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On the Verge of Transformation: The State of Investment & Wealth Management 2023-2024

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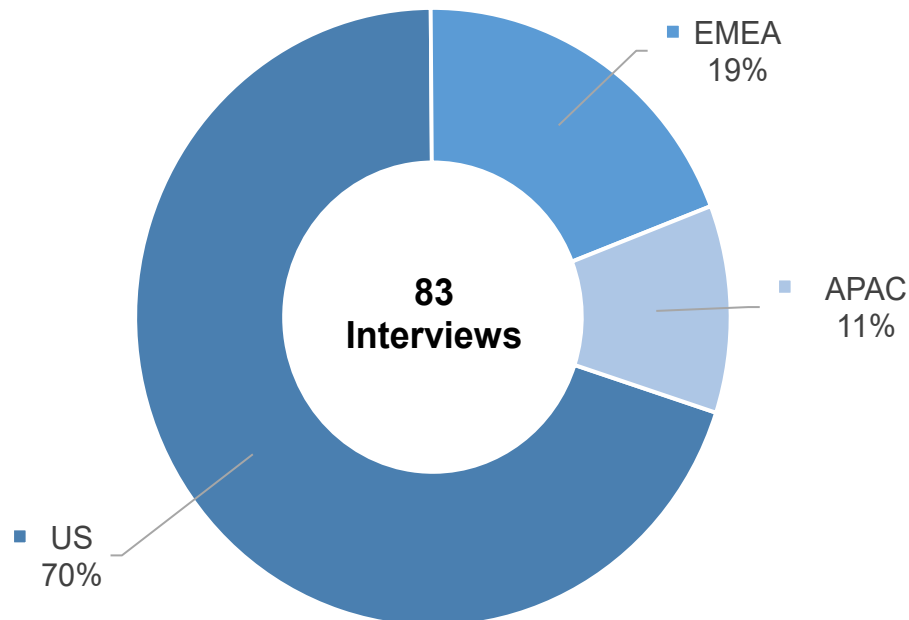
Spring 2024

This report is based on interviews of the leaders of firms controlling \$52tn of assets, as well as disruptors/outside

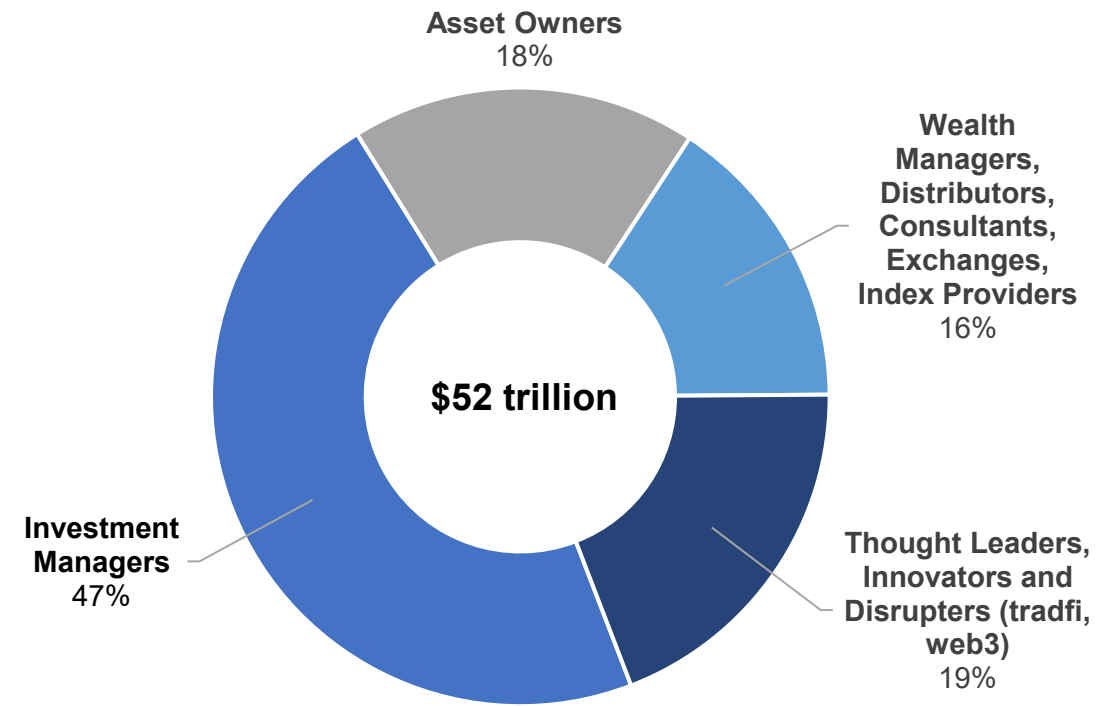


Interviews spanned asset managers (public and alternative), asset owners (pensions, SWFs, insurers, E&Fs), wealth managers, distributors and intermediaries, academics and consultants, fintechs and blockchain and digital asset specialists

Breakdown of Interviews by Geography (HQ location)



Breakdown of Interviews by Organization Type



The State of Investment and Wealth Management Today

Warning Signs Indicating that a Shift to a New Era May be Approaching

Vision for a New Phase of Investment & Wealth Management

Re-Architecting of the Financial Market Infrastructure

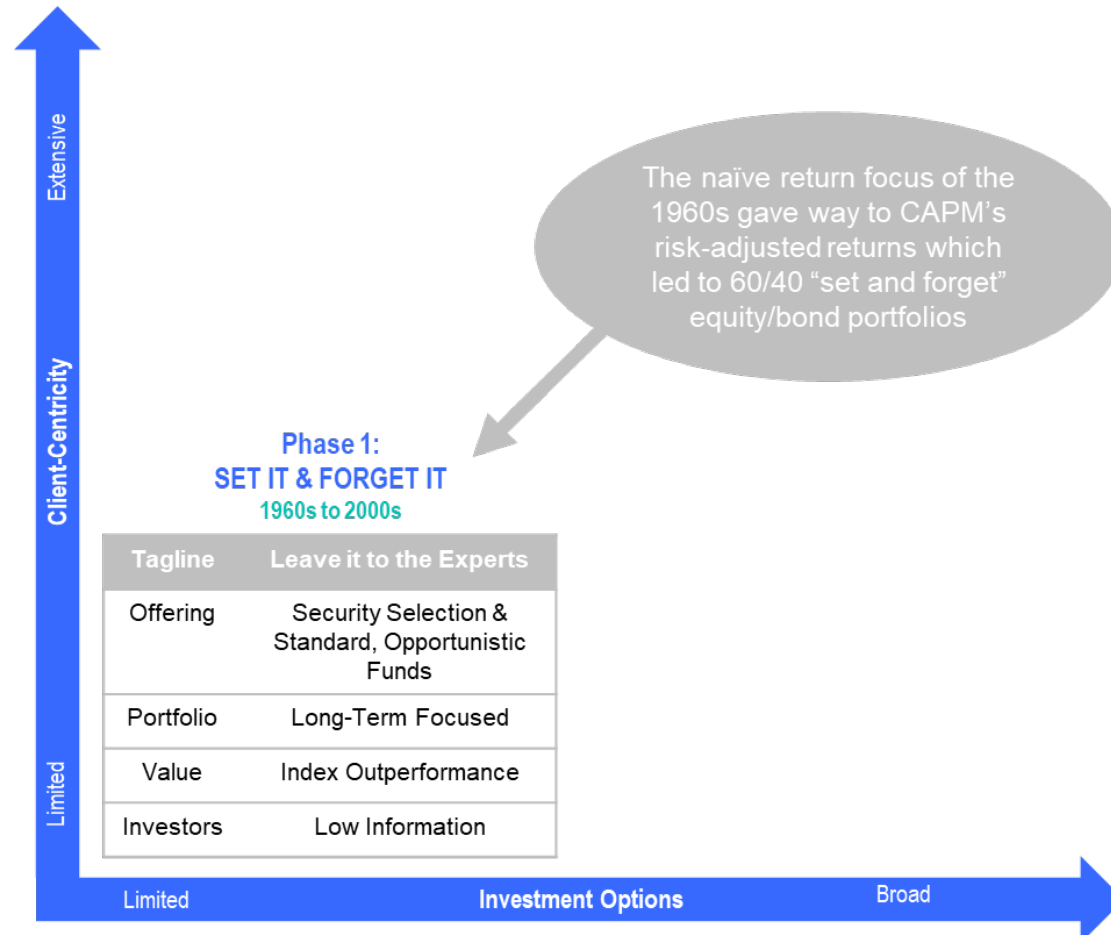
Investment and Wealth Management in the Future World

Evolution of Investment & Wealth Management - 1



The prevailing attitude in the 1960s to 2000s was “Leave it to the experts”. The market challenges of the 1960s and new academic thinking led to advances in portfolio construction and the emergence of the familiar 60/40 portfolio.

Investment and Wealth Management in the Modern Age



Phase 1 - 1960s to 2000s: The Era of Set & Forget

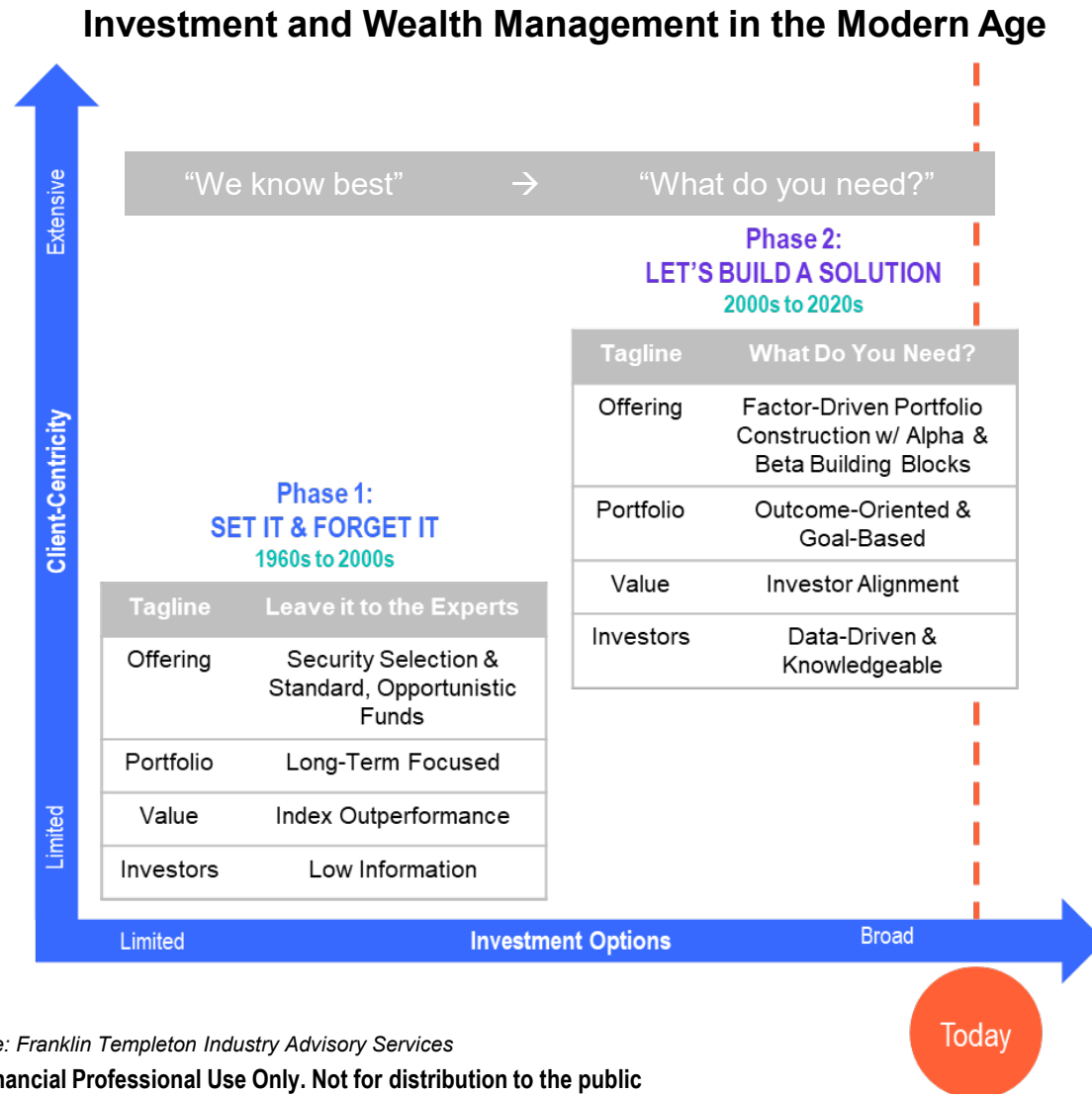
Institutional investors turned to more quantitative frameworks for portfolio construction and risk modelling following the “Go-Go” 1960s

- In the 1960s “gunslinger” managers of mutual funds rode the wave of growth placing **highly concentrated bets** on that generation’s set of tech stocks... only to see values fall by 40%-50% by 1969
- The subsequent emergence and adoption of Modern Portfolio Theory (MPT) provided a framework for thinking about **risk-adjusted returns** and led to the 60/40 portfolio
- The Capital Asset Pricing Model (CAPM) provided the framework to measure the capture of equity risk premium (alpha) and to separate investment skill from overall market performance (beta)
- Equity and bond managers ran actively managed, opportunistic strategies seeking to outperform broad market indices

Evolution of Investment & Wealth Management - 2



The investment and wealth management industries entered a new phase around the early 2000s, but the full implications only became clear in the last ~10 years as the mission expanded from alpha generation to client-centric portfolio alignment



Phase 2 – 2000s to 2020s: Let's Build a Solution

Enhancements to CAPM set in train a series of developments which reshaped the entire industry

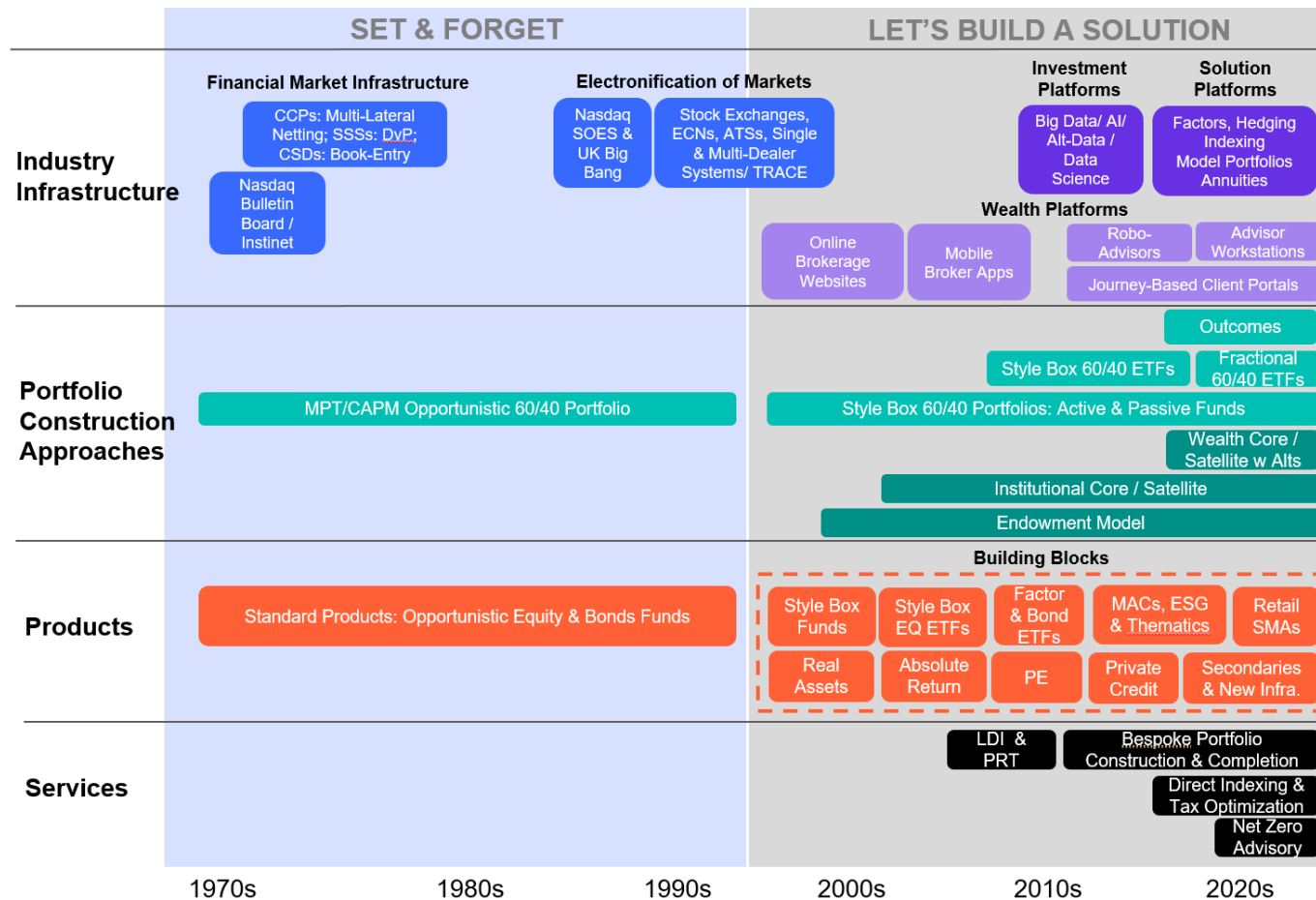
- **Fama & French's factor model** in the early 1990s added size and value factors to CAPM's market risk
- Morningstar translated this into a set of equity **style boxes** and later bond style boxes, based on duration and credit
- The narrower indices required to measure portfolio return, led to the growth of **tradable passive indices and low-cost exposure via ETFs**
- By the 2010s advances in technology enabled **the isolation and trading of atomic factors** and more sophisticated attribution and performance analysis
- This resulted in **lower cost portfolios for retail** and the ability to **separate the pursuit of alpha and beta** for institutions, with a core of diversified passive exposure and more expensive satellite funds concentrated on mining different alpha sources

