

**Financial Service Providers, AI, Satisficing,
and the Human Touch
In the Market for Financial Nudges and Boosts***

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February 2021

*I thank Meike Bradbury and Sanjiv Das for valuable comments on a previous draft.

Abstract

Advances in artificial intelligence (AI) are reshaping many facets of the decision landscape faced by consumers and investors. These advances have resulted in lower fees and borrowing costs, increased access to financial services, and greater customization. In this paper, I discuss how the need for the human touch impacts the potential for digital technologies to lower the cost of providing mass customization and personalization to the broad market for wealth management. I present the cases of three financial service firms, to illustrate how the failure to account properly for the human touch can result in unsuccessful technologically-based strategies.

Advances in artificial intelligence (AI) are reshaping many facets of the decision landscape faced by consumers and investors. These advances have resulted in lower fees and borrowing costs, increased access to financial services, and greater customization. In this paper, I discuss how the need for the human touch impacts the potential for digital technologies to lower the cost of providing mass customization and personalization to the broad market for wealth management.

AI is a broad term, encompassing items such as big data, machine learning, and algorithmic-based digital technologies.¹ In this paper, I discuss issues in digital technologies that are used in retail financial services, which relate to user interface (UI), user experience (UX), and algorithms used in classifying and matching.

The main thesis of this paper is that without the human touch, “you might lead a horse to water, but cannot make it drink.” Here, the “horse” corresponds to households as investors and consumers, the “you” corresponds to a financial services firm, the “water” corresponds to a valuable financial product or service that is offered through a digital platform, and “drink” corresponds to the household purchasing and utilizing the product or service.² In other words, financial firms might find that although they offer valuable services to households through a digital interface, absent human touch, many households will resist accepting and acting upon the value proposition, positive though that proposition might be.³

The role of the human touch in retail financial services is one of ten key issues identified in a post-Covid world (Ruttman, Mesenholl, Toepfer, and Schmid, 2020). Because human mediated advice is expensive, mass produced advice for lower to middle income individuals will rely heavily on digital technologies.

¹ In Shefrin (2013) I suggested that advances in mobile applications (apps) linked to personal data would dramatically improve the ability of individuals to make better financial decisions. While technological advances in Fintech have occurred in recent years, it is becoming clear that there remain significant weaknesses to address in AI. A recent symposium (Montreal AI, 2020) noted that AI is still heavily focused on data, but not knowledge, often lacks what humans call “common sense”, accentuates bias in respect to machine learning, and is not well suited to dealing with the concept open endedness.

² Technological advances are making it possible for robots to simulate human voice and facial features, and these will help users who are interacting with digital interfaces feel as if they are interacting with other humans. However, these advances will not substitute for the weaknesses described in the previous footnote.

³ Herbert Simon (1990) suggested a pair of scissors as a metaphor for bounded rationality, with one blade representing an individual’s computational capability and the other blade representing the structure of the task environment. In the context of the present paper, think of one blade as corresponding to the emotional and cognitive makeup of the individual and the other blade as corresponding to the digital decision environment.

To illustrate the main thesis of the paper using concrete examples, I discuss the role of the human touch in the experiences of three specific financial service firms: Edelman Financial Engines, Chase Card Services (a division of JPMorgan Chase & Co.), and LearnVest.⁴ Financial Engines was the first pure robo adviser in the U.S., and ultimately became the largest firm offering a hybrid of robo- and human-based advising services. Chase is the largest credit card provider in the U.S., measured by number of cards offered. LearnVest was an online financial planning service that was acquired by Northwestern Mutual, a large insurance firm. Financial Engines relates to investor behavior, while Chase and LearnVest primarily relate to consumer behavior.

The digital technology issues associated with each of the three firms is different. For Financial Engines, the issues relate to investor UI and UX in respect to robo-advising platforms. For Chase, the issues relate to online features to help credit card holders manage their credit card debt. For LearnVest, the issues relate to technologies that provide households with information, advice, and access to human planners to help them with budgeting and investment decisions.

As with any other product or service, for digital financial technologies to be effective, they need to address households' needs. A joint white paper by Chase and LearnVest (LearnVest, 2013) provides evidence documenting the needs which each of the three financial service firms just mentioned were seeking to meet.

Financial Engines' original focus was on retirement saving. The Chase-LearnVest white paper reports that only 20 percent of those they surveyed had a retirement plan in place. While most survey respondents felt they would need between \$1 million and \$2 million to retire, their retirement savings were well below target, in the range \$150,000 to \$220,000.

Chase Card Services issues credit cards. The Chase-LearnVest Working paper reports that 31 percent of survey respondents stated that credit card debt was keeping them from reaching their financial goals. In this respect, more than half of the sample were not paying their monthly balances in full.

