

Behavior Science Led Technology for Financial Wellness: A Critical Review

Prof. (Dr.) C.S.Yadav¹, Ms.Shivani Arora² CA Priti Sharma³

¹Professor, School of Management Studies, Graphic Era Hill University, Dehradun (U.K).

²Assistant Professor, PDP, Graphic Era Hill University, Dehradun (U.K).

³Department of Commerce, Graphic Era Deemed to be University, Dehradun (U.K)

ABSTRACT

Individuals' general well-being is said to be strongly influenced by their financial situation. To be financially well-off, one must have a sense of control over one's finances and the ability to make informed decisions about one's financial future. This directly affects one's general quality of life, including one's productivity at work, the quality of one's relationships, and one's health. Additionally, achieving financial health can be a challenge for many people because the paths to achieving it aren't always clear and can be daunting to many. The epidemic in India has made financial security a top stressor for the majority of people, according to recent reports in the country. Consequently, a fundamental issue for the country is a lack of financial stability. Across the globe, people are concerned about their financial well-being. Many behavioral biases and impediments to financial decision-making have been discovered in the study of behavioural finance as a means of alleviating this problem. Lack of self-control, inability to make sound financial decisions, or a failure to recognise one's own financial requirements and the correct items to purchase are just a few examples. We propose a comprehensive and hyper-personalized way to impact financial behaviour that blends technology and behavioural science. Financial well-being may be improved with this strategy by using behavioral levers and nudges. This strategy works because it combines two distinct characteristics: (1) an appealing front-end user interface and (2) Analytical and consumer insights are used to provide clients with valuable suggestions. With the help of a financial counselor, you can ensure that your long-term financial goals are met. In order to reach as many Indians as possible with financial inclusion, we need to broaden the definition of financial health to include everyone in the country.

Keywords: Financial wellness Behavioral influencer's Behavioral analytics technology

INTRODUCTION

It is widely accepted that financial well-being is a sub-construct of total well-being, and individuals usually strive for this condition of financial well-being. [1]. The Consumer Financial Protection Bureau uses the term "financial literacy" when discussing a person's financial well-being.[2]. As a holistic, multifaceted notion, financial health includes financial contentment, the actual condition of one's finances, as well as one's financial attitudes and conduct [3]. When it comes to a person's

overall well-being, their financial well-being is directly linked to their productivity at work, personal relationships, their health, and their overall happiness. [4]. The quality of people's lives can be negatively impacted by a lack of financial well-being. As stated by [5], Even if they needed care, roughly one-fifth of all Americans have delayed or skipped a doctor's appointment due to financial concerns. Emotional attachment to money and financial decisions is a major contributor to many people's financial pain and stress [6], More over a third of those surveyed expressed anxiety about their capacity to pay off credit card debt and make long-term investments. Concerns about one's future employment, income, and credit ratings are among the most prevalent sources of stress in today's society. Financial assets make up only 5% of the average Indian household's wealth, according to a Committee on Household Finance in India report. Even in industrialized countries with higher levels of financial asset ownership than in the United States, there has been a noticeable reduction. An increasing percentage of household liabilities are secured by mortgages, and as the population nears retirement, this puts them at increased risk of being obligated to make mortgage payments in their later years. [7]. As a result, the topic of financial well-being is one that persists around the globe.

As a result of the COVID-19 epidemic, there is a greater emphasis on personal financial well-being and a recognition that this must be a system-wide endeavour. Many people's livelihoods were destroyed as a result of the epidemic, making them more susceptible to hardships in the future. According to McKinsey 2020, 30 to 80 percent of family decision-makers worldwide reported losing money or savings as a result of their work. [8]. Even if we disregard the possible pandemic repercussions, it remains a fascinating subject. If financial security is a top goal for the majority of people, then why is it so difficult for them to "concentrate" on being financially ready to satisfy their needs and aspirations? In some cases, it is feasible that behavioral finance might be the solution. As [9] it is said that "behavioural finance replaces rational persons in traditional finance," according to the cited source. The idea that people take their time to weigh their alternatives before reaching a final decision underpins the whole decision-making process. Taking a behavioural approach allows us to see things from a fresh viewpoint. We often make decisions that aren't in our best interests when we lack accurate information. Behavioural science has been used in a wide number of areas to enhance policies, services, and goods for people throughout the world. [10] The combination of a behavioural science-based strategy with cutting-edge technology may be the key to widespread financial inclusion. Behavioural technology-based solutions that are personalized to the user's individual requirements and allow them to establish goals, measure their progress and disclose their behavioral patterns will be presented in this article. This article will present a behavioral technology-based solution that is tailored to the specific needs of the user and allows them to set financial objectives, track their progress, and reveal their behavioral patterns. A comprehensive strategy is needed to assist individuals define realistic financial objectives that correspond with their particular financial personality, and empower them through treatments that lead to habit development in order to aid them in making behaviorally aware decisions for financial well-being." After that, we'll talk about the psychological consequences of financial well-being, and then we'll look at several approaches to overcoming financial challenges. Section 4 will be used for the purposes of this section. Several ways for coping with behavioral obstacles to financial inclusion are presented at the end of Section 6.