Growing Complexity of Investing



Technology became an increasingly important point of differentiation as portfolio templates multiplied, portfolio construction choices expanded, and engagement became more service-oriented, consultative and data-driven

Contrasting the Different Phases of Investment and Wealth Management



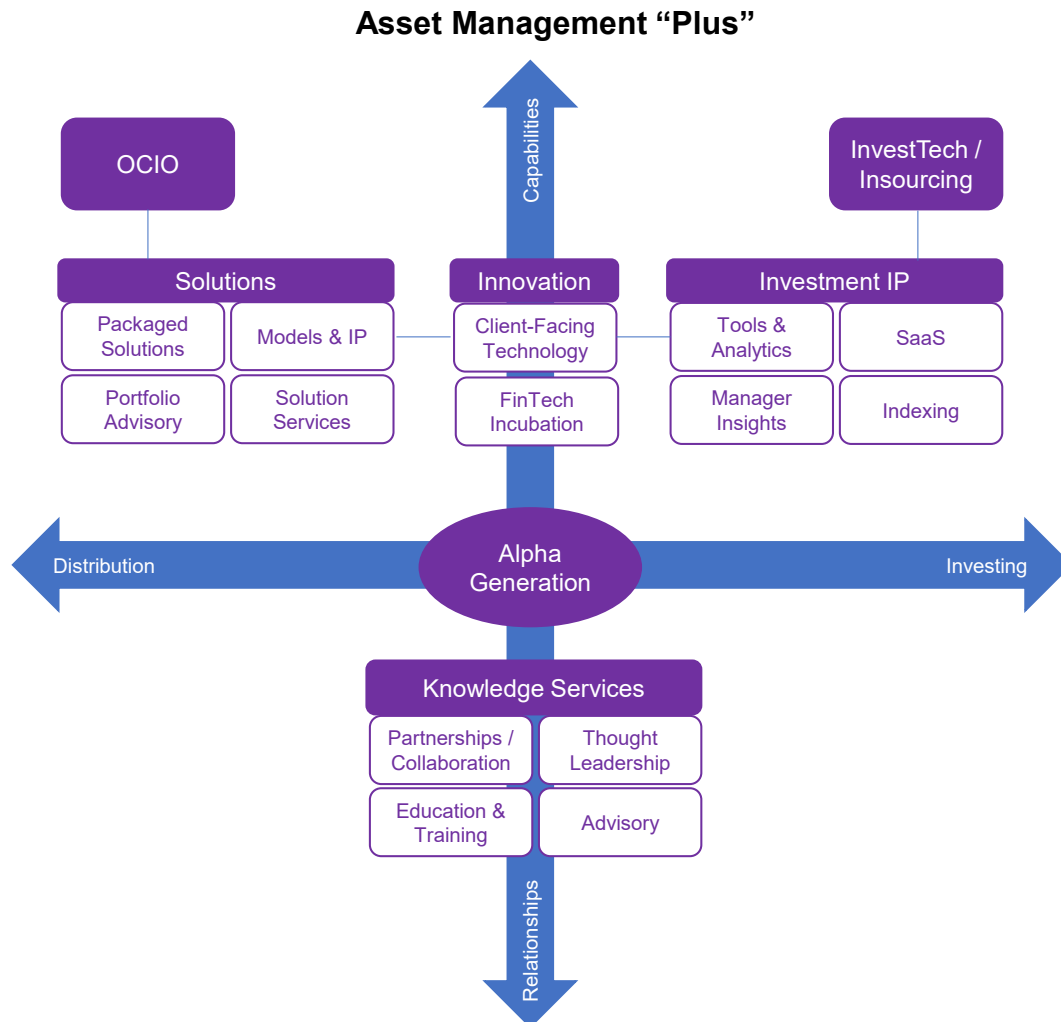
- The **focus of technology buildouts** during the Set and Forget era was alignment of investment and wealth management firms' trading and operations to the new financial market infrastructure and electronic exchange
- By contrast, firms' technology build-outs during the Let's Build a Solution era were focused on creating competitive differentiation
- Individual PM-led cottage industries gave way to a **more scientific, platform-based approach**
- **Supporting technology** included new cloud-based service architectures, big data processing techniques and early AI tools
- The same tools used to build these investment platforms were used by larger firms to build **solution platforms**
- These allowed them to analyze, engineer and deploy **targeted portfolios** - bespoke for institutional clients and standardized and more scalable for wealth clients
- This led to increasingly **solutions-focused and consultative distribution** and to wealth managers using new internet and mobile channels to create direct consumer engagement and developing cloud-based journey tracking tools and cohort analysis to improve client acquisition and retention

Source: Franklin Templeton Industry Advisory Services

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Asset Management “Plus”

Competing in the new Solutions Era requires more than alpha generation. Asset managers must act as a partner to clients across numerous dimensions to successfully differentiate, e.g., delivering education, insights, access, wider portfolio goals



- **Alpha Generation:** Alpha generation is essential but not sufficient to separate excellent managers from merely good managers. Differentiators are what is provided *in addition to* performance. This includes a wide range of factors, and value is often variable and client-specific.
- **InvestTech:** Several of large firms have commercialized their investment infrastructure offering their platforms as a service, e.g., risk, trading and portfolio management systems, and middle/back-office support.
- **WealthTech & Innovation:** Proprietary technologies are being provided to wealth clients to optimize advisors’ selection and tailoring of model portfolios for their customers based on their risk profile and goals and manage the tax exposures via direct indexing. This is often paired with the strategic incubation of FinTech, WealthTech or InsureTech ventures.
- **OCIO:** Some managers with solutions platforms have gone beyond advisory to providing outsourced CIO services. This necessitates open architecture and the weighing of the economics of advising vs managing portfolios.
- **Knowledge Services:** These range from helping educate advisor networks or junior resources and bringing in leading thinkers to advising clients on their business, operational, or diversity agendas, and creating thought leadership.

Chart Source: Franklin Templeton Industry Advisory Services

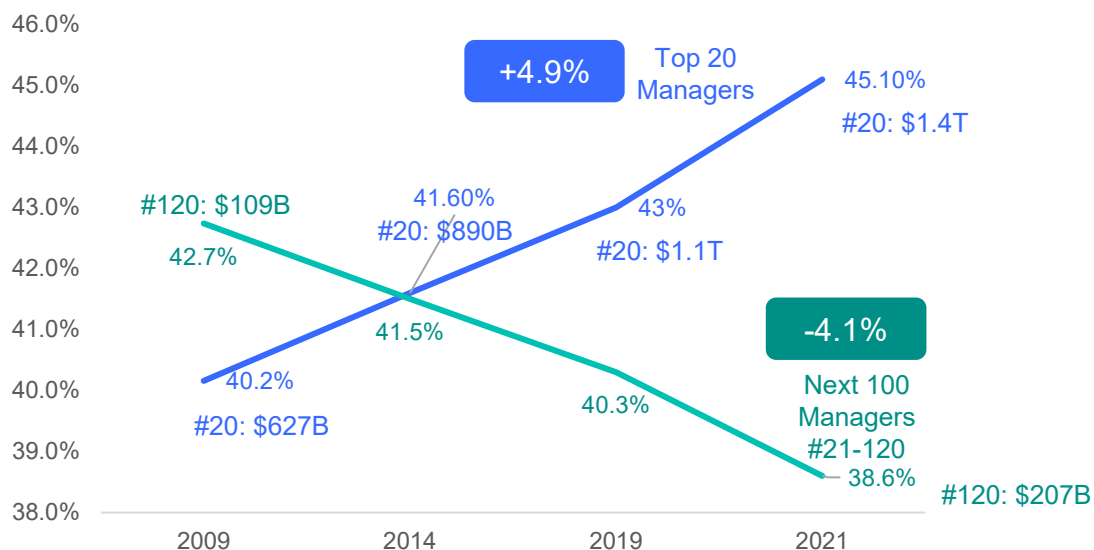
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Concentration of Assets with Largest Firms

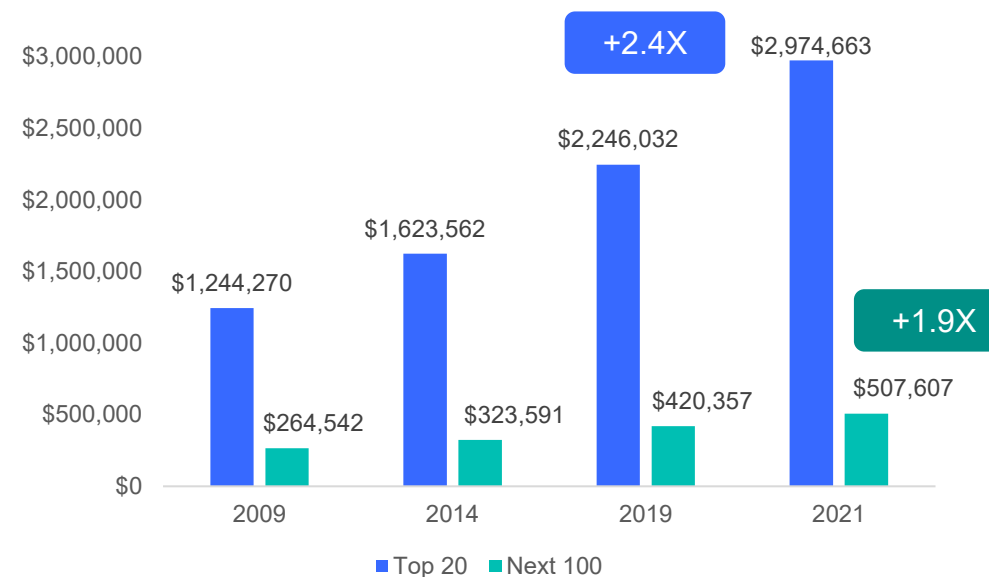


The costs of platform-wide change and acquiring sufficient investment, solution, and advisory talent has made it increasingly difficult for smaller firms to compete in a period of contracting margins—leading to more concentration and larger Top 20 firms

Share of Total Assets: Top 20 vs Next 100 Managers



Average AUM of Top 20 & Next 100 Managers



- **More bigger firms:** In 2009 there were 11 investment management firms with \geq \$1.0 trillion. In 2021 there were 30¹
- **Pursuit of scale:** In the U.S., the number of asset manager related M&A deals rose from 100 in 2014 to 296 in 2021³ - the busiest year for asset management M&A since 2000. In the UK in 2022 there were 192 deals, the highest since data tracking began 40 years ago⁴

- **Average fees** (net of distribution costs) have fallen -18% since 2010 (from 28 bps to 23 bps in 2022)
- **Average costs** are also rising but the scope for overhead reduction is finite with fixed cost representing 60% of total cost².
- **Net margins** (net revenues - costs as a share of AUM) declined by -23.1% since 2010 (from 8.2 bps to 6.3 bps in 2022)²

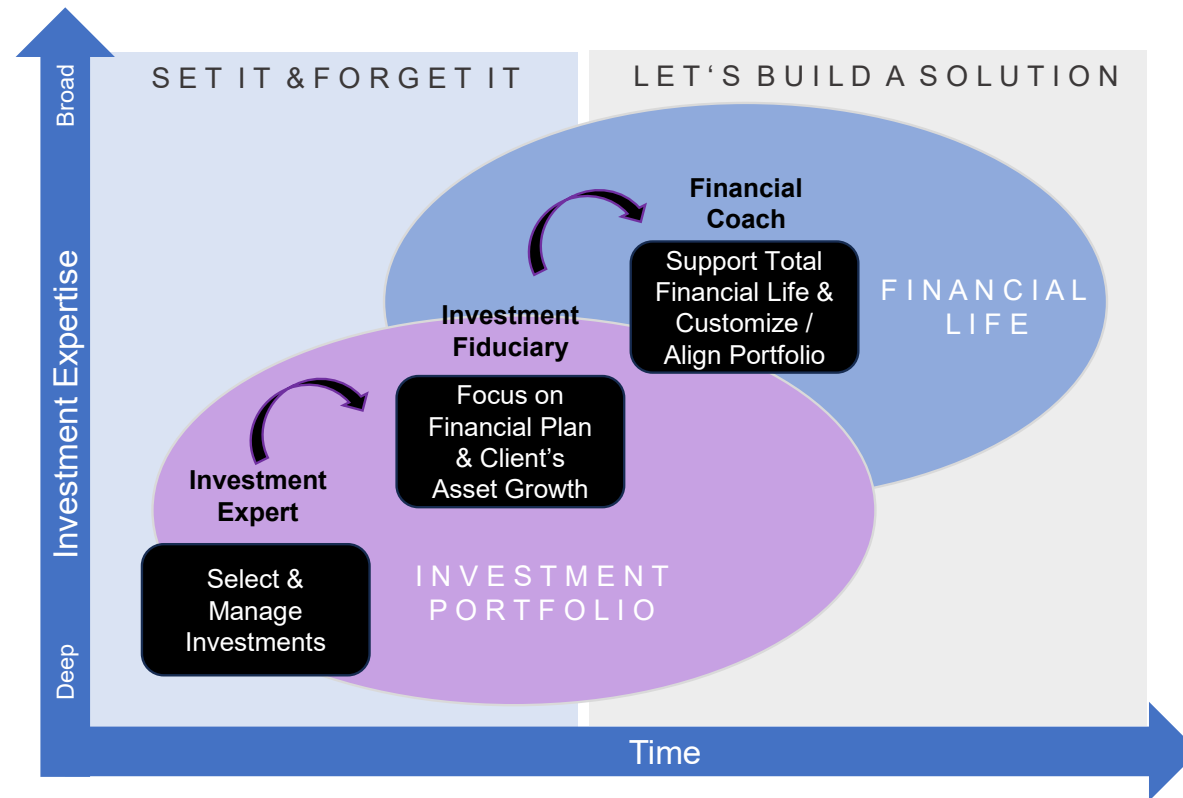
Chart Sources and (1) Franklin Templeton Industry Advisory Services analysis based on Thinking Ahead Institute's Top 500 Global Asset Managers report. [Chart: The P&I/Thinking Ahead Institute World 500 largest money managers | Pensions & Investments \(pionline.com\)](#); (2) [bcg-global-asset-management-2023-may-2023.pdf](#); (3) [M&A in 2021: asset management primed for consolidation | Financial Times \(ft.com\)](#) (4) <https://www.fnllondon.com/articles/asset-managers-eye-more-ma-deals-over-next-24-months-pwc-20230710>

Wealth Managers Expand Offerings and Focus



Regulations and technology advances have helped drive a shift from stocks to funds to portfolios and seen the role of the advisor evolve from being *investment-centric* to being *customer-centric*, to assisting a client with their *total financial life*

Evolution of Wealth Advisor's Role & Focus



- **From Stocks to Mutual Funds:** In 1975 in the U.S., the SEC ended fixed commissions after 180 years, and over the next 25 years the cost of a single stock transaction fell by 90%¹
- Full-service brokers' revenues fell commensurately and drove a pivot to mutual funds. In 1990 advisors accounted for 65% of new sales of direct-marketed funds to retail. By 2003 that figure had fallen to 37%²
- Employer-sponsored pension plans, banks, and life insurers entered direct fund sales and more fund complexes turned to 3rd party distribution as no-load fund supermarkets were introduced in 1992
- **From Product-Centric to Customer-Centric Advisory:** The proprietary information edge that advisors enjoyed since the 1970s began to erode in the 1990s with the launch of online brokerage websites offering prices, news, research, charting and analysis.
- In response advisors began to focus on a client's financial plan and overall asset growth and many left wealth platforms to set up RIAs.
- **Focus on the Total Financial Life:** Full-service brokerages increased their range of value-add products and services, e.g., banking, lending, insurance, estate and tax management. The role evolved from financial advisor to financial coach.

