainabilityadvantage.com/2024/04/21/purpose-drives-governance-governance-drives-everything/.
[xix]https://www.penguinrandomhouse.ca/books/669023/values-by-mark-carney/9780771051579 (page 382)
[xx] https://www.globalreporting.org/standards/
[xxi] Alan Willis,"Enhancing Relevance: Shaping the Future of Corporate Reporting," *ThinkTwenty20* (Summer 2019) page 11; also see https://www.amazon.com/Corporate-Reporting-Paradigm-Accountability-Sustainability-ebook/dp/B0B136L9BY.
[xxii] https://www.globalmethanepledge.org/.

Making Virtual Reality Ready for the Financial Professional: Questions to Ask

By Eric E. Cohen, CPA

Eric E. Cohen, CPA, is an accounting technology futurist, one of the original founders of XBRL and a pioneer in accounting and audit technology and related assurance methodologies. A writer, teacher and trainer, he has taught accountants, academics, regulators, software developers and business people about the Internet, XBRL, standardized business reporting, audit data standards and electronic distributed ledgers, security and authentication, analytics, robotic process automation, ESG and continuous auditing. He has published hundreds of articles and columns for the business and academic press, and written or contributed to numerous books, including primary authorship of Accountant's Guide to the Internet*, the first book about the relevance of the Internet to the accounting profession.*

On December 13, 2024, the Rutgers, the State University of New Jersey (USA), Accounting Research Center/Continuous Auditing & Reporting Lab (RARC/CARLab) sponsored a special World Continuous Auditing and Reporting Symposium.[1] The symposium included presentations, demonstrations and workshops about virtual reality, augmented reality and mixed reality (known as VR, AR and MR, respectively) and their relevance to accounting and audit pedagogy and practice. In preparation for those workshops, the community collaborated through LinkedIn and email outreach to collect questions and considerations for the group to deal with in the discussion forums the workshop facilitated.

The World Continuous Auditing & Reporting Symposium is a periodic gathering of researchers, teachers, solution providers, practitioners, professional association representatives and regulators from around the world who have an interest in reporting and auditing technologies and methods, with a focus on real-time and continuous processes. The first event was held in Newark, New Jersey, USA in 1998; since 2000, it is anchored by annual sessions in Newark (although briefly moved to Texas A&M in College Station, Texas). There have been annual sessions in Brazil and Spain, as well as tours to countries as varied as Australia, China, England, Greece, India, Italy, Malta, Monaco and Turkey.

The idea of a conference – number 64[2] in the 26 years of the series – held at least in part in virtual reality was sparked by a question: post-COVID, interest and funding in travelling around the world to events like WCARS is challenged; can VR do more to encourage collaboration and comradery than gathering in Zoom or another more traditional collaborative environment? In the past, as we met face to face, we have been elbow to elbow with Prince Albert II, who socialized with us in Monaco, toured the Seville Cathedral and climbed to the top of Mount

Nemrut in Turkey for a cloud-obscured sunrise. Can any of that lightning be recreated in the VR bottle?

"Eric's Blog" on the *ThinkTwenty20* site[3] has a three-part series on the lead-in and outcome of that session. For a very brief summary, the Blog offers a small backgrounder on the state of VR, especially hardware and software offerings. While one might think that COVID restrictions might have accelerated interest in and offerings for VR activities, Zoom for screen sharing and communication took off while VR instead entered "VR winter" – much of the promise that seemed to emerge around 2017 all but disappeared. While gaming uses have persisted and thrived, business uses, and especially analytics and visualization tools, shriveled. An attempt to blend VR with Zoom by Meta, Horizon's Workrooms, to slipstream the technology into the more traditional world, started strong but then pulled back much of its relevant functionality.

Are there incremental benefits to VR-enhanced learning environments? Do the benefits justify the costs to implement those environments?

Despite that, there were definitely signs of a resurgence in support and interest in VR and related technologies. First, there is the release of the Meta Quest 2 (2020), 3 (2023) and 3s (2024) immersive headsets and controllers. From the academic side, there has been significant adoption of VR promotional and learning environments by many universities, such as our featured Florida State University[4] and its kind participant at our conference, providing VR learning environments. With the surprising and disruptive advance of artificial intelligence from the release of ChatGPT in November 2022, AI plus VR, AR and MR make a strong partnership for the imagery and interaction.

That leads us back to the questions we collected to spur our attendees on to discussion, research and activities. We can look back 20 years to a prior, highly publicized, virtual world technology, *Second Life.*[5] It was featured in articles in the *Journal of Accountancy,*[6] spurred on discussion on teaching and accounting education in virtual worlds,[7] hosted tax preparation and education[8] and served as a petri dish for the good and bad. While Second Life is still in operation, another technology of the time, then known as Twitter, is largely thought to have been far more successful, in large part due to the simplicity and much lower barriers to entry.

More recently, a virtual world anchored on the Ethereum blockchain, Decentraland,[9] was founded, with its own cryptocurrency, Mana.[10] Although Second Life also had an in-world currency, Linden Dollars, the currency and in-world assets were bound within the Second Life environment. In contrast, Mana and Decentraland assets are held by the user and are independent of Decentraland's leadership.

The concept of the "metaverse," where life in the physical and virtual worlds would blend, including commerce, peaked in late 2021, and Facebook changed its name to Meta around that time. Interest in this concept has, however, diminished significantly, as seen by the loss of interest in the topic as evidence by Google searches, per Google Trends.[11]A primary tool perceived as bridging the physical and virtual world for commerce, the non-fungible token (NFT) has likewise suffered from immense hype and challenges since 2022.[12]

With all of that as a background, what follows are the questions we brought to the conference. The questions focused on accounting education and practice, and explored issues such as:

- Are there incremental benefits to VR-enhanced learning environments? Do the benefits justify the costs to implement those environments?
- What can VR, AR, and MR do for accountants, auditors, and other financial professionals that is significantly valuable compared to today's tools? What are the roadblocks to adoption and the risks introduced?
- What are known and potential issues with adoption? Who might be left out of advancements in the area and how might the technology and solutions be modified to minimize exclusion?
- Will the market adopt the technology, and will the profession being a fast (or slow) follower bring new challenges?

What can this community do to help blaze the path to the future of VR/AR/MR as part of tomorrow's financial technology suite?