A new PwC survey from 2021 shows that an increasing number of young Americans are concerned about their financial security. Repayment schemes for student loans and retirement plans are among the financial possibilities they'd like to investigate. [11] Even individuals whose income hasn't changed appear to be taking a cautious approach to spending in the wake of COVID-19's economic impact on the Australian economy. [12]. India's financial savings rate dropped from 21% in the previous quarter to 10.4% in the July–September 2020 quarter, according to early central bank projections.[13]. The unemployment rate in India rose from 6.7% at the end of March 2021 to 8.6% in the week ending April 11th, according to statistics from the Centre for Monitoring Indian Economy Pvt. Ltd. [14]. To be successful, we'll need solutions to the challenge mentioned above that are innovative, smart, and flexible. Many people may have been worried about their financial status before the COVID-19. Thanks to breakthroughs in behavioral science and technology, we now have an abundance of alternatives for ensuring our financial stability.

Behavioral Influences in Financial Decisions for Wellness

Financial literacy is one of the most prevalent reasons people fail to act in their own best interests when making financial goals. [15]. To have a basic degree of Financial Literacy is to be able to make well-informed decisions and strive toward financial well-being. Short-term and long-term financial goals are only two examples of the many situations in which finance is applied. Understanding the fundamentals of money and finance may be regarded as financial literacy. Being literate is thought to improve a person's capacity to make wise financial decisions. Behavioural biases and other roadblocks can make budgeting difficult. Setting away funds for the future might be tough if you have challenges with self-control. [16]. A short-term concentration or consumer inertia might keep people from considering the future.[17]. Implementing financial strategies might be hampered by a person's fear of losing money or taking risks. [18]. Because of their sensitivity to losing money, investors in their sixties and seventies tend to be the most impacted by pandemics like COVID-19, which has disproportionately hit baby boomers. [19].

When a person thinks about their future self, their intertemporal decision is influenced. [20, 21]. People who want to save money must have a definite goal in mind before they begin. Because of the way that time distorts our views, this prejudice is known as "present bias." Abstract and foggy mental visions of the near and distant futures exist, as do those that are more solid. Because of the present political climate, formulating long-term goals might be difficult. Overconfidence in our abilities to achieve our goals despite the roadblocks may cause us to neglect future planning. As [10] As indicated by the fact that the majority of us feel their driving skills are better than average, their red meat intake is lower and their business undertakings are more likely to succeed, we live in a culture that is infected with overconfidence. When it comes to retirement planning, we could tell ourselves things will go our way or that we'll be able to handle any challenges that come our way.

Many people find it challenging to make educated judgments about their future financial well-being when it comes to retirement planning. Many people have a hard time saving for the future because they lack a stable source of income. [22], It is common for people to put off saving for retirement because they have other ambitions, feel they have more time, or believe their career was only temporary. [23] or even just putting things off [24]. Students' debt, the lack of a retirement plan provided by their work, or the belief that they don't have enough money are all contributing factors

for millennials' decision not to prepare for retirement. [25]. External influences, such as religion, can also have a role. [26], culture [27], The ability to get financial advice, [28] growth of the monetary system [29], Social and economic factors, as well as changes in those factors, can have an impact on how people make financial decisions.

Behavioral Interventions for Financial Wellness

Financial services firms are increasingly turning to behavioral analysis to gain a deeper understanding of their clients' financial well-being. People should receive advice that is specific to their existing financial situation. It's not just short-term results that can be affected by behavioral finance and behavioral economics. There are a variety of approaches to influence decision-making. Cognitive overload may be addressed with tried-and-true procedures, which happens when people acquire an excessive amount of information all at once. Online mortgage and loan applications were improved through cognitive science at BBVA. They witnessed a 150% increase in the number of completed applications because they employed more user-friendly wording. [30]. In recent research, emotional appeals have also been proven to be more effective. [32]. Many studies have demonstrated that people are more easily persuaded by communications that evoke strong emotions rather than rational ones. As a result, they are chosen over traditional ways since they are easier to remember, more engaging and less resistive. A recent study has found that people are more likely to make short-term behavioral changes when they hear emotional arguments. [33]. People may benefit from the use of concrete emotional cues if the goal is to start saving money now. Choice architecture, commitment characteristics, incentives, and client communication methods are all being studied as behavioral therapies for financial wellness. [34].

The term "digital nudging" has lately gained traction among academics. Let's say, for instance, [31] details the results of three new case studies demonstrating the power of improved online world interfaces to influence users' financial decisions: (i) Enrollment in a savings program substantially doubles after an email intervention encourages it; (ii) Using a robo-savings program increases the likelihood of users saving more money. (iii) Consolidating all of your accounts might save you money if you utilize a mobile app for account aggregation on a regular basis. In terms of saving money, you may find out how you stack up against your peers by visiting your local bank. A well-considered nudge is one that is trustworthy, ethical, and in the best interest of your customers or users. The boundary between digital nudging and spamming or phishing attempts is quite thin. Furthermore, customers should be aware of and on alert against cyberattacks of this sort, and they should be reassured that service providers are trustworthy. You can utilize a wide range of methods to tackle financial wellness' behavioral challenges.

