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Personalize Personal Finance

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The Theory of Innovation: From Robo-Advisors to Goal Based Investing and Gamification

“People don’t want to buy a quarter-inch drill. They want a quarter-inch hole.”
—Theodore Levitt (1925–2006)

This chapter sketches the main arguments of this book. The theory of innovation provides the framework that helps to explain why robo-technology (disruptive) and the gamification of Goal Based Investing (sustaining) sit together as key determinants of today’s banking transformation. The search for personalization is the *fil rouge* that links the main elements of wealth management innovation. Industry decision-makers are therefore addressed with some useful action items, which allow them to tackle with clarity and rationality the challenges of robo-technology transformation.

1.1 INTRODUCTION

The history of banking is clearly the history of money, hence the history of trade which can be traced back as early as 12,500 B.C. to the usage by Anatolians of obsidian, a raw material used to build stone-age tools. But banking, as we know it today, is a more recent industry which was forged during the 12th century and early Italian Renaissance to facilitate commerce and manage personal finance for wealthy families in rich cities such as Florence, Venice, and Genoa; Monte dei Paschi di Siena being the oldest bank operating continuously since 1472. During the 17th and 18th centuries North European cities such as Amsterdam and London took the lead, fostering systemic innovations like central banking. Yet, only during the 20th century, and especially after the industry deregulation in the 1980s, which saw New York and London emerge as world leading financial centres, has financial innovation enabled banks to stretch their balance sheets and grow the level of international

interdependence to the point of becoming a potential systemic threat to the stability of modern economies, as demonstrated by the unfolding of the Global Financial Crisis (GFC) in 2007.

Given the global scale of the banking industry, the interdependence between finance and technology has also grown steadily because information technology (IT) has facilitated the harnessing of economies of scale. For many decades banks have been front runners in IT spending. This has followed regulatory pressure to strengthen their fast growing operations, but also a need to compete and adapt to more efficient technology frameworks with the motto “invest more to save more”. Notwithstanding, today’s digitalization shift has revealed that most banking systems are still obsolete and leave the industry exposed to unexpected competition: small FinTechs, financial technology companies, are imposing themselves against traditional models by using digital technology as a weapon to tear down the barriers of entry and potentially disrupt the whole industry.

Technology is not the only force in motion to transform financial services. Regulation is clearly the other major driver affecting existing business models, if not the leading force. Widespread criticism has hit established banking practices in the aftermath of the GFC, alerting international regulators to the importance of strengthening the rules of conduct of the intermediaries to protect the interests of individuals and the community of investors at large. Transparency, adequacy, and suitability have become the major leitmotifs for compliance officers. But most importantly, the ban on retrocessions and the required transparency about costs and fees, as well as the rise of personal financial advisors, have started to hinder established business models which seemed too rigid to embrace change. Existing incentive schemes based on product selection have become inconsistent with a global push towards added-value and fee-only investment services. This is clearly a threat to the sustainability of banks’ balance sheets, because it severely impacts the sustainability of cost/income ratios. Banks are required to increase their IT spending to transform digitally, while intermediation margins are shrinking and economic capital has become scarce and very expensive. Yet, from a high-level perspective, such an increase in the cost of capital has pushed many institutions to reduce their investment banking and proprietary desks, and forced them to look at wealth management operations more strategically (Goldman Sachs being one of the few exceptions). This repositioning of banks’ portfolios can be the opportunity to transform this ancient industry, and enable private investors to take centre stage in the investment process by starting from the eliciting of their ambitions and fears, hence by personalizing the investment process to their individual needs and abandoning the more generalist asset management point of view. This shift is a change of perspective from the analysis of market variables (e.g., expected return, variance, Sharpe ratios) towards client-centric representations of investment goals (e.g., probability of achieving targets), which goes under the name of Goal Based Investing. As a matter of fact, it is not surprising that most of the FinTechs operating in the domain of personal finance have adopted rudimentary GBI schemes to design their disruptive investment propositions: they anchor the

investment dialogue to personal goals and time horizons that match individuals' personal traits.

“But are FinTechs truly disruptive? Is banking about to be unbundled? Would regulators favour this shift in the long term, or would they oppose it given considerations of financial stability?”