Chart Source: Franklin Templeton Industry Advisory Services; (1) [History of Financial Advice — Mindful Money](#); (2) [Chapter Four: Where Investors Purchase Mutual Fund Shares \(ici.org\)](#)

Shift from Product to Service-Driven Engagement

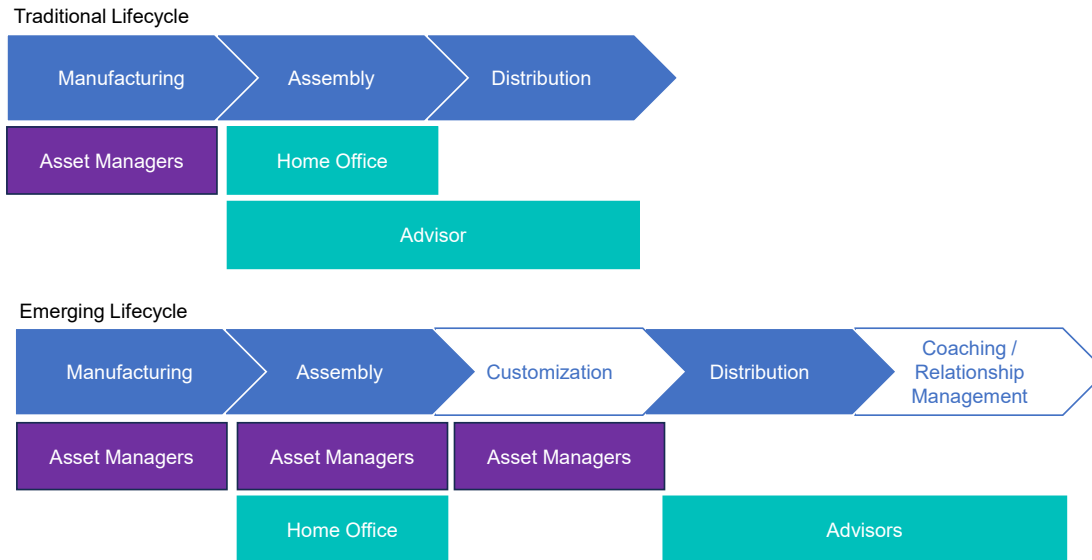


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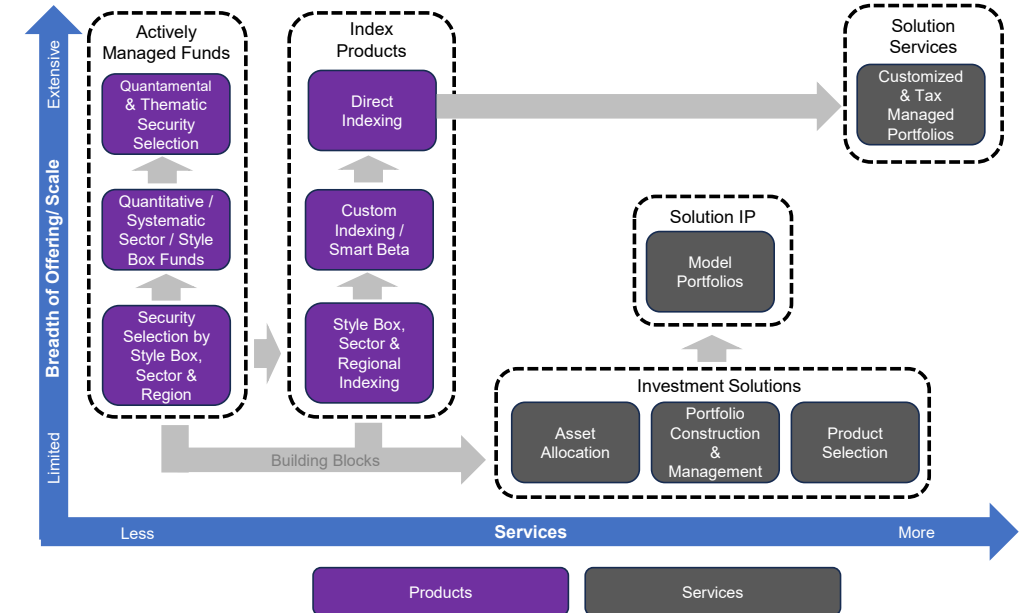
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To support the broadening of the advisor's focus and role many wealth platforms are beginning to engage more strategically with their investment managers, utilizing new tech options to access models and embed services into their value chain

Evolution of Investment Manager – Wealth Manager Value Chain



Investment Manager Solution Delivery



- Expansion of role of investment manager from **product-provider to service partner**: manufacturing → manufacturing + assembly and customization
- Investment managers providing more product/portfolio construction and tailoring options is enabling wealth managers to **focus on asset acquisition** and **expanding their service provision** into savings accounts, mortgages and loans, insurance products, etc.

- Investment platforms able to offer a **range of solutions + tech to support the relationship** offer a better strategic fit as wealth providers reduce the number of funds on their platforms to rationalize their offering and reduce the operational due diligence and maintenance burden
- Solutions create **deeper relationship value** with wealth platforms, allowing home offices to standardize the set of funds and models for advisors and reduce variation

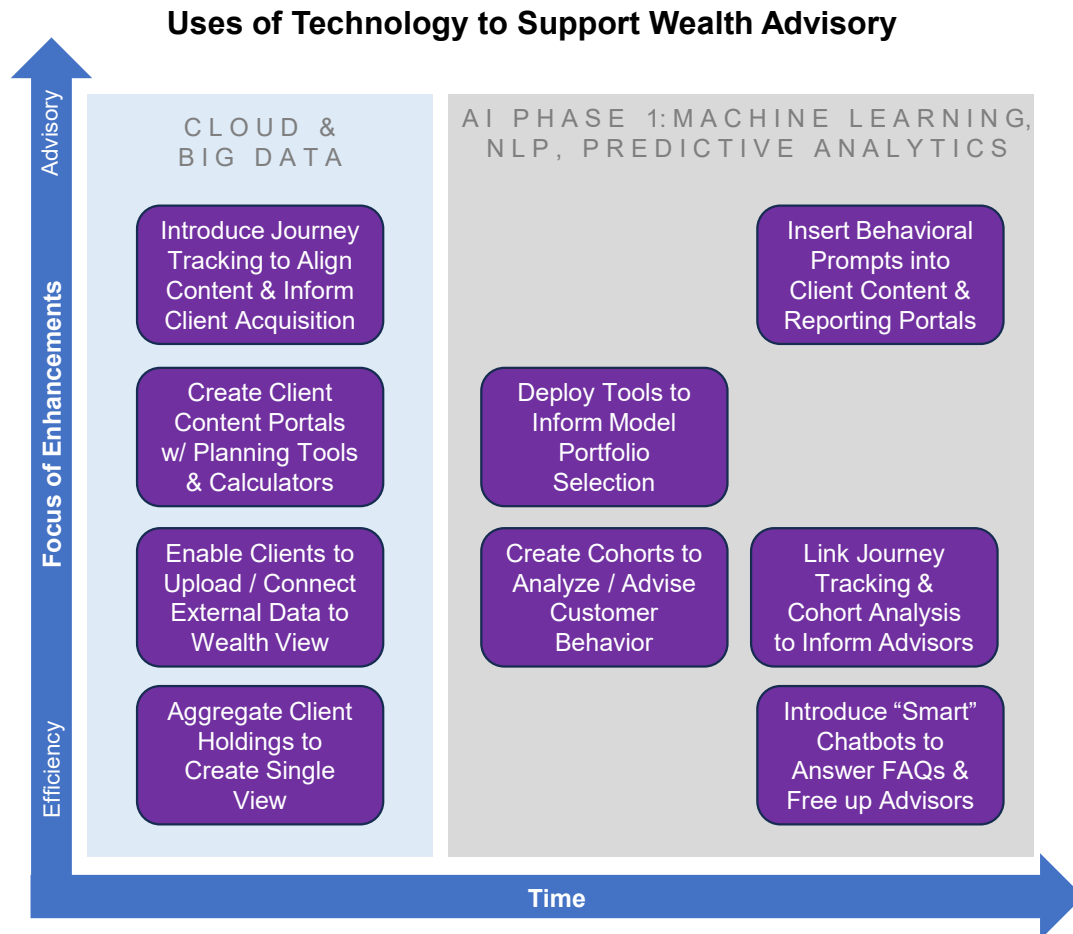
Chart Sources: Franklin Templeton Industry Advisory Services

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Technology Supports Lifecycle Wealth Approach



Understanding the client's broader set of financial needs became essential as the advisor's mandate broadened: journey-based tracking tools and cohort analysis became critical inputs to help optimize client engagement



- **New tech-led sales tools facilitated a client-journey approach based on online behavior:** The growth of the internet and mobile seeded new sciences of customer behavior and understanding of how to manage the client journey. Automation of early interactions and monitoring of journey stages helped scale client management and time human involvement.
- **Provision of client portals enriched with tools and content:** Static marketing sites evolved into interactive destinations with life-stage/milestone appropriate educational content, analytics and tools to assist with individual modelling, and contextualized explanations of relevant products/services. The data generated can be fed back into journey tracking.
- **Move from a single account perspective to a more comprehensive life picture:** The focus of understanding broadened from the single advisor account to the total firm relationship towards a comprehensive, integrated picture of wealth held outside the firm, wealth and situation of relevant stakeholders and affiliates, e.g., family, business co-owners, etc. This enabled the movement towards being a life-coach, not just a financial advisor or financial coach.
- **Cohort analysis & advisor workstations:** This led to cohort creation and analysis, grouping clients by common characteristics and analyzing their buying behaviors and response to different messages and approaches. Networking CRM information, cohort insights, account information, and platform interaction data led to advisor workstations.

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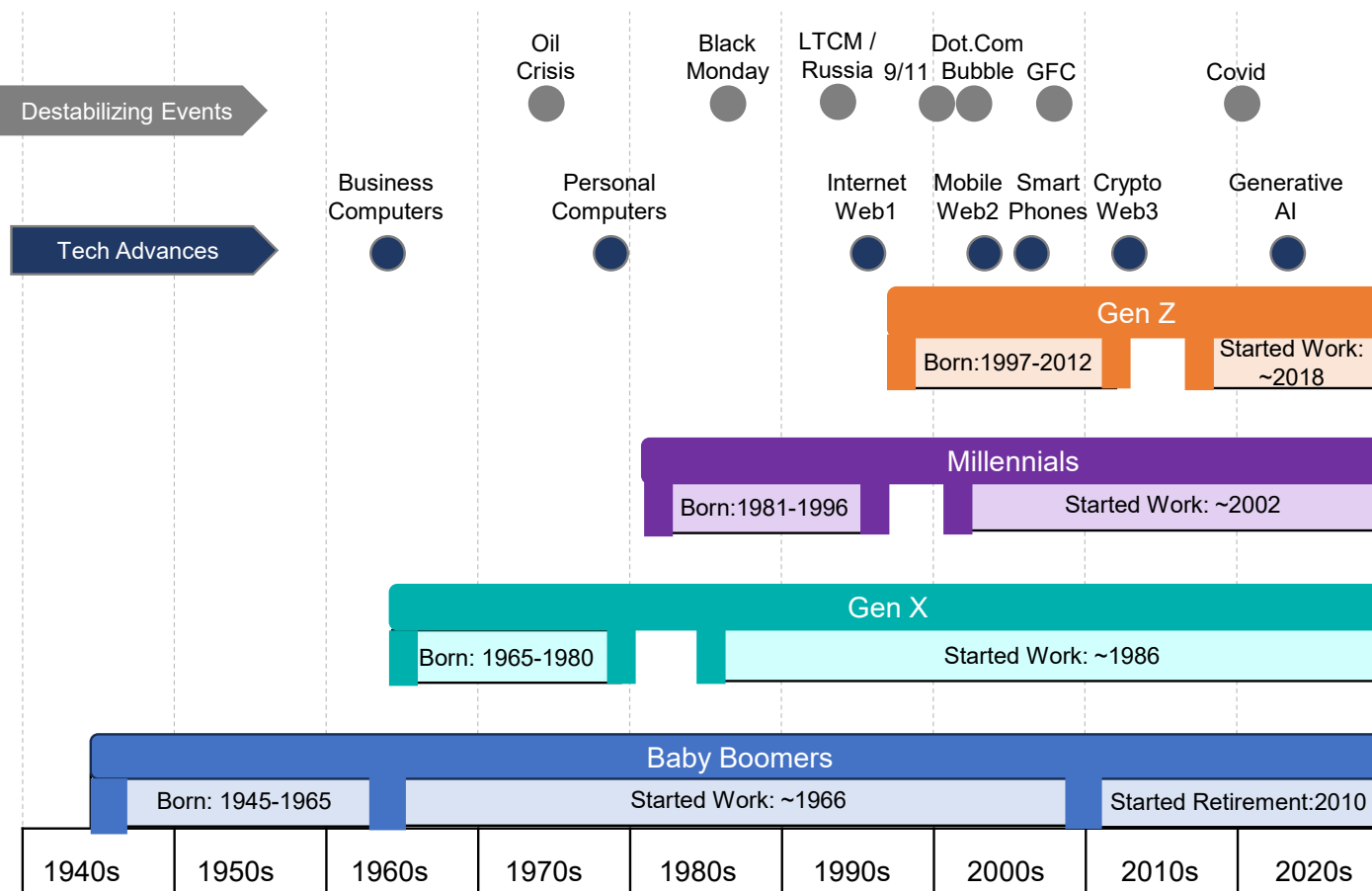
Investment and Wealth Management in the Future World

Warning Sign #1: Divergent Generational Needs & Views



Events have benefitted the Baby Boomers but have presented significant challenges to subsequent generations whose needs and attitudes towards investing and wealth have been shaped by their very different formative experiences

Life-Shaping Events by Generation



- This year's survey revealed a surprising, but widely-shared, view that the traditional investment management industry was **designed for and by Baby Boomers**
- Baby Boomers enjoyed an unprecedented period of stability and growth that allowed them to defer consumption and pursue long-term accumulation strategies in their portfolios
- Subsequent generations face a very **different set of economic circumstances** and more immediate financial pressures
- Their **attitudes to investing and wealth have been** shaped by a succession of crises and global events, and their service expectations have been shaped by advances in consumer technology

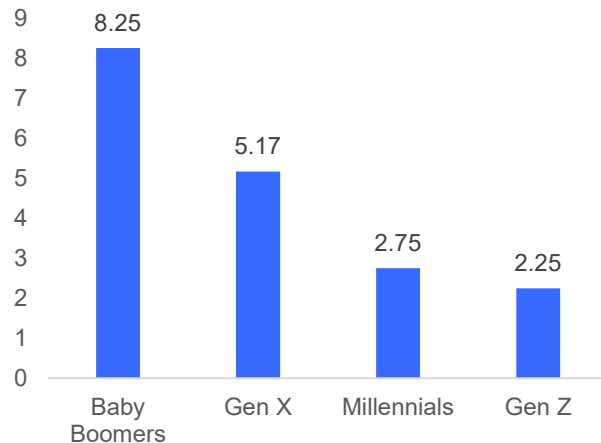
Warning Sign #1: Divergent Generational Needs & Views



Younger generations face headwinds to the accumulation that Baby Boomers enjoyed. They see investing and advice differently from older generations and have a different view of what belongs in a portfolio.