⁴ I served as a consultant to all three firms, and while I will draw on my experiences working with them, I note that all of the material discussed below derives from information that was made publicly available. In the interest of disclosure, I wish to say that I worked with the user interface design team at Financial Engines during its startup phase. At Chase I worked with the Blueprint team during the design and launch phases of a program called Blueprint for credit card users. At LearnVest, I served as a behavioral expert for their financial education programs.

LearnVest provides financial planning services to individuals, especially millennials who routinely use apps. The Chase-LearnVest white paper reports that along with credit card debt, the inability to stick to a budget was the second leading factor that prevented households from achieving their financial goals.

I view the experiences of the customers of the three firms through the lens of behavioral life cycle theory (BLC). BLC is a psychologically based decision framework which Richard Thaler and I developed to analyze consumer and investor behavior (Thaler and Shefrin, 1981; Shefrin and Thaler, 1988; Shefrin, 2020). In the discussion below, I use the BLC as the basis for understanding the relative strengths and weaknesses of the products provided by the three firms.

The BLC framework has a neurological bounded rationality structure, in which individuals' decisions are determined through the interaction of their emotions and their conscious thoughts. The concept of mental accounting, whereby people categorize wealth and activities into separate compartments, is an important component of the BLC approach. Examples of mental accounts are current income, financial accounts dedicated to specific purchases such as holiday gifts, liquid assets, home equity, and future income.

Self-control issues play a central role in BLC theory and relate to conflicts between actions that reflect people's emotions and actions that reflect people's conscious thoughts. The BLC approach emphasizes the importance of temptation in people's decisions about spending, saving, and borrowing. Considerations of bounded rationality lead people to rely on heuristics and rules, rather than making decisions which are always optimal. In the BLC framework, financial actions unfold through the use of heuristics, many of which are defined relative to balances in mental accounts. For example, a holiday gift heuristic might involve total spending on holiday gifts during December not exceeding the balance of the gift giving mental account at the end of November.

Because of self-control challenges some people may judge, at least consciously, that they fail to save sufficiently, take on too much credit card debt, carry credit card balances that for too long that are too large, and make unwise purchases because they fail to budget appropriately. Notably, Edelman Financial Engines, Chase, and LearnVest collectively offered financial services designed to help their customers to better deal with these self-control issues. As such, these financial services are part of the market for nudges and boosts (Thaler and Sunstein, 2008;

Hertwig and Grüne-Yanof, 2021). However, not all were successful, and understanding the reasons behind the lack of success is the focal issue which I discuss.

The term “satisficing” appears in the title of this paper, but has yet to appear in the text. I leave the issue of satisficing until the conclusion, so that I can discuss it in the context of the experiences of all three financial services firms.

I have organized the paper into three sections. Section 1 describes the robo-advising experience Edelman Financial Engines. Section 2 describes experience of Chase credit card holders using a set of technological features offered by Chase. Section 3 describes the experience of LearnVest, and its partnership with Chase, in seeking to provide financial planning services online, especially to women. Each of the last three sections features a brief history of the pertinent firm and the character of their customers, in order to provide readers with some context for understanding the task environments these firms faced. Section 4 concludes with a discussion about financial nudges, boosts, and satisficing behavior.

1. Edelman Financial Engines

Edelman Financial Engines is a combination that took place in 2018 of Edelman Financial Services, one of the largest registered investment advisers in the US, and Financial Engines, the largest provider of managed accounts to 401(k) plans. Historically, Financial Engines was the first pure robo-advisor. In this section, I trace the history of the firm, focusing on lessons learned as it developed a digital interface for individual investors.

The main lesson of this section is that it took Financial Engines two decades to recognize and deal with its customers’ needs for the human touch when using their product offerings to make retirement investing decisions.

A managed account uses technology to give participants a customized 401(k) asset allocation based off individual data points like age, salary and amount of non-retirement assets. According to consulting firm Cerulli Associates, Financial Engines has a 57 percent share of the market for retirement-plan managed accounts.

Savers paid Financial Engines between 20 and 60 basis points, that is, 0.2 and 0.6 percent, of their 401(k) assets annually, to manage their retirement portfolios, which they did using the mean-variance approach underlying modern portfolio theory. (Anderson, 2014).

Financial Engines was founded in 1996 by two Stanford University academics, William Sharpe who received the Nobel Prize in economics for developing the Capital Asset Pricing Model and Joseph Grundfest, who served on the Securities and Exchange Commission (SEC) as a commissioner. At the time, Sharpe was offering without charge asset allocation software which he had created. His reason for doing so, as he put it, was to “give ordinary people the tools to think probabilistically about their investments.” (Anderson, 2014). Grundfest suggested to Sharpe that he would make a bigger impact on investors with a for-profit business. The two academics decided to form a startup, headquartered in Palo Alto, California, which they named Financial Engines.