Disruption is effectively underway, though it might take the form of transforming existing firms more than putting them out of business by the rise of Robo-Advisors. However, not all firms may be able to transform, so that there will be winners and laggards, which may well be forced out of the game. Clearly, no future can be predicted for any industry, nor the fate of any individual company. But the theory of innovation can provide the mindset to explain the transformation at play by revising, and helping to understand, the most common reasons that lead companies (e.g., banks) to go out of business, no matter how dominant they were or how much skill their respective management possessed at the time of downsizing. The remainder of this chapter is dedicated to discussing what FinTechs do, dissecting the principles of innovation theory, and explaining why robo-technology, Goal Based Investing and Gamification directly relate the one to the others.

1.2 A VIBRANT FINTECH ECOSYSTEM

FinTechs are start-up companies which appeared between 2008 and 2010 particularly in the US, not confined to Silicon Valley creative capabilities, but fast spreading out to the East Coast, Europe, Hong Kong, Singapore, Australia, and much of Asia. The FinTechs' ecosystem features a variety of business propositions which can span from peer-to-peer lending to digital payments or Big Data analytics. Yet, if we look at the business philosophy and aspirations of their founders, we can draft a quick and dirty definition that links their most common ambitions: digitalization, analytics, specialization, and long-tail consumers. We can therefore refer to them as follows:

“FinTechs are a global phenomenon, born at the intersection between financial firms and technology providers, attempting to leverage on digital technology and advanced analytics to unbundle financial services and harness economies of scale by targeting long-tail consumers.”

Clearly, digitalization plays a key role, because digital tools allow the creation of captive customer experiences as weapons to tear down the barriers to entry in financial services, hence fostering borderless competition against established institutions. Most of today's FinTechs make usage of analytics to generate competitive business propositions in terms of marketing, positioning, social media, and handling of Big Data. They feature a high level of specialization, hence very narrow and simple

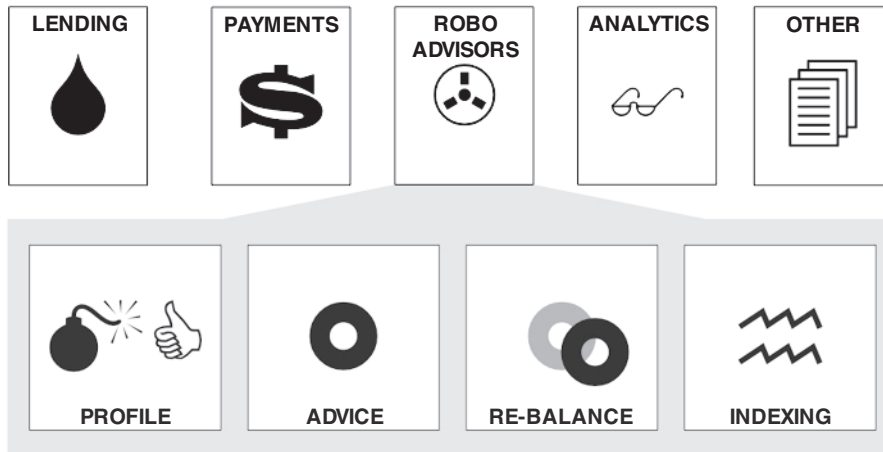


FIGURE 1.1 FinTechs high-level classification

business propositions, to profit from a concerted attempt to unbundle financial services into leaner and specialized digital offers. Finally, they target directly or indirectly long-tail consumers to disintermediate established providers with cheaper services. Typically, they are Business to Consumer firms (B2C), but Business to Business (B2B) and Business to Business to Consumer (B2B2C) models are emerging to fill the void between starlight innovators and the need of financial institutions to transform fast. The FinTech *parterre* changes very fast and is populated by new firms and ideas almost every quarter. Hence, we refrain from commenting on individual cases: such an exercise of market intelligence would be the focus of research analysts, whose thorough work has also kindly inspired the drafting of this book and helped to navigate through the variety of species fighting for affirmation within this ecosystem. By and large, they can be classified as in Figure 1.1: retail lending, payments, analytics, personal finance, and residual models.

Peer-to-peer retail lending solutions and digital payments seem to be the offers with stronger disruptive power. This can be due to the protracted credit crunch cycle in developed economies (following the GFC) and the astonishing growth of shadow banking in growth markets, as well as their appeal to established brands in social media and technology (e.g., Alibaba, Apple, Facebook, and Google), capable of intercepting money flows and direct consumer spending by means of behavioural analytics. Social media and digital technology are affording the opportunity to leverage virtual networks among individuals, without the need for traditional intermediaries. Potential creditors can reach out “almost directly” to potential debtors, by pooling in small ticket investments to lending facilities specialized in personal lending or small corporate. Although an exciting application of the synergies between finance and technology, there is mounting concern among international regulators about the

soundness and sustainability of the players operating in shadow banking as these businesses thrive outside traditional channels regulated by international supervisory bodies.