Since the event, the momentum and questions have continued. Perhaps one of the most important things to happen is an historic first in US jurisprudence, which took place as a judge donned a VR headset to observe evidence admitted to court in a criminal hearing.[13] As "audit documentation" under PCAOB guidance continues to be defined as *the **written** [ed: my emphasis] record of the basis for the auditor's conclusions….with **written** documentation of the evidence* (AS 1215.02), one may question how VR documentation might fit in. The IAASB's ISA 230 and unified AICPA AU-C 230 omit the word "written" and speak only to the "record" in "One or more folders or other storage media, in physical or electronic form" (ISA 230.6(a) and (b)), so do not pose the same challenge. I spoke about this challenge at WCARS 43 in 2018.[14]

We welcome feedback from the *ThinkTwenty20* community on these and other issues. After considering the questions that follow, do you see the potential, the relevance, the need for VR/AR/MR in the profession? What can this community do to help blaze the path to the future of VR/AR/MR as part of tomorrow's financial technology suite? What else should the community consider in preparing today's (and tomorrow's) financial professionals for a world where VR/AR/MR are part of business as we know it, and how should we be influencing developers, manufacturers, standard setters and other participants in the business reporting supply chain for the best end?

The specific questions we need to consider

Education

Immersive Learning & Conceptual Understanding

- How can VR/AR/MR create more immersive and engaging learning experiences for accounting students, helping them better understand theoretical concepts through practical application (e.g., auditing procedures, financial analysis, or taxation scenarios)?
- Do immersive simulations enhance the comprehension of complex concepts more effectively than traditional methods?

Cost-Benefit Analysis & Resource Allocation

- Does the added value of VR-based instruction justify the associated costs, including hardware, software licenses, and maintenance, as well as the additional technology support personnel required?

Student Experience & Equity

- Should students be excluded from VR-based learning activities if they experience motion sickness or discomfort? How can educators provide equitable alternatives that ensure no student is disadvantaged?

Skill Development & Assessment

- How does VR compare to traditional methods in developing core accounting and auditing skills? Can it improve analytical thinking, data interpretation, or professional judgment?
- Can VR-based educational tools offer more immediate, personalized feedback and assessment metrics that better inform both students and instructors?

Preparation for Future Work Environments

- As firms explore VR/AR/MR for remote collaboration and training, is it beneficial for students to experience these environments during their education, thereby better preparing them for evolving professional norms?

Specialized Solutions & Partnerships

- What is the benefit of collaborating with specialized VR solution providers for academia, such as Florida State University's work with VictoryXR, to ensure that the technology and content are tailored to educational needs?

Practice (Professional Use in Accounting, Audit, Governance)

Readiness of the Profession

- What does the current lack of guidance from standard-setting bodies (e.g., AICPA) on VR/AR/MR – especially in contrast to their robust materials on AI and digital assets – suggest about the profession's priorities and openness to new technologies?

Enhanced Data Visualization & Analytics

- Is VR or AR a potential enabler for improved audit data analytics, or does it risk becoming a distraction from core analytical tasks?
- How can VR-based immersive data analytics tools facilitate better understanding of complex datasets, risk patterns or anomalies in audits?

Meeting & Collaboration Environments

- Will audit committees or advisory boards realistically adopt VR/AR/MR tools in the near to mid-term? What factors (technological maturity, cost, cultural acceptance) would drive or hinder this adoption?

Remote Auditing & Global Teams

- Can VR/AR/MR support remote audits by allowing auditors to virtually interact with client facilities, documents and inventory?
- How might these technologies improve collaboration among globally dispersed audit teams, especially in a post-pandemic environment?

Practical Application & Business Integration

- In what ways could AR applications enhance real-time financial analysis or improve inventory management, enabling auditors or managers to visualize key metrics overlaid on physical spaces?
- Are certain specialized use cases (e.g., forensic accounting, compliance audits in complex physical environments) more ripe for VR/AR/MR adoption than general practice areas?

Accessibility & Inclusivity

Physical Abilities & Interface Design

- How does current VR technology accommodate users with disabilities – limited hand mobility, visual impairments or difficulties adjusting to standard IPD (inter-pupillary distance) settings?
- Are there existing or emerging alternative input methods (voice commands, eye tracking, adaptive controllers) to ensure that differently abled professionals or students can fully participate?

Inclusive Design Principles

- Are VR/AR/MR solutions developed with accessibility in mind from the outset, or are accessibility features often bolted on retroactively?
- How can universal design principles ensure that VR environments are accessible to a diverse user base?

Equitable Access in Education

- Does incorporating VR in educational settings risk excluding students who cannot easily use the technology due to disabilities or motion sickness?
- What institutional policies and supports (funding assistive tech, flexible assessment methods) are necessary to guarantee equal opportunity?

Technology & Design (Hardware, Software, Standards)

Hardware Capabilities & Limitations

- How do current VR headsets (e.g., Meta Quest series) and their limited IPD adjustments constrain usability for certain individuals?
- Can the integration of additional sensors (e.g., haptics, specialized controllers) improve the authenticity and training value of VR simulations?

Realism vs. Practicality

- MR brings real objects into the virtual environment – can these tools effectively track user interaction and provide meaningful tactile feedback?
- What are the trade-offs between achieving realistic, tactile experiences and the complexity/cost of developing specialized controllers or haptic devices?

Customization & Purpose-Specific Equipment

- When will there be sufficient demand for business-oriented specialized controllers, similar to pistol or sports attachments available for gaming, but aligned to accounting tasks, data analysis tools or financial instruments?

Standards & Best Practices

- Do any industry standards, guidelines or best practices exist for designing VR/AR/MR interfaces in professional service environments?
- What needs to happen for VR data integration (e.g., APIs, secure data streams) to become more seamless and valuable?

Strategic & Institutional Considerations

Market Demand & Technological Adoption

- With AI and digital assets dominating current professional focus, is VR/AR/MR adoption lagging because of limited use cases, insufficient ROI or lack of perceived need in the accounting and audit fields?
- Will the rising interest in remote work and global collaboration eventually spur renewed attention to VR/AR/MR technologies in the profession?

Ethical & Cultural Considerations

- What ethical or cultural implications might emerge from using VR in accounting education and practice – potential loss of interpersonal skills, data privacy concerns or over-reliance on immersive simulations?