Possible Angles Of Attack to Address Behavioral Bottlenecks in Financial Wellness

Some possible approaches to tackling the issue include: financial service providers employing the following inputs to better understand, engage, and encourage the decision-maker toward better financial health choices:

Effective engagement with the user

Empathic and ongoing participation is essential in order to get people on board and on their way to financial wellness planning. Signing up new customers is the first step in making financial services

more accessible and usable.. In order to recruit, retain, and energize customers, financial services organizations must overcome several challenges. A user-friendly product must include features that are easy to use, intuitive, and allow consumers to take action. [35]. When it comes to financial products, design and technology may work together to provide a meaningful and interesting experience for the end user. For instance, a chatbot that helps customers define financial goals can link them to financial advisers when appropriate. Communication and engagement can help decrease emotional concerns such as loss aversion. Users of financial services should be able to better balance their view of a financial opportunity to uncover and potentially solve prejudice by having financial service providers define objective standards and deliver more accurate assessments. [19].

Personalizing the Solution

By using individualized reminders and regular feedback, financial service providers may include visualization and goal-setting exercises into their offerings. When creating new solutions, it's possible to take into consideration factors like the user's life cycle or financial situation. [10].

Understanding career/life stage

Individuals must be financially prepared for important life events like as starting school, establishing a career, getting married or divorced, increasing their families, responding to medical needs, and retiring... These nudges and interventions may be tailored to each individual's stage of life and profession.

Understanding financial decision stage

The following steps are typical of financial decisions: identifying a need, gathering information, formulating a plan, putting the plan into action, tracking progress toward the objective, and finally, celebrating success. As people advance through the stages or go backwards in time, this is an iterative and non-linear process. There are a multitude of reasons why you could be unable to make a decision. When the proper moment arrives interventions can be offered to offset certain biases/barriers at various phases of decision-making. (Fig. 1).

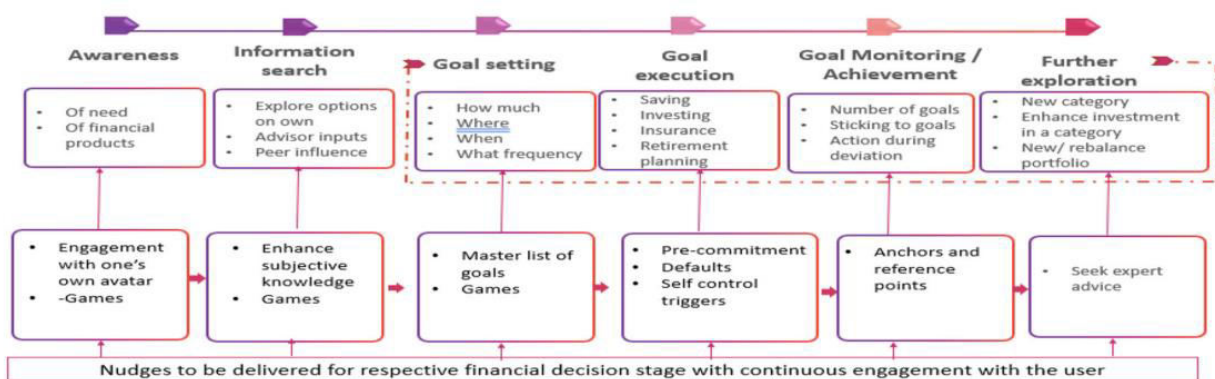


Fig. 1 Stages in Financial decision making and sample nudges to be delivered at respective stage

Sending nudges to users at each stage of their financial success journey might boost user engagement and course correction. The customer receives timely reminders as they contemplate their options.

Curating behavioral interventions for advancing in the financial goal trajectory

There are several factors to consider while picking behavioral finance material for a person's life or job. Increasing the likelihood of their customers achieving their financial goals is something financial institutions can accomplish by involving them and providing them with the information and tools they require. Customer goals, such as when and where to deposit money, should be taken into account during the onboarding process. (e.g. online or at the bank).

To make it simpler for consumers to use defaults, financial service providers may customize their solutions to make it easier for customers to use savings taken out of their pay packets. Some solutions recommend that future commitments be increased as a result of the solution itself. Instead of limiting people's wages, legally enforceable agreements aim to provide them a choice. From a psychologist's perspective. [34]. Technology may be used to acquire real-time data on how therapy affects a patient's behavior at a minimal cost. These statistics may help us determine which strategies are most effective so that we may experiment with various treatment variants in order to find the most efficient means of encouraging the general public to practice saving behaviors. [36].