As a matter of fact, cryptocurrencies are a rising and highly debated phenomenon at a time when world economies are running progressively on paperless cash, which can be used and transferred online. Mobile and wearable are granting IT firms unprecedented power to disintermediate centuries-old banking centrality of cash repository and payment services, and help to foster financial inclusion in poor countries. As telecommunications and the world wide web have become fairly ubiquitous, we can nowadays visit smarter cities and pay-per-use the underground using a smartphone instead of holding physical travel cards, carrying a credit card or unloading spare change out of our pockets. In this domain, blockchain technology has the potential to be truly revolutionary.

The internet has favoured the global acceptance of social media and granted innovators with a fertilized terrain to develop advanced analytics which identify, analyse, and target investors' preferences, and track their digital interaction and peer-to-peer relationships. Big data analytics, behavioural analytics, and cognitive computing operate in this space. FinTechs are given the opportunity either to adopt these techniques as part of their operations or to create new business models that provide analytics-driven services, such as digital assessment of personal credit risk.

FinTechs operating in the domain of personal finance are also on the rise. One of the main consequences of the GFC has been a tightening of international regulation to increase the cost of capital and foster investor protection. Although regulation is not always an even playing field across constituencies, we can clearly see a global trend towards the increase of fiduciary standards and suitability constraints, affecting the economic relationship between product factories (e.g., asset managers) and final advisors. This has ignited the rise of Robo-Advisors, which use digital tools to attract private money across the continuum of the clientele, promoting low fees and tax harvesting, typically built on passive investments or portfolio algorithms that threaten asset and wealth managers.

Finally the FinTech ecosystem is enriched by more models which we refer to as residual simply because they do not yet reach the headlines as much as the other players and are somewhat less numerous in each bucket. This is the case of FinTechs providing market or economics research, dealing with encryptions, password storage, or broader digital security.

Within this variegated ecosystem, Robo-Advisors are the game changers of personal finance and the main focus of this book. Most of the professional debate we can follow on social media and read in the financial press refers to the advantageous price point of Robo-Advisors, which is often a fraction of the cost that private investors face by accessing traditional banking. However, while the price battle may be short-lived, the aspect which provides them with long-term strength and which is fostering industry-wide transformation resides in their advanced user experience (UX). Final investors are often seduced by an investment experience which seems to be more

personalized when compared with traditional e-trading solutions. Notwithstanding, we must be aware that most of the underlying investment processes which existing Robo-Advisors hide behind their catchy UX are instead somewhat institutionalized, as they are based on a limited number of model portfolios compared with the larger variety of individuals' needs and characteristics. Personalization elements are key drivers of most FinTechs and sit at the top of the agenda for digital banking. Goal Based Investing has to do with truly personalized investment decisions.

1.3 SOME DEFINITIONS, LADIES AND GENTLEMEN

Robo-Advisors are new digital experiences addressing personal finance whose elements of innovation are primarily discussed in this book. This first chapter discusses more general principles of banking innovation, concentrating on wealth management transformation. Therefore, it seems useful to anticipate some concepts of the remaining chapters and define what Robo-Advisors, Goal Based Investing, and Gamification are.

First, **Robo-Advisors** are automated investment solutions which engage individuals with digital tools featuring advanced customer experience, to guide them through a self-assessment process and shape their investment behaviour towards rudimentary goal-based decision-making, conveniently supported by portfolio rebalancing techniques using trading algorithms based on passive investments and diversification strategies. These digital businesses differentiate by degree of passive management, depth of investment automation, interaction between human advisors, and level of self-assessment, as well as target clientele.

Second, **Goal Based Investing** is an investment philosophy which places the individual at the centre of the investment decision-making process. The true risk that individuals face is not market volatility but the probability of falling short of personal goals. Therefore, the approach is a true game changer because it requires greater interaction between the advisors, human or digital, and final investors to elicit more consistently their risk tolerances as well as their ambitions and preferences over time.