Future-Proofing the Profession

- As VR and the Metaverse evolve, how should professional bodies, regulators and educational institutions proactively guide their members and students?
- Are firms risking becoming obsolete if they fail to explore or understand the potential of VR/AR/MR now, even if mass adoption is not yet imminent?

Additional Areas and Question Prompts

Research & Evidence-Based Practice

- What empirical research or pilot studies exist on VR's impact on learning outcomes in accounting education compared to traditional and online methods?
- How can we develop robust assessment frameworks to measure VR's efficacy in skill acquisition, retention, and professional judgment?

Integration with Other Technologies

- How might VR/AR/MR integrate with emerging generative AI systems or blockchain-based verification processes to enhance trust, transparency and interactivity in audit workflows?
- Will integrating VR with advanced analytics or machine learning tools spur new data visualization paradigms?

Cost, Funding & Infrastructure

- Are there funding models or grants to support educational institutions and accounting firms in experimenting with VR solutions?
- How can organizations balance the cost of VR integration against other digital transformation initiatives (e.g., ERP upgrades, analytics platforms, AI implementations)?

Global & Cross-Cultural Perspectives

- Do global differences in technology adoption, regulation or cultural norms influence VR/AR/MR uptake in the accounting profession?
- Can VR facilitate intercultural collaboration among multinational teams, providing virtual "field trips" to overseas offices or client sites without the need for travel?

Long-Term Vision & Roadmaps

- How should educators and professionals develop a roadmap for incremental VR adoption, starting with small pilot projects and gradually scaling up as the technology matures and proves its value?

> Do you have a positive or negative impression of virtual reality, augmented reality and/or mixed reality? Do you have questions, or even answers, to supplement this list? Let me hear from you. Contact me on this specific issue at virtualreality@computercpa.com

---

[1] https://raw.rutgers.edu/wcars.html.
[2] https://raw.rutgers.edu/64wcars.html.
[3] https://thinktwenty20.com/erics-blog/.
[4] https://business.fsu.edu/article/college-pilot-program-offer-select-classes-virtual-reality.
[5] https://secondlife.com/.
[6] https://www.journalofaccountancy.com/issues/2008/jun/accountingforsecondlife.html.
[7] https://nasba.org/files/2011/04/NASBA-Avatars-3.9.111.pdf.
[8] https://investors.hrblock.com/news-releases/news-release-details/hr-block-launches-first-virtual-tax-experience-second-life.
[9] https://decentraland.org/.
[10] https://coinmarketcap.com/currencies/decentraland/.
[11] https://trends.google.com/trends/explore?date=today%205-y&geo=US&q=metaverse&hl=en.
[12] https://www.security.org/digital-security/nft-market-analysis/.
[13] https://www.lauderdalecriminaldefense.com/broward-judge-dons-virtual-reality-headset-in-whats-thought-to-be-a-courtroom-first/.
[14] https://raw.rutgers.edu/docs/wcars/43wcars/EricChohen_PDF_presentation.pdf.

International Clearing and Settlement and the Blockchain

By Bob Tapscott

Bob Tapscott's experience as a former board member of Payments Canada (the Canadian equivalent of the ABA) has made him acutely aware of the complexities and delays that exist in today's International Clearing and Settlement systems. His subsequent research for the Blockchain Research Institute has given him unique insights into how blockchains may revolutionize these archaic systems reducing the time to settle from days (or weeks) to minutes, while eliminating the complex time-consuming hedging now needed to mitigate risk. His thoughts more extensively can be found in his recent book TRIVERGENCE: Accelerating Innovation with AI, Blockchain, and the Internet of Things 1st Edition.

This article is being written in three parts:

1. The first part (published in *ThinkTWENTY*'s Summer 2024 issue, Page 21), explains how the legacy systems for international payments work today and from where did they evolve. I know many mystified and frustrated customers that are baffled why, in the age of bits, inter-country transfers take as long as they do. Once read, you will appreciate that when payments are in systems between countries your banker does not actually know where your money is.
2. The second part, found below, will explain the current projects underway to modernize these systems.
3. The third (to be published in *ThinkTWENTY20*'s Spring issue) will explain how blockchain, properly deployed could create a better system with near immediate transfers concurrent to not just hedging but eliminating risk.

Part 2: In Search of a Better System

The days of physical cash or gold being moved between countries' vaults at the US Fed for international payments is so early last century. Today, even letters of credit are exchanged with password-protected files, if not (more securely) digitally signed portable document format (PDF) files, as trusted bits representing documents. For reasons from mitigating risk to optimizing profitability (at our cost) financial institutions have been slow to change.

When sent over e-mail, this trust derives from many disciplines, rules, regulations and controls for each step. Specifically, we trust our financial institutions to meet their fiduciary responsibilities and cultivate the cascading trust an institution has in other institutions. Historically, this has worked, well most of the time.

Let the banks run their systems effectively, test those systems regularly and apply change management processes to those systems. Let them maintain their firewalls, their virus protection software, their backups, independent and compensating controls, their reserve requirements and the security of the network over which the messages are transmitted.

Comply with standards and regulations, from Basel V to GAAP (generally accepted accounting principles). Understand and adhere to all the complexities above as overseen for compliance by competent management, verified by both internal and external auditors and re-verified by government regulators against constantly changing regulations too often influenced by external lobbyists.

We trust our financial institutions to meet their fiduciary responsibilities and cultivate the cascading trust an institution has in other institutions. Historically, this has worked well most of the time.

All of these complex functions have costs that these institutions force the customer to accept. We also know that each step has weaknesses that can be breached.

So, is this trust in governments, financial institutions, their people, systems, processes, auditors and overseers earned? Many recent events have shaken this trust. In 2008 and 2009, $7.77 trillion in Fed loans and guarantees were fire-hosed into the banks to save them from their own folly. That is roughly $40,000 for every man, woman and child in the United States. One of the lesson's learned in the great depression, and in the bank crisis of 2008, is that a bank failure can result in a cascade of other bank failures – resulting in great societal harm. Ironically, we privatize bank profits and socialize their failures. The purpose of many of these agencies and their regulations is to prevent the latter from ever happening. But, from Silicon Valley Bank to Signature Bank, we know that when there are exceptions, typically the government intervenes. There is an expression that "There is no such thing as an atheist in a foxhole, or a libertarian in a bank crisis."