Although Sharpe and Grundfest initially intended to sell Sharpe’s asset allocation software for its educational value, the venture capitalists who were funding the firm found this strategy unattractive. Instead, they proposed that Financial Engines to jump become an SEC-registered investment advisor in order that it be able to make specific fund recommendations. By February 1997 the firm had raised \$4.3 million.

In 1998 Financial Engines offered its first software online product, a retirement planning platform in which self-directed investors formed portfolios for defined contribution (401(k)) plans from a menu of investment funds. The firm’s marketing plan involved approaching large employers who could purchase an annual subscription priced at \$35 per user. In its first pilot project, four companies participated, all based in the San Francisco Bay area.⁵

The product’s platform featured a non-neoclassical UI running over a neoclassical mean-variance Monte Carlo simulation engine. In this respect, the UI was structured along the lines of SP/A theory, a risk framework developed by psychologist Lola Lopes (Lopes, 1987). The letters in SP/A stand for security (S), potential (P), and aspiration (A), concepts related to emotions such as fear, hope, and the need to feel successful. The A in SP/A is modeled as the probability with which a decision maker receives a payoff that is at least a pre-specified aspiration level.

In the Financial Engines product interface, the aspiration level relates to a retirement wealth goal, and users receive information about how the probability of achieving a retirement goal varies with the investment decisions they make. In this regard, users of the platform made decisions by moving levers and dials on their screens to select savings rates, retirement dates, risk appetites, and retirement wealth goals. In respect to visualization, the interface depicted the

⁵ The four firms were: Alza Pharmaceuticals, Clorox, The Gap and Netscape.

probability of achieving a specific retirement goal using the image of a sun with cloud cover. The less the amount of cloud cover, the higher the probability of achieving the retirement goal.

One of the most important findings from the 1998 pilot study of the product was that it appealed only to a small segment of 401(k) participants, consisting of older, well-paid workers with large balances who were already highly engaged in managing their accounts. The pilot study revealed that other workers preferred not to manage their own accounts, but instead that Financial Engines manage their 401(k) plans for them. This finding takes us to the main theme of the paper. This theme involves the proverbial leading a horse to water, and the point is that for some horses, inducing them to drink might require the human touch. The recommendation from Financial Engines software platform might be sensible, indeed ecologically rational, and yet an investor might not feel comfortable acting on advice that emanates from a software platform, rather than a human.

I suggest that two key issues that lie at the heart of why some investors need a human touch. These issues are trust and regret.

In respect to trust, investors typically need to trust the source of advice before they will follow the advice. Waytz (2016) identifies four specific components of trustworthiness: benevolence, integrity, competence, and predictability. For an investor to trust the advice offered by a software platform, the investor must feel that the platform is like a friend, not a foe. They need to feel secure that the firm running the platform exhibits high integrity. They need to feel confident that the software engine producing the advice is competent. Finally, they need to feel comfortable that the advice offered by the platform does not present them with many surprises.

In respect to regret, most investors have a need not to blame themselves in the event of poor financial performance. Investors who rely on a digital platform for advice might be concerned that if their portfolios perform poorly, they will have no other person to blame but themselves. The underlying psychological concept here is “regret and responsibility” (Shefrin and Statman, 1985). Regret is the pain a person feels when he or she is responsible for making a decision and the decision turns out badly. Regret is intensified when investors can easily imagine the counterfactual, and having made a choice that turned out well, not poorly. Notably, some portion of regret can sometimes be reduced by shifting responsibility to someone else, such as the person offering advice. Shifting responsibility to a technological platform might not be as easy, a concept captured in the adage “it is a poor workman who blames his tools.” I suggest that

regret and responsibility ultimately took Financial Engines into the business of managing accounts.

Financial Engines continued to grow its business and in 2010 the firm went public at \$12 a share. Subsequently, its stock rose to \$70 as large institutions such as Vanguard began to use its platform. By March 2014, Financial Engines was the largest registered investment advisor in the U.S., with \$92 billion in 401(k) assets under management for nearly 800,000 workers of 553 large firms, such as Alcoa, Dow Corning, Ford, IBM and Microsoft.

However, over time, Financial Engines' stock price declined to about \$25, as the firm invested in new technology and launched new initiatives that were less than successful. One unsuccessful initiative was launched in 2013, and involved automated money management for 401(k) clients who rolled their money into an individual retirement account (IRA). What made this program less than successful? Peter Heckmann, an analyst with D.A. Davidson & Co. who covered Financial Engines provided some insight, stating that the initiative "never gathered any material level of assets. Like a lot of financial services products, you need someone to explain it to people." (Pender, 2018)

The last phrase of Heckmann's explanation is critical: clients' need for an actual person to provide an explanation. In other words, clients' needs for confidence in automated money management required some human component associated with using the platform. That confidence comes from trust and assurance, even if the person providing the explanation offers no additional information beyond that provided by the UI. There is good reason to suspect that regret and responsibility were germane to the outcome of this initiative, just as they had been when Financial Engines pilot tested its first product. The confidence that clients feel is as much concerned with protecting their egos as protecting their wealth, a key feature of their UX.

