Pathfinder

CONCEPT DOCUMENT

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PROBLEM DEFINITION

Today's young adults are unlike any other population we have seen in history. Known as "Millennials" or "Gen Y", these Americans aged 17-37 years old (as of 2017) are now the largest generation within the workforce and the first adult population to be considered "digital natives". Millennials were old enough to witness and remember the Great Recession, the resulting tight labor markets, and were the generation that lived at home with their parents longer than any other. These young adults also struggle with student debt to a much larger degree than anyone previous, but interestingly enough they are the most upbeat about their financial future.

Due to their heavy usage of digital interfaces from an early age, Millennials are distinctive in their preferences for interacting and accessing content and information. Among these preferences is a heightened level of simplicity with which they expect their interfaces to be built. This preference for simplicity, and an overwhelming tendency to rely on digital interfaces when they need access to information, can cause issues when it comes to obtaining financial advice.

The question we asked ourselves is… **how might credit unions proactively help today's young** adults make good financial decisions and build credit?

The channels and interfaces through which financial advice is currently being delivered does not meet the preferences of these younger generations. Credit unions rely on attracting and retaining these young adults in order to sustain their profitability and viability. Our solution is tailored to help credit unions do just that.

INNOVATIVE SOLUTION

Our solution is called Pathfinder, an artificial intelligence platform that does what only credit unions can do – leverage the immense amount of member data we own and combine that knowledge with our mission to help them make good financial decisions.

Artificial intelligence, and especially chatbots, are popular **topics among today's technology rags.** It seems as though every industry is trying to leverage them to reduce overhead while seemingly meeting the demands of younger generations. However, most chatbots built within the financial services space are done only to service specific transactions. Large banks have developed chatbots that can transfer money, pay bills, or push the product of the day. But we as credit unions can do better than that.

Pathfinder is a chatbot that is built to provide financial advice to members who seek it in a digital environment. That advice can and should be leveraged to recommend products, but only after the data and conversation has determined the product most beneficial to our members.

PROTOTYPE

Chatbots are easier to develop than one might think**, but we'll get to that in a minute**. This story really starts by looking at the data. We started prototyping our idea by digging into our own member data to see if young adults are really **facing the issues we read about in today's articles. Are millennials truly** struggling to make well-informed financial decisions? Do the lifelong financial struggles many people face in life really begin this early in adulthood? Is there something that we can do about the path they might take?

The data was overwhelming. When we each looked into our own member data we found an obvious deviation line between young millennials (ages 20-25) and older millennials. It appeared that the age of 26 was a make or break year for most of these young adults, and the decisions leading up to this breaking point were most crucial.

Most notably:
- **Credit migration appeared consistent for most young adults in their early 20's, but s**uffered more volatile differences **in their late 20's.**
- **Payday lending reared its ugly head during their early 20's, and was highly correlated to** negative credit migration as time passed.
- Member accounts which showed evidence for the heavy use of subscription services (Netflix, Pandora, etc.) had worse credit migration than those who did not.

This research led us to the following hypothesis: what if this is a financial literacy issue caused by the lack of information available through the interfaces used by young adults? Could they simply be suffering from a lack of good advice? More information to come on how we tested this hypothesis (see next section).

Now on to the sexy artificial intelligence work we completed. As we were saying, building a basic chatbot is pretty straight forward. We used a platform called ChatFuel, which allows you to build automated responses to text based on the content of the users question. We built out some basic conversation trees that covered a few topics we thought were relevant. But the team is mostly made up o**f Gen X'ers, and our ability to** put ourselves in the shoes of a 20-something ran out as quickly as the battery on a Walkman. So we decided to enlist the help of some true Millennials to provide the content for the chatbot conversations.

ChatFuel is built within a Facebook Messenger environment, so we leveraged this capability to reach out to young millennials on social media. We asked them to converse with the chatbot and ask it the personal financial questions that they might not otherwise feel comfortable asking to a human. We then took these questions and fashioned appropriate responses for the chatbot. Rinse and repeat, we asked these young millennials to continue asking for advice and monitored where the chatbot failed to have an adequate response.

The possibilities are endless, but we quickly found that these conversations would be greatly benefitted if the chatbot could reference the financial information for each individual. For example, if the chatbot knew the FICO score or cashflow situation of the member it was helping it could much more specifically give advice as to if/when a member should consider a loan.

Our prototype did not go so far as to link such information to the chatbot, but within a secure environment the option would exist.

TESTING AND RESULTS

There were some obvious questions we needed answered to test the validity of our hypothesis. Namely, are these young millennials willing and able to have meaningful conversations about personal financial issues with an artificial intelligence?

The answer was… well, it was underwhelming at first. We surveyed 250 millennials using Google Surveys to determine their comfortability using chatbots, among other things. The results for the entire population of respondents showed a distinct uncertainty around chatbots, and an unwillingness to ask them personal questions. However, as we dug down into the data we found that the younger respondents (ages 18-24) were much more open to using the technology in this manner, especially if they had previously used a chatbot in a different setting.