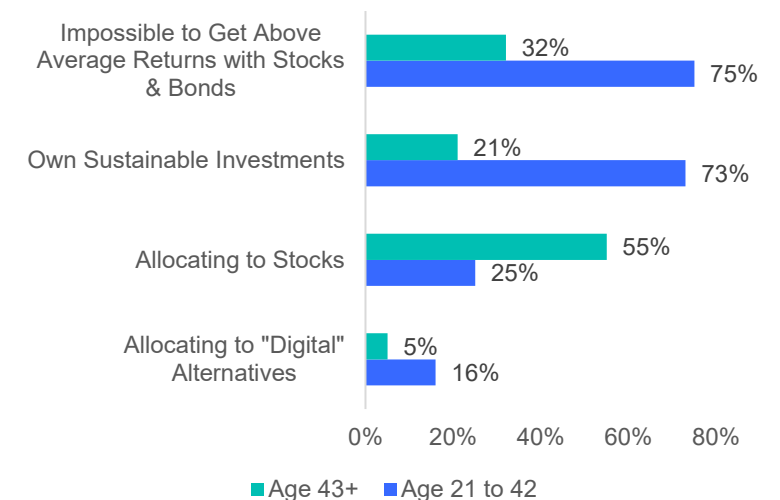
- **Shorter job tenure** – whether voluntary or involuntary - makes building traditional pension savings more challenging
- Lower savings and greater immediate financial demands mean traditional wealth management is less relevant
- **Gen X is the 1st generation to be worse-off than their parents** (on measures of retirement readiness, wealth accumulation, cost of living, upward mobility).¹
- Gen X is carrying a higher **debt load** than earlier and later generations:
 - 17% higher than Baby Boomers
 - 26% higher than Millennials ²
- **Attitudes to investing and advice are different for younger generations**
- Social media is the #1 place for Millennials and Gen Z to get investment information vs advisors⁴
- A FINRA/CFA study found that Millennials and Gen Z were more likely to invest in crypto and NFTs⁵

Average Years in a Job by Generation



- **Millennials'** left college with record levels of student debt³ but found work slow to find entering the job-market in 2007-2009.
- They also saw the social and economic effects of the Global Financial Crisis on their families and friends.

Bank of America Private Bank Study



Footnotes in Appendix Slide 44

Chart Source Left: Franklin Templeton Industry Advisory Services.

Chart Source Right: "Bank of America Private Bank Study Finds Younger Investors Turning to Alternatives, Sustainability and Digital Assets to Create Wealth." Bank of America. October 11, 2022.

Warning Sign #2: “Social” Investing Shifts Model



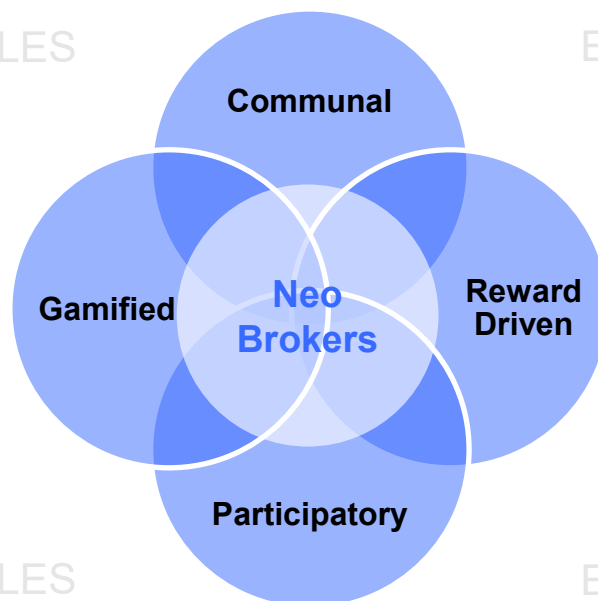
A new competitor focusing on younger generations is already offering a “social” style of investing. This differs significantly from the expertise-driven investment management industry and AUM is expected to reach \$606B and support 87M users by 2028¹

- Personalized newsfeeds related to holdings, models they follow, and actions taken by friends they follow with embedded discussion threads
- Contextualized provision of relevant Financial Influencer⁶ content

Neo-brokers offer mobile investing apps with simple user interfaces, easy account onboarding, no wealth-based exclusion, and use mechanisms to link investing to an individual’s online social identity

EXAMPLES

EXAMPLES



- Able to trade \$100,000 virtual portfolio
- Encouraged to use platform tools to learn about investing²

- Fractional stock awards in public companies where they shop most³
- 1% match on 401(k) accounts⁴
- Rewards “scratch card” for depositing first \$10⁴

EXAMPLES

EXAMPLES

- One-click ability to follow peer-generated model portfolios that direct fees to the model creator based on assets copying the strategy⁵

5 key aspects of neobroker platforms:

1. **Attracting new investors:** 47% of TradeRepublic users had never invested, including 18.6% of investors aged 35-48⁷
2. **Engaging younger users:** a German study found 70% of users <35⁷, the same age as a French neo-broker study which also put the average age of investors as a whole at 50⁸
3. **Increasing market share:** European neo-brokers increased market share of active clients from 6.8% to 19.2% while traditional distributors fell from 71.6% to 56.3%⁸ (19Q3-21Q3)
4. **Embedding passive investing:** BlackRock’s reported expectation is for 10M new European investors in ETFs representing an additional +€500B of demand by 2026⁹
5. **Creating new investing template:** Growing number of neo-brokers are including crypto (and looking at NFTs) as a new type of alternative allocation in their robo models

Warning Sign #2: Individually-Sized “Alternative” Alts

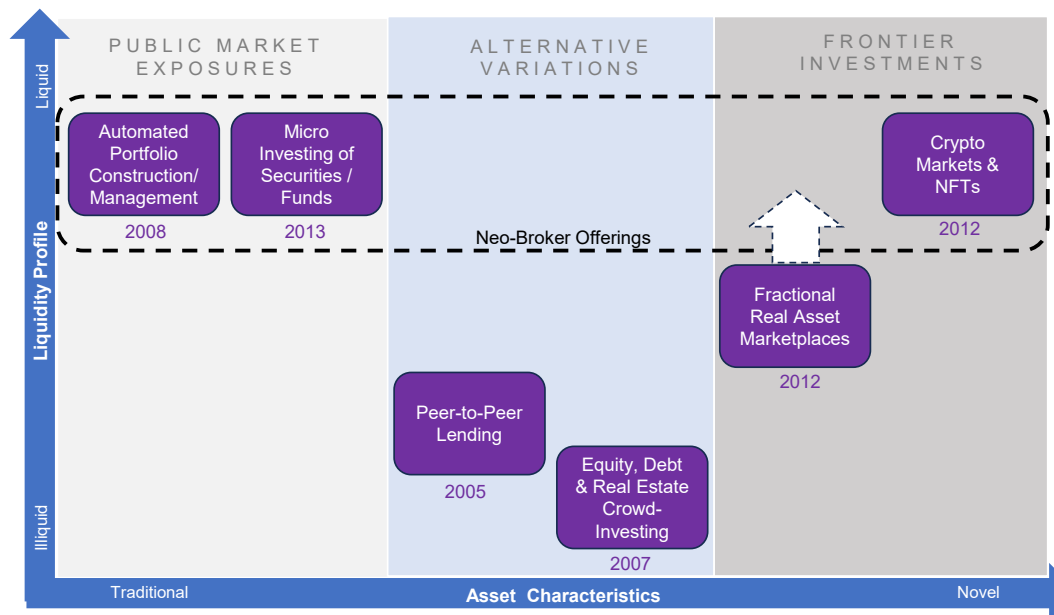


New digital frontier assets are providing new investible and tradable options which are sized appropriately for individuals and are being used as an alternative sleeve in a diversified portfolio by neo-brokers

Characteristics of new investment products targeted directly at individuals:

- **Accessibility & Ease of Use:** Internet and mobile-app based offerings with intuitive interfaces and easy onboarding, link directly to an individual’s payment source, in-app knowledge building and tools, one-click transactions
- **Low Minimum Investment Size:** minimums as low as \$1 and low specialist minimums, e.g., Prosper \$25 min loan size², Vinovest \$1,000 min for a professional sommelier to build a wine portfolio¹, EstateGuru €1,000 min for commercial real estate³
- **Multiple Liquidity Options:** Cryptocurrencies tradeable 24/7/365; Collectable (sports memorabilia site) has a built-in secondary market⁴; Moonfare (PE marketplace) allows users to participate in semi-annual auctions⁵
- **Relatable Investments:** P2P lending and crowdfunding emulate traditional alts but focus on easily understood investments, e.g., personal and home equity loans, art, song royalty rights (SongVest)⁶; collectible platforms offer sports memorabilia, vintage comics, classic cars, video games
- **Regulated:** Each category except crypto has been brought into regulatory frameworks, but European MiCA rules are pending, and Hong Kong, Singapore, UAE, and Brazil have passed or are proposing comprehensive crypto rules

Neo-Brokers Utilize Crypto, Explore Collectibles as Alternatives Diversifier



- **Neo-brokers’ asset allocation models are including digital frontier assets:** e.g., using crypto as a diversifier and risk asset; future fractionalized collectibles via NFTs
- **Attractive performance of digital frontier assets:**
 - Bitcoin (+83%) outperformed Nasdaq (+34%), S&P 500 (+16%), DAX (+16%) and Nikkei 225 Index (+27%) in H1 2023⁷
 - PWCC Trading Car List +400% (2011-2021)
 - Masterworks Art Index +135% (1995-2021) also beating the S&P⁹

Footnotes in Appendix slide 44.

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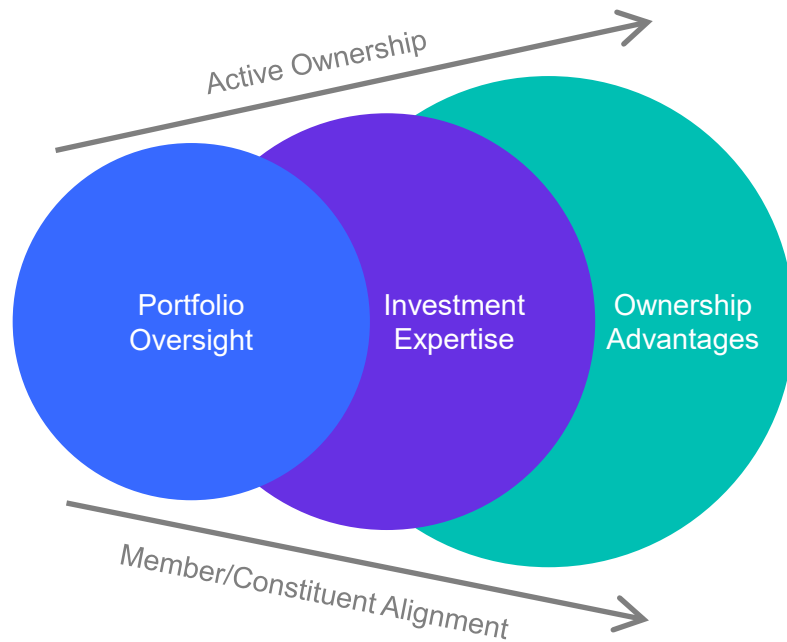
Investment and Wealth Management in the Future World

Expansion of Institutional Mission and Skillset



Institutional investors have extended the spirit of being a “fiduciary” to take on a more active role in portfolio construction and are using their investment expertise and long-term ownership advantage to be more active owners and align to member needs

Expanding View of Institutional “Fiduciary” Responsibility¹



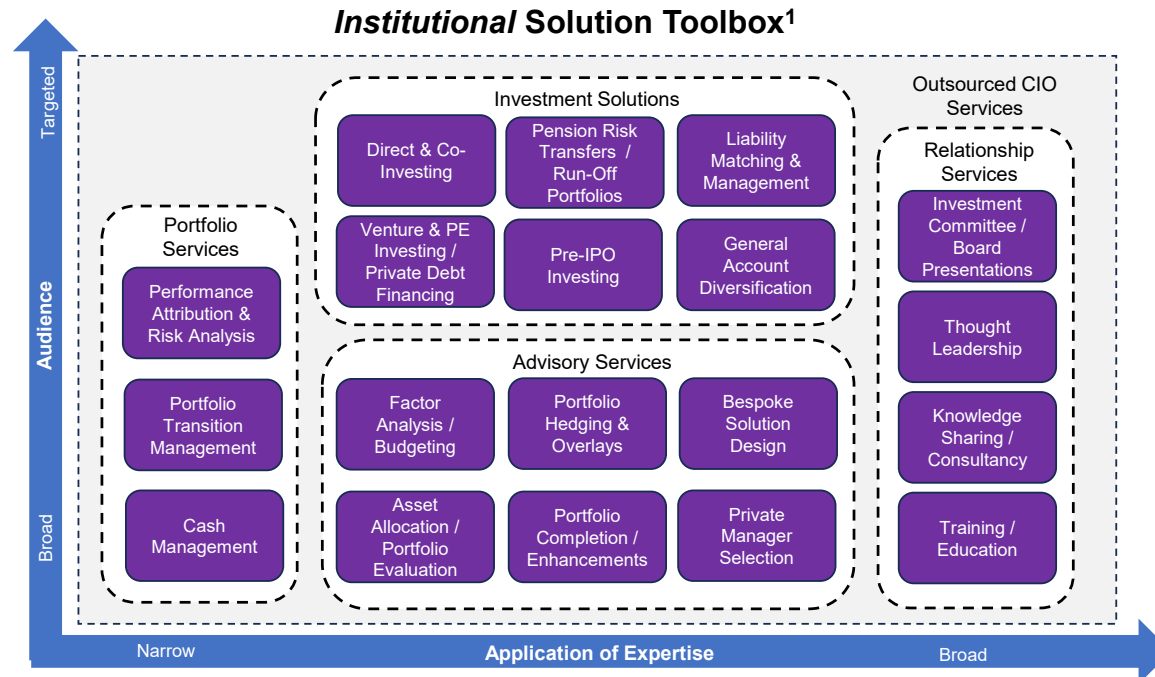
- **From Passive to Active Portfolio Oversight:** One hallmark of the Solution era has been a significant advancement in the “engineering” of institutional portfolio construction. Whereas this was once broadly outsourced to a set of industry consultants, more institutions are internalizing or at least more actively participating in this pursuit today
- **Growing Emphasis on Investment Expertise:** Rather than a bottom-up style box approach, more institutions are now taking a top-down approach to portfolio construction starting with their long-term investment thesis, then looking at the macro environment, allocating a factor budget, then looking within the equity risk and credit risk category to consider the type of exposure they are looking to engineer and the best options for obtaining these returns—across private and public funds and across active and passive approaches. This is all being decided ahead of any manager selection and requires a more financially proficient and skilled investment team
- **More Active Ownership of Portfolio Decisions:** Some allocators are applying a deeper set of analytics in manager selection, bringing in AI-driven tools. For institutional investors managing portions of their own money, expertise is deepening to include a more scientific analysis of investment opportunities in the public markets using alternative data and quantitative modeling techniques to optimize idea selection, trade establishment, position sizing, exits etc. Similarly, in the private markets, institutions are bringing in deal teams able to lead direct or participate in co-invest opportunities
- **More Member or Constituent Alignment:** Expertise is being extended in certain instances to a broader constituency. More pensions are allowing retiring members to choose to stay in the fund past retirement where they can continue to benefit from professional management; several corporate CIOs with both DB and DC plans discussed managing the company’s target date fund and even placing alternative investments into this offering
- **Ownership Advantage:** Asset owners are also using their long-term horizon to consider a different risks to their portfolio, increasing their exposure to technology innovation via VC allocations to understand how fundamentals may shift and using their ability to vote and influence corporate policy to focus on long-term concerns

1. Source: Franklin Templeton Industry Advisory Services

Expanding Ability to Create Bespoke Solutions



Investment managers consult with institutional clients to design bespoke solutions; for retail clients, standard solutions are utilized or used as a base to tailor some elements; new retirement approaches are shifting that dynamic and narrowing the gap



Retail Solution Approach

Current

- **Standardized Choices:** Retail clients can have a choice of solutions that deliver an array of outcomes—income generation, capital protection, inflation protection, risk-adjusted returns, etc.
- **Variations on a Template:** They can get more aggressive or less risky versions of these offerings given today’s array of model portfolios and they can access them in a variety of wrappers that might be more or less expensive.
- **Solution Tailoring:** With direct indexing, they may also be able to have the holdings adjusted and the tax treatment optimized to at least reflect their personal circumstances, but these actions are still being provided as choices on a menu.