Financial Engines learned that the horses it was leading to water were not drinking, for lack of the human touch; and so they responded. In 2015, Financial Engines acquired a registered investment advising firm (RIA) called the Mutual Fund Store. The firm was based in Kansas City, and most importantly featured human advisers whose clients were middle-income investors living in about 125 different locations. Using the Mutual Fund Store advisers along with its own, Financial Engines began targeting IRA-rollover customers. Its strategy involved holding seminars at companies where it was providing 401(k) advice. At this stage, Financial Engines had about 750 corporate clients which included Pacific Gas and Electric, IBM and Microsoft.

Financial Engines' acquisition and associated human-robo hybrid strategy was successful. At the end of 2017, the firm was managing \$13 billion in IRA and taxable-account assets stemming from the Mutual Fund Store and \$156 billion in 401(k) accounts. It had about 1 million clients in total.

When Financial Engines merged with Edelman Financial Services, it built upon its human-robo hybrid strategy. The combination is one of the largest independent financial planning firms in the U.S. with more than 35,000 clients and \$21.7 billion under management.

What was Edelman's motivation in combining with Financial Engines? Some insight comes from Celent, a consulting firm with expertise in financial services technology. Edelman had been a traditional financial planning and investment management firm. Celent is a consulting firm specializing in financial services technology. One of its spokespeople made the following statement about the motivation of Edelman's chief executive in combining with Financial Engines: "I think [Edelman is] placing a bet on the defined contribution space ... I think he's run as far as he can with his model and recognizes he needs to tilt the wheel to digital." (Din, 2018)

Grant Easterbrook, the chief executive of the 401(k) digital provider Dream Forward, made the following statement about the scale and physical footprint of the combined company in respect to the evolution of wealth management: "People have been asking for a long time what financial services will look like in 2030... People look at self-driving cars and think there will be no more taxi drivers in 10 years. The ultimate evolution is a really good tech platform that screens the needs of average clients, so that human advisors become more efficient and effective, and only step in for major decision points or for complex high net worth (HNW) needs." (Din, 2018)

There appears to be a general sense is that large registered investment advisers (RIAs) must quickly move into digital distribution, and extend their brands (Din, 2018). As of 2020, only about 8 percent of U.S. households solely relied on robo-advisory platforms. In 2020, Edelman Financial Engines' assets under management reached \$180 billion. Vanguard's Personal Advisor Services, which also features a robo-advisory platform reached \$118 billion. The robo-advisory counterpart from Charles Schwab, called Intelligent Portfolios, reached \$43 billion. In contrast, leading pure robo-advising firms Betterment and Wealthfront had assets under management of \$22 billion and \$20 billion respectively (Chatenay, 2020).

Notably, clients of pure robo-advisory firms appear to be concentrated among millennial investors. In related work, Rossi and Utkus (2021) present intriguing findings from an investor survey conducted by Vanguard.⁶ Rossi and Utkus report that a great many investors have a very strong need for “peace of mind” which is stronger than their need for financial performance. Not surprisingly, such investors tend not to use pure robo-advising. In contrast, pure robo-advised investors are focused primarily on financial performance, and use robo-advising as an empowering tool for self-improvement. Notably, Rossi and Utkus find that robo-advised investors also report attaching high value to the possibility of interacting with human advisors.

2. Chase Card Services

In 2020, Chase Card Services offered the most credit cards in the U.S.⁷ In 2009, Chase introduced a set of online features for its credit card users called Blueprint. Blueprint was designed to help users improve the way they managed their Chase credit card behavior in respect to paying down balances, managing everyday spending and paying off major purchases.

The main lesson of this section is that although Chase initially achieved some success with customers using the Blueprint features, that success required the human touch in the form of call centers. Part of the need for call centers arose because Blueprint’s structure was complex with a UI that some customers found confusing. Call centers are expensive to operate. Eventually, this combination of elements resulted in Chase terminating Blueprint for lack of interest on the part of users.

Consider some of the key details associated with Blueprint. A Chase press release (Chase, 2009) associated with the launch of Blueprint, quoted the CEO of Chase Card Services, Gordon Smith as saying: “Consumers want more control, simplicity and predictability when it comes to their finances. With Blueprint, customers can design their own plan to pay off balances

⁶ This paper presents a rich set of findings, and contains an excellent summary of the literature on robo-advising.

⁷ Major Credit Card Companies of 2020:

American Express: 53.7M cards in circulation.

Bank of America: 54.6M cards in circulation.

Barclays: 15.7M cards in circulation.

Capital One: 89.4M cards in circulation.

Chase: 91.8M cards in circulation.

Citibank: 67.8M cards in circulation.

Discover: 57M cards in circulation.