In 2015, Citigroup, Barclays, JPMorgan Chase and RBS pleaded guilty to rigging FX currency rates and agreed to pay $5.6 billion in penalties. US District Judge Stefan R. Underhill observed, "When the market is rigged, folks who play by the rules are suckers." That almost condones cheating, if not outright bank fraud.

In 2017, Equifax exposed the most secret financial information of 145 million Americans, 15.2 million British citizens and 19,000 Canadians, in effect discrediting the entire credit scoring industry and exposing adult Americans to reputational harm and possibly fraud. Recently, a judge blocked Musk and DOGE from Treasury Department payment systems fearing the same risk.

We can't change our Social Security numbers. HSBC must pay $175 million for questionable FX practices, as well as $45 million for questionable SWAP activity, and Western Union had to pay $586 million for failure to stop wire fraud. Wells Fargo paid a $185 million settlement after it had opened as many as 2.1 million bank and card accounts in customers' names without permission. The number of potentially affected customers has since grown to 3.5 million as Wells has expanded its probe of sales abuses. For example, I spoke to a senior management committee of Wells Fargo in SAN Francisco on banking ethics and best practices. The TD bank in late 2024 plead guilty and agreed to pay $3 billion US in fines for money laundering. Egregious bank behavior and the resulting fines appear to many as just a cost of doing business.

As William K. Black hypothesized, the best way to rob a bank is to own one. To add insult to injury, the US Congress passed a law to make it far more difficult, if not impossible, for those injured to sue the banks for their losses. A major Wall Street win. Vice President Mike Pence cast the deciding vote.

In the US and other countries, trust in financial institutions and the government to regulate them properly is now at an all-time low, and their representatives continue to erode that trust.

Moreover, forgetting the lessons of 2008, there is little doubt that Trump now intends to radically deregulate the banks.

During and post the COVID pandemic, The US deficit has exploded with both parties (apparently) no longer concerned about fiscal deficits.

With the motto, “Bye, Bye Banks,” TransferWise, a London-based fintech start-up, launched what it calls a “borderless” account. As of November 2024, it supports 40 different currencies, linked to local bank account numbers in the United Kingdom, United States, Europe and Africa.

It all began with Taavet [Hinrikus], who had had worked for Skype in Estonia, so was paid in euros, but lived in London. Kristo [Käärmann] worked in London but had a mortgage in euros back in Estonia. They devised a simple scheme. Each month the pair checked that day’s mid-market rate on Reuters to find a fair exchange rate. Kristo put pounds into Taavet’s UK bank account, and Taavet topped up his friend’s euro account with euros. Both got the currency they needed, and neither paid a cent in hidden bank charges. Hinrikus and Käärmann figured they weren’t the only ones with this challenge, and so they turned this simple workaround into a billion-dollar business without blockchain.

It does not take emerging technologies to outsmart egregiously inefficient FX legacy systems. If we hold and net the payments, there is much money to be saved and, for the smarter intermediary, much money to be made. The higher the interest rates, the greater the profits. Companies that hold balances in many currencies, such as Facebook, Amazon and Google are aware of the opportunity.

Based on this model, TransferWise enables customers to receive and pay FX obligations without paying international transfer fees and off mid-market FX rates. Investors include Virgin’s Richard Branson and PayPal co-founder Peter Thiel’s Valar Ventures.

TransferWise simply charges .05 percent off the mid-market rate. That does not sound like a lot until we realize that there are trillions of dollars in foreign exchange traded every day. Although its motto seems more threatening to financial institutions than SWIFT, its message is also directed at the heart of SWIFT. Its transfers bypass (to a large degree) the SWIFT, central bank and CLS networks. By comparison, TD bank in Canada charges from $30 to $80 for its end of an international funds transfer. TransferWise is not alone; nanopay has similar aspirations.

These companies have reduced the time delays and spreads of international funds transfers from weeks to days. The blockchain could reduce that further to minutes if not seconds.

Further, blockchains could also include value, eliminating the complexities of nostro/vostro accounting and the banks as intermediaries.

The heart of SWIFT is text messages transmitted as secure bits through telecommunication lines. Hypothetically, one could take a simple text messaging application, such as WhatsApp (which encrypts text messages) as a transport medium, add some identity management, sequencing, message authentication codes, use ISO 20022 for financial message formats and challenge the very existence of SWIFT. Today some payment services are trying in one way or another to do just that.

Distributed Ledger Technology (DLT) originally marketed as a way to disintermediate the banks, has today become a major focus for financial institutions.

P2P payment systems are springing up everywhere from messaging services (Snapcash with Snapchat) to social networks (Facebook with Messenger, Google Wallet, Venmo/PayPal, and Square Cash). That's the same strategy as the Square Cash-powered Snapcash feature that Snapchat launched.

Distributed Ledger Technology (DLT) originally marketed as a way to disintermediate the banks, has today become a major focus for financial institutions. Leading the charge, BlackRock, the worlds largest asset manager, plans to tokenize $10 trillion dollars in assets.

By integrating payments into its messaging service, Facebook is looking to edge out dedicated consumer payment competitors like Venmo/PayPal, Google Wallet and Square Cash. Facebook said users log on to its website more frequently. Facebook has announced that it is collaborating with TransferWise for international payments. Apple now has a service to request, send and receive money quickly and easily using text messages. eBay's PayPal is trying to undercut bank fees by offering PayPal's 2.9% plus $0.30 cent fee, whereas Facebook Messenger, whose income model is elsewhere, offers its Facebook Messenger payment system in the US for free. Bankers, beware.

The Strategies of Existing Players

SWIFT, central banks, and others around the world are designing next-step, if not next-generation systems to address the current frustrations.

Canada

Payments Canada envisions eight requirements for a modern payment system:

1. Faster payment options
2. Data rich payments
3. Transaction transparency
4. Easier payments
5. Cross border convenience
6. Activity based oversight.
7. Open and risk-based access
8. A platform for innovation

The Bank of Canada launched project Jaspar, which developed two DLT clearing and settlement system prototypes, first on Ethereum and then once again on R3's Corda. As a central bank, it equivocally concluded DLT "may not provide an overall net benefit" to central banks. It did, however, note that it might make more sense for an international clearing system that is decentralized by design. I almost agree. Having worked in it, the international clearing systems appear to me to have evolved *ad hoc*, with no overall design.

The US Federal Reserve

Aware of the long-term threat that crypto poses to Breton Woods, and the American dollar as the world's Reserve Currency, the Fed commissioned a "Faster Payments Task Force" in June 2015 to look for ways of speeding up the payment process that are secure, equitable in access and capable of settling transactions 24/7/365.