Third, **Gamification** refers to the use of engaging gaming mechanisms to modify the behaviour of individuals. We refer to new innovative ideas which relate not solely to the need of engaging clients through their digital life and guide them to visit the virtual premises of a digital bank, but mainly to the possibility of educating final investors about the perils and biases related to financial investments. Thus, help them to rewire their brains and mitigate some well-known biases identified by behavioural finance and prospect theory to avoid making inconsistent decisions (e.g., buy high and sell low).

Robo-Advisors, Goal Based Investing, and Gamification are the three pillars of this book and represent different elements of innovation in the field of personal finance. Robo-Advisors' ecosystem is evolving fast, transforming from B2C businesses towards B2B2C Robo-4-Advisors (hybrid solutions made up of technology

and human advice) and B2B Robo-as-a-Service. Goal Based Investing principles are not a new phenomenon, but only recently have they gained momentum because of a mix of regulatory tightening to favour transparent fee-only businesses and the effective availability of digital technology to institutionalize their added value beyond the exclusive circles of family offices. Gamification experiences were born well before robo-advice was first launched, but they have not expressed their full potential yet to transform the way people invest and interact with digital solutions.

Much effort is spent in searching for greater automation, fancier mobile design, and customer analytics. This is part of an industry effort to face the wind of change brought about by the social and technology mega trends which are sweeping the world: a generational shift, the Internet of Things, growing social media lives, cognitive computing disruptive potential, and Big Data analytics. What links these elements together is the search for personalization.

1.4 PERSONALIZATION IS KING

Robo-Advisors have been hitting the headlines and attracting everyone's attention in a frenzied search for the next unicorn. We are not going to add to the debate around single propositions, believing that the wealth management market is not a "winner takes all" game. As such, we are more concerned with the elements of technology and business innovation which operate in the background, some shared by many while others are slightly more specific. The main essence of Robo-Advisors resides in their attempt to institutionalize the "personalization" of the investment experience, hence adopt Goal Based Investing (GBI) principles which they have rudimentarily exemplified, consciously or not. GBI is the most likely new normal to shape wealth management operations in the decades to come, because its principles represent the spirit of the industry, if not simple common sense, and its message is clearly well aligned with the whole essence of banking regulation: to transparently service clients' interests by placing their ambitions and fears to the centre stage of any advisory relationship. Who could possibly disagree? The fact is that banks are profit-orientated organizations which operate in regulated environments whose rules are devised to protect the interests of individuals and the community at large, if not national economies.

Yet, the asymmetry of information between professional bankers and private or corporate customers has always granted financial institutions an unrivalled pricing power. In fact, this has pushed wealth management institutions to optimize their cost/income ratios in the short term, instead of the long-term interest of their respective customers. The GFC has shown that this behaviour was not forward looking. The change in approach, which requires a shift from asset management centrality to a client-centric vision, is not an easy journey though. Firms need to revise their incentive structures, their organizations, their business models, and legacy systems which are currently not fit for purpose. However, as digitalization becomes a must,

today's technology allows us to take a significant step forward and institutionalize the private banking relationship to make it economically convenient for boutiques as well as larger retail institutions. Robo-Advisors, although still infants in their adoption of GBI principles, have already moved in this direction. Their robo-features might have stolen the innovation scene but the revolution that they have truly ushered in, consciously or not, is about the adoption of quick and dirty GBI principles by using behavioural finance as a way to engage clients and personalize the investment relationship: that an investor risk profile is attached to its goals, that an investor ambition is instrumental in achieving a personal target which can change over time, that time is the continuum along which fears and ambitions need to be combined into rebalanced portfolios are all key elements of Robo-Advisors' on-boarding of new clients. Aren't they also GBI principles?

The personalization mantra is therefore paramount and places Robo-Advisors at the forefront of the Goal Based Investing landscape. As financial institutions suffered a severe loss of reputation during the GFC, the asymmetry of information that once dominated the financial services industry started losing strength, after its peak with the adoption of the supermarket banking model. Regulatory changes and new customer behaviours (particularly those of Millennials) have made the banking relationship less sticky in favour of higher flexibility on the side of final investors. The banking industry has recognized the strategic value in providing tailored investment propositions. Advisory campaigns need to be calibrated on a different triage technique, as customers react to advisory proposals not just as a function of their wealth, but also their social behaviour and tech-savviness. Big Data analytics and behavioural analytics, strengthened by the development of cognitive computing, seem to grant FinTechs and banking institutions the chance to remodel their business setups along these lines. Yet, banking is a highly regulated industry and investing has different psychological implications from spending. Therefore, analytics need to be carefully fine-tuned to encompass the revolutionary findings of behavioural finance and possibly the biology of risk. Robo-technology facilitates the deployment of modern analytics to redesign the advisor-to-client relationships on more balanced and added-value methods of portfolio choice, helping to institutionalize the principles of Goal Based Investing to benefit affluent and mass affluent clients, outside the exclusive circles of family offices (as in Figure 1.2). Banks had already started a digitalization journey of their retail operations, only to realize as they were progressing how relevant and strategic this would also be to better service the relationships with wealthier clients. Private bankers can make use of digital innovation to deploy cost effective goal based conversations, which now become accessible to lower tiers of the wealth pyramid.

