



LEARNING BY SOLVING

A compilation of White Papers

EDITOR
DR. SANGITA DUTTA GUPTA

LEARNING BY SOLVING:
A COMPILATION OF WHITE PAPERS

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Editorial: Learning by Solving – Impacting Business through Experiential Learning

DR. SANGITA DUTTA GUPTA

Associate Professor & Chairperson – Centre for Research

The first Business School was established in Europe in the 18th century and since then, the number of Business Schools across the globe have multiplied significantly. Along with the spread of Business Schools across the world, Business School Education have undergone a number of changes in Pedagogy over the past 200 odd years.

Today, the Pedagogy of Experiential Learning has become very popular among the faculty and the participants of Business Schools. JAGSOM - Jagdish Sheth School of Management (formerly IFIM Business School) is the first Business School in the country to institutionalize this pedagogy of 'Learning by Solving', where faculty and groups of participants partner to solve real life business challenges of Corporates. This program at JAGSOM is known as RFP or Request For Problem. RFPs are a mechanism to seek real life business challenges from Corporates where participants offer solutions to a business problem, resulting in superior learning for the participants as well as implantable solutions for corporates.

The RFP initiative was first introduced in JAGSOM for the PGDM Batch of 2019-21. Our students and faculty members worked on

multiple projects across MarTech, FinTech, Analytics and HR with Corporates to come up with implementable solutions.

We are proud to showcase this Edited Volume titled '**Learning by Solving: A Compilation of White Papers**'. This Edited Volume is a compilation of select White Papers that have arisen out of the RFPs carried out by the PGDM Batch of 2019-21. The White Papers have been written jointly by students and faculty members. The names of the some of the Corporates involved in the RFPs have been withheld for reasons of confidentiality.

The first White Paper in the series explores employee engagement processes and looks at the employee engagement solution product offered by a US – Headquartered firm and the feature enhancements that have been proposed in the product as an outcome of the project.

The second White Paper explores how early stage startups can use digital media to frugally structure their awareness building and lead generation activities. This project was carried out with Darden School of Business for Kubesafe Inc, a US – Headquartered software company that provides application-centric backup, recovery, cloning, and migration for Kubernetes.

The third White Paper focusses on a model to accurately predict the Alpha value for every ticker based on the sentiments of tweets and the seven stock factors. The project was carried out in conjunction with our partner institution - the International School of Engineering (INSOFE).

The fourth White Paper focusses on alternate 'Phygital' approaches to engaging with students on business school campuses, in order to

create a strong employer brand perception. The project was facilitated by Logarithm HR Consulting.

The fifth White Paper explores Use Cases for Account Aggregators, which are a new type of NBFC licenced by the RBI. The project was carried out with the DigiSahamati Foundation - a Collective of the Account Aggregator ecosystem.

We are sure that this Edited Volume will be useful for Practitioners and Practicing Managers. We look forward to bringing you the **JAGSOM White Paper Series** every year.

We also look forward to receiving your feedback and suggestions. Please do write in to: ri.academics@ifim.edu.in.

ABOUT THE EDITOR



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Dr. Sangita is an educator and researcher with more than 20 years of teaching experience at undergraduate and post graduate level.

Her research interests include Development Economics, Financial Economics, Gender Economics and Entrepreneurship. Her papers have been published in well-known peer reviewed journals like Technological Forecasting and Social Change; Management Decision; Benchmarking: An International Journal; South Asia Economic Journal; Gender in Management; International Journal of Emerging Markets; etc. She has presented her research work in various National and International conferences like GWO in Sydney and AOM IN Boston. Dr. Sangita received the best paper award for her paper titled, 'work life balance of women professionals: impact and implications' at BAASANA interdisciplinary conference held at Adelphi University, New York, USA She is on the editorial board of International Journal of Emerging Markets and is also a reviewer of reputed national /international journals. She is a member of American Economic Association.

LEVERAGING DIGITAL MARKETING COMMUNICATION CHANNELS TO LAUNCH A DEEP TECH PRODUCT FOR THE ENTERPRISE MARKET

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ABSTRACT

Tech start-ups have a major dilemma. They have limited dollars, and they need to decide whether to invest in product development or marketing, though they need both. Many start-ups fail due to poor customer discovery process, or other market reasons ¹such as falling short in communicating with prospects, unstructured messaging strategy and not identifying the customer side Decision-Making Unit well enough. Moreover, due to limited management bandwidth, they are often torn focussing between product development, fundraising and marketing. In this white-paper, we describe how an early-stage tech start-up can use digital media to structure their awareness-building and lead-generation activities frugally.

BACKGROUND

Deep tech companies are those that handle much-beyond-the-ordinary engineering or technical challenges while solving a business problem. They are known to choose audacious means and goals, and attack problems that

¹ <https://www.forbes.com/sites/deniselyohn/2019/05/01/why-start-ups-fail/?sh=1cf35b4b28a5>

have a significant business impact. Despite the promise of solving a business problem and potential of high monetary returns, deep tech is considered risky with significant unknowns. Deep tech is also contextual – in the eighteenth century, James Watt invented the Steam Engine, considered as a deep-tech endeavour at that time. In today's context, a steam engine is not only passe, but it might also be considered obsolete technology in the context of human transportation. Instead, Elon Musk's Hyperloop-based system may be considered as an appropriate deep-tech example today. Due to perceived risks involved in adopting a deep-tech product, acquiring the first few customers is often a very difficult challenge in such a technology-driven environment, particularly enterprise customers, who perceive risk. However, due to the promise of high returns, working on such unsolved problems has always attracted the attention of the adventurers. BCG estimates² that USD 18 BN was invested in deep-tech space in the year 2018, and the number is only growing.