The Fed defined its improvement goals as:

1. *Speed*: ubiquitous, safe and cost-effective
2. *Security*: needs to remain strong
3. *Efficiency*: more electrons, less paper
4. *International*: for cross-border payments
5. *Collaboration*: involve a broad array of payment participants

When we look at the Fed's desire for a payment system that is "safe, faster, ubiquitous, broadly secure and efficient," it is hard not to think of the blockchain as a technology to deploy. Some proposals had blockchains as an immutable audit trail of all activities at the central bank, though money would still end up in traditional bank accounts.

The Fed chose not to deploy on a blockchain. Immutability is a double-edged sword, think of it as permanent ink. Indisputable when all goes well and unchangeable if a bug or a hack creep into your system. IF your assets are put on a blockchain, a bug can be fatal to your organization.

The Federal Reserve's FedNow Service is live with an instant payment infrastructure that allows individuals and businesses to send and receive payments near real-time that are then cleared and settled. As of the publication of this article, more than 1,000 US banks that now use the service though the larger financial institutions have yet to join.

Similarly, Canada's Interac service (2+ decades old) allows for the real-time payment of smaller amounts (up to $3,000), which is cleared near instantly and settled the following day. As such, the fund limits in Interac are much lower.

As of this writing, the total market capitalization of cryptocurrencies is $3.283 trillion. For comparison purposes the total budget amount for the United States in fiscal year 2024 is $6.75 trillion in spending, with $4.9 trillion in revenue. Trillions worth of crypto have been created out of thin air through managed and secured bits. Whether you find this enlightening or terrifying I will leave to you, the reader.

European Central Bank

On October 26, 2022, the European Commission put forward a proposal on instant payments that amends and modernizes the single euro payments area (SEPA) regulation of 2012 on standard credit transfers in euros by adding to it specific provisions for instant credit transfers in euros. This has yet to fully materialize. At one point, the Euro aspired to gain the same status as the US$. Unfortunately, local and country regulations still exist that has diminished this aspiration.

Singapore

The central bank authority made a series of announcements during the Singapore FinTech Festival (November 15-17, 2023) to announce that it was expanding digital money trials involving the private sector and planning to pilot the issuance of a 'live' wholesale central bank digital currency (CBDC). If successful, this would be groundbreaking.

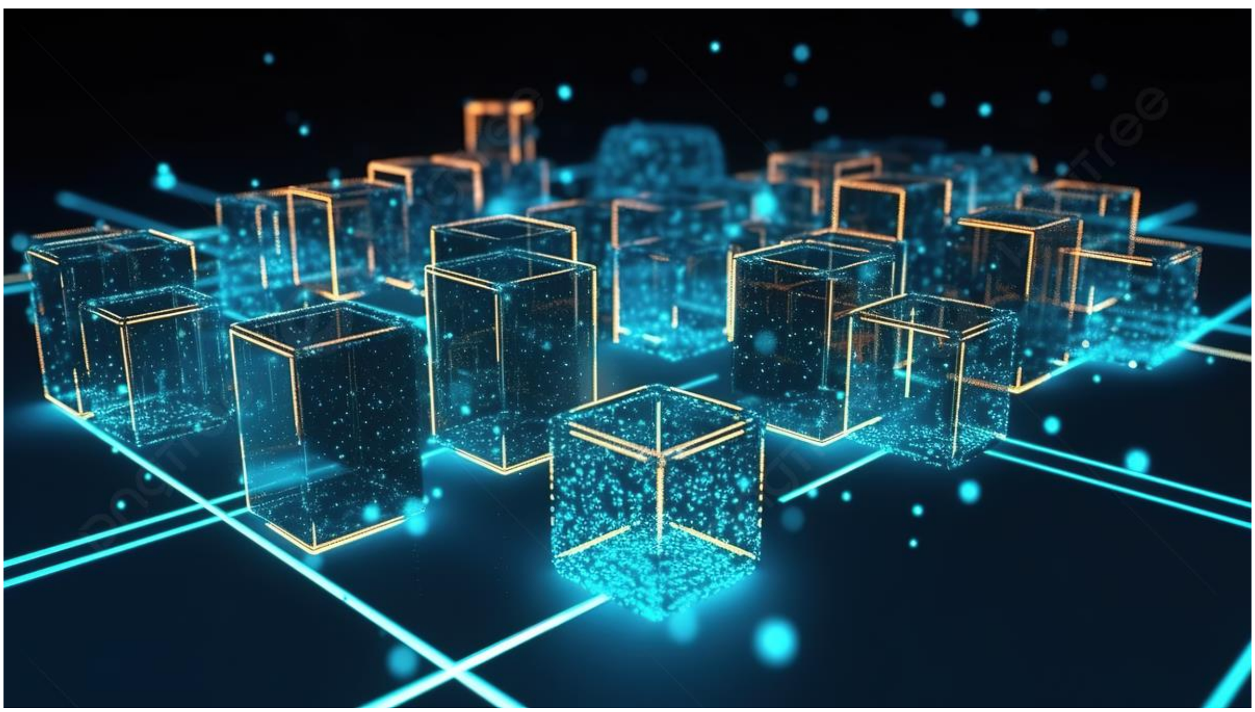
SWIFT

Swift, wisely, is also participating in the new major ISO technical committees that met on standards critical to open blockchain-based payments being:
ISO/TC 307 SG1 Reference architecture, taxonomy and ontology
ISO/TC 307/SG 2 Use cases
ISO/TC 307/SG 3 Security and privacy
ISO/TC 307/SG 4 Identity
ISO/TC 307/SG 5 Smart contracts

Swift's Global Payment Initiative (gpi) – their new standard in global payments – enables financial institutions to send and receive funds far more quickly and securely to anyone, anywhere in the world, with full transparency over where a payment is at any given moment. SWIFT's gpi initiative gives full transparency to cross border payments, radically simplifying nostro/vostro accounting and enabling financial institutions visibility into their cross-border payment's location. A major win for corporate customers. Prior to this initiative, there was no way of knowing which intermediary bank was then holding your funds, nor when they might be released.