Emerging

- **Retirement Solution Dilemma:** Baby Boomers are moving from accumulation to decumulation, and many are underprepared for retirement and longer lifespans, but there are so many variables that inform a retiree’s needs that a solution template is not workable, even one that can be tailored around key attributes
- **Toolbox Approach:** New tech-led toolbox approaches incorporate analytic tools and wizards to help advisors align their client’s requirements, and new building blocks such as annuities and structured products to construct bespoke solutions
- **New Starting Point:** What do you need vs. What Can I Offer You

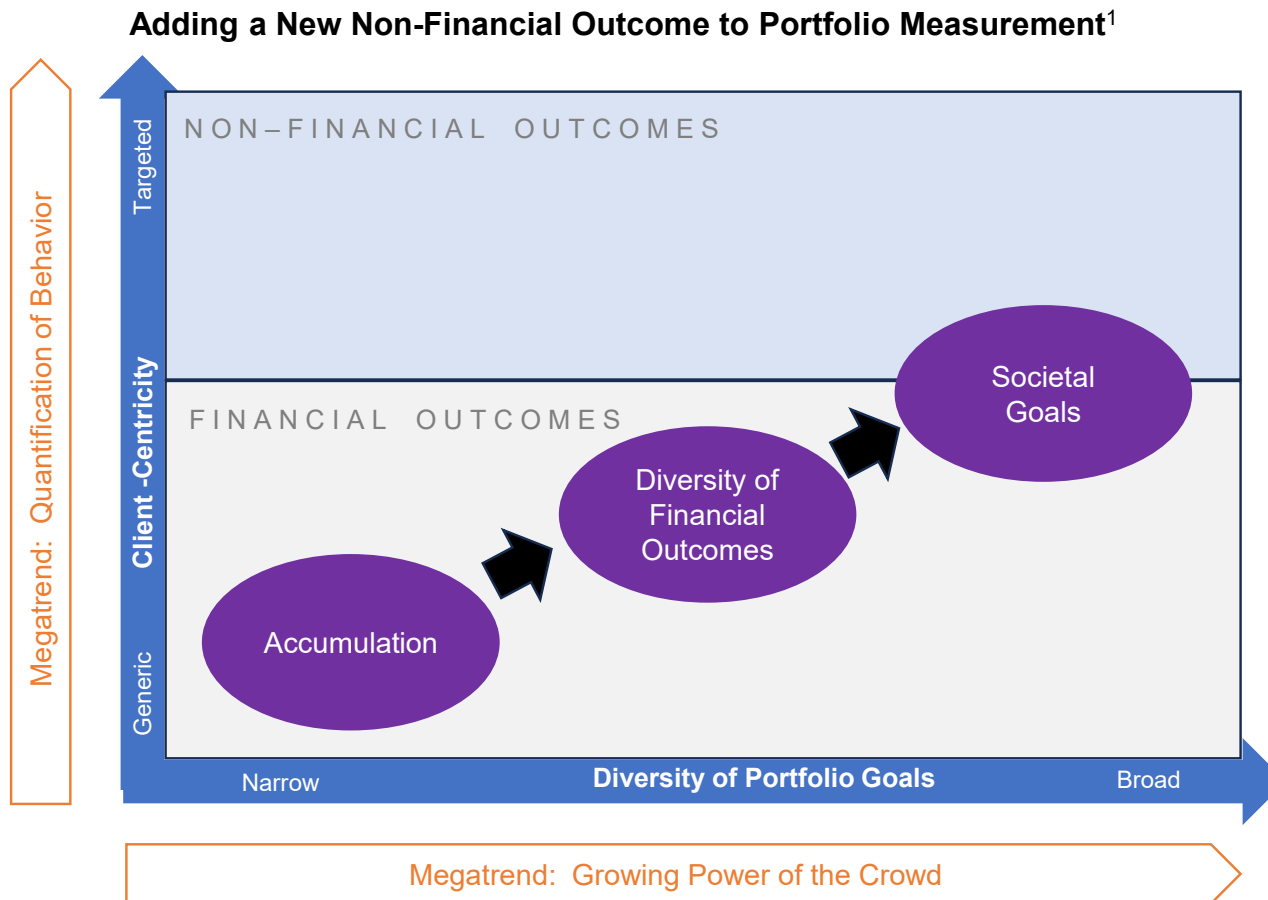
- **Consultative Engagement:** Given the increased customization of institutional portfolio approaches, investment managers are using a toolbox approach for solutions that can examine the portfolio through a CIO-like lens
- **Range of Tactical to Strategic Options:** The toolbox includes OCIO, bespoke hedges or overlays; liability-matching plans; portfolio assessments to show factor attribution or exposures; beta capture, completion sleeves; co-investment opportunities, and options to exit or create liquidity around the investor’s existing assets. Solution templates are also available for specific segments like pension risk transfer or general account diversification

1. Source: Franklin Templeton Industry Advisory Services

Shifting View of the Portfolio's Purpose



Net zero institutional commitments and demand from younger investors for thematic portfolios that focus on sustainability—Green Energy, Clean Water—are spurring company transitions and leading to a new 3rd dimension in portfolio measurements



- **Political Backlash in US:** Although there was widespread acknowledgement across survey participants that growth in ESG investing has been slowed by political backlash in the US, there was also near universal agreement that the trend toward using investment capital to foster the transition of key industries to a “greener” future is a secular trend that will continue
- **Risk vs. Values Approach:** Institutional owners of securities see this as a pre-financial risk that threatens the long-term value of their portfolio holdings, but for younger individuals, this is a core value by which they are shaping their lives, and they are looking to use their investment capital to support outcomes that align with their personal beliefs. The Bank of America Private Bank study found that 73% of investors age 21-42 own sustainable investments versus only 21% of individuals over the age of 43²
- **New Non-Financial Portfolio Measures:** Sustainability reporting standards are due to be launched on January 1, 2024. These mandatory guidelines require disclosure of sustainability-related risks and opportunities across the entirety of a company’s value chain. This should simplify the compilation of new measures and make reporting on sustainability metrics more effective
- **Three-Dimensional Portfolio Performance:** For the first time, an investment portfolio’s performance may begin to be measured not only by financial metrics such as risk and return, but also by non-financial metrics related to how each company in the portfolio is progressing in its transition based on specific metrics and on how the collection of companies held in the portfolio are progressing on these goals in aggregate

1. Source: Franklin Templeton Industry Advisory Services. As of October 2023.

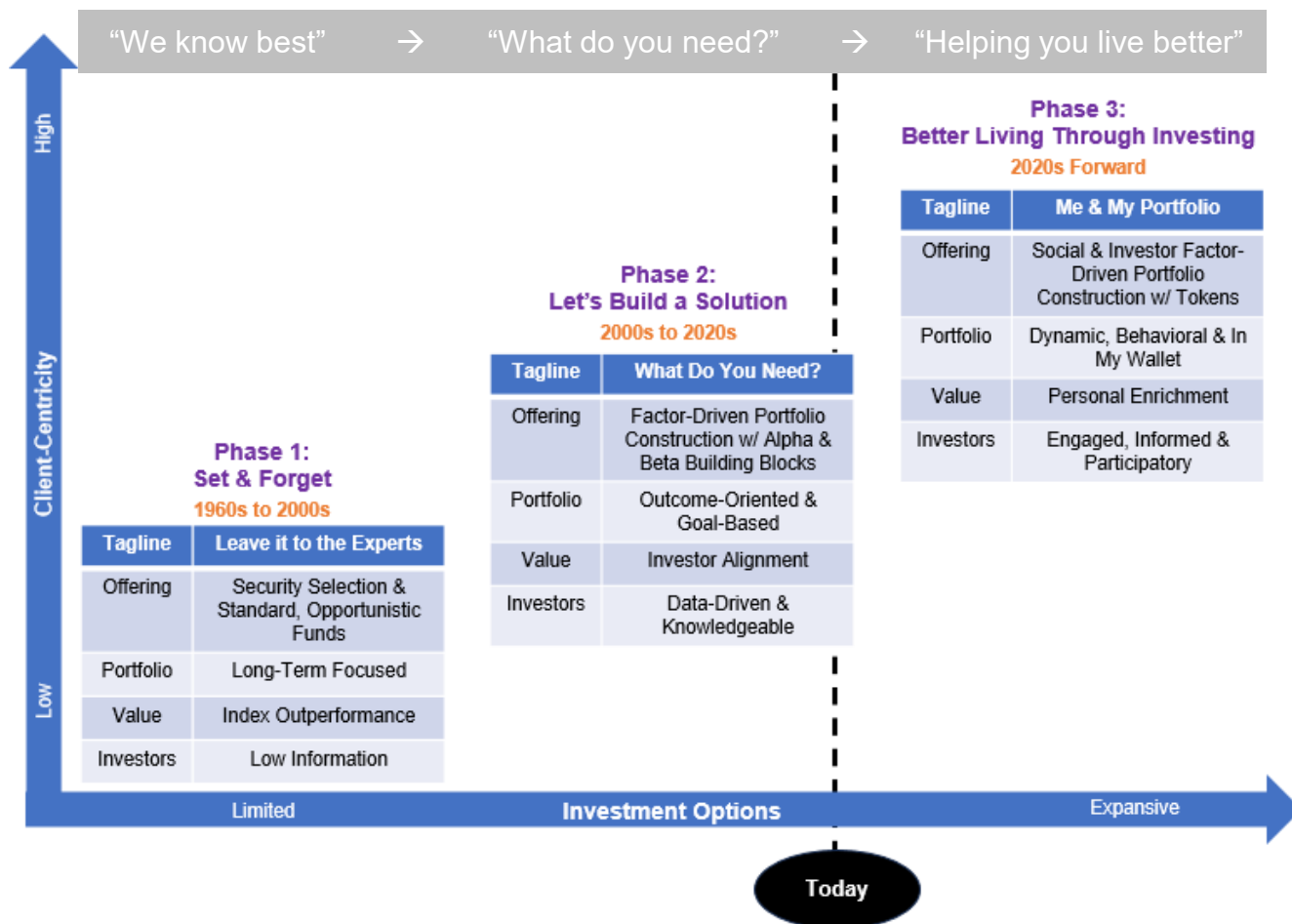
2. Source: “Bank of America Private Bank Study Finds Younger Investors Turning to Alternatives, Sustainability and Digital Assets to Create Wealth.” Bank of America. October 11, 2022.

Glimpses of a 3rd Era in Investing



Clues hidden in plain sight which point to a 3rd Era in Investing include younger investors embracing a “social” style of investing, the emerging technology to tailor solutions at scale, and expanding expectations of a portfolio to deliver non-financial returns

Investment and Wealth Management in the Modern Age



Clues pointing towards the industry entering a 3rd Phase

1. Younger generations have less resources + more immediate needs
2. Changing expectations and attitudes towards investing
3. Social connectivity and new preferred sources of advice
4. Technology enabling customization and personalization

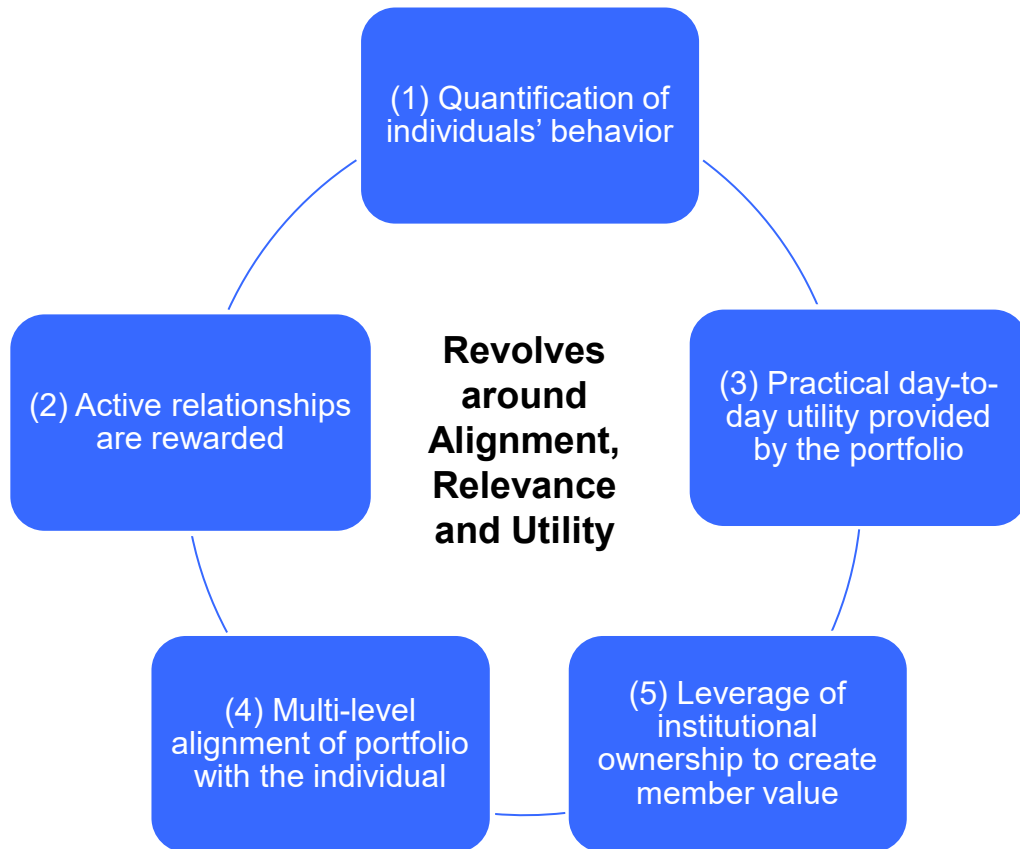
Phase 3 – Better Living through Investing

Key features revolve around alignment, relevance and utility

- Quantification of individuals’ behavior
- Close and wide alignment of portfolio with the individual
- Practical day-to-day utility and relevance of portfolio
- Leverage of institutional ownership to create member value/alignment
- Active relationship between an individual’s spending and investing

Expectations of a portfolio are changing and moving beyond it being only a vehicle for maximization of a future savings pot.

Better Living through Investing



Key Features of this Future

- 1. Quantification of individuals' behavior**
 - McKinsey notes AI's ability to create hyper-personalized content and offerings based on an individual customer's behavior, persona, and purchase history¹.
- 2. Active relationships are rewarded, often leading to fractional ownership**
 - Active link between an individual's activities and investing, e.g., Stash's stock rewards. This mirrors crypto projects rewarding participation beyond transactional involvement. Ownership invests the individual in the platform and spending benefits the owners.
- 3. Practical day-to-day utility and relevance of portfolio**
 - Investments may be structured to provide benefits, rewards and privileges enabling the owner to better enjoy their daily life with lower financial outlay. The portfolio will move from being peripheral to an individual's day-to-day life/relevant only to life beyond a future retirement date to being central.
- 4. Multi-level alignment of portfolio with the individual**
 - Old model: modification of standard templates to address future financial needs only
 - New model: creation of portfolio with multiple benefit streams aligned to personal needs, values, affiliations, interests, passions + measurement of contribution of financial investments to selected societal/community goals
- 5. Leverage of institutional ownership to create member value**
 - Ownership positions institutions to negotiate and structure non-financial rewards for their members. Active ownership maximization may become a new dimension of fiduciary responsibility.