Solution approach and components

Behavioral science-based approaches to financial well-being can help people become more financially secure. The answer consists of two parts: (1) a visually appealing front-end interface and (2) Analyzes consumer behaviour and provides actionable recommendations to the user based on their unique needs. It's a back-end system. At every stage of your life, you must have a well-thought-out financial strategy in place. As the solution is developed, the safety of corporate data and the privacy of customer data are taken into mind. We can get the data we need to evaluate our clients' current financial situation thanks to the solution components. The database system securely retains the information that has been gathered through automatic means. With this information, the service provider may better understand their consumers and design an engaging engagement program for them. The authorization method restricts application and database access, while audit logs keep tabs on both.

Front-end interface as a planning tool

The customer's particular needs and preferences are taken into consideration when recommending products and services to them. Basically, this is a back-end system. Having a clear image of your financial requirements, setting financial goals, and receiving helpful feedback are all essential as you develop in your professional and personal life. In the creation of the solution, security and privacy of corporate data and customer data are taken into account. We are able to acquire the necessary data to evaluate our clients' current financial situation because of the solution components. Information gathered through automatic means is protected by the database system. Using this information, the service provider may be able to better understand their consumers and design an engaging engagement program for them. The authorization mechanism restricts access to both

applications and databases, while audit logs keep track of both. [7]. Investing in the appropriate instruments at the right times is as critical to increasing one's net worth as saving money is. The fundamental goal of financial stability can only be achieved through a rigorous and disciplined savings strategy. As the concept of goal-based financial planning gains popularity, wealth managers, FinTech companies, and other financial institutions are working hard to spread the word. It is possible to develop an investment strategy based on an individual's current and future financial condition as well as the goal through goal-based planning. Investments can be made regularly or as a lump sum over an extended period of time. It doesn't matter if you have long-term or short-term goals. A well-thought-out and realistic financial plan is essential in the process of preparing for the future. Savings or debt reduction are the two primary goals of goal-based financial planning. The money saved can then be used to fund a different sort of investment. In-house financial planners are employed by banks and insurance companies to help customers in performing what-if analysis of their financial circumstances.. Using goal-based planning tools may help clients complete a full-circle goal planning process, making them as vital as financial planning tools. In an ideal world, a goal-based financial planning tool would reinvent the current workflow. The following should be adhered to: The development of a feeling of financial inclusion that goes beyond the individual has various advantages.

- A realistic goal can only be achieved by open communication with reliable financial partners. For the sake of clarity, we don't describe what the ultimate financial product will look like. It is possible that the product will be tied to the goals. (s)
- Real-time experiences can be shared with others. Individuals can modify their money management habits. New goals or public awareness initiatives might be recommended as part of this more tailored service. For instance.
- On a dashboard, users should be able to see where they've made progress and where they've fallen short. It is possible to send reminders to the user's smartphone for personal financial goals.

If the front-end planning tool does not have these qualities, it cannot interact with its users and allow them to plan their desired trip. Customers and service providers alike profit from well-thought-out financial planning software. To its users, it serves as a means of establishing and attaining long-term financial goals. With the use of an online portal, service providers may gain a 360-degree perspective on their customers and support them with more than just their fundamental needs. The importance of creating an intuitive user interface can't be overstated. For the advantage of the end-user, front-end development was carried out. Information is presented to the user according on the user's current life stage, interests, and demands. The design and content of Nudge reflect its values. When it comes to user pleasure, the importance of qualities like safety, security, and a sense of belonging cannot be overstated. A service's accuracy and security must be trusted before it can be used. Examples include a fact-finding screen aimed to gather information about an individual's risk appetite and so on. These are wonderful examples of well-executed design. Service companies can gain a better understanding of their customers' financial and emotional well-being by utilizing this data. Responsive web design and an endless scroll layout with widgets are two examples of cutting-edge ideas. (Fig. 2).

Customer insights system

To create long-term connections with their customers, banks can use the CI&I system to have sympathetic talks with them. Before giving the final result, an AI and machine learning-based system synthesizes data from both internal and external sources (macroeconomic open data includes credit bureau scores and transaction averages, as well as social brand interactions). This data processing system already includes client authorization checks and the security of personal data.

CI&I systems may give customers a comprehensive view of a company's whole product line. The financial service provider and also helps determine the