DLT is capable of operating and storing, forwarding and ubiquitously routing tokens or cryptocurrency around the world to disintermediate many stakeholders and two-thirds of SWIFT's business model. What remains is setting standard message formats, which private company or other standards bodies could adopt. Many crypto currencies have done just that. In other words, we can foresee a funds transfer ecosystem on a blockchain if not a full DLT without the SWIFT network, with faster payments, at a much lower cost.

There is no reason that a token cannot represent the ownership of tangible assets, be they dollars, stocks or bonds. In 2024, BlackRock – the world's largest asset manager – has embraced tokenizing traditional assets on a massive scale. This will be explained further in Part III.



Finally, SWIFT, as part of its gpi roadmap, launched a PoC in 2017 to see whether DLT could assist in the reconciliation of nostro vostro accounts more efficiently. For banks, getting the funds out of the customers' accounts in the original 10 countries and then clearing the payments (i.e., making these funds available) in the eleventh are slow, risky and difficult processes. Though I personally am unaware of any fraud that has occurred here, as a former banker I believe that the chaos here is the place that is vulnerable to the "perfect crime." SWIFT has smartly picked this high-risk problem – but a low-risk area – for its pilot. It is not about moving money; it is for the reconciliation of money already moved.

Understanding the potential of DLT is not the same as radically transforming the payments business model. SWIFT argued that “addressing automation problems in a multi-party network environment also requires business participants to define and agree on the meaning and content of shared data, business processes, roles and responsibilities.” It fears that “attempting to impose standards too soon, before the capabilities and constraints of a technology are understood, risks creating standards that are quickly obsolete or irrelevant.” It noted that the current characteristics of DLTs, where everyone sees the same information (e.g., land title management) is clearly a plus, but everyone’s seeing everyone else’s payment information is not. Fully distributed ledgers are typically not (to use a database term) ACID compliant. This means that some transactions vetted as valid may be lost. Given the size of typical SWIFT transactions, a fully distributed ledger may not make sense.

Standards for identity that exist today (ISO standard 17442) that SWIFT uses are clearly not DLT public keys. That does not mean that there are not efforts to define new standards. The Decentralized Identity Foundation, including IBM, Hyperledger, Canadian banks and many others are experimenting with just that.

SWIFT DLT efforts on nostro/vostro accounts will keep SWIFT current on emerging technologies. SWIFT, with its thousands of members, is inherently bureaucratic and cautious and resistant to any rushed change. This will not, however, preclude less cautious competitors, particularly start-ups with little or nothing to lose, from vying to disintermediate them from existence. In 2024, most true blockchain implementations are throughput bound. DLT for clearing and settlement will likely be implemented in far-lower risk and lower-volume environments where they may be proved to work. The race is just beginning.

Although many start-ups aspire to replace the SWIFT network with a distributed ledger, we must remember that SWIFT’s customers are also its members. We may expect a great deal of stickiness to the *status quo* to resist SWIFT’s (or anyone else’s) efforts on DLT. As a multi-member association, SWIFT was not designed for rapid change. The debate over how banks may clear and settle five or 10 years from now is typical of SWIFT. Then again, the growing numbers of other nonbank intermediaries may drive a faster response.

The messages’ format and their metadata are standardized in ISO 20022, for which SWIFT is the registration authority. David Treat of Accenture believes that this is likely to be one of its enduring value-adds. I am not so sure. In proposals to the US Faster Payments Task Force and start-ups all over the world, this standard is being extended. In a DLT-based system, identity management will be based on the keys for cryptographic hashing. Current business identifier codes through ISO 9362 need to be radically rewritten or retired. When quantum computing comes online, any cryptographic method is at risk.

No doubt, through SWIFT’s DLT efforts, they will learn much about the transfer, control, integrity and safekeeping issues of DLTs. When current throughput, security, identity and other limitations are overcome, it is not difficult to see how SWIFT could oversee a private blockchain that acts as an audit trail of international funds movement. For example, if the tokens in a SWIFT-managed blockchain become the actual database of record for value, they might begin by obsoleting CLS (a multi-billion-dollar risk management system). It is also not difficult, if not more likely, to see others disintermediating SWIFT by doing something similar.

SWIFT brings to market three services: (1) the network, (2) secured messaging over it and (3) well-defined formats and metadata. We can achieve the first two more securely on DLT. The third is being morphed and extended for cryptography and smart contracts. No doubt, the diversion from standards, for such a critical process to world capitalism, will eventually converge back to a few standards. These may or may not come back to SWIFT. In the near future, innovation will abound, and the winners will capture a large share of the market.

The use of existing technology to shorten the settlement cycle exemplified how improvements to current processes don't always mandate the use of emerging technologies.

Depository Trust and Clearing Corporation

The Depository Trust and Clearing Corporation (DTCC) is an industry-owned and governed financial market utility with more than 40 years of experience mitigating risk and driving operations and cost efficiencies for the financial industry. During 2023, the DTCC processed $3 quadrillion in post trade transactions. The DTCC has a long history of driving innovation to strengthen the post-trade process. As a systemically important finance market utility, DTCC provides centralized depository and custodian services for equity and fixed income assets, as well as centralized clearing and settlement services for trading in those assets.

DTCC, the premier post-trade market infrastructure for the global financial services industry, has noted that its Fixed Income Clearing Corporation (FICC) Treasury clearing volumes have, in 2024, grown 31% year over year, processing a daily average volume of USD $7.019 trillion. This growth comes at a time when market participant firms are assessing the impact of the U.S. Securities and Exchange Commission's (SEC) new requirements that expand the application of central clearing to certain U.S. Treasury repo and secondary market cash transactions.

In addition to the increase in overall clearing volumes, FICC's Sponsored Service also experienced growth in the last year. Sponsored Service clearing volumes increased 74% to a daily average of USD$938 billion. The number of Sponsored Members participating in FICC also increased 60% to 2,414 firms that represent a diverse set of asset managers of different profiles and regulated statuses.

Its leaders stated that the DTCC operates some of the industry's most robust processing engines, with average daily volumes more than 100 million trade sides per day submitted in real time from 50 different trading markets, and as many as 25,000 transactions per second during peak processing. The DTCC has tested its system performance to handle well over 800 million trade sides, which is just over twice its historical peak volume. In 2022, its subsidiaries processed securities transaction valued at more than $2.5 quadrillion. These volumes make a blockchain implementation difficult.