INDUSTRY SEGMENT

Today's enterprise IT landscape is complex and pervasive, with an average mid-size firm boasting of a multi-level enterprise stack, with a myriad of technologies ranging from ERP covering various functional areas such as supply chain, accounting, materials management and front end functions such as e-commerce, digital marketing, sales force management, dealer management, CRM etc., to more mundane employee-productivity technologies such as email. Often these 'solutions' are provided by different vendors, each with their respective upgrade cycle, and are laced with countless dependencies among and integrations between themselves, which makes the landscape very dynamic.

PROBLEM STATEMENT

An outcome of operating in such an IT-intensive atmosphere is a substantial accumulation of data in every enterprise. Not only is data a precious organisational asset, but it is valuable only if it can be retrieved in the required form in time. Loss of data can create a legal exposure as well, for instance,

² <http://media-publications.bcg.com/from-tech-to-deep-tech.pdf>

patient data in healthcare, and transaction data in banks. Besides such records, even the applications and their configurations are precious enterprise data. According to Forbes³, 2.5 quintillions of data were created daily in 2018 globally. Enterprises invest up to USD 62 BN annually in data management alone, according to an estimate published by Grand View Research Inc⁴.

SOME LEADING PLAYERS IN ENTERPRISE DATA MANAGEMENT



THE YET-UNSOLVED PIECE OF THE DATA MANAGEMENT PUZZLE AND THE 'DEEP TECH' OPPORTUNITY

Despite the presence of such leading players in data-management vendors in the market, a key gap remains unaddressed in a cost-effective way. Though various enterprise applications generate humungous volumes of data, they themselves have not received the attention per se, as the focus has primarily remained on transactional data and their management. It is worth noting that the enterprise applications, CRM for instance, and their configurations are

³ <https://www.forbes.com/sites/bernardmarr/2018/05/21/how-much-data-do-we-create-every-day-the-mind-blowing-stats-everyone-should-read/?sh=6dadd72360ba>

⁴ <https://www.prnewswire.com/news-releases/enterprise-data-management-market-size-worth-135-88-billion-by-2027-grand-view-research-inc-301108898.html>

also critical enterprise data. If such applications are backed up as raw code files, restoring them in a crisis takes significant time and effort to get the configuration done right, and such time delay can lead to significant loss of business opportunity. If a way to backup the code and the configuration states together can be developed, that can be very compelling for Chief Information Officers dealing with raw data and code backups.

The start-up in question has exactly this solution – its product backs up data, applications and configurations in an easy way. Further, it enables easy restoration of an application, data and configuration so that the application, in the event of a crash, can be restored to a functional state with much less effort and in much less time. In a lay person's language, if we 'backup a house' the conventional way and restore it, we get the bricks, mortar and wood separately, which require considerable effort to restore the house. However, using this product one could 'restore' a house the way it existed at the time of backup.

Despite such a compelling promise in the product, a key challenge is to communicate the value proposition to the small and midsize enterprises and generate leads. Since a budget for big-ticket promotional events was ruled out, a frugal approach relying on digital marketing channels has been seen as appropriate under the circumstances, more so, when the prospect base of small and mid-size companies was globally distributed.

APPROACH TO THE PROBLEM

To address this marketing communication objective, we began by identifying the key role players in the buying centre after carrying out interviews with executives with experience in the sales and marketing function in the enterprise IT domain, who can be expected to be well versed with customers' buying behaviour. To ensure the quality of the responses, we spoke to executives with over 20 years of experience. With insights from such interviews, we configured the typical buying centre and we created a communication plan as in the table below:

Buying Centre Members	Key Objections	Key Assurance Points	Priority	Channel	Messaging frequency
CIO/CTO (Initiator and Decider)	(1) I don't trust new vendors (2) How safe is our data? (3) How is this different?	• Data Security • Backup and restoration ease • No training required • Rapid application restoration • Integration with other systems	1	Executive Email	Monthly
			2	Blog posts	Weekly
			3	Videos	Weekly
			4		
CFO (Approver)	What is my ROI? Discretionary or essential spend?	• Payback period • Dependencies requiring investment • Pricing plans including discounts for long term buys	1 2 3	Blog posts, videos, Email newsletter	Weekly
End-User	Why this product?	• Operational flexibility • Internal customer delight • Workflow and authorisations	1 2 3	Blog posts, videos, Email newsletter	Weekly
Sourcing Team (Buyer)	What are the buying terms?	• Trustworthy • Payment terms • Contractual aspects	1 2 3	Blogposts, Videos, email newsletter	Weekly

TABLE 1: MARKETING CONTENT PLAN

Videos: 30 seconds to 3 minutes

Blog post: 300-500 words

Further, based on perceived importance and stage-of-the-cycle importance, members of the buying centre were categorised as follows:

ROLE	CLASSIFICATION	RECOMMENDED STRATEGY
CIO/CTO	Most Critical	Target first (Primary target)
CFO	Moderately Critical	Target next
End-user	Moderately Critical	
Sourcing Team	Less Critical	

TABLE 2: PRIORITISATION OF BUYING CENTRE MEMBERS

PROJECT RECOMMENDATIONS

Looking at the project objectives, we recommended an inbound marketing approach that pivots on leading prospects to the website. For this purpose, we proposed the following channels:

CHANNEL	ATTRIBUTE	FREQUENCY
Website (with an integrated blog)	Website, with on-page and off-page SEO	Regular update
Social	Linkedin page with organic content	Twice weekly
Social	Twitter	Once-daily
Video	Dedicated and optimised YouTube Channel	Weekly
Newsletter	Send only to prospects who sign-up	Fortnightly

TABLE 3: CONTENT FREQUENCY

Facebook and Instagram were identified to be adopted in a later phase.

To manage the content on the above channels in a cost-effective way, the following solutions were proposed:

APPLICATION	CHOSEN PLATFORM	PRICING
Website	WordPress	Free, only hosting cost and initial cost
Marketing Automation	Mautic (Open Source Marketing Automation)	Free, only hosting and initial configuration cost
Analytics	Google Analytics	Free

TABLE 4: APPLICATIONS AND PLATFORMS MATRIX

PROSPECT STAGE PROGRESSION LEAD SCORING MODEL

To discriminate appropriately between different types of prospects based on engagement, a lead scoring model was developed that categorised every prospect into one of the four categories. This model helped tailor a messaging strategy accordingly. Following scoring was assigned based on perceived importance and their role in the conversion journey:

ACTIVITY	SCORE ASSIGNED
Newsletter signup	5
Reading a newsletter	10
Clicking a link in a newsletter	15
Visiting the website	8
Watching a video in full	15
Signing up for the demo	50
Signing up for the trial	100
Signing up as a customer	250

TABLE 5: LEAD SCORING MODEL

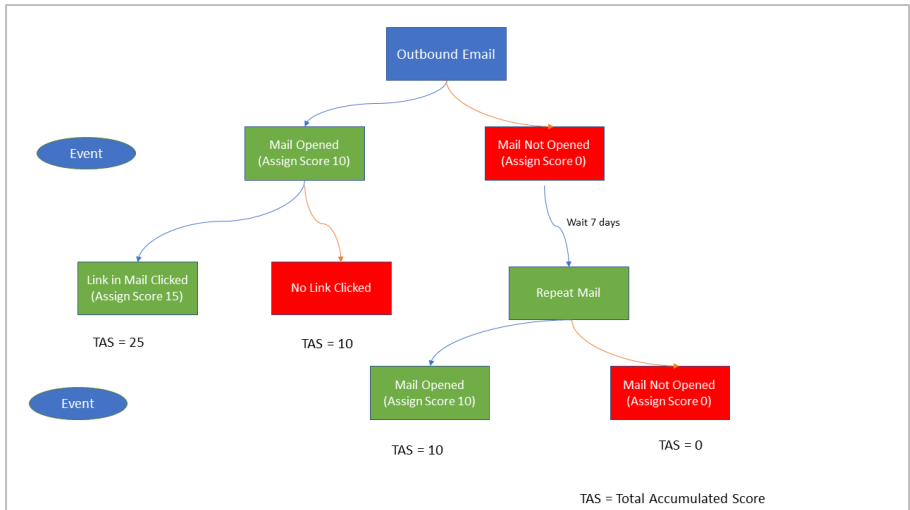


FIGURE 1: A SIMPLIFIED CAMPAIGN TREE DEPICTING LEAD SCORING

TOTAL ACCUMULATED SCORE (TAS)	CLASSIFICATION
< 10	Stranger
10-50	Visitor
50-150	Lead
150-250	Prospect
250-350	Customer
>350	Ambassador

TABLE 6: PROSPECT CLASSIFICATION BASED ON TAS

KEY TAKEAWAYS

Start-ups in the early stage of the growth can effectively leverage digital channels only if they plan carefully. An unstructured approach may not yield the optimum value out of their marketing efforts. It may also result in the loss

of crucial marketing time and provide an opportunity to competitors. To get started, start-ups must follow the following:

1. Identify the key members of the Buying Centre and their relative importance early in the marketing journey. To do so, they must interview a few experienced industry executives from sales and marketing functions and a few from prospective customers side, clearly recording their 'why this product may not sell' responses. These set of 'objections' can be used to engineer the product better, and also in developing a proactive communication response.
2. Contrary to common perceptions, Marketing Automation based campaigns require considerable deliberation and planning before they are rolled out. Adequate attention must be paid to messaging, which must address information needs based on the stage of the buyer journey. We found out that repeating the same message through repeat emails evokes diminishing returns. Hence, sending clustering prospects based on the stage of the buyer journey (example, CTOs who have taken a product demo need to be addressed differently compared to CTOs who have already opted for free product trial).
3. A programmatic marketing campaign must be tested on a smaller set of users to avoid the model to open-ended and erroneous response situations. For example, a prospect who has converted to a customer should not be targeted with messaging inviting trials. Instead, they should be invited to a referral programme.
4. Lead scoring is a dynamic model and requires to be adjusted based on marketing outcomes. It is based on prospect engagement with marketing messages. The score values used by this company has based on internal brainstorming. It must be adequately deliberated before adoption.
5. Assessing the relative importance of the members of the Buying Centre is crucial. This can be done initially through sales executive interviews in a similar industry. Assessing the relative importance helps identify the marketing emphasis touchpoints.
6. Organisational resources are likely to get too thinned out in focussing digital marketing endeavours on numerous messaging channels. Being regular in posting content is likely to be more impactful.