We also learned the following from this survey:
- Young millennials feel less confident in their ability to make good financial decisions.
- Their biggest questions revolve around budgeting, building credit, and borrowing.
- When it comes to finding financial advice millennials rely heavily on internet searches, second only to friends and family and more than they do financial experts or their own financial institutions.

While it wasn't an overwhelming response in support of chatbots overall, it did point out the generational differences when it comes to how, and when, consumers might be willing to interact with an artificial intelligence. The survey also hinted that much of this hesitation is due to security concerns, likely buoyed by recent data breaches in the news.

Therefore, we believe this solutions would be most beneficial and highly leveraged behind the **firewall of a credit union's online banking system. This would not only lessen the security concerns of users, but also provide better access to the member's transactional and** credit data.

BUSINESS MODEL

Pathfinders true power lies with member specific data, therefore in regards to the business model, the chat bot would need to be integrated into the online and mobile banking platforms. The development and implementation costs required to get Pathfinder started could be upwards of $500,000. That's a lot of clams, smackers and golden dubloons. We know. As this cost potentially could be incurred by one credit union, we feel the best way to get the chat bot developed, running, and available to credit unions of all assets sizes would be through the use of a CUSO. In this situation, ideally credit unions sharing the same online and mobile platforms invest in a CUSO to develop the chatbot and then customizes the dialogue and conversation to align with credit unions message and focus.

Development Costs

Programming	260,000	@ $500 per hour programming (520 hours 13 weeks*40)
Hardware	25,000	Hardware/Storage
Website	50,000	Website Development
Marketing	50,000	Marketing
Testing	24,000	4 weeks 10 testers @ $15 per hour
Legal	80,000	160 Legal hours at $500 per hour
Overhead Admin	25,000	Overhead Admin
Total	514,000	

CUSO/Vendor Performa

	Year 1	Year 2	Year 3	Total	Notes
No. of CU's	3	6	9		
Initial Investment $50,000 per (	171,333	171,333	171,333	514,000	Adding 3 CU per year
Annual Fee	60,000	72,000	108,000	240,000	$20,000 annual fee
Total Revenue	231,333	243,333	279,333	754,000	
Expenses					
Application Development	57,000	57,000	57,000	171,000	depr 5 yrs
Website Development	10,000	10,000	10,000	30,000	$50,000 Development depr over 5 years
Updates Maintenance	-	125,000	125,000	250,000	250 hours @ $500
Cuso Marketing	50,000	25,000	25,000	100,000	magazines/websites etc
Testing	24,000	12,000	12,000	48,000	
Legal	80,000	40,000	20,000	140,000	
Overhead/Admin/Meetings	5,000	5,000	5,000	15,000	meetings/etc
Total	226,000	274,000	254,000	754,000	
CUSO Net Income (Loss)	5,333	(30,667)	25,333	0	

COMMENTS, NEXT STEPS, AND CALL TO ACTION

Let's be honest for a minute. Credit Unions aren't known for their leading edge technology, nor their ability to attract young adults. However, we sit in a unique situation that could change this perception. We have earned our members trust, and have captured much of their financial data, by working in their best interests. It is time that we leverage this enviable position to provide sound advice to a new generation of members.

Today, with this concept and our willingness to partner with each other, credit unions can reverse the adverse trend of financial preparedness in the communities we serve. If you have read this far through the document our concept must have resonated with you. Help us take the next step by reaching out to Filene in support of Pathfinder, and consider providing financial support in the form of start-up capital. Invest in future generations by investing in the channels and technologies that will attract and/or retain them to credit unions!

ABOUT FILENE

Filene Research Institute is an independent, consumer finance think and do tank. We are dedicated to scientific and thoughtful analysis about issues affecting the future of credit unions, retail banking, and cooperative finance.

Deeply embedded in the credit union tradition is an ongoing search for better ways to understand and serve credit union members. Open inquiry, the free flow of ideas, and debate are essential parts of the true democratic process. Since 1989, through Filene, leading scholars and thinkers have analyzed managerial problems, public policy questions, and consumer needs for the benefit of the credit union system. We support research, innovation, and impact that enhance the well-being of consumers and assist credit unions and other financial cooperatives in adapting to rapidly changing economic, legal, and social environments.

We're governed by an administrative board made up of credit union CEOs, the CEOs of CUNA & Affiliates and CUNA Mutual Group, and the chairman of the American Association of Credit Union Leagues (AACUL). Our research priorities are determined by a national Research Council comprised of credit union CEOs and the president/CEO of the Credit Union Executives Society.

We live by the famous words of our namesake, credit union and retail pioneer Edward A. **Filene: "Progress is the constant replacing of the best there is with something still better."** Together, Filene and our thousands of supporters seek progress for credit unions by challenging the status quo, thinking differently, looking outside, asking and answering tough questions, and collaborating with like-minded organizations.

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