We consequently ask ourselves if Robo-Advisors are truly disruptive within the digital landscape, and draft the principles underlying the theory of innovation as they can help us to read through most of the evidence and reasoning provided in the remaining chapters. Let's shape our mindset first! We will then explain in detail how Robo-Advisors work.

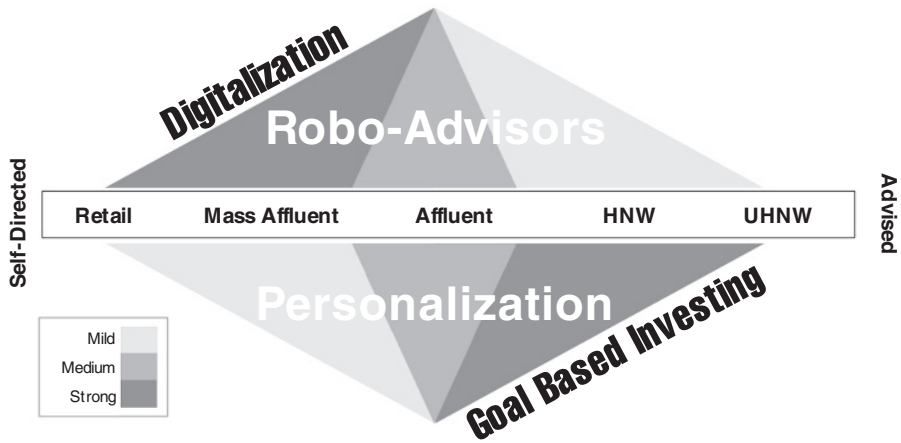


FIGURE 1.2 Digitalization and Goal Based Investing

1.5 THE THEORY OF INNOVATION

Robo-Advisors are automated portfolio rebalancing solutions whose investment style typically conforms to passive management and which private investors can invest into by using digital tools, featuring clients’ engagement modules with customers’ behaviour and personal goals at the cornerstones of their propositions. Much of the recent media coverage about FinTechs describes Robo-Advisors as disruptive players against more traditional incumbents.

“Is robo-technology truly disruptive?”

The theory of innovation can help us to articulate a reasonable answer and distinguish between two key concepts: technology and innovation. First of all, we define technology as any process by which a firm transforms information and data, human labour or economic capital into products or services of greater value. Therefore, digital advice, automated portfolio rebalancing, and Goal Based Investing workflows could all be defined as technology. Second, the introduction of new technology modifies the way firms operate or customers access services and products. Technology is a process which evolves over time, both inside and outside individual firms. Therefore, we define innovation as any change in existing technology used by a firm, and recognize that such a change can take two forms: disruption or sustaining growth. Sustaining innovation refers to improvements in product performance, whether of an incremental nature or more radical, that allows one to increase the quality of firms’ offer, fend off competition, or increment commercial margins, by operating either on lower costs or on higher prices. Disruptive innovation instead might well

result in worse product performance, at least in the near term. Such revolutionary products are usually cheaper, simpler or more convenient to use and appeal to new customers or create new needs in existing clientele. This book grants equal relevance to both components, with a certain discontinuity from mainstream theory. Disruption is not an overnight event, and its economic advantages are truly sizeable only when new technology has a clear path ahead to generate further improvements, hence sustaining innovation, and thus higher margins. Robo-Advisors are classified as disruptive innovation because they are cheaper than traditional financial advice, they are simpler to access, they appeal to new customers, and create a new need among existing clientele. Goal Based Investing, whose principles Robo-Advisors seem to have rudimentary adopted, is instead an example of sustaining innovation, which can offer the opportunity to move outside the unpleasant corner of low margins and achieve revenue growth over time, by providing tiered added-value services.