See <https://wallethub.com/edu/cc/credit-card-companies/20409>

sooner, save money by avoiding interest charges, and then easily track progress toward achieving their financial goals.”

Blueprint had no precedent among credit card firms, when it came to offering online tools that were fully integrated into users’ accounts. Integration was a key issue, because it meant that users did not have to input any data whatsoever, in order to use Blueprint’s features. Chase spent two years developing Blueprint before its launch.

In a Media Day program held on May 10, 2010, Chase Card’s president William Wallace explained key findings from the firm’s research which motivated the way they structured Blueprint. Some of these findings are reported in the Chase-LearnVest white paper.

Some of the key findings which Wallace described are as follows. The average respondent to their survey has \$5,000 in credit card debt, has three credit cards and uses about half of them on a regular basis. Those with credit card debt carry it on an average of 2.5 cards. Approximately one-third of respondents had debt on a single card. Approximately 25 percent of respondents earning \$100,000 or more, identified as the higher income group, held five or more cards. Approximately 30 percent of respondents opened a new credit card with a lower rate to transfer an existing balance.

Chase found that many cardholders using multiple credit cards did so as part of household budgeting, dedicating specific cards to particular consumption categories. This behavior is consistent with mental accounting features that are part of the BLC approach. The Blueprint design team proceeded under the belief that multiple credit card holders who budgeted using their cards would pay off the complete balance on cards used to purchase regular expenses, but would be willing to hold balances on cards used to purchase durable goods such as appliances or home improvements.

Chase Card Services sought to offer a set of online features that would mimic the mental accounting behavior patterns they identified in their research. To this end, they developed a set of online tools, which were augmented with support from a call center. The online tools were organized into the following four groups.

1. Full Pay is designed for users that carry balances on their accounts, Full Pay provides the opportunity to identify specific expenses they wish to pay in full every month. Examples of such expenses might be groceries, gasoline, and prescriptions.

2. Split is designed for users who maintain positive balances related to purchases for larger purchases such as new appliances or home improvement projects, Full Pay establishes a repayment schedule based on the length of time, or the monthly payment, which cardholders specify in order to pay off the debt associated with these purchases.
3. Finish It enables users to create a plan to pay down their entire current balances faster, by selecting goal dates.
4. Track It enables users to track their spending patterns online by category at any time, so that they can monitor these patterns and track progress toward achieving preset goals.

Notice that Finish It is a general feature, while Full Pay and Split are structured along mental accounting lines. Track It can also relate to mental accounting, but applies generally as well.

In April 2013, Chase reported that they were generally pleased with the way that Blueprint had helped users manage their credit card experiences. Notably, among all of Chase programs, Blueprint had the fastest growing cardholder adoption rate. Specifically, cardholders had created 2.87 million plans on Blueprint, and approximately 90 percent of these cardholders were staying committed to the plans which they had established. In this respect, 91 percent of cardholders using Blueprint paid more than their minimum payment every month, compared to 40 percent for all U.S. credit cardholders.

In respect to the human touch, Chase found that reliance on call centers was heavier and more important than they had originally anticipated (in 2009). Call centers certainly provided users with additional clarity in the use of Blueprint's features. Moreover, Chase reported that these centers provided encouragement to users who were considering using Blueprint and psychological reinforcement to users who had already put strategies in place for paying off their balances.

Based on responses to its Chase Blueprint Pulse of the Consumer Survey at the time (April 2013), the firm reported that a growing majority of consumers felt in control of their personal finances. This statement was primarily based on the finding that more than three

quarters of survey respondents believed that their personal finances were stable or improving, which corresponds to an 11 percent increase from the prior year.

In addition to providing call center support for Blueprint users, Chase also established an online information center they named “Resource Center for Mindful Spending.” This center offered third-party research, tips, videos, and infographics to help cardholders develop good habits for spending and borrowing.

Despite Chase’s efforts and the positive finding they reported in 2013, the firm terminated Blueprint on November 11, 2018, citing low consumer participation as a factor (Frankel, 2018). In the remainder of this section, I describe the diverse reactions by cardholders to Blueprint failed, and suggest some key lessons to be learned from their experiences. However, before discussing some of the negative comments about Blueprint from cardholders, it is worth mentioning that some of Chase’s credit card customers found Blueprint’s features valuable.

Below are three typical reactions to Chase’s termination announcement from cardholders who valued the service and communicated with each other about Blueprint UX in a chat thread on Fico Forum.

- Only card I ever had that offered such a suite of benefits. My observation is that the benefits game changes as often as the rewards game?!
- I have used these features and considered them a valuable tool and perk of my Chase accounts. I hate to see it go since I haven't heard of or seen a replacement for it yet. Seems like we choose these cards with great/good benefits and over time watch them get slowly broken down. Is this the norm? Is it possible to keep a card years and years while the said card maintains good benefits or do they all run their course?
- It depends! Cards with REALLY great benefits tend to be nerfed or disappear (e.g. original versions of the BCP, Cash + and 5x Citi Thank You Preferred, all of which had uncapped 5/6x categories). Others get nerfed more slowly, and individual changes may not be a big deal to you (and I think that many feel this way about Blueprint, never used it so won't miss it), such as happened on Freedom and CSP.