Hence, we recommended not to venture onto Instagram and Facebook, two very popular social media platforms and recommended limiting to LinkedIn and Email communication, supported by blog posts and videos.

MANAGERIAL IMPLICATIONS

New age start-ups have limited funds and very less time for experimentation. By following some of the practices in this paper, they can commence their cost-effective precision marketing using digital channels while working effectively with Jagdish Sheth School of Management (formerly, IFIM Business School) students under the unique Learning-by-Solving initiative.

[This project was undertaken for Kubesafe Inc. Due to competitive sensitivity, some of the data in the tables have been changed].

AUTHORS



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This white paper is based on a capstone project undertaken by Radha Kishan Thakur, Utkarsh Chauhan, Aravind R, and Mohit Tiwari of PGDM 2019-21 Batch, as a requirement of fulfilment of Super Specialization Program in Martech, offered at Jagdish Sheth School of Management (formerly, IFIM Business School) in partnership with Darden School of Business, University of Virginia. Students received inputs from Prof Rajesh Kumar, Associate Professor, Jagdish Sheth School of Management.

PRODUCT MANAGEMENT IN A U.S. BASED COMPANY PROVIDING AI ENABLED EMPLOYEE ENGAGEMENT SOLUTIONS

AAKRITI JAIN

VARNIKA GARG

ABSTRACT:

This work is motivated by the need for an employee-engagement process, especially in the next normal of remote/work from home (WFH) distributed employees working in organizations. Several studies have established a strong relationship between employee engagement and business performance. The central interest of this work lies in exploring the market for employee-engagement solutions, the role of AI, the application of nudge theory, and the contemporary practices that can be adopted to enhance the features of an employee-engagement solution in its early product life cycle to make it a real power product in its class. The project is carried out for a US-headquartered firm to study its employee engagement solution and suggest changes in the product, incorporating the prevailing and futuristic best practices. Several feature enhancements have been proposed in the product as an outcome of the project for implementation by the product development team, making the product more powerful, as acknowledged by the industry analysts.

KEYWORDS

Employee Engagement Solutions; Conversational Artificial Intelligence (AI); AI-powered chatbot; Nudges and Kudos, Digital Badge; Employee survey

INTRODUCTION

According to Gallup's State of the Global Workplace, only 15 percent of employees are engaged well in their workplace and 85% of them still feel left out. A full week of virtual meetings drains 38% of employees, while another 30% felt stressed (Forbes). Since the outbreak of the Covid 19 pandemic, 75% of employees say they feel more socially isolated, 57% of them suffer from anxiety, and 53% of them feel more emotionally exhausted (Harvard Business Review). According to research conducted by Hubspot, 69% of employees working in the US say they would work harder if they were better engaged and appreciated. That is why employee engagement and retention have become crucial in today's time. Especially with the current pandemic and the shift to WFH, companies must invest more time and effort in acknowledging and connecting to their employees to keep them motivated and happy, which in turn helps in improved market performance and employee retention.

HR professionals globally are struggling to find a solution to what Gallup defines as the "employee engagement crisis" with very little success. The recent adoption of artificial intelligence (AI) in the employee-engagement process seems to hold promise in bridging the disengagement gap organizations are experiencing today.

This capstone project was carried out with a company headquartered in California, USA, engaged in developing and marketing employee-engagement solutions. It started its operations in 2018 with the mission to improve employee performance and employee engagement by focusing on developing their skills. For the past two years, the company has been pioneering and innovating the art and science of cultivating hard and soft skills to drive employee engagement and accelerate individual career advancement and business growth.

ENGAGING STAKEHOLDERS

Though firms have realized the benefits of actively engaging various stakeholders, they are also constrained by the resources that such engagement efforts consume. With every bit of organizational budget

internally contested, the challenge for firms is to maintain their competitive ability to find and serve customers without sacrificing their emphasis on non-customer-focussing processes. The shift in marketing approach from being only customer-centric to an omnidirectional one stems from the need to achieve an overall alignment with multiple stakeholders.

STAKEHOLDER	DESIRED OUTCOME(S)	MEANS
Investors	Attracting investment, increased market capitalization (Charles Wallace, 2017)	Investor conferences, earnings briefings, newsletters, webinars, 1 on 1 meets
Suppliers	Supply chain agility, mindshare, risk management, alignment to vision	Supplier Conferences, supplier newsletters, 1 on 1 meets
Customers	Loyalty, Retention, Upsell & Cross-Sell	Advertisements, Newsletters, POS communication, loyalty programs, contests, and giveaways.
Employees	Alignment with vision, mission & operational plans, synergy & productivity, industrial safety, product, and process quality (John Baldoni, 2013)	Intranet, Townhall and other executive communication, newsletters, creative and intellectual pursuits.
Society	Awareness building, countering negativity	Community Activity (Corporate Social Responsibility Vs. Social Engagement, 2018)
Government	Favorable policy and business climate	Public advocacy, industry chambers, and associations

TABLE 7: ENGAGEMENT OUTCOMES AND MEANS FOR DIFFERENT STAKEHOLDERS

A firm has a set of employees who serve a common goal. As the number of employees increases, the challenge is to maintain a convergence and synergy that results in desired organizational output, be it product development, sourcing, manufacturing, sales, customer service, etc. A misalignment on this count can lead to teams that are not collaborating or are working at cross purposes, or otherwise underperforming, resulting in the organization operating at less than the desired potential. In a competitive environment, this can be a costly and difficult-to-recover situation.