Traditional firms typically face two challenges in their lifetime: deciding how much investments need to be dedicated to sustaining innovation and, most importantly, recognizing that disruptive innovation can be the main cause of failure of established brands, although such innovation might seem to be anti-economical in the near term. Banks are not exempt from the need to answer this dilemma:

“How do sustaining and disruptive innovation interact to shape the future of industries?”

Clayton M. Christensen (2002, 2003) proposed an insightful representation of this interaction, which we can re-edit in Figure 1.3, representing the relationship between innovation and industry/product performance (i.e., the quality of advisory services).

There seems to be a fixed amount of innovation that a regular customer can absorb in any industry, hence a capped amount of money that investors are willing to pay to receive better products or services. Clearly, not all investors are equally constrained due to different preferences or spending capability, which permits wealth managers to tier their offer across segments: retail, affluent, high net worth (HNW) and ultra high net worth (UHNW). Yet, as time goes by, industries evolve, technology changes, and so does investors' behaviour. Thus, markets or segments can saturate: no further innovation can lead to higher commercial margins. This is when disruptive innovation has the highest chance of succeeding. Initially, disruptive solutions are seen as a phenomenon confined to less appealing low margin clients (e.g., customers of retail banking) or distant markets (e.g., emerging economies). Yet, disruptive innovation can downshift the product paradigm globally, across markets and segments, so that customers start favouring the new solutions and move *en masse* towards new offers. This can put out established players who have no time to adjust their traditional workflows or business models. Market leaders become laggards and new entrants gain momentum (e.g., Apple vs. Nokia) and climb up the hall of fame of successful brands.

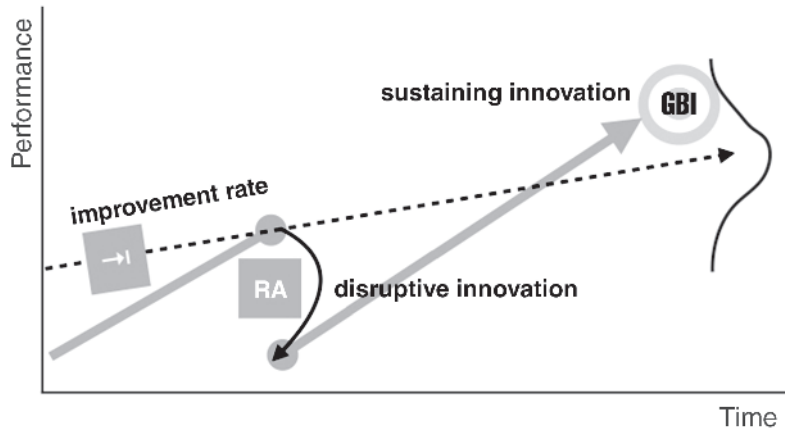


FIGURE 1.3 FinTechs high level classification

Thereafter, the cycle of sustaining innovation reignites and successful firms can strengthen commercial margins by improving once very simple disruptive products. It is worth noticing that nowadays the innovation cycle seems to be shorter than ever as new technology can be deployed faster.

1.6 MY ROBO-ADVISOR IS AN IPOD

To exemplify why Robo-Advisors possess elements of disruptive technology, we can discuss a parallel to the recent history of the music industry after the iPod was launched. The first Compact Disc (CD) player was sold in Japan by Sony in 1982. The CD levelled up the music industry by setting higher standards and inducing fierce industry competition by means of sustaining innovation. A period of tech spending involved a large number of consumers, who were buying new appliances offering higher levels of sophistication. Within a decade many households were equipped with advanced High Fidelity components (Hi-Fi) featuring equalizers, subwoofers, powerful amplifiers, and fancy headsets that parents were willing to buy to reduce late night noise. Soon, individuals reached a peak in consuming satisfaction, and in the late 1990s they could not possibly justify paying higher prices for a declining marginal improvement in music quality. The music market was saturated. Steve Jobs grabbed this chance and in 2001 launched the Macintosh version of iTunes and the first Apple iPod (think of a Robo-Advisor), six years after the MP3 was first introduced. The key selling point of the iPod was not better music quality compared to existing CD players. The fact was that the product was cheaper, more portable, and certainly cooler than CD players. Those who thought that it would have been

a phenomenon confined to young consumers, walking up and down the streets with white cables in their ears, were proved wrong. The era of the Hi-Fi was over, the traditional way of buying and listening to music was disrupted and changed forever. Most importantly, today the dependence of Apple's revenues on iPod sales is very limited, as Cupertino entered a new wave of sustaining innovation to release higher margin services and devices, such as iPhones and iPads till the launch of the Apple Watch in 2015 (think of Goal Based Investing).