Notably, cardholders expressing the preceding sentiments were not present in sufficient numbers to support Blueprint. Among cardholders who were critical of Blueprint was a group that did not relate to its mental accounting features. Some representative comments from a chat thread about Blueprint UX appear below.

- Dumb question but what good is Blueprint at all? Who cares what “category” of purchases you pay off, it's all about the amount right?
- The concept behind this card is infuriatingly underhanded. Why would I care that I pay off my gas but not my groceries? Why is \$1 for gas different from \$1 for groceries? What a stupid concept for a bank to encourage people to keep a balance.
- They're relying on two things:
 1. People have a sense of internal mental accounting and this can help some people who would otherwise carry a balance.
 2. Those people don't understand that dollars are fungible.But yeah, when I saw the ads for blueprint I was like “That's the stupidest thing I've heard in the last five minutes...”

What makes this particular chat thread interesting is that many participants did not have an appreciation of mental accounting. These comments stand in contrast to the findings in Chase's research that a nontrivial proportion of cardholders were using multiple credit cards to put mental accounting structures in place.

Relatedly, Gathergood et al. (2019) report that many consumers holding multiple credit cards pay down the balances on those credit cards proportionally, rather than first paying down the card having the highest interest rate. The authors of the paper call this behavior the “balance matching heuristic,” and they describe it as suboptimal.

Some cardholders who follow the balance matching heuristic might well be behaving suboptimally. At the same time, cardholders who use multiple credit cards for mental accounting reasons might view the additional interest as reflecting the cost of using a mental account-based budgeting system.

In developing Blueprint, the Chase design team hoped that cardholders with multiple accounts which they used for mental accounting-based budgeting would find it easy and

desirable to replace their multiple cards with just one card, that being a Chase card with access to Blueprint.

In making this assumption, the Chase team may have been mistaken. Because of status quo bias, people do not change habits easily. Moreover, using Blueprint is more complex than using multiple credit cards. Below are online chat comments from cardholders about Blueprint UX being less than transparent.

- I got duped into signing up for Blueprint when I called Chase about something else. My thought was “It's more options, what could be the downside? Doesn't cost anything, so why not?”. When Blueprint appeared on my account my first thought was “WTF, where the eff is the ‘Pay Previous Balance’ button?!?!?”. So, I had to copy my previous balance from another page of thier website, navigate back to the payment section and paste it in the appropriate box... Luckily it worked just fine, but what a stupid waste of time.
- Here's the stickler, it worked fine for a few months. It wasn't until I happened to make a charge that fell outside the “pre-defined” categories (despite thinking all categories, therefore all charges would be paid) that I got dinged. Hence the false sense of security.

The above comments indicate that some users felt, not just that Blueprint was opaque, but that the program was manipulative. On that score, consider the following cardholder comments that repeat a concern about paying in full.

- Opened my statement and was annoyed to see interest charges on my card. Called in (to the usual very friendly CSRs) to find out that purchases have to land in the predefined Blueprint categories to qualify for full pay. Turns out some purchases I made didn't fall into any blueprint categories, so they just started accruing interest. When you're enrolled in Blueprint, you lose the automatic payment option for “full pay” balance.
- There's no easy way to un-enroll from Blueprint without calling and then waiting 2-3 months for it to clear out.

Despite having launched Blueprint with public relations fanfare in 2009, and followed up in the subsequent years with a media strategy, many cardholders simply did not know about the program. Below are two typical comments from cardholders, reacting to Chase's announcement that it was terminating Blueprint.

- I'm not sure I even know what Blueprint is lol. I read the title and thought it was a Chase CC I'd never heard of.
- Same here. Never hears of Blueprint and I'm huge in the Chase ecosystem. Oh well...

Blueprint might have had several problematic issues, but having a call center component was not one of them. The call center provided a human touch that helped increase cardholders' degree of comfort in using the features.

Ultimately, the problems that led to Blueprint's termination involved excessive complexity, lack of transparent framing, confusing terminology, and insufficient saliency.

There is reason to believe that there is one more reason why Blueprint did not turn out to be the success that Chase had hoped, and that reason has more to do with cardholders' psychological profiles than with Blueprint's features.

A pilot study of a nudge program called Borrow Less Tomorrow (BLT) provides evidence of how difficult it can be for people to exhibit disciplined behavior in managing their household debt (Karlan and Zinman, 2012). BLT had three components:

1. An AI-based algorithm to recommend plans for paying down debt;
2. A commitment option to motivate people to follow their plans; and
3. Reminders to help people reset their behaviors if they deviated from the recommended plans.