EMPLOYEE ENGAGEMENT VS INTERNAL MARKETING

The value of internal marketing has been appreciated by many modern organizations such as HP, BP, Sears, etc. (Mitchell, 2002). Unlike a traditional marketing endeavor in which the brand acts as the communicator and individuals as recipients, nudges are interventions that seek to assist individuals to make choices in their interest as well as that of the collective organizational objective (Kosters & Heijden, 2015). In the context of organizational capabilities (e.g., a new type of coding skills) and capacity (a greater number of employees proficient in a particular programming language), organizations can use surveys to find skills gaps, learning aspirations, and aptitude-to-aspiration fit. Employee surveys are also extensively used to identify the key factors leading to employee dissatisfaction. Structured surveys can act as pulse-checks to assess the “happiness level” of the employees on various parameters. Based on the outcome of the survey, the organization can then create a learning map and communication plans (messaging, message delivery medium, timing) and employ ‘nudges’ (stimuli) to drive targeted employees into learning and keep them integrated.

As per Kosters & Heijden (2015), a nudge is defined as follows:

“A nudge, as we will use the term, is an aspect of the choice architecture that alters people’s behavior predictably without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be cheap and easy to avoid. Nudges are not mandates.”

However, a series of nudges over time help create an engagement between the brand and the employees while also creating a path to the desired learning or professional outcome.

ABOUT THE PRODUCT OF THE COMPANY

The product from this company is an AI-enhanced platform that enables coaching as an extension of eLearning, making it possible for organizations to tap into employees' hard and soft skills and empower organizations to coach their employees in a structured manner, while leveraging third-party learning content, expert coaches, and built-in programs tailored for all corporate functional groups such as Sales, Customer Success, R&D/Engineering, etc. The product helps organizations improve employee engagement in the post-COVID 19 eras of working from home (WFH), enhance performance, and thereby increase revenue. The product has two versions, viz, enterprise and professional version.

ENTERPRISE VERSION

This edition is designed specifically to help enterprises or organizations structure Coaching and Skill Development interventions using pre-defined programs targeted at various functional groups within the company, such as R&D/Engineering, Sales, Customer Success, etc.

Running as a cycle of four steps – Measure, Develop, Engage, and Transform – this edition makes it possible for organizations to tap into employees' hard and soft skills and empower them to coach each other in a structured manner, enabled by the use of Artificial Intelligence (AI). Results of several implementation outcomes establish the power of this product's features in transforming employee engagement and experiences at the workplace.

PROFESSIONAL VERSION

The professional edition focuses on 'Individual Self Development Experience' by enabling individuals to identify personal strengths and opportunities for growth achieved by connecting seamlessly with coaches inside and outside of the organization, leveraging the network of high value and rich learning content. Individual employees travel through the following four steps during their self-development process in this professional edition:

- Measure skills, interests, and values
- Set goals and select programs
- Network and engage

- Transform

THE CAPSTONE PROJECT

The Product being in its “growth phase” of the Product Life Cycle, the company is now looking at integrating some unique features with it, to make it a best-in-class power product. To launch it as a full-fledged product in the market, various functionalities are required to be designed and deployed to best suit the needs of the customers.

The scope of the capstone project included the following:

- Ideate, prioritize, and maintain Product features for Developers
- Explore options for improved User Interface (UI) and User experience (UX)
- Draw insights from User Data Analysis and Engagement Metrics
- Prepare customer-facing documentation of use cases

The capstone project provided good insight into the product management function. Working with the US-based company in the AI-enabled employee-engagement solutions space provided a deep understanding of how technology companies work, the best practices in the product management process, and the essential qualities of a successful product manager. Useful insights were gained on how AI is integrated with employee engagement software, how agile methodology is used in the execution of the tasks, the functional features of available employee engagement software in the market, and the UI/UX priorities to create a compelling engagement experience.