What does this tell us about the fate of wealth management? Digital trends are a mix of technology advances and changes in consumers' behaviour which are facilitating the creation of new entrants to compete with traditional firms. Robo-Advisors are FinTechs which have been attempting to downshift the advisory services that have always been the *apanage* of private banking institutions. They started to target retail investors needing financial advice, but lacking the resources to pay for the necessary human based services. With an entry level investment of circa US\$ 5,000, Robo-Advisors were meant to appeal to low margin customers and mostly a very young clientele whose needs were unmet by traditional bankers, as they did not account for a large contribution to their balance sheet figures. Yet, Robo-Advisors proved to be very attractive solutions, not just for low income young customers, but also for affluent and high net worth mature individuals. Banks, already reconsidering their focus on wealth management operations due to the increasing cost of capital in investment banking, yet challenged by tighter market regulation, were quite abashed to see that new entrants were threatening their once dominant position, making the headlines of newspapers and attracting a considerable amount of venture capital money in a short time. This is why Robo-Advisors can feature as disruptive technology and relegate the banking industry to simpler and low income business models. Clearly, although new entrants have every interest in using digital weapons and dumping incumbents, neither the Robo-Advisors nor the financial institutions willing to transform have an interest in cornering themselves into lower income shops.

Goal Based Investing will provide smart players with a way out of the impasse. The tendency will be for financial advice and financial planning to converge within robo-models and this will allow tiering the offering to appeal to a more diversified client base, thus pricing up services by competing on more articulated added-value propositions (e.g., Gamification of Robo-Retirement). This leads to another key question:

“Will banks be disrupted?”

We cannot honestly say whether banking will be disrupted to extinction, or will transform under market and consumer pressure. However, the latter seems to be the most likely outcome, in our opinion, given the unique characteristics of banking to be a regulated industry and therefore being capable of reining in innovation and avoiding full disruption. The industry is clearly changing fast and robo-technology

is certainly transforming the business landscape. What lies ahead is not a one-sided competition, FinTechs versus traditional firms, but a likely situation where a handful of digitally transformed actors could become the new dominant players, while traditional institutions unwilling to, or not capable of embracing change would become laggards. After all, banks are not eternal and of all the banks which dominated the Italian Renaissance, only one is still in business today (and it seems to be very troubled too).

1.7 WHAT INCUMBENTS SHOULD CONSIDER WHEN THINKING ABOUT FINTECH INNOVATION

What is left for traditional banks is a clear dilemma as to how to resolve the hurdles of fostering banking digitalization and adjusting their business models to keep up with shifts in customer behaviour. Some firms are creating on-the-side FinTech businesses to promote innovation outside mainstream banking, while others are more aggressively transforming their business models from the inside out. Some others are still hesitant to embrace digital change. Although inaction does not seem to be a forward-looking option, given the impressive forces at play in the industry, we acknowledge the difficulty even for seasoned managers to embrace all the complexities and risks that digital change can generate. The industry is not simply required to change parts of its IT configuration. Financial institutions need to transform their entire business model, and rectify the economic incentives which motivate all professional actors involved in banking activity while delivering existing traditional services. With particular regard to wealth management, the industry is changing from being a “distribution channel of financial products” into a “distribution channel of financial advice”. This would correspond to a Copernican change in the way financial advisors operate and are compensated, which top management have to struggle with to make sure the firms they lead can transform without hindering existing profitability. No bullet-proof solution exists. Firms need to elaborate a proper multi-year strategy for innovation in order to operate with coherence yet promote new unexpected ideas. The theory of innovation can guide us in tackling some of the unknowns rationally. Decision-makers are invited to focus on the following five principles, as in Christensen (2002, 2003): the principles of resource dependence, of market irrelevance, of discovery based planning, of capabilities versus disabilities, and of the supply-demand gap.

The principle of resource dependence indicates that companies ultimately depend on customers and investors for resources, as these tend to exert moral suasion to prioritize their investments. In fact, firms that decide on investment patterns that do not satisfy them are more likely to be put out of business. This might well generate a Catch 22: as the leading companies are those that best match existing needs of customers and investors, they might also find it very difficult to invest in disruptive technology because the lower margins granted by these products do not appeal yet to mainstream operations. This can hold nicely, until customers’ behaviour modifies and

it becomes too late to embrace change. Our advice is for banks and asset managers to set up autonomous organizations outside their mainstream businesses, with the scope to research and build solutions around disruptive technology. They could also partner with venture capitalists to fund external vehicles, and grant them both adequate financial means and enough operational independence to succeed.