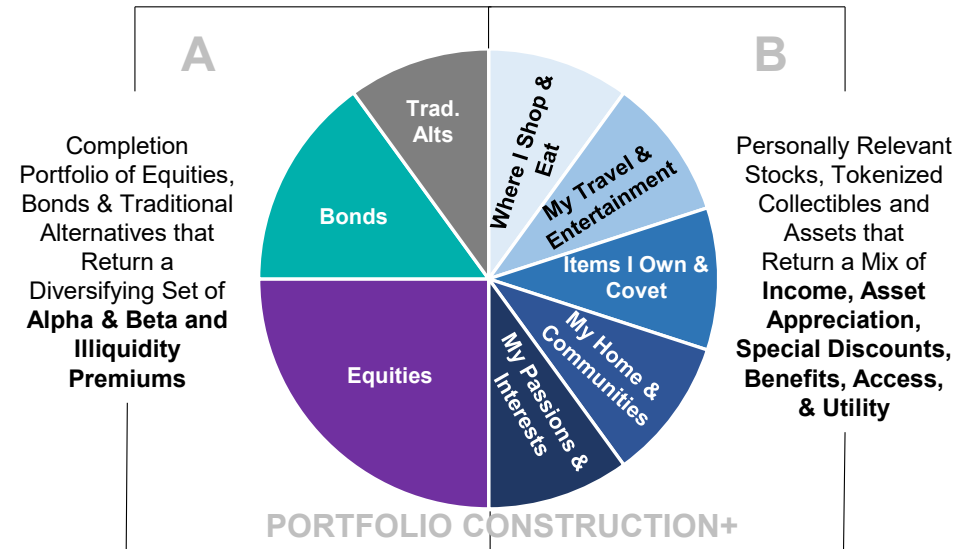
Portfolios as a Source of Personal Enrichment



Designing the portfolio to deliver personal enrichment as well as financial enrichment would create the type of alignment that younger generations need and desire; wrapping that social style of investing with professional expertise ensures long-term goals

- **Ongoing evolution and expansion of portfolio goals**
 - Generic accumulation maximization strategies expanded to include complementary financial goals, e.g., risk levels, volatility, liability matching.
 - Pursuit of financial goals are in turn being informed by wider societal or environmental considerations for some investors.
- **More personally relevant portfolios**
 - The portfolio is becoming a vehicle for the achievement of more than simply financial goals. Enabling technologies and changing attitudes to investing are moving us towards aligning portfolios with a **personal mix of values, interests, lifestyle and needs**.
 - **New dimensions of utility** are possible to support individuals' **day to day living**, not just their future life beyond retirement.

Bringing Together Expertise & Social Identity in the Portfolio



Possibilities for **additional value streams** generated by a portfolio

- **Discounts and ownership rewards** for where money is regularly spent
- **Connection** with community of like-minded peers + related tools/services
- **Incremental income sources** from new asset monetization opportunities
- **Experiential components** can be structured into financial investments

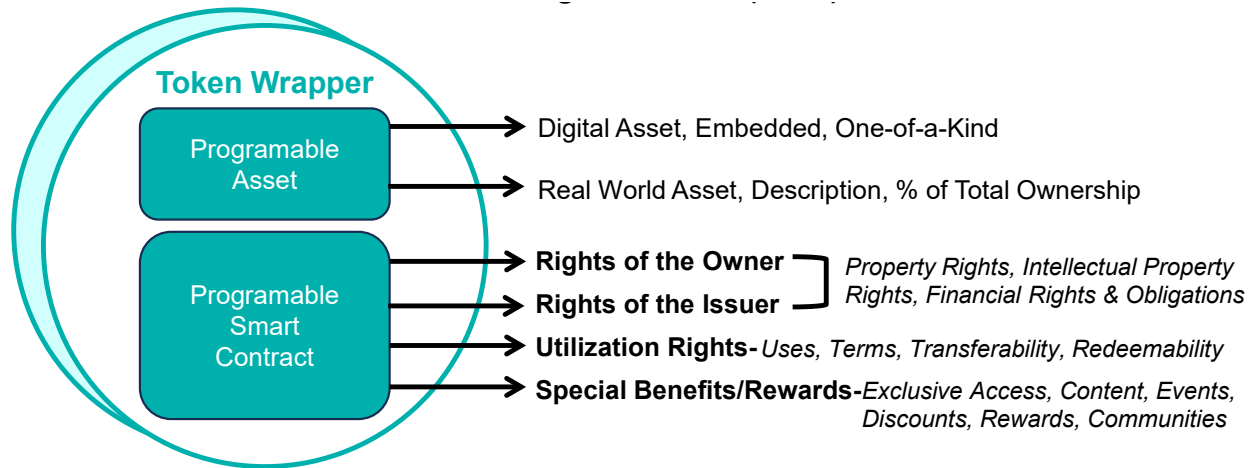
- **Individual-centered portfolio construction, optimization and completion** → requirement for **deeper understanding** of the individual – who they are, how they live, their preferences (revealed + stated) and interests + need for the wealth and asset manager to work closely together
- **Wealth platform and advisor** – profile creation and enrichment + maintaining alignment of the portfolio + highlighting personal concentration risks + portfolio optimization advice
- **Investment manager** – sourcing and creating the instruments relevant to individual client needs + completing the portfolio + providing diversification + balancing overall risk-adjusted financial and experiential return

Expansion of Investible Options & Benefits



Growing use of NFTs that can bestow ownership and enable the automated administration of financial and utilization rights may become a foundational building block of the future, allowing a whole array of new asset classes to emerge

Non-Fungible Tokens as a New Vehicle to Deliver Assets & Benefits



- Token properties

- Tokens are **programmable**: Tokens are pieces of software that represent various aspects of **ownership and utilization** of an asset (physical or digital) and can have self-executing contracts (“**smart contracts**”) embedded
- Tokens can **embed and specify different rights**, e.g., property, IP, financial rights (and obligations) of the owner and issuer both for both digital assets (e.g., pictures, video, gaming objects, etc.) and physical assets
- Tokens can also **define the terms and conditions of transferability** of the asset (e.g., variation in the cash flows, a share of resale proceeds, time restrictions) as well as embed specific benefits and rewards for the token owner

Expanded Set of Assets Available for Portfolios Enabled by Fractionalization / Tokenization

Individually Owned & Affiliated	Company / Public Owned & Affiliated		Traditional Assets / Capital Structure
Small & New Businesses	Franchises	Real Estate	Equity
Creator Assets	Royalties	Inventory	Debt
Personal Assets	Creator / Influencer Revenues	Infrastructure / Platforms	Currency
Collectibles	Public-Private Partnerships	Intellectual Property	Commodities
Social Communities	Loyalty Points & Programs	Limited Editions	Real Assets

- **Market size**: The total size of tokenized assets globally is expected to increase by more than 50,000% reaching \$16 trillion by 2030¹
- Tokenization could enable **investors to become issuers** and for **corporates (and individuals) to value and monetize intangibles**: selling (and buying) portions of an individual asset (house, franchise, business) for liquidity, diversification and investment, and making intangible assets transferrable or accessible, e.g., video content, patents, data, loyalty points, infrastructure.
- **New types of portfolio assets**: Collectibles, royalties and cultural assets in NFT wrappers can generate income streams just like traditional assets

1. Franklin Templeton Industry Advisory Services 2. Haqshanas, Ruholamin. “On-Chain Tokenized Assets Could be a \$16T Market by 2030: BCG Report.” Tokenist. September 13, 2022.

The State of Investment and Wealth Management Today

Warning Signs Indicating that a Shift to a New Era May be Approaching

Vision for a New Phase of Investment & Wealth Management

Re-Architecting of the Financial Market Infrastructure

Investment and Wealth Management in the Future World

Re-Architecting the Global Payment Infrastructure



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Significant work has been accomplished in recent years to create a more real-time, interlinked, and effective payment global payment infrastructure with pilots progressing and launches of new blockchain-based and digital currencies pending

Instant Payment Systems

- By 2022, estimates were that **55 countries had implemented instant payment networks** and that at least 10 more had plans in the works.¹
- The latest wave of innovation in the instant payment space is **connecting national networks**. Links were made between 7 Southeast Asian nations in 2022²
- Beyond bi-lateral linkages, the Bank of International Settlement (BIS) has created Nexus, a blueprint for **interlinking multiple domestic instant payment networks**.
- The first prototype of Nexus was built in the BIS Innovation Hub Singapore Center. In 2022, this prototype connected the Eurozone's TARGET Instant Payment Settlement (TIPS) system, Malaysia's Real-time Retail Payments Platform (RPP), and Singapore's Fast and Secure Transfers (FAST) payment system.³

Blockchain – Based Payment Solutions

- Multi-phase initiatives--**Project Jasper** in Canada and **Project Ubin** in Singapore--concluded that gains would be possible in both exchange-traded and OTC markets by integrating cash on the same ledger as wholesale payment systems⁴
- The Bank of England created an omnibus account structure to integrate with various blockchain solutions⁵
- 2 **multi-central bank initiatives** are currently underway-- M-CBDC Bridge, with China, Hong Kong, Thailand, and the UAE,⁶ and Project Dunbar, from BIS, Singapore, Malaysia, South Africa, and Australia.⁷
- An initiative from the NY Fed Innovation Center, Swift and 9 financial institutions is experimenting with **tokenized commercial bank deposits** (regulated liabilities)⁸
- **New payment intermediaries** are emerging-- Fnlity and Partior; JPMorgan and Citi Securities Services each created proprietary solutions

Central Bank Digital Currencies & Stablecoins

- A total of **130 countries** representing 98% of the global economy are now **exploring digital versions of their currencies**, with almost half in advanced development, pilot, or launch stages⁹
- In the US, progress on a digital dollar is only being considered for wholesale (bank-to-bank) money but work on a retail version has stalled¹⁰
- The Bank of England is in the design phase of its CBDC¹¹; the EU has draft rules to give legal underpinnings to their plans and is expected to decide in October 2023 whether to proceed with a digital euro for retail use cases from 2026 onwards to sit alongside cash¹²
- A 2023 Bernstein report estimated that the **stablecoin market**, which is today \$125 billion could grow to as much as \$2.8 trillion in the next 5 years led by global financial and consumer platforms¹³ Hong Kong, Singapore & Japan are launching stablecoin projects and PayPal has issued its own dollar-pegged stablecoin¹⁴

Re-Architecting the Financial Market Infrastructure



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Operational reforms to shorten securities settlement are occurring in parallel to workstreams that are starting to revamp the 50-year old financial market infrastructure to enable tokenized securities, atomic settlement with digital cash and crypto trading

T+1 and T+0 Settlement

- India moved from T+2 to T+1 settlement on January 27, 2023, and the Philippines on August 24. Mexico, the US, and Canada are due to move to T+1 settlement in late May 2024.¹ The DTCC has launched its ION blockchain to run in parallel to existing systems and facilitate T+1²
- Support for the use of **CBDCs to facilitate a shortened settlement cycle** jumped +21% among securities firms between 2022 and 2023 according to a recent Citi Securities Services survey with 87% of firms seeing CBDCs as a viable option for shorter settlement cycles by 2026.³
- Expectations that digital money will not be used to support securities settlement by 2026 fell - 15% from 28% in 2022 to only 13% in 2023⁴
- Citi's survey respondents expected the financial industry to **move beyond T+1 by 2028**⁵

Atomic Settlement & Digital Markets

- Guidance released in 2019 from the Financial Action Task Force (FATF) encouraged countries to create **regulations for virtual asset service providers**.⁶ Since that time, the EU has issued the Markets in Crypto Assets (MiCA) rules due to go into effect on Jan 1, 2024⁷; The UAE⁸, Hong Kong⁹ and Brazil¹⁰ have announced rules and Singapore's MAS has put out a framework for open, interoperable networks ¹¹
- The **EU** launched the **Pilot Regime** to experiment with blockchain and tokenization within existing securities infrastructure.¹² **Euroclear** announced that they would build a blockchain platform for trading digital securities and partner with Fidelity to pay for transactions with CBDCs.¹³ The EU is also launching a **digital wallet system** pilot later in 2023.¹⁴ A decision on whether to transition onto this new infrastructure is expected in 2026¹⁵
- **Singapore and Hong Kong sandboxes** are testing various aspects of digital security issuance, trading, financing & fund management

New Industry & Proprietary Digital Infrastructure

- Switzerland's SIX exchange has launched SDX—an **end-to-end digital exchange**¹⁶ as has the Boerse Stuttgart in Germany.¹⁷ SIX and SBI Holdings from Japan will be launching a new **digital exchange in Singapore for cryptocurrencies and digital securities**.¹⁸ Singapore Stock Exchange (SGX), Temasek and the Japanese Development Bank launched a **digital securities exchange**—ADDX¹⁹
- **New industry intermediaries** are being created—Marketnode in Singapore is a JV from the SGX and Temasek to make token issuance into a series of smart contracts and will launch a digital fund distribution platform Fundnode later this year²⁰; HQLAx is a consortium to tokenize collateral²¹; the Canton Network is an open blockchain network for institutional issuance, trading and financing of digital securities supported by 30 industry firms²²
- SBI Holdings, Societe Generale, Goldman Sachs, HSBC, and Deutsche Bank have built token **issuance and support platforms**; JPM has built the Onyx blockchain for securities financing

Please see Appendix slide 46 for source information.

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Real World Asset Tokenization



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Much of the industry dialog and focus has shifted from cryptocurrencies and tokens to the industry's opportunity to use tokenization, blockchains, and smart contracts to create a 21st century ecosystem for securities and fund management

\$20 Annual
Operations
Savings

\$100 Billion
in
Collateral
Savings

\$16 Trillion
Market in
Tokenized
Assets by
2030

21
Tokenized
Bond
Issuances
since 2021

4 Asset
Managers
Launched
Tokenized
Funds

3 Private
Fund
Managers
Launched
Tokenized
Sleeves

A 2023 report from the Global Financial Markets Association (GFMA) and the Boston Consulting Group (BCG) found that **DLT could unlock transformative cost-savings and operational efficiency benefits of approximately US\$20 billion annually** in global clearing and settlement costs in a fully implemented system **and free up approximately US\$100+ billion in collateral** that could be redeployed to generate incremental returns.¹

GFMA and BCG also note the potential for innovation-led growth, broader market access, and new liquidity pools which could help to create a **US\$16 trillion global market for tokenized illiquid assets by 2030**, up from a base of ~US\$0.3 trillion today.²

GFMA and BCG also note that **today's ~US\$41 trillion corporate bond market could balloon**. Bond issuance could be enhanced by blockchain enabling smaller-size issuances for deals above US\$300 billion³

21 tokenized bonds have been issued since 2021—European Investment Bank issued 3 across public & private; four companies issued bonds, two with support from banking partners^{7,8}, and two on their own^{9,10} **Marui**, a department store, issued their bond directly to their credit card customers and paid out 70% of the yield in loyalty points¹¹

Franklin Templeton was the first firm to launch a **tokenized mutual fund** in 2022¹² In 2023, abrdn¹³ Wisdom Tree¹⁴, & Mediobanco¹⁵ all released tokenized public mutual or UCITS funds

In July 2023, State Street published a report, "*Why Digital Tokenization is a Priority for the ETF Industry*". Noting that tokenization has the **potential to improve the trading, settlement, information-sharing, transparency and distribution reach of ETF products**¹⁶

Being able to offer **fractional shares of private funds** via tokenization may open the asset class to wider participation. Hamilton Lane¹⁷, Apollo¹⁸ and KKR¹⁹ released tokenized private funds in 2022

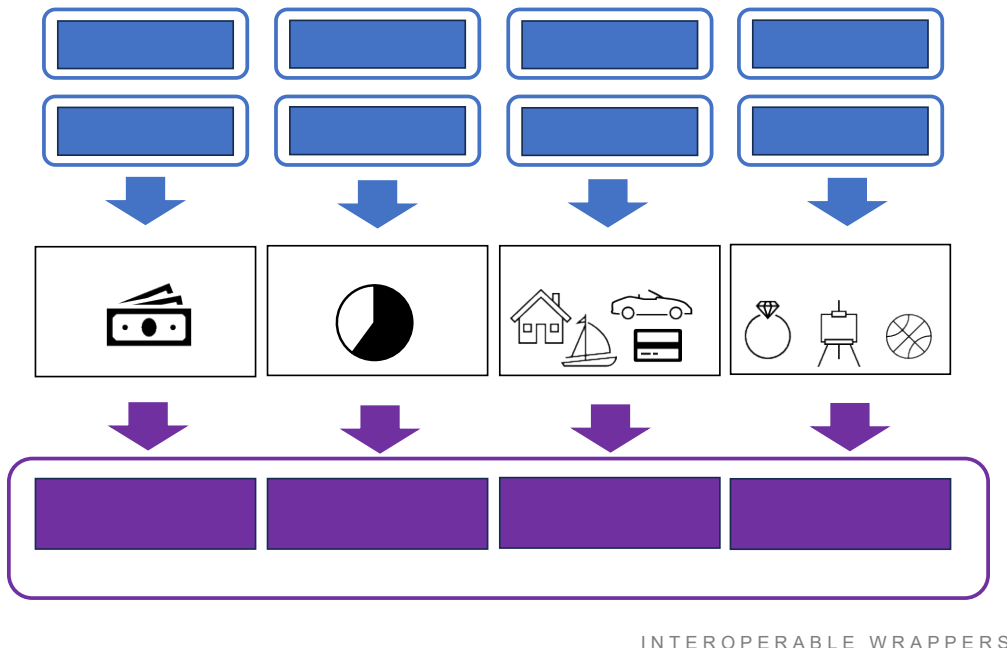
Please see Appendix slide 47 for source information.