PROJECT EXECUTION

A study of leading employee engagement software products available in the market reveals the following kinds and product-specific features (Source: G2.COM):

Kinds of Employee Engagement Software	Survey Types and Reporting Capabilities, Performance Management Capabilities, Feedback Types, Mobile
Employee Engagement Software Features	Survey creation, Survey deployment, Survey Analytics, Gamification features, Employee Pulse Surveys, Survey Customization, Content Library, Employee Segmentation, Wellness Assessments, Goal and Challenge Creation, Peer Recognition, Social Feedback Portal, Performance Benchmarking, Reporting, and Dashboards
Trends related to Employee Engagement Software	Remote work, Natural Language Processing (NLP), Predictive Analytics, Corporate wellness
Software and Services related to Employee Engagement Software	Employee Recognition Software; Corporate Wellness Software; Financial Wellness Software; HR Services Provider

Having analyzed the business and technology trends and the features of similar employee engagement solutions in the market, the company is now exploring a set of new features that can be added to their employee engagement product to make it a compelling one. The students considered a study of the following features for inclusion in the product:

- AI-Powered Robot (chatbot), and other solutions
- A Survey Library along with survey metrics and analytics
- Nudges, Kudos, Rewards & Badges between Coach-Jedi (mentee) pairings

Incorporating Artificial Intelligence in Employee engagement

AI can bring about an encouraging shift in the methodology that organizations adopt towards employee engagement, helping them integrate agile processes across their HR, Learning & Development (L&D), and other functions to provide a wholesome workplace experience.

Learning & Development is most probably a major enabler of employee engagement. Forty percent of employees who do not receive sufficient on-the-job training are found to subsequently leave their organizations within the first year of their joining. AI has unprecedented potential to offer targeted and personalized recommendations in terms of learning and development. AI can pinpoint which employees have the ability, based on their hard and soft skills and motivational factors, to progress to specific leadership positions.

AI is actively being used to enable employee engagement in real-time. AI leverages predictive analytics and behavior mapping that help in driving employee engagement programs accurately, creating an inspiring learning and development ecosystem. AI chatbots are found to improve the onboarding experience, capture employees' daily experience in real-time, improve team collaboration, and enable timely learning and development to keep employees engaged.

After an extensive study and discussion with industry analysts like Gartner, and conversational AI solutions providers like Kore.AI, the following AI-enabled solutions were suggested by the students and the same has been configured in the product by the product developers.

1. AI-enabled Conversational Platform (Chatbots)
2. AI-enabled Sentiment Analysis Platform
3. AI-enabled Performance Management Platform
4. AI-enabled Talent Development Platform

Designing employee survey instrument for skill-gap identification and intervention for the same

Employee surveys act as a starting point in creating the blueprint for any employee engagement program. Apart from just collecting data, an employee survey also acts as an important touchpoint between organizations and their employees to help them stay connected.

While surveys have many conventional applications, the company breaks the usual norms here with different use of the survey instrument. The AI-enabled coaching platform uses surveys in a variety of ways to get insights on the experiences and skills of the employees, and accordingly drives engagement between Coaches and Jedi.

The solution provider believes in improving business performance by coaching the employees on various soft and hard skills. While hard skills like accounting, analytics, programming are relatively easy to acquire through available learning content, the going gets tough when it comes to soft skills. Soft skills include skills like communication, empathy, teamwork, and listening skills. Some of the soft skills of HR on which surveys were built include Self-Management; Innovation/Execution; Communication and Collaboration; Problem Solving, etc. As a part of the project scope, all relevant questions were designed by the authors in the instrument to capture the skill gaps on these parameters to help quantify and measure the present and desired skill level of employees. Based on the data gathered, the platform's in-built gamification model defines a healthy ratio of Coaches and Jedi, with a Coach being a mentor who can guide another colleague who is weak in a particular skill and a Jedi being someone who needs guidance and mentorship to pick up that skill. The platform even lets Jedi get connected to external coaches who are very proficient in specific areas of specialization. The usage of these employee surveys would include self-assessment by the employee, peer-to-peer evaluation, and rating by the manager. Following these steps, the survey algorithm calculates a composite score and provides actionable insights. This survey process has been built from scratch by the authors in consultation with the project lead and incorporated into the product features by the product development team.

Here is an illustrative example of a few questions asked in a survey for a sales representative:

Self-assessment by Mentee:

Q1. Rate yourself on prospecting skills



Q2. Rate yourself on the ability to close deals effectively



Here the mentees rate themselves on a five-point Likert scale and give reasons thereof for the rating they assign. They would then send it to their respective Coaches for feedback.

Assessment by Mentor/ Coach:

Q1. Rate your mentee on prospecting skills



Q2. Rate your mentee on the ability to close deals effectively



The Coach reviews the self-assessment done by the mentee and again rates the mentee on a set of identified skills stating the reasons thereof. They would address the concerns and skill gaps and appropriately coach them by sharing tips, suggestions, links to learning content, and learning materials to improve on the skills they lack and bridge the skill gaps to succeed in their roles. The process also includes one-on-one mentoring sessions between the mentors and the mentees to help in acquiring a new skill or improving on an existing skill.

Designing notifications for human-to-human interaction

Driving engagement via nudges, kudos, and rewards is the highlight of this part of the engagement. In the current context, keeping the workforce positively engaged is one of the most important tasks for any organization. There are numerous methods of driving engagement, ranging from traditional to modern practices. The newer forms of engagements include the power of Nudges, Kudos, Rewards, and Badges that have been explored and included in the product features after due investigation. The authors closely worked with the product development team and users of the applications (i.e., the employees of the organizations implementing the employee engagement software) and provided functional input to enable these features.