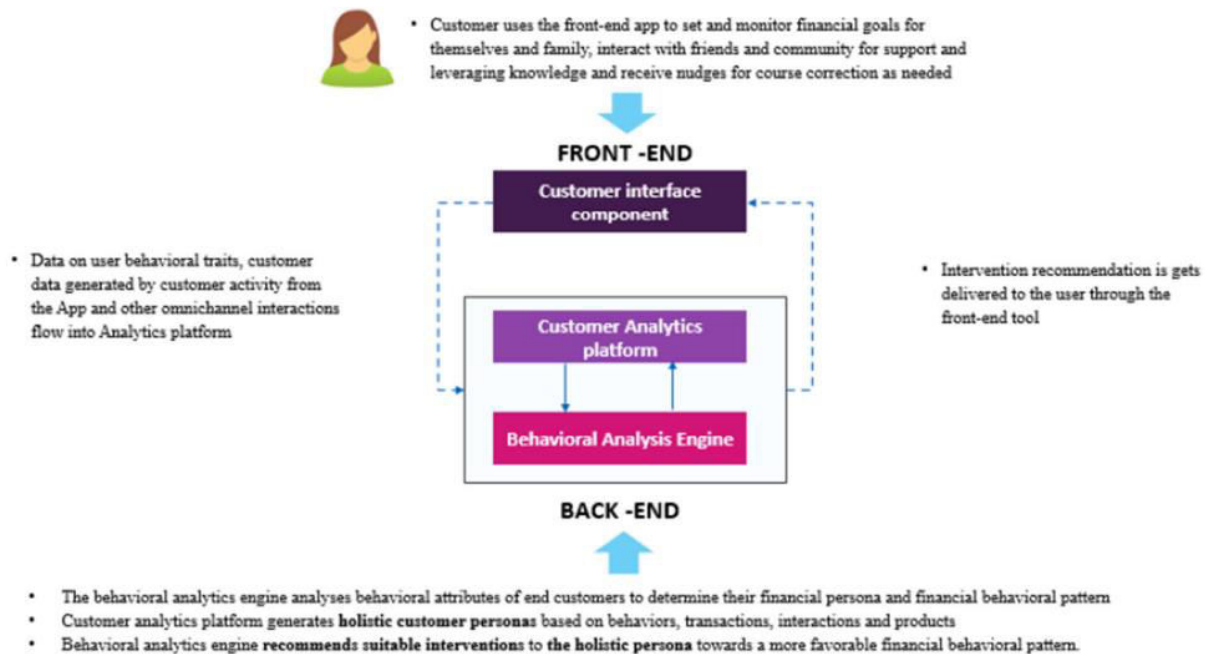


Fig. 2 Financial Wellness Solution components

The characteristics of a person's personality are utilized to determine their identity. The technology depends on demographic and lifestyle data to create digital identities. These people can be categorized into many groups depending on their financial status and their online presence. With the help of the propensity models incorporated in the system, you can predict what a client would do when confronted with the choice between a distribution channel or product. Businesses may personalize their interactions with consumers based on their distinct personalities, hobbies, and portfolio holdings thanks to the usage of customer insight. It is possible to advise the Next Best Action or the Next Best Offer based on the context and behavioral traits of a certain customer. To ensure that customers are handled fairly, the CI&I system employs both unsupervised and supervised machine learning algorithms. Behavioral clustering and look-alike modeling, in addition to transactional and psychographic data, can be used to identify people. Affinity and event-driven models are used by NBA models to provide nudges and the next relevant action. Contact centers,

relationship managers, and digital advisers of financial institutions benefit from AI models for voice and emotion recognition. Artificial Intelligence (AI) and machine learning (ML) methods can be used in conjunction with business rules in the decision modeling environment of the CI&I Decision Modeling Platform. This assures the interpretability and bias-free character of AI-enabled financial wellness interactions in the interest of Responsible AI.

Behavioral analytics engine

Changing behavior necessitates a combination of systematic assessment, the identification of patterns in behavior, and the use of proven interventions. User activity is captured and analyzed by a behavioral analytics engine, which then recommends the optimal course of action for each user. Sensors on the engine can collect data in a number of formats. This engine provides customized insights for each user based on their goals and where they are in the process of reaching those goals. This service allows users to join under a pseudonym, and no personal data is acquired from the user base. There is a sense of security that comes with the GDPR and other privacy regulations in place. It is possible to request that all of your personal information be removed from the system as a result of these capabilities Details of the General Data Protection Regulation (GDPR). [37]

Pattern recognition algorithms may be used to learn a lot about people's habits and routines. Patterns might be as simple as overspending or undersaving, or as complex as carelessness or inaction. The engine has access to financial decision-making tools. Behavioral surveys and the system's data can be used to create personas and develop solutions. The engine contains a behavioral simulator, pattern recognition modules, and intervention prescription capabilities in order to better understand and anticipate the dynamics of a given event. As part of the knowledge base for the engine, academic papers in behavior finance are consulted for learned behavioral insights. Medications that have already been tested in the field can be shown to be beneficial in this study. Knowledge mining architecture uses classifiers and information extractors to collect and store relevant information. [38].

How the solution elements come together for financial wellness

The strategy will fall short if it is missing this crucial element. For yourself and your loved ones, you may use the app's front-end UI to set financial objectives and track progress toward those goals. In order to assist the user plan and fulfill their goals, the system will send the user a variety of personalized notifications and reminders. The Customer Insights (CI) system collects information on customers' use of the App and other omni-channel interactions. A pattern recognition algorithm may be employed by the consumer analytics system to determine behavioral patterns and personalities. The engine analyzes the characteristics of end users' activity and creates a behavioral pattern. The recommendations in this study can help you develop a more beneficial financial behavior pattern. Customer-facing digital channels convey these interventions to the end user. When an investor's life activities are tracked by the CI system, the behavior analytics engine can subsequently make intervention recommendations based on the information provided by the CI. Behavior analytics engines may then deliver a follow-up push if the user responds to an earlier intervention. You may take an Indian woman's daily routine as an example of how this paradigm could be used. Our imaginary financial advisor's name is Fin Companion.