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Implications of a Move to Digital Wallets

A shift to a new financial market infrastructure would make cryptographically protected blockchain-based digital wallets a foundational feature of the future landscape, changing the nature and scope of investment opportunities

Creating a Consolidated Set of Financial Holdings



- **Fragmentation of Assets:** Today, individuals and institutions deal with fragmented accounts with assets and liabilities distributed across multiple providers and accounts within providers. Optimization of asset use is challenging with no clear or unified view.
- **Tokenization would Result in Co-Mingling of Assets and Liabilities:** If cash, investment instruments, loan obligations, assets, valuables and collectibles were tokenized, they could be managed together. Documents could be embedded into relevant assets in smart contracts.
- **New Software-Based Wallets:** Tokens sit in a cryptographically protected, blockchain-based "digital wallet"--a piece of software that requires a digital key to operate. Keys are long sets of cryptographic code that must be shared when a wallet owner authorizes a transaction. Digital asset custody refers to the protection of this digital key.
- **New Types of Opportunities** from having assets co-mingled in a wallet:
 1. **Digital Identification:** KYC/AML could shift from the transaction to the wallet level.
 2. **Enhanced Cash Management:** Aggregating sources of cash into one account would offer opportunities to **optimize holdings** between digital currencies, stablecoins, cryptocurrencies and CBDCs
 3. **Increased Transferability:** Having all assets held side by side in tokenized wrappers would enable a wider variety of assets to be used as **stores of value or collateral** (e.g., loyalty points)
 4. **Automation & Interoperability:** smart contracts could be read and administered automatically and when assets are sold or transferred, **rights would automatically transfer** to new owner of the new wallet

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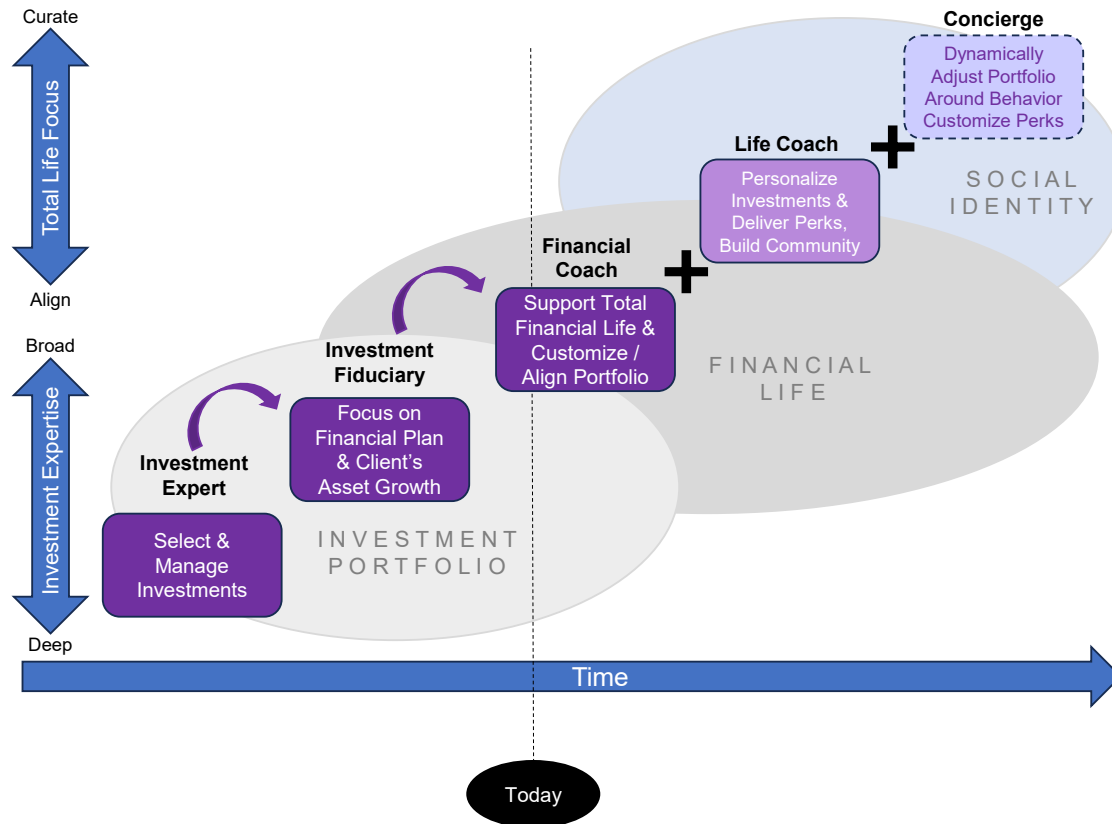
Investment and Wealth Management in the Future World

The Future of Wealth Management



If the vision is broadly correct, we may see another iteration in the focus of wealth management to incorporate the investor's social identity and an evolution in the role of the advisor to be a broader life coach, not just a financial coach

Vision for Wealth Management



Expanding Mandate for Wealth Managers: Advisors will need to think more holistically about their client's *entire* life, not just their financial life. Understanding clients' groups, communities, and interests and how the portfolio can be relevant to those may become an important differentiator alongside financial goal attainment.

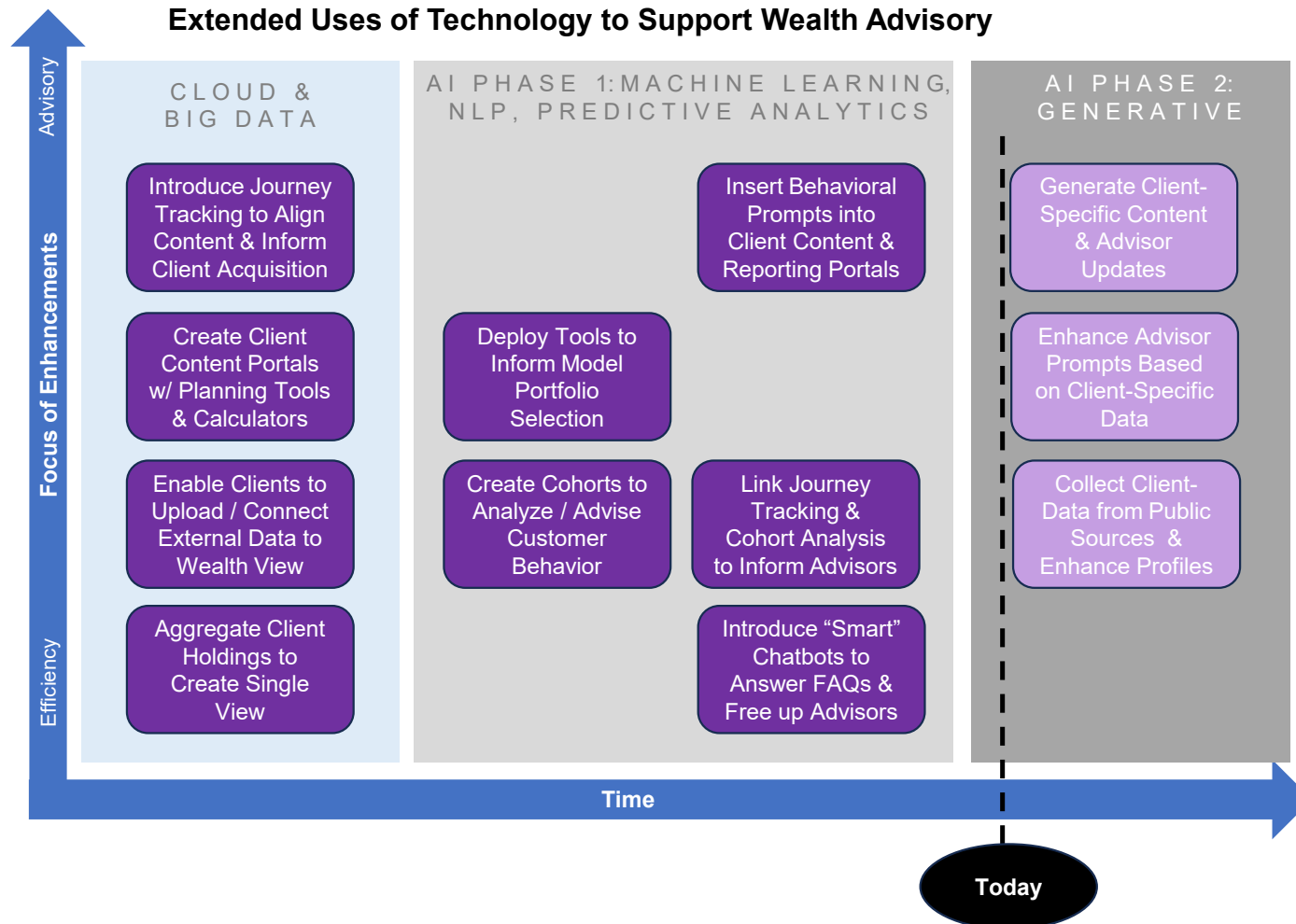
This would require them to extend their mandate in 4 ways:

- 1. More Assets:** The range of assets that clients may demand for their portfolio could extend well beyond today's traditional list. Accessing these assets directly or via partners may become a key demand of wealth advisors from investment management partners.
- 2. More Leveraging of Client Assets:** Understanding, unlocking, and monetizing trapped liquidity in their investor's assets by working with investment managers to structure and issue assets may become a key service requirement
- 3. More Utility:** Investments may need to provide utility beyond value appreciation, e.g., wealth managers may need to offer and link benefits, perks, and rewards to specific investments to attract, retain and provide additional value to customers
- 4. More Personal Relevance:** Wealth managers will need to move beyond cohort analysis to hyper-personalized profiling of customers to understand how to build the most optimal portfolio—this is where AI may become a critical tool

Expectations for New Generative AI in Wealth



Ideas around how generative AI that can deliver greatly expanded insights and capabilities might be applied to the wealth management industry abounded during our survey interviews—with early applications focused on personalizing client insights



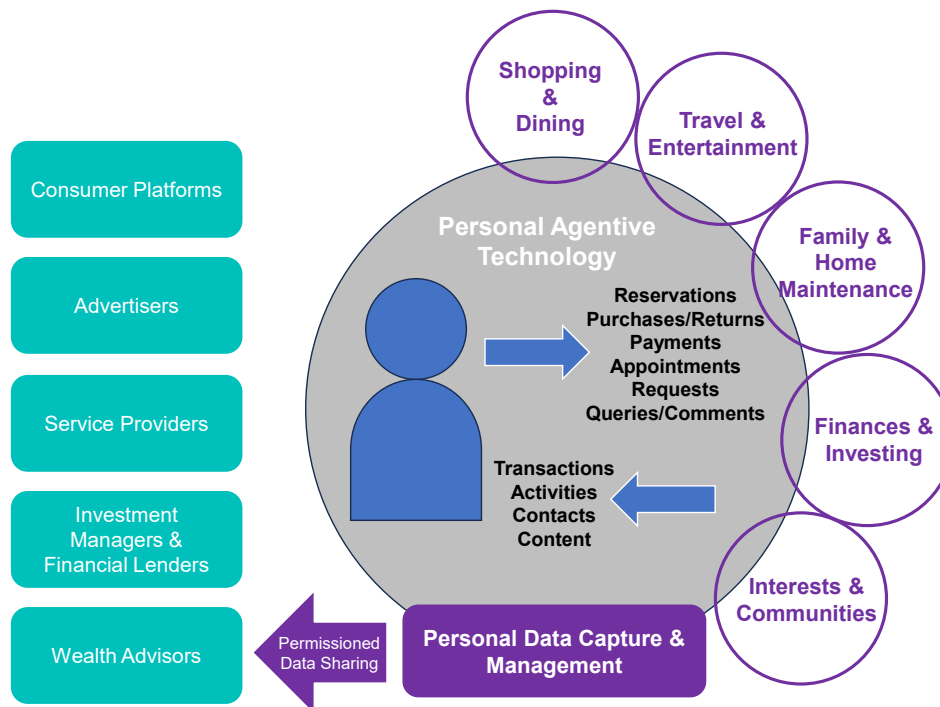
- **AI will help enable the move from the cohort/persona level to the individual level.** By itself, being able to accurately map an individual to a cohort does nothing to make the identified journey more compelling or engaging.
- Survey participants expect generative AI to be the key to personalization at scale, e.g., of content for prospects or existing clients, via richer automated dynamic profiling.
- **Generative AI is seen as key to building a much richer picture of an individual** based on a combination of existing but disparate data and data created through active engagement and interaction.
- The ability of AI to autonomously search, find, and synthesize data from multiple and often unknown sources is expected to be harnessed to generate insights on individuals at scale.
- **Better targeted and more specific advisor prompts** are expected to come from combining these enhanced profiles with insights gleaned from with online interactions can.
- These can equip advisors with client-specific product recommendations and sales strategies, openings to expand their coverage of the client's network, as well as providing nudges to both advisers and their clients.

Personal Agents & Dynamic Wealth Portfolios



Evolution in AI beyond today's generative large language models is already gaining attention with one key application being the creation of personal agentic technology that becomes an interface for an individual's interaction with the world

Vision for a Personal Agent



- **Bill Gates & the Future:** In the early 80s, Bill Gates envisioned a future where there would be a computer on every desk and in every home. In May 2023 he made another prediction:

“Advances in AI will enable the creation of a personal agent. Think of it as a digital personal assistant: it will see your latest emails, know about the meetings you attend, read what you read, and then read the things you do not want to bother with. This will improve your work on the tasks you want to do and free you from the ones you don't want to do. You'll be able to use natural language to have this agent help you with scheduling, communications, e-commerce, and it will work across all of your devices.”¹

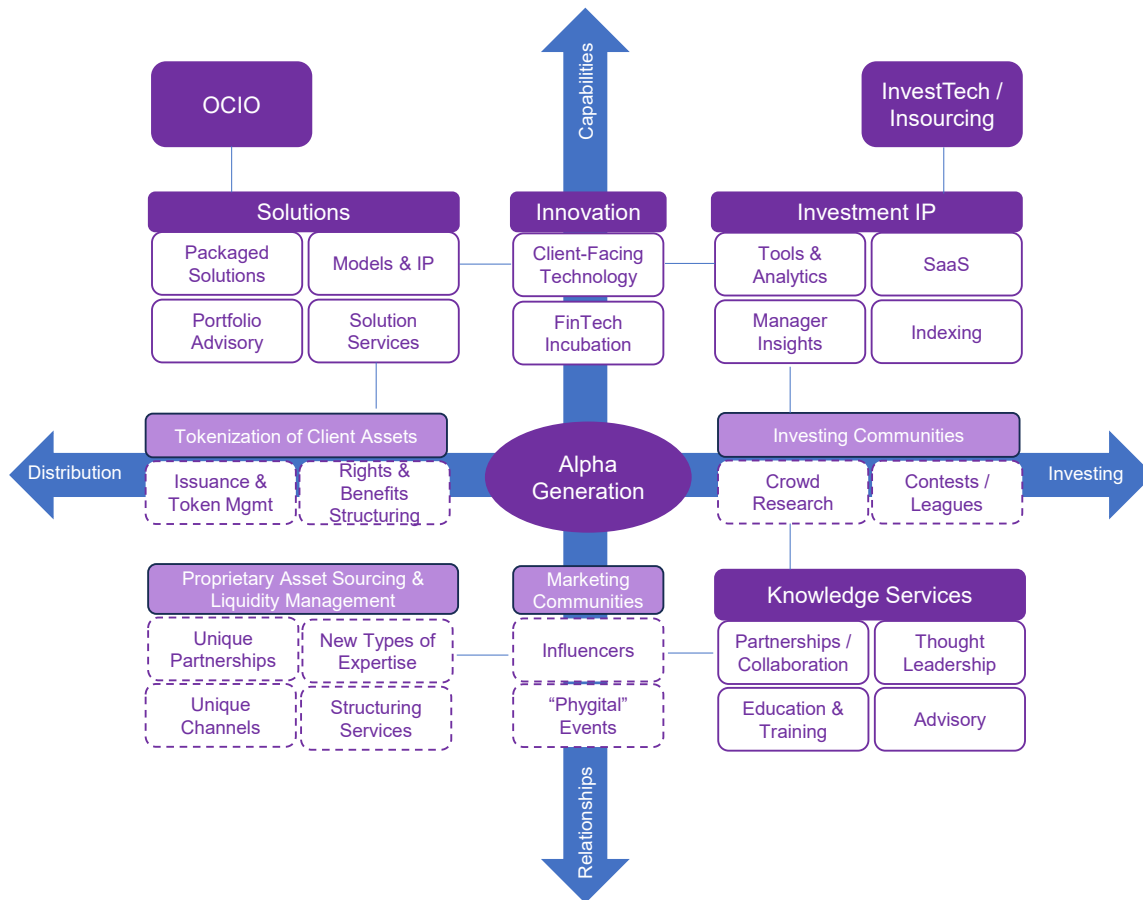
- **Activities & Data Management:**
 - In the future, a **personal AI** may make your reservations, initiate your purchases, coordinate returns, make payments, schedule your appointments, book your travel, monitor your monthly budget, solicit and filter information from vendors, service providers, etc.... You would control and be able to **permission sharing** of different levels of this interaction data in exchange for payments and perks, which the AI would negotiate and administer.
- **Dynamic Profiles & Evolving Portfolios:**
 - Having a constant data flow from individuals to their wealth advisor platforms would allow for **dynamic modeling** of the individual as well as **hyper-personalization**. Data could be monitored for changes in wants, needs, activities, and engagement, i.e., social identity and feed into wealth manager **portfolio construction** algorithms + trigger **advisor prompts** to re-balance the personally-enriching portfolio holdings to keep the portfolio maximally **relevant and aligned** with the individual's day-to-day life.