According to Stewart L. Stokes Jr, learning with a mentor provides an excellent way to gain knowledge and insights, and it also acts as a strong motivator. Encouraging a mentoring relationship with either another professional or a business unit manager is an effective way to reward and recognize behavior & accomplishment. (Stokes Jr, 1995)

Several notification ideas were developed by the authors. The purpose of using engagement notifications and tools in the product is to encourage the employees to inform such mentor-mentee relationships through verbal and non-verbal messages which, in turn, were found to have improved employee productivity, communication, positive word of mouth, and the level of engagement.

Ideas on digital badges were implemented in the product features by the product development team, and the authors supported the process through literature review and study of the prevailing best practices in the industry. According to research done by Newby and Cheng (2020), these are designed to deliver: (a) a list of criteria needed which demonstrates knowledge proficiency or a given skill; (b) a means to validate what has been learned or experienced, receive feedback on the proposed level of skill, as well as a means to improve, resubmit and master the skill; (c) a well-established earned credential that shows the experience achieved, besides stating what was required and what was completed to successfully achieve the badge; and (d) a possible pathway for people to follow leading them to desired levels of skill (Newby and Cheng, 2020).

On the product platform, Nudges and Kudos were introduced by the authors and implemented by the product development team that include a variety of interactive elements such as:

- Messages: “Hey! Hope you enjoyed filling this assessment”
- Sending a badge on completion of a training
- Making @mentions to appreciate
- Sending nudges to ask for feedback

The employee engagement pathway was designed by the authors to indicate the moments of truth for human-to-human interaction among the users. Moving on from here, the UI mockups and the templates of how these elements would feature in the product and in which context they would be displayed were further designed as a part of the project.

Just to give an example of notification, when a person completes his/her training on Time Management, he/she would receive a Kudo from the Coach - [Jedi Name] Amazing! You have done a great job so far! I look forward to the accomplishment. Would you also like to try a course on “Self-Management”?

KEY TAKEAWAYS

The project had significant takeaways for all stakeholders.

For the Student interns/Authors: According to a recent (2020) report on “The future of product management” (Source: Productschool.com), Product Managers (PMs) are often described as being ‘Jack of All Trades, Masters of None.’ PMs must have a greater understanding of many subjects, User Experience (UX)/User Interface (UI) design being on the top. The student interns received a good grasp of the best practices in product management from this capstone project. According to a study by Product School, Product Management ranks 4th on the list of best jobs for 2020, based on earning capacity, overall job satisfaction rating, and the number of job openings. Eighty-five percent of the people surveyed said ‘Yes’ to the product management role being one of the most relevant ones in the next ten years while only fifteen percent of the people said ‘No’. This project provided an opportunity for the

students to work as Product Leader Interns and understand product management processes working with the product development team. They got the opportunity to understand an emerging domain, identify the problem areas and work on them to develop the product, and use creativity and judgment to meet the user requirements. During this internship, the students learned to look at the dynamics of business performance and employee engagement with a new lens, leveraging a data-driven mindset and an eye for details, the must-have qualities of a successful product manager.

For the Product Developers: SaaS-based companies in employee engagement product domains hold great promise, especially during the time of pandemic and social distancing, where everyone is trying to adjust to the “New Normal”. With the work from home (WFH) practice and limited in-person interactions, there is a greater need to keep people connected, engaged, and motivated. A robust employee engagement software just makes the right cut. An overwhelming 95.5% of Product Managers surveyed believe in the positive future impact of human-machine collaboration driven by new technologies like Artificial Intelligence & Machine learning.

For the Corporates: The software has the potential to rewire the end-to-end employee engagement functions and act as a powerful platform to help organizations manage dissatisfied employees, drive engagement, and help in skill development. It will help in building a culture of engagement by strategically aligning the efforts of the managers and assisting them with an internal and external team of coaches. Periodic Employee Surveys help in skill gap assessment and recommending the right program that an employee needs to undertake. These surveys also act as templates to collect important data and feedback to understand the sentiments of employees while providing engagement interventions.

According to a Gartner Study, employee engagement measurement becomes part of Voice of Employees (VoE) initiatives. This can become a component of a broader strategy for measuring business performance. For example, corporates can identify which factors of employee engagement, when increased, have the most significant impact on customer satisfaction. Corporates can also explore how engagement measures can be turned into behaviors for process improvements. Employees can be made to feel safe in giving honest feedback.

For the Academics: Use of Kudos and Nudges through engaging messages, badges, and rewards, and their impact on employee motivation and happiness can open up further research avenues. Besides, the implementation of the product can lead to a broader understanding of the correlations between employee engagement and other business metrics.

CONCLUSION

Several studies indicate that employee engagement is one of the major challenges the Human Resources (HR) function is facing worldwide. There is no better time than now to integrate the power of AI into HR processes to connect with employees, get their feedback, and use this feedback to create a meaningful employee engagement strategy that gives dividends in terms of improved business performance, far into the future. As an outcome of the capstone project, several feature enhancements were suggested by the authors for the employee engagement product. The incorporation of these features into the product received encouraging reviews by the users and the analyst community. With all the recommended functionalities, this employee engagement software will act as a powerful platform to help organizations counsel dissatisfied employees, drive engagement, and help in skill development. It will help build a culture of engagement by strategically aligning the efforts of the managers and assisting them with an internal and external team of coaches. The Survey features will help in skill gap assessment and recommending the right program for an employee to undertake. The features also include templates to collect important data and feedback from the employees to understand their sentiments and predict their behaviors. Kudos and Nudges would help in constantly encouraging the employees and keeping them happy with the use of engaging messages, badges, and rewards. This single product instance therefore can rewire the entire employee engagement process leveraging today's best practices in algorithmic business thinking.