An excellent illustration of someone just beginning out in her career is Asha, a young professional. When it comes to necessities like rent, food, clothing, and grooming, as well as vacations and retail therapy, this individual is incredibly thrifty. When Asha was looking for better financial advice, she came across Fin Companion. For Asha, the Fin Companion employs a gamified survey to gather behavioral data about her. There is no doubt, based on Asha's responses to Fin Companion questions, that she is an Intuitive persona who is scared to take financial risks due to her lack of financial knowledge and self-control. To maintain their current quality of living and plan for the future, he or she will require aid. One of the goals is to get her to use the behavioral analytics engine to help her with her financial planning. She has no problem deciding what to do and seeing what her classmates are doing because the technique is clearly explained. When Asha hears this counsel, she learns how to set financial goals that are in line with her particular personality type. Asha is constantly reminded of the amount of money she will require in the future by her monthly bill. Based on Asha's personality traits and the savings and investment practices of her employees, she learns about their financial habits.

When it comes to her profession, Charu, a working mom with a school-aged child, is methodical. She takes into account both short-term and long-term repercussions while making financial decisions. It's been a godsend for Charu when it comes to budgeting for her children's schooling, medical care, and home insurance. FinCompanion wants to remind Charu to increase her retirement payments whenever she observes an increase in her take-home pay.

Alternatives include the proprietor of a small Kirana shop in the poor area, Kumar. In order to repay a debt, Kumar is the owner of a business. Kumar is split when it comes to saving for the futures of himself and his loved ones. The Fin Companion app on Kumar's smartphone classifies him as a Realist (Low in financial knowledge, high in self-control, risk-taking and seeks guidance for managing his finances). Kumar might improve his financial situation by setting savings objectives and checking up on them frequently. His next set of goals must be laid forth when Kumar responds. A family-oriented nudge prompts him to think about insurance options for himself and his family.

When Fin Companion pushes Asha, Charu, or Kumar, you never know what they'll do. User comments and assistance on how to make better financial decisions in both the present and the future are provided through this constant engagement.

Possible angles of attack to address behavioral bottlenecks in financial inclusion

A wide variety of financial goods and services, including payments and transactions, fall under the banner of "financial inclusion." [39]. It is the goal of financial inclusion to reintroduce persons formerly excluded from the financial system. Only a few instances of historical political underrepresentation include women, rural areas, and ethnic and religious groupings. At a price that customers can afford and providers can afford to deliver, it is becoming possible to connect previously unbanked and underserved populations with various formal financial services tailored to their unique requirements. [40].

In recent years, the idea of "open data" and giving customers more control over how their data is shared has been increasingly popular. Customers may now grant their financial institutions

permission to share their personal information with third parties under a new "open banking" law, enabling for more open and competitive markets. Legislation limiting the aggregation of accounts can be found in the UK's Open Banking Standards and Australia's Consumer Data Right Act.

Financial services are becoming more available, inclusive, and competitive thanks to data-driven business methods. A new infrastructure, like digital identity, is required for both individuals and companies to benefit from open banking. [41].

Indian digital banking will become more inclusive thanks to the findings of the India Digital Financial Inclusion Report 2019. The following implications are discussed, as well as possible solutions to help everyone's financial situation.

- No matter how swiftly company models change because to technology, face-to-face interactions will always have a place in the consumer experience.
- Online commerce appeals to rural and urban residents alike because of its ease and accessibility.
- There appears to be a lack of financial services in India that is affecting the failure of several business models.
- Digital transactions, in the opinion of many in the current digitization trend, are preferable than cash transactions. Many factors must be taken into account while performing this sort of review.
- Digital payments and financial inclusion require more study. The vast majority of people have access to financial services, but just a small percentage actually utilize them. [42].

However, this problem cannot be handled either in India or the rest of the globe at this time. To assist its clients avoid overdrafts, missed payments, and under-contributions to retirement plans and other programs, banks and other financial institutions can employ behavioral analytics. The financial services business has a tough time attracting and maintaining clients from historically underrepresented groups, despite its best efforts. Previously, they have utilized mass media advertising to promote new product and service offers (such as text messages, radio, and billboards). There are a number of different approaches that may be used to encourage people to take action in behavioral science. Many people don't consider mobile money platforms while they're performing a financial transaction. There are times when "social proof" and SMS messages that urge customers to utilize your platform can enhance customer engagement. [43]. To better understand and interact with their Indian clients, banks may leverage behavioral insights like the behavioral avatar Kumar to better understand and engage with their Indian customers. To achieve financial inclusion, personalization may seem like an impossibly distant goal, but efforts to increase digital literacy may be taken.