The Future of Investment Management



The future of investment management may feature a blending of today's expertise-driven approach with the emerging "social" investing model to better engage clients as well as create new tokenized offerings to deliver financial and experiential returns

Vision for Future Investment Management Plus¹



- **Tokenized Securities & Fund Management:** The tokenization of more of today's assets will require investment managers to rebuild their infrastructure and processes to accommodate wallet-based holdings, digital identity, and atomic settlement.
- **Proprietary Asset Sourcing & Structuring:** Future competition may require managers to add proprietary asset sourcing and structuring capability that allows them to create new offerings that combine financial returns with other perks and services.
- **Token Issuance as a Service:** Firms could create their own tokenization platform for client assets as part of a new solutions service that encourages a two-way, consultative dialog with institutional and wealth clients, and even potentially with certain companies.
- **Marketing Communities:** Every investment manager has a unique history, approach, and talent set. Getting others to understand, promote, and affirm the messaging around those attributes is a proven driver of brand value. Community-driven recommendations eclipse the impact of direct marketing. A 2023 Reddit study found 94% of users have engaged with recommendation content²
- **Investing Communities:** Many individuals now possess the tools and skills required to support them making informed investment decisions. Incorporating individuals interested in investing into a firm's community and using them to generate ideas may become a way to access crowd insights, engage participants and potentially transform talent programs.

1. Source: Franklin Templeton Industry Advisory Services

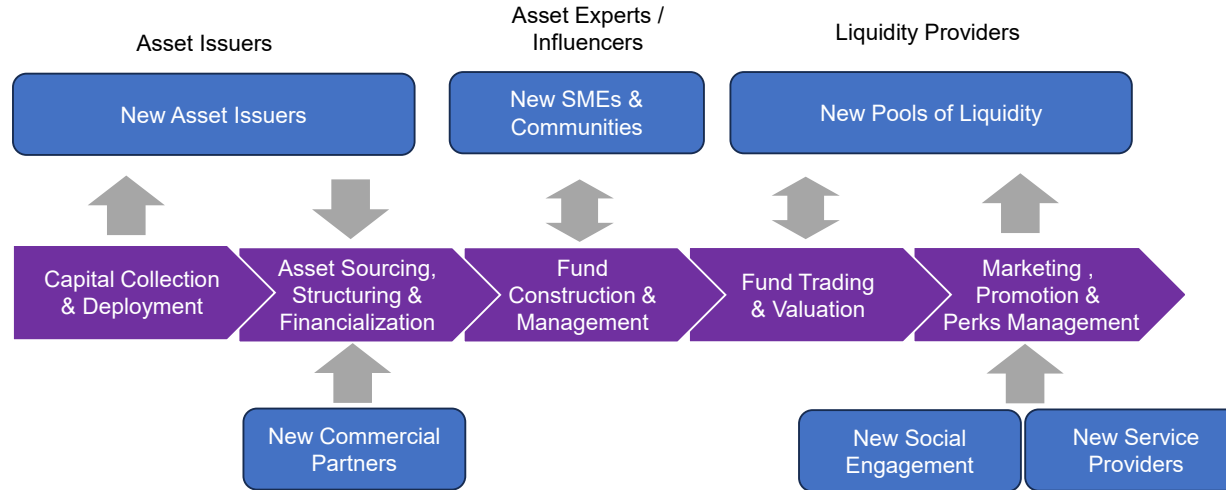
2. Source: "How community recommendations drive collective influence." Reddit for Business. June 20, 2023.

Proprietary Sourcing of Unique Assets



Investible assets in the future are likely to be drawn from a wide array of originators—managers may need to create sourcing teams to identify assets and develop a broad set of strategic relationships to support, structure, value & manage such assets

Vision for Investment Manager Proprietary Asset Sourcing & Tokenization



- **Sourcing and Structuring:** Creating a pipeline of new assets may require investment managers to forge a broad set of **new strategic relationships** with entities that typically sit outside the traditional financial realm and build the **in-house expertise** to “financialize” the assets that they secure (e.g., negotiating the share of the asset to be tokenized, defining the owner’s rights and obligations, designing the cash flow characteristics). **New types of service providers** may be required to structure and administer benefits, perks or rewards associated with the investment.
- **Portfolio Construction and Management:** **Subject matter experts** from divergent fields may be required to **select, size and manage** portfolios of new assets. For example, Tokenchampions is an investment fund that tokenizes debts for the acquisition and management of international football players’ image rights. The selection of players is being done by Josep Maria Minguella who discovered and developed talents like Maradona and Messi. Having this caliber of individual with acknowledged expertise in the field choosing investments raises **investor confidence**, especially if combined with traditional **portfolio construction and risk management expertise**.¹
- **Valuation and Liquidity:** Appreciation of value will be highest among those with the most knowledge. Demand from interest-driven experts will be higher and more informed than buyers simply in search of yield. Being able to tap into interest-based communities and deep knowledge of the assets should create better engagement, liquidity, and more accurate valuations. This may require managers to forge relationships with niche communities and marketplaces (e.g., in-game exchanges).

Appendix 1

Re-Engineering of Financial Markets Infrastructure

Today's Infrastructure is 50-Years Old



Today's financial market infrastructure was devised and launched in the 1970s in response to issues that surfaced during the 1960s Paper Crisis in the U.S. securities markets—this template has rolled out worldwide and continues to guide daily operations

1960's Paper Crisis

- Daily average trading volumes spiked 3x between 1964 and 1967 on the NYSE, hitting 12 million shares/day by 1968 ¹
- Settlement required that stock certificates be physically delivered from seller firms to buyer firms
- Trading houses had three shifts of clerks working 7 days/week and nights to process transactions ²
- Processing slowed so much that the settlement cycle was extended to T+5 and the NYSE restricted trading to 4 days/week to allow firms to catch up on backlogs ³
- Over 100 firms (1/6th) of NYSE members were forced out of business ⁴

1970's Financial Market Infrastructure

- The Depository Trust Company (DTC) was formed in 1973—stock certificates were immobilized and dematerialized and replaced with “book-entry” accounting
- The National Securities Clearing Corporation was formed in 1976 to act as a central counterparty and to facilitate the securities settlement
- These 3 components—central counterparties (CCPs); securities settlement systems (SSSs) and central securities depositories (CSDs) make up the financial market infrastructure
- International central securities depositories (ICSDs) were later developed to help facilitate cross-border trade

Key Operational Processes

- CSDs hold ledgers in “street name” and trading firms maintain their own ledgers that reconcile their holdings to specific client accounts
- Central counterparties act as the buyer to every seller and the seller to every buyer. This allows for multi-lateral netting of daily positions. Every firm settles up their net change in positions at the end of a day instead of settling each trade
- When trades settle, the buyer delivers in the cash (payment) and the central securities depository transfers the book-entry ownership of the securities certificate from the seller to the buyer (Delivery vs. Payment)

Comparing Today's Infrastructure with Crypto



Processes introduced via the 1970s financial market infrastructure were cutting edge applications of technology at the time, but new capabilities offer superior options for global markets as evidenced by options available today in the crypto ecosystem

Key Operational Processes

- CSDs hold ledgers in “street name” and trading firms maintain their own ledgers that reconcile their holdings to specific client accounts
- Central counterparties act as the buyer to every seller and the seller to every buyer. This allows for multi-lateral netting of daily positions. Every firm settles up their net change in positions at the end of a day instead of settling each trade
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Issues with Today's Approach

- Requires reconciliation across multiple firms' ledgers to ensure the accuracy of client-level transactions
- Prohibits intra-day processing & requires an official “close”
- Trading firms determine funding needs and collect payments post trade date, increasing risk of fails
- Payments and security transfers are effected over separate sets of technology rails
- Book-entry adjustments and firm level adjustments around security ownership occur post trade date

VS.

VS.

VS.

VS.

VS.

New Opportunities Offered with Crypto Approach

- Blockchain provides a shared ledger that allows all participants to view transactions simultaneously
- Markets are open 24/7/365 and process transaction in real-time
- Transactions only go through if the buyer has sufficient funds already sitting in their digital wallet
- Digital currencies and tokenized securities can sit in same wallet and are processed by same blockchain
- Entire transaction is finalized in one go as the cash and the securities move simultaneously in real-time

Progress on Digital Currencies



Central banks and commercial banks have taken a lead in exploring blockchain and digital assets with use cases focused on central bank digital currencies, stablecoins, and cross-border payments

CBDCs & Stablecoins

- 130 countries representing 98% of the global economy are now exploring digital versions of their currencies with almost half in advanced development, pilot or launch¹
 - China's testing of the digital yuan now reaches 260 million people and covers 200 scenarios from e-commerce to government stimulus payments
 - India and Brazil plan to launch digital currencies in 2024
 - The EU is beginning digital euro pilot for 2028 launch; rolling out a EU-wide digital wallet system
- Stablecoin settlement reached \$11 trillion in 2022, almost the payment volume of Visa (\$11.6 trillion).²
- A Bernstein report forecasts that the stablecoin market to grow from \$125 billion to \$2.8 trillion in the next 5 years³
- PayPal⁴ and Societe Generale⁵ have launched their own stablecoins, showing cross-over from crypto domain

Cross-Border Payments

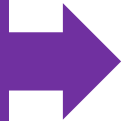
- Multi-CBDC payment pilots underway: Project Dunbar sponsored by BIS, Singapore, Malaysia, South Africa, Australia⁶; Project M-Bridge from BIS, China, Hong Kong, UAE⁷
- India in discussions with 18 countries on possibility of cross-border payments using its digital rupee⁸
- NY Fed Innovation Center, SWIFT, and 9 financial institutions testing regulated liability network to tokenize commercial bank deposits for cross-border payments; 2nd pilot targeted for UK later in 2023⁹
- UK Treasury announced omnibus account structure able to integrate with multiple types of blockchain solutions ¹⁰
- A consortium of organizations formed Fnality, based on a Utility Settlement Coin (USC) that allows rapid exchange of CBDCs—chosen by UK Treasury & Euroclear for pilots ¹¹

Regulatory Progress on Virtual/Digital Assets



Central banks and commercial banks have taken a lead in exploring blockchain and digital assets with use cases focused on central bank digital currencies, stablecoins, and cross-border payments

Exploratory
Pilots (Ubin,
Jasper &
Helvetia)
2016-2020



- Concluded that benefits of blockchain-based payment system would lie in the interaction with broader financial market infrastructure by integrating payments and assets on the same ledger
- Demonstrated feasibility of settling tokenized assets with a wholesale central bank digital currency (CBDC) on blockchain; affirmed that CBDCs can be integrated with existing core banking systems and bank/central bank processes

EMEA

- EU Digital Finance package announced in 2020 – Markets in Crypto Assets (MiCA) rules were approved in April 2023; DLT Pilot regime that launched in 2023
- European Investment Bank has issued 3 digital bonds in 2021¹, 2022² and 2023³ testing both public and private blockchains with settlement done via CBDCs
- ESMA and European Commission to draft a report in 2026 to recommend future infrastructure and rule changes
- UAE created new Virtual Asset Regulatory Authority in 2023 and laid out framework for virtual assets and cryptocurrencies⁴; opening digital “Oasis” zones to encourage crypto entrepreneurship⁵

Asia

- Hong Kong released Virtual Asset Licensing regime in 2023⁶ & HKMA built a green bond issuance platform that links to sustainability data & metrics; issued 1st bond in 2023⁷
- Monetary Authority of Singapore (MAS) released framework for open, interoperable networks for digital assets comprised of tokenized real economy and financial assets
- MAS launched Project Guardian – 1st pilot tested DeFi for financial institutions executing FX and bond transactions via permissioned liquidity pools; future pilots to test tokenization of structured products, investment vehicles & repo financing with digitally native bonds⁸

Brazil

- Virtual Asset Service Provider rules went into effect in mid-2023⁹
- Digital asset investments shot up 44% between January-August 2023 compared to 2022¹⁰
- Demand for dollar-pegged stablecoins for payments has been especially strong
- 12,000 Brazilian companies listed digital assets on their balance sheets for 2022¹¹

Securities Experimentation



Key industry participants are already investing into token issuance platforms or creating tokenized securities venues and services to enable the full range of investment activities over the new blockchain rails

Security Token Issuance



Societe Generale FORGE Platform – Did 1st token issuance in 2019; unveiled stablecoin in 2023 ¹

Goldman Sachs Digital Asset Platform (DAP) performed 1st tokenization for EIB in Nov 2022 ²

HSBC Orion used in 3rd EIB issuance 2023³

DBS Digital Exchange (DDEX) supporting cryptocurrencies and tokenized bond issuance ⁴

Marketnode—a JV between Singapore Stock Exchange (SGX) and Temasek to support end-to-end process for bond and structured note issuance ⁵

Tokenized Asset Trading



Boerse Stuttgart launches digital exchange (2019) ⁶

MAS, SGX, Temasek & Development Bank of Japan launch ADDX (originally called iStoxx) (2020) ⁷

SIX creates Swiss Digital Exchange (SDX) (2021) ⁸

SBI Holdings & SMFG launch Osaka Digital Exchange for digital securities in Japan (2022) ⁹

SIX & SBI JV Gets Approval to launch AsiaNext Digital Exchange in Singapore (2023)¹⁰

Securities Settlement



DTCC launches ION blockchain to prepare for T+1 settlement (2022) ¹¹

DTCC runs pilot using synthetic digital dollar to settle tokenized securities on separate blockchains (2022)¹²

Euroclear settles digital bond with CBDC in conjunction with Banque de France (2022) ¹³

Euroclear invests in Fnality (2022), settles digital security with Fnality (2022) ¹⁴, and announces a new blockchain for securities trading (2023) ¹⁵

Financing



JPMorgan completes intra-day repo transaction on Onyx (2020) ¹⁶ and processes more than \$700 billion by mid-2023¹⁷

BNY Mellon and Goldman Sachs complete 1st agency securities lending transaction using HQLAx (2022) ¹⁸

Santander, GS & UBS complete 1st cross-chain repo swap using Fnality & HQLAx (2022) ¹⁹

JPM, DBS & SBI perform DeFi transactions using digital currencies & digital bonds as part of Project Guardian (2022)²⁰

Appendix 2

Sources and Footnotes

Warning Sign: Divergent Generational Needs & Views

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Warning Sign: "Social" Investing Shifts Model

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Warning Sign: Individually Sized "Alternative" Alts

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Warning Sign: Headwinds in Alternatives

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