The principle of market irrelevance indicates that small markets don't solve the needs of large companies or, as can also happen, incumbents' business models do not fit certain markets. Disruptive innovation can occur in markets that seem too small or too distant to be attractive for existing and dominant organizations. This happened with Robo-Advisors, targeting retail consumers which were considered too "small" in terms of revenue potential to guide them through innovation. Our advice is that wealth and asset management firms instruct smaller organizations to innovate and commercialize new services in such markets, at least until market size becomes large enough to be embraced by the full arm's length of mother organizations.

The principle of discovery based planning indicates that markets that cannot be measured cannot be managed. Firms have learned to adopt market intelligence mechanisms as fundamental elements of decision-making: planning departments can access Big Data analytics to investigate market trends and make decisions about new services and products. Yet, disruptive innovation can occur in contexts where market research is of little use due to a lack of statistical evidence. Our advice to solve the gap is that decision-makers can run dedicated planning sessions in which they assume that established assumptions and forecasting data are wrong, and hence chosen strategies might be faulted. For example, the assumption that private investors can be tiered efficiently along the lines of disposable income, or wealth, has been contradicted by digital solutions which have shown that customers' ability to absorb banking services does not depend on wealth. Robo-Advisors have blurred the traditional triage, appealing to customers of retail banking as well as high net worth individuals, attracting clients on their techno-literacy and social media engagement. By restarting on clean assumptions, financial institutions can plan to learn what needs to be known, and can thus confront disruptive changes more effectively.

The principle of capabilities versus disabilities indicates that an organization's capability resides in its processes and values. When confronting change, firms might assign the most capable employees to direct change, yet adopt established values and processes which could instead conflict with what is really needed by disruptive innovation. Therefore, existing capabilities might prove to be damaging disabilities in new business contexts. This could be the case for firms willing to digitalize investment relationships by tackling the challenge from a pure IT perspective, thus replicating existing business workflows on digital mediums and missing the relevance of realigning incentive schemes and revising business practices as a fundamental part of the technological change. Our advice is that new capabilities need to be identified (e.g., professional profiles capable of blurring the line between technology and quant finance), and company values might also demand to be enriched to fit the purpose (e.g., allow for budgeting processes with shorter decision-making cycles or

lower procurement constraints). Social media competences are skills in high demand in banking, as traditional firms might still struggle to adopt the personalized and engagement principles that social media requires to embrace successfully digital marketing and branding campaigns.

Finally, the principle of the supply-demand gap indicates that technology supply may not equal market demand. Often, sustaining innovation exceeds the rate of performance that consumers can possibly absorb. Hence, products that fit market demand today might evolve into overshooting solutions tomorrow, while underperforming products today (such as disruptive products) display the highest potential to showcase further sustaining innovation. Our advice is that wealth managers and asset managers revise their analytics to better measure trends of how their mainstream customers consume products and quickly catch the points at which competition changes the market they serve.

The presentation and re-editing of these five principles correspond to our humble attempt to guide incumbent decision-makers in starting their journey of transformation on the right foot. Clearly, no firm is equal to another. Some operate in more traditional markets, others have already created vehicles to foster innovation through direct banking, and quite a few of them have been flying their best resources first class to visit FinTech hubs and learn what they are all about, if not what might come up next. We do not necessarily indulge in a discussion about which of them (firm or business model) is better suited to emerge as a winner, nor which FinTech will survive the first five or ten years of innovation. But we invite financial institutions to get ready to act, because the time for change is now!

1.8 CONCLUSIONS

We have dedicated this chapter to outlining the main themes of the book, which aims to represent the changes that the wealth management industry is facing due to technology advances and shifts in customer behaviour. We have classified FinTechs according to their aspirations, as well as their business focus. More importantly, we have sketched the theory of innovation to guide us through the forces at play under the crustal plate of the wealth management industry. Next, we can delve into a deeper understanding of robo-technology, clear the table of journalistic representations, and examine the elements of competitive advantage which will shape portfolio construction practices for private wealth in the years to come. In the final part we will present the principles of Goal Based Investing and review related innovations in quantitative finance and Gamification.

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