In September 2017, the US settlement cycle was reduced to T+2 efficiency. In May 2024, this was further reduced to T+1. DTCC oversaw this transition in coordination with the industry and employed existing technology to shorten the cycle. This move harmonizes with global markets, reduces risk and exposure, enhances market liquidity and increases efficiencies.

The driver of this initiative was “client value—capital efficiency, risk reduction and a globally harmonized settlement cycle.” The use of existing technology to shorten the settlement cycle exemplified how improvements to current processes don’t always mandate the use of emerging technologies. According to the DTCC, the industry could use the existing technology to accelerate real-time settlement if it were inclined to do so.

In the DTCC’s view, DLT is far past the proof-of-concept stage. The DTCC is seriously considering DLT to enhance applications. The tremendous efficiencies that the market has achieved reduce risk by netting the DTCC’s positions from a variety of trading activities across the day, indicating that a typical day may result in a 98% net.

DTCC leaders told us that their DLT efforts have gone beyond simple prototypes; but they are still challenged by the state of the technology in finding the right use cases, scalability, performance resiliency, redundancy, approach to smart contracts and, where applicable, cost benefits. The DTCC has indicated that it does recognize that distributed ledger technologies can address limitations in the post-trade process by modernizing, streamlining and simplifying the siloed design of the financial industry infrastructure with a “shared fabric of common information.”

Regardless of whether existing technology or emerging innovations are employed, client value guides the decision-making.

According to the DTCC, the short-term value proposition of DLT lies in addressing industry pain points in highly manual areas with relatively low volumes. Its current focus is to demonstrate ROI and client value by identifying opportunities through R&D investment, evaluating how it can better apply existing technology and how new technology can best be leveraged.

The DTCC explained: “The technology is a means to an end—and the end is innovating what we do to create a stronger value proposition for our clients. Regardless of whether existing technology or emerging innovations are employed, client value guides the decision-making. Technology for the sake of technology is a losing proposition.”

Longer term, the DTCC is assessing DLTs potential across a broad range of applications that include master data management, asset/securities issuance and servicing, confirmed asset trades, trade/contract validation, recording and matching for more complex asset types, netting and clearing, and collateral management and settlement. However, critical factors for moving forward include maturing the technology’s capabilities for real world financial transaction requirements, scalability, interoperability and independent governance. The DTCC has been exploring DLT and digitization for many years and has successfully tested DLT's capabilities in several use cases. In 2023, the DTCC acquired tokenization firm Securrency, renaming it to DTCC Digital Assets.

Given the transaction volumes in the US securities market that the DTCC processes, it would need any distributed ledger to be equipped to handle not only the current peak transaction volumes, including validation and irreversible transaction finality, but also to manage significantly increased volumes. Current DLT implementations are many orders of magnitude away from achieving this capacity.

Like most, the DTCC expressed concerns on the maturity and throughput of today's technology but are watching it closely, as it matures. The company stated: "Currently, the technology doesn't have the scale or capacity to match the robust processing engines that underpin the clearance and settlement needs of the US markets today. In the future, any enterprise-ready distributed ledger solution for a mature, high-volume marketplace will need to achieve or surpass that processing power."

To advance the technology, the DTCC echoes industry calls for interoperability and integration of distributed ledgers and legacy infrastructure, in addition to the continued development of standards and protocols. The company remains a strong advocate for the development of independent governance to address challenges associated with implementation and operation of DLT solutions. According to its leaders, the DTCC can play a key role in this function, serving as a neutral network operator and developing and enforcing the required standards and protocols.

Even doubters may come to appreciate the dramatic reduction in delays and costs as overwhelming arguments to put international funds transfers onto a blockchain.

In September 2024, Blockchain solutions provider Digital Asset and the DTCC completed their US Treasury Collateral Network pilot project on the Canton Network. The project brought together 26 market participants to carry out 100 transactions.

The project used tokenized "digital twins" of Treasury bonds (USTs) in four use cases using the Canton Network Global Synchronization and DTCC LedgerScan features to demonstrate transaction flows and a case of default.

The DTCC's efforts here will continue.

TransferWise

TransferWise's fee of 0.5 percent against a true mid-market FX rate seems like such a small sum that it is unlikely to make much profit, until we realize that it's a five-trillion-dollars-per-day marketplace. TransferWise's small fee could convert to tens of billions of dollars per day. When DLT technology fully matures, developing the software that could manage payments internationally would cost a few million dollars, possibly less. It is open source and well suited for this application.

Putting together an ICO based on a credible value proposition is not difficult. Given the possible reward and the low barriers to entry, the number of market entrants will be large. Expect every major software company, and every major financial institution, to get involved in at least one effort for payments, of which international payments is the biggest prize. There will also be many aspiring start-ups. If they are smart, every major company with a competent technology arm will participate in one effort or another. The upside is enormous.

Although the barriers to developing such a system are low, getting the market, regulatory and existing financial players' buy-in will be what defines the winner. David Treat and our experience with central banks and the regulators are unusual in that they are to some degree driving this change.

The simplicity and the benefits of a DLT solution to them are obvious. Credibility, and establishing great relationships with a critical momentum of financial services players (which we know SWIFT already has) may cost far more that developing the technology. The elegance, security and economic advantages of a DLT-based system regulators and the fact that central governments are embracing DLT solutions may even lead this charge. There will be many others as well, such as nanopay and Ingenico Group.