Of those offered the opportunity to participate in the BLT program, with no fee, only 41 percent accepted and made a plan. Notably, 51 percent of clients who made a plan were on schedule after 12 months, meaning that only 20 percent or so of participants were on schedule after 12 months.

You can lead a horse to water, but cannot make it drink. The human touch can help somewhat, but the truth is that many people find it difficult to be disciplined about managing their debts.

3. LearnVest

In 2008, Alexa von Tobel, an MBA student at Harvard Business School, founded LearnVest, a company dedicated to making personal finance education accessible and interesting to the general public, especially women. Originally a financial resource web site for women, von Tobel expanded the business to include financial planning in a hybrid model combining human financial planners and robo-advising. In this respect, LearnVest offered its clients a phone consultations with a tele-planner and a financial plan followed by unlimited email support.

The main lesson of this section is that LearnVest was able to grow its business successfully by attracting customers whose need for the human touch was low enough to be consistent with a cost effective business model. However, LearnVest was ultimately acquired by a large insurance firm that appears not to have understood how the human touch requirements of LearnVest's customers related to their own business model, a mistake which led to the demise of LearnVest's business model.

The company's range of services featured a combination of content, tools and support to help clients manage their finances at each stage of the life cycle. LearnVest tools included a daily email newsletter with money and lifestyle tips, which they called financial Bootcamp Programs to teach financial basics, access to an online resource which they called the LearnVest Money Center, and financial planning that included regular household budgeting.

Notably, LearnVest relied on digital technology for most of the services it offered. The technology included a blog dedicated to clients' needs and interests, a mobile app, and an intuitive UI. The company also made extensive use of data which it employed in a matching algorithm to assign financial planners to clients. In 2013, LearnVest filled a position for director of analytics by hiring the director of data science and engineering at Netflix. LearnVest's intent was for data to play a major role in its product and marketing strategies.

One of the most interesting features about LearnVest is that its focus was on serving millennials, a demographic group that is especially comfortable using digital interfaces. Indeed, as I mentioned above, pure robo-advisors primarily serve millennials. If the human touch should be a minor issue for any demographic group, then it would be the group of millennials. Relative to their predecessors, millennials are much more prone to use banking apps rather than traditional brick and mortar banks, to maintain fewer credit cards, relying instead on online

payment methods, and not pay for financial planning services. (Polveri, 2015; Rajput, 2020). Nevertheless, LearnVest was able to attract 10,000 clients who were willing to pay an upfront fee of \$299 (possibly in installments) plus \$19 a month for ongoing access to human planners.

By 2013, the size of LearnVest's client base was approximately one million, mostly women. That year, LearnVest partnered with Chase Blueprint to identify some of the key characteristics of U.S. consumers' behavior patterns, with a view to offering a set of tools that would help consumers make better financial decisions. The findings from this research were published in 2013, as mentioned previously, and identified the financial landscape in which LearnVest operated to help clients make better decisions.

- Significantly less than half (38 percent) of survey respondents indicated that they had an actual monthly budget.
- Less than half of respondents were aware of how much money they had each month for discretionary spending.
- The average amount survey respondents stated they would have available each month for discretionary spending was highly variable, in the range \$631 to \$1,180.
- With one exception, discretionary spending was not statistically related to gender, age, or income. The exception was that for high income respondents, discretionary spending not varied with age.
- Twenty-eight percent of both female and male respondents selected credit card debt as a top expenditure, which was a similar percentage to savings.
- Eighty-three percent of respondents, both women and men, responded that mortgage/rent is one of their top three largest expenditures.
- Automobile payments ranked fourth for women and was much lower for men.

With the above findings as a backdrop, LearnVest's educational programs offered money tips having a distinct behavioral life cycle flavor. Examples of nudges to induce more prudent spending behavior included leaving your wallet at home, labeling bank accounts by purpose (such as "emergency only"), treating shopping as a scouting mission with time for reflection separating the acts of discovery and purchase, reframing the cost of purchases from dollars into

hours spent to earn the value of the purchases, and tracking on cell phones funds remaining monthly from budgeted accounts.

By 2015, LearnVest grew to the point where it had 10,000 clients paying for planning services directly, 25,000 employer retirement plan clients (through LearnVest at Work), and 1.5 million users including its free budgeting platform. The firm's workforce consisted of 150 employees, located in both New York and Arizona.

In 2015, the large insurance firm Northwestern Mutual acquired LearnVest for approximately \$250 million. According to press reports, Northwestern acquired LearnVest for its technology and for its access to millennials (Shidler, 2019). Northwestern also acquired the robo-advising firm Betterment, as part of a strategy for digitizing its business operations and expanding its customer offerings.