Both the authors have been awarded final placement offers with the company to implement the product improvements.

REFERENCES

- <https://www.numly.io/>
<https://www.Gartner.com/>
<https://www.BlueWeave.com/>
<https://www.G2.com/>
<https://www.peplematters.in/>
<https://www.breathehr.com/blog/topic/company-culture/how-to-identify-employee-training- and- development-needs>
<https://www.sciencedirect.com/science/article/pii/S0970389617302227>
https://www.researchgate.net/publication/271520597_Status_of_employee_engagement_In_India_A_time_for_reflection
<https://www.hrkatha.com/special/employee-benefits-and-engagement/employee-engagement- how-much-has-changed-in-India-in-the-past-five-years/>
<https://www.cmswire.com/digital-workplace/what-you-need-to-know-about-employee- engagement-software/>
<https://www.cultureamp.com/blog/workplace-nudging-what-you-need-to-know-about-creating- change/>
<https://www.snapsurveys.com/blog/4-main-reasons-conduct-surveys/>
<https://www.foliomag.com/importance-surveys/>
<https://www.smartsurvey.co.uk/articles/10-advantages-of-online-surveys>
<https://www.skipprichard.com/10-examples-of-nudge-theory/>
<https://www.onlinemarketplaces.com/articles/30244-numly-and-people-tech-group-leverage-ai- for-employee-engagement-with-new-partnership>
Newby, T.J., Cheng, Z. Instructional digital badges: effective learning tools. *Education Tech Research Dev* 68, 1053–1067 (2020). <https://doi.org/10.1007/s11423-019-09719-7>
Stewart L. Stokes Jr. (1995) REWARDS AND RECOGNITION FOR TEAMS, *Information Systems Management*, 12:3, 61-65, DOI: 10.1080/07399019508962987)
n.d.). Retrieved from Custom Insight: <https://www.custominsight.com/employee-engagement-survey/what-is-employee-engagement.asp>
Charles Wallace. (2017, September 26). 5 Examples of How Shareholder Engagement Can Impact Change. Retrieved from Impactivate: <https://www.theimpactivate.com/5-examples-of-how-shareholder-engagement-can-enact-change/>
Colin Mitchell. (2002, January). Selling the Brand Inside. Retrieved from HBR: <https://hbr.org/2002/01/selling-the-brand-inside>
Corporate Social Responsibility Vs. Social Engagement. (2018, July 08). Retrieved from <https://medium.com/en-los-espejos-de-un-cafe/corporate-social-responsibility-vs-social-engagement-1b99b4d318c7>
John Baldoni. (2013, July 03). Employee Engagement Does More than Boost Productivity. Retrieved from HBR: <https://hbr.org/2013/07/employee-engagement-does-more>
Kosters, M., & Heijden, J. V. (2015). From mechanism to virtue: Evaluating Nudge Theory. *Evaluation*, 276-291.

AUTHORS



Aakriti Jain



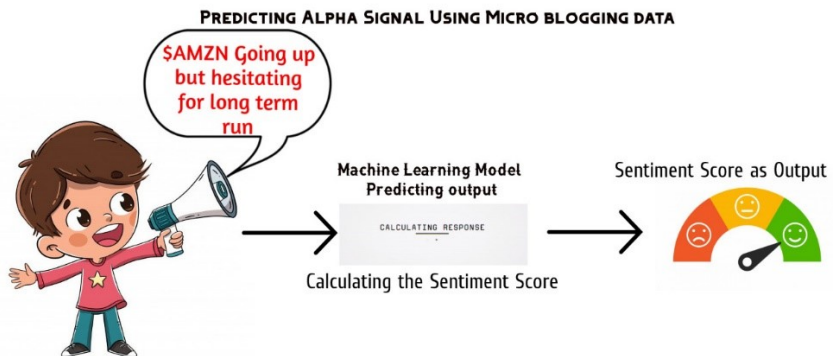
Varnika Garg

This white paper is based on a capstone project undertaken by Aakriti Jain and Varnika Garg of PGDM 2019-21 batch as a requirement of the fulfillment of the Super Specialization program in Sales and Services with faculty guidance from Dr. Kalyan Sankar Sengupta and, Dr. Asit K. Barma.

PREDICTING ALPHA SIGNAL USING MICROBLOGGING DATA - A NATURAL LANGUAGE PROCESSING WAY

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OVERVIEW



Use of social mood in predicting the financial markets has become a growing trend, since the concept of behavioural finance has become widely popular, and availability of online data in abundance has opened up an expeditious resource for financial market analysis.

'StockTwits' (www.stocktwits.com) is one interesting web-based application that enables timely tracking of public sentiments related to stock markets.

Using this vast storage of market sentiments, StockTwits may become a strong tool to help hedge funds predict stock prices. Public sentiments on different stocks can now be an important input to estimate or predict the alpha signal of many portfolios. This may be achieved by developing a suitable sentiment analysis model using such social media data.

Financial analysts use the **Alpha signals** as the net forward-looking estimate of a stock's future potential, relative to other securities. Alpha is a metric used