Discussion and conclusion

The findings of this study indicate a behavioral science-based long-term solution to the issue of financial well-being. Each customer's unique financial condition is taken into consideration when we begin a relationship with them. A fourth of the solution may be found in each of the sections listed below : (1) The application's front end should entice users, while the back end should provide detailed information about their behavior and provide actionable recommendations. Setting financial

objectives, receiving constructive criticism, and having a clear picture of your financial needs are all vital as you grow in your career or personal life. To better understand your customers and affect their behavior, use behavioral science findings in a methodical manner.

The application's front end should lure the user, but the back end should give reliable data on their behavior and pertinent counsel for them. This is crucial. As you progress in your professional or personal life, it's critical to establish financial goals, listen to constructive criticism, and have a clear understanding of your financial needs. Behavioral science results can help you better understand and influence your customers. [44], In times of crisis, such as when the economy is down and people are hurting, the usage of excellent and ethical financial services can help individuals become more resilient. It is possible to achieve widespread financial stability by incorporating behavioral strategies into the development of technology-enabled treatments.

References

1. Joo S (2008) Personal financial wellness. In: Xiao JJ (ed) Handbook of consumer finance research. Springer, New York, NY, pp 21–33
2. CFPB (2015) Financial Well-being: The goal of financial education https://files.consumerfinance.gov/f/201501_cfpb_report_financial-well-being.pdf
3. Joo S (1998) Personal financial wellness and worker job productivity. Dissertation, Virginia Polytechnic Institute and State University, Blacksburg, VA
4. Alban K (2021) Guest post: the correlation between financial wellness and health <https://www.virginpulse.com/blog-post/thecorrelation-between-financial-wellness-and-health/> accessed on May 22 2021
5. American Psychological Association (2015) Stress in America, paying with our health, stress-report.pdf (apa.org). Accessed 12 May 2021
6. Park JJ, Sela A (2017) Not my type: why affective decision makers are reluctant to make financial decisions. J Consum Res. <https://doi.org/10.1093/jcr/ucx122>
7. Report of the household finance committee (2017) Indian Household Finance, <https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/HFCRA28D0415E2144A009112DD314ECF5C07>. PDF accessed on 12 May 2021
8. McKinsey report (2020) Financial life during the COVID-10 pandemic – an update, Financial life during the COVID-19 pandemic–an update | McKinsey accessed on 12 May 2021
9. Statman, M (2019) Behavioral Finance – The second generation. CFA Institute research foundation <https://www.cfainstitute.org/-/media/documents/book/behavioral-finance-the-second-generation.ashx> accessed on 12 May 2021
10. Fertig A, Lefkowitz J, Fishbane A (2015) Using Behavioral science to increase retirement savings a new look at voluntary pension contributions in Mexico I42_571_MexicoPensionsReport_ENG_final_digital.pdf (ideas42.org) accessed on 12 May 2021
11. PwC (2021) PwC Employee Financial Wellness Survey <https://www.pwc.com/us/en/services/consulting/workforce-of-the-future/library/employee-financial-wellness-survey.html> accessed on 12 May 2021

12. Warren D, Baxter J, Hand K (2021) Families in Australia Survey: life during COVID-19 <https://aifs.gov.au/publications/financialwellbeing> accessed on 10 May 2021
13. Sen S (2021) <https://www.newindianexpress.com/business/2021/mar/20/pandemic-ate-into-household-savings-ina-big-way-injulyseptember-2020-rbi-2279005.html> accessed on 12 May 2021
14. Beniwal V (2021) https://www.business-standard.com/article/economy-policy/india-sees-job-losses-as-states-impose-lockdown-to-check-new-covid-19-wave-121041200442_1.html accessed on 13 May 2021
15. Lusardi A, Mitchell, OS (2010) How ordinary consumers make complex economic decisions: financial literacy and retirement readiness. CF Working Paper No. 2010/11. Goethe University, Center for Financial Studies (CFS), Frankfurt
16. Laibson DI, Repetto A, Tobacman J, Hall RE, Gale WG, Akerlof GA (1998) Self-control and saving for retirement. *Brook Pap Econ Act* 1:91–196
17. Wayne DH, Krohmer H (2020) The retirement planning crisis: finding a way out with a consumer behavior perspective. *Rev Market Res* 17:77–85
18. Benartzi S, Thaler R (2007) Behavioral economics and the retirement savings crisis. *Science* 339:1152–1153
19. Aguilar O (2020) Loss aversion and confirmation bias: emotion in motion <https://www.schwabassetmanagement.com/content/loss124> CSIT (June 2021) 9(2):115–125
123 aversion-and-confirmation-bias-emotion-motion accessed on 22 May 2021
20. Schelling T (1984) Self-command in practice, policy, and in a theory of rational choice. *Am Econ Rev* 74(2):1–11
21. Thaler R, Shefrin H (1981) An economic theory of self-control. *J Polit Econ* 89(2):392–406
22. Lusardi A, Keller PA, Keller AM (2008) New ways to make people save: a social marketing approach. In A.Lusardi (Ed.), *Overcoming the saving slump: how to increase the effectiveness of financial education and saving programs*. Chicago, IL: University of Chicago Press
23. Schroeder-Gardner M (2017) <https://www.makingsenseofcents.com/2017/04/saving-for-retirement.html> accessed on May 13 2021
24. Gamst-Klaussen T, Steel P, Svartdal F (2019) Procrastination and personal finances: exploring the roles of planning and financial self-efficacy. *Front Psychol.* <https://doi.org/10.3389/fpsyg.2019.00775>
25. Lobosco K (2018) 66% of millennial's have nothing save for retirement. CNN Money <https://money.cnn.com/2018/03/07/retirement/millennial-retirement-savings/index.html#:~:text=About%2066%25%20of%20people%20between,National%20Institute%20on%20Retirement%20Security>. Accessed on 13 May 2021
26. Renneboog L, Spaenjers C (2011) Religion, economic attitudes, and household finance. *Oxf Econ Pap* 64(1):103–127. <https://doi.org/10.1093/oep/gpr025>
27. Breuer W, Quinten B (2009) Cultural finance. SSRN: <http://ssrn.com/abstract=1282068>
28. Collins JM (2012) Financial advice : A substitute for financial literacy ? *Fin Serv Rev* 21:307–322
29. Kwok CCY, Tadesse S (2006) National culture and financial systems. *J Int Bus Stud* 37(2):227–247. <https://doi.org/10.1057/palgrave.jibs.8400188>