Von Tobel joined Northwestern Mutual as chief innovation officer, along with key members of the team she built at LearnVest. She was very enthusiastic about the acquisition, saying that Northwestern Mutual has "tremendous scale. We are going to take the innovative technology that has made LearnVest so special and we are going to be able to help scale it rapidly to another 4.2 million households. Not overnight but very quickly." (Sharf, 2015). By this she was referring to a proposed platform which Northwestern Mutual's 16,000 financial advisors would use with its 4.2 million customers. For his part, Northwestern Mutual CEO John Schlifske said of the acquisition: "This was very clearly a match made in heaven."

Despite the optimism, shortly after the acquisition, LearnVest's client base began to decline, with the number of direct clients eventually falling to 8,000. In 2016, the technology component of Northwestern's acquisition strategy was a year behind schedule, and many of the LearnVest team that had come over following the acquisition were leaving the company. In 2018, Northwestern Mutual announced that it was writing off its \$250-million investment in LearnVest, but hoped to salvage the brand, and change the original focus on the sub high-net-worth, female segment of the market. In early 2019, von Tobol left Northwestern.

In 2018, Northwestern effectively terminated its services to the 8,000 clients still using the service. Clients who logged onto the service website read the following: "LearnVest will discontinue its financial planning offering for consumers, as well as its LearnVest@Work program for businesses... Learnvest.com will relaunch later this year as a fresh, digital resource focused on educating consumers on how to meet their financial goals."

An important reason why Northwest's acquisition of LearnVest failed was that NorthWest and LearnVest served different markets in respect to psychological profiles. Northwest mostly sold insurance products, using a sales force. The firm's clients heavily relied on the company's agents for their financial decisions, where the human touch was key. In contrast, LearnVest's business focused on clients who were more self-reliant, less reliant on the human touch, who sought assistance to make better financial decisions, but ultimately maintained discretion and control.

You can lead a horse to water, but cannot make it drink. Northwestern Mutual understood the importance of combining technology with the human touch, but its strategy of integrating LearnVest into its operations failed because it failed to understand the difference in psychological needs between LearnVest's clients and its own.

4. Conclusion

None of the three financial service firms discussed in this paper can be regarded as exhibiting optimizing behavior in respect to providing their customers with the human touch. Instead, all behaved in ways that corresponds to satisficing (Simon, 1945). By this I mean that over time, all three firms acted as if they engaged in setting goals and then searched for solutions that would enable those goals to be met. In this respect, keep in mind that skilled judgment involves the setting of realistic goals and the choice of a search strategy that that is well matched to the task environment and the aspiration level associated with the goal. Search strategies have stopping rules, and the difference between actual outcomes at stopping times and aspiration levels can be large if aspiration levels are unrealistically high, if search strategies are inefficient, or if decision makers are unlucky.

Financial Engines' original long-term goal involved a technology solution with nudging and boosting elements to induce households to choose sensible behavior for retirement savings and investment. After two decades of searching, the company's executives learned that to be successful, their technology solutions needed to incorporate the human touch, which they accomplished through merger and acquisition.

Chase Credit Card's original goal was to provide its credit card customers with a set of online features with nudging and boosting elements for managing credit card debt. The company eventually learned that for the strategy to be successful, customers needed access to a call center

so that they could interact with other humans. Call center operators provided information, guidance, and reassurance. Despite initial success with these online features, over time many customers professed to be unfamiliar with the program, and found it confusing to use. At the time the program was terminated, customers who complained online made no mention of having sought help from call center operators. Chase appears to have engaged in early satisficing success, but perhaps changed course in a search for cost reduction, and learned that cost reduction removed the critical human touch.

LearnVest's original goal was to grow by boosting, offering its customers information, as well as the opportunity to experience limited financial planning with the human touch. That growth in customer base, in combination with a digital platform, caught the attention of insurance firm Northwestern Mutual. Northwestern's goal was to integrate LearnVest into its insurance distribution system, and to import features of LearnVest's technology platform to its primary business. The comments made by LearnVest CEO about "tremendous scale" made clear that the aspiration level for the acquisition was very high, in respect to applying LearnVest's technological-based approach to Northwestern Mutual's customer base. However, the management team lacked the skill set to search successfully for an operational strategy that was well suited to the decision task and the high aspiration level. This failure partly because the Northwestern Mutual management team did not appreciate the way in which LearnVest had used the human touch in combination with its technology platform. LearnVest's strategy had focused on millennials. Northwestern Mutual's customers were broad based. As a result, in the end Northwestern closed down its LearnVest division, and wrote off the acquisition.

There is an important lesson about the human touch. It varies across the consumer landscape. Digital interfaces are improving when it comes to mimicking human voices facial expressions, and engaging in communication. These advances will help advance the prospects for mixed human-robo financial planning models, especially in a post-Covid world where people have become more comfortable with digital interfaces for services such as tele-medicine. However, empirical evidence, such as presented by Rossi and Utkus (2021) suggest that the need for a real human touch remains strong in a broad segment of the population, including millennials.

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