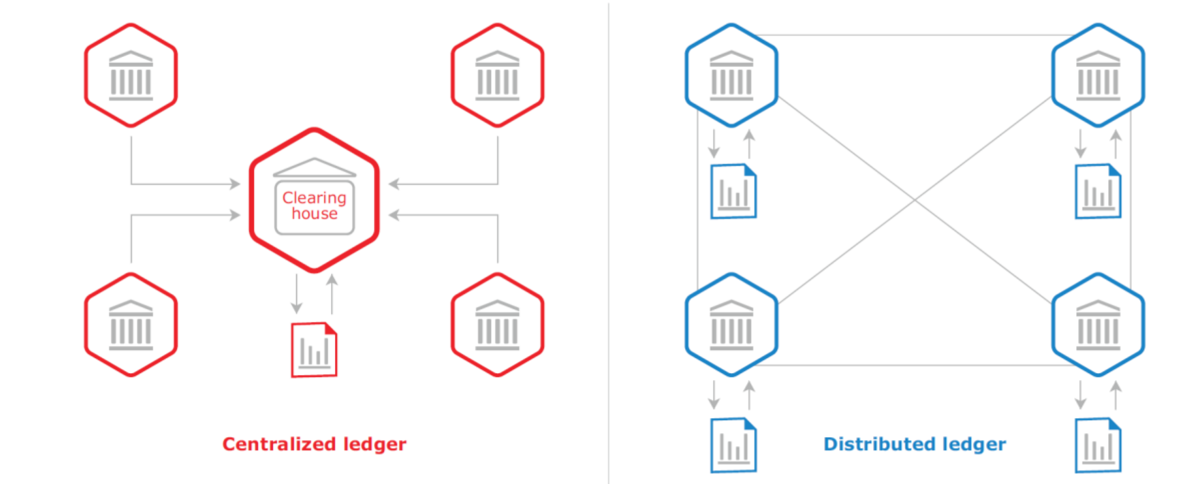
Analysis: Creating a Better System on the Blockchain
It will soon be widely accepted that the inherent mathematics proven to secure token movements and their messages through a synchronized blockchain (from a business perspective), is better, faster and cheaper than the serialization of messages between multiple legacy institutions, their people and their systems. Even doubters may come to appreciate the dramatic reduction in delays and costs as overwhelming arguments to put international funds transfers onto a blockchain.

A blockchain system mathematically ensures that the counterparties are indeed whom they claim to be.

Bankers (of which I was once one) not surprisingly have trouble thinking outside the bank. An obvious but radical approach would be to develop a system that eliminates, or radically reduces, the dependency on the central banks and banks. The system would store currency values in distributed ledgers, as blockchain does for tokens. To many bankers, this is unthinkable. To some bankers, a centralized digital currency controlled, by say, the Fed makes more sense. China is moving in that direction. We must remember these values are just bits – trusted, regulated and secured bits. There are far simpler ways to secure and trust different bits than a flotilla of banks, correspondent banks, central banks, CLS, regulators, auditors and more. We could dramatically improve centralized clearing and settlement systems, even eliminate them, by providing the same functionality through a blockchain.

A blockchain system mathematically ensures that the counterparties are indeed whom they claim to be. It ensures finality of payment and, unlike any dual-entry bookkeeping system, the contract intrinsically records and duplicates both ends of the contract in the same block. The simultaneity of both sides of the payment requires none of the massive complexity of systems upon systems we see today. DLT requires no central trusted authorities (read SWIFT and central banks), no time zone queue management (read CLS) and avoids the risks of failure in the central hub of a hub-and-spoke architecture. It can be distributed. The simultaneity of both sides of the payment requires none of the massive complexity of systems upon systems we see today. DLT requires no central trusted authorities (read SWIFT and central banks), no time zone queue management (read CLS), and avoids the risks of failure in the central hub of a hub-and-spoke architecture. It can be distributed.

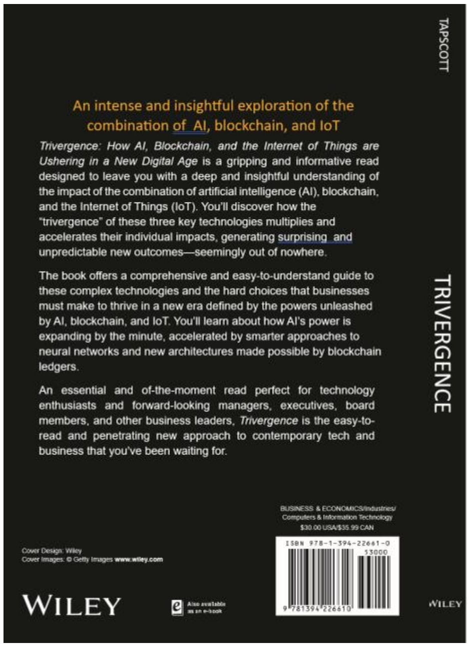
Figure 6: Centralized clearinghouses versus distributed ledgers

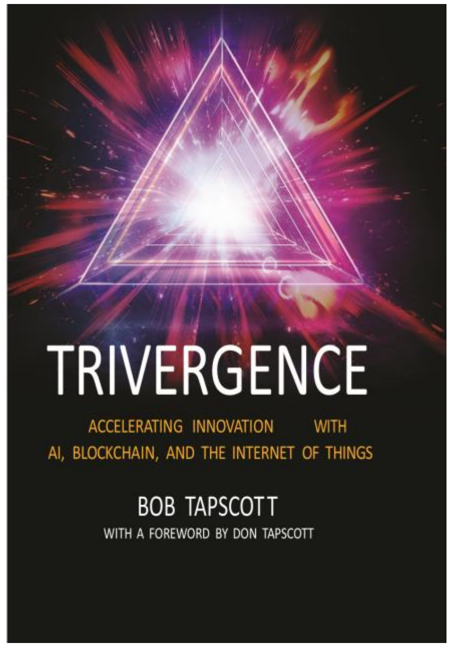


In late January 2025, President Donald Trump ordered the creation of a cryptocurrency working group tasked with proposing new digital asset regulations and exploring the creation of a national cryptocurrency stockpile. Whether or not this may evolve into a platform for clearing and settlement has yet to be determined.

In the next issue, I will explain how blockchain, once marketed as a force to disintermediate the banks, is now being embraced by the banks.

Now Available!





About the author:

Robert (Bob) Tapscott is a recognized information technology strategist, author and speaker. His most recent book *Trivergence: Accelerating Innovation with AI, Blockchain, and the Internet of Things* discusses the power and transformational possibilities of these technologies individually, and collectively, and how they will impact society. Bob's extensive background in successfully leading large international software projects goes beyond typical technology design and development to include the training, organizational restructuring and workflow redesign required to deliver, measure and improve overall corporate performance. As a vice president or a chief information officer, Bob has led the Canadian technology efforts of Citi, HSBC and Lloyds Bank. At Citi, he wrote the FX system for Cosmos II, once the predominate core banking computer system for Citi, outside of the US. Its offspring was bought by Oracle and is now sold as FLEXCUBE.

At Jeppesen (now a Boeing company), he designed the system that now supplies the flight directions to the majority of the world's commercial aircraft (both Boeing's and Airbus'). His experience in payments includes running the clearing and settlement systems for a variety of Canadian banks, and membership on the board to the precursor to Payments Canada, the Canadian Payments Association for both Lloyds Bank and HSBC. The US equivalent is the CBA.