30. Moore L (2019) BBVA uses Behavioral Economics to guide consumer decision-making <https://www.bbva.com/en/bbva-usesbehavioral-economics-to-guide-consumer-decision-making/> Accessed on May 13 2021
31. Benartzi S (2017) How digital tools and behavioral economics will save retirement. Available at: <https://hbr.org/2017/12/howdigital-tools-and-behavioral-economicswill-save-retirement>.
32. Hoyer WD, MacInnis DJ, Pieters R (2018) Consumer behavior, 7th edn. Cengage Learning, Boston, MA
33. Bulbul C, Menon G (2010) The power of emotional appeals in advertising. *J Advert Res* 50(2):169–180
34. Johnson EJ, Shu SB, Dellaert BG, Fox C, Goldstein DG, Ha'ubl G, Weber EU (2012) Beyond nudges: tools of a choice architecture. *Mark Lett* 23(2):487–504
35. Islam MN, Bouwman, (2016) Towards user-intuitive web interface sign design and evaluation. *Int J Hum Comput Stud*. [https:// doi.org/10.1016/j.ijhcs.2015.10.003](https://doi.org/10.1016/j.ijhcs.2015.10.003)
36. Dolan P, Kudrna L, Laffan K (2016) Doing as I intend to: the role of 'implementation intentions' in financial behaviours London School of Economics and Political Science January 2016 Paul Dolan - Doing as I intend to do: the role of 'implementation intentions' in financial behaviours accessed on 12 May 2021
37. Balaraman V, Patel S, Duggirala M, Raveendran J, Mahamuni R (2020) People and the digital enterprise: challenges and approaches. In: Kulkarni V et al (ed) advanced digital architectures for model-driven adaptive enterprises, IGI Global, 188–221. DOI: <https://doi.org/10.4018/978-1-7998-0108-5>
38. Adiga D, Bhavsar M, Balaraman V, Duggirala M, Malik M (2019) Evolving a repository for the behavioral sciences, academy of management academy of management annual meeting proceedings, <https://doi.org/10.5465/AMBPP.2019.18722> abstract
39. <https://www.worldbank.org/en/topic/financialinclusion/overview> accessed on 12 May 2021
40. <https://www.worldbank.org/en/topic/financialinclusion/publication/> digital-financial-inclusion [https://www.worldbank.org/en/topic/ financialinclusion/publication/digital-financial-inclusion](https://www.worldbank.org/en/topic/financialinclusion/publication/digital-financial-inclusion) accessed on 12 May 2021
41. https://www.bis.org/about/bisih/topics/open_finance.htm accessed on 12 May 2021
42. India digital financial inclusion report (2019) <https://www.fhi360.org/sites/default/files/media/documents/resource-mstar-india-digital-financial-inclusion-report.pdf> accessed on 12 May 2021
43. Datta S, Desai M (2018) Transforming financial inclusion using behavioral science from financial access to financial health, [https://www.ideas42.org/wp-content/uploads/2019/04/I42-1020_ ABPaper_FINAL-DIGITAL.pdf](https://www.ideas42.org/wp-content/uploads/2019/04/I42-1020_ABPaper_FINAL-DIGITAL.pdf) accessed on 18 May 2021
44. OECD (2020) Advancing the digital financial inclusion of Youth <https://www.oecd.org/finance/advancing-the-digital-financialinclusion-of-youth.pdf> accessed on 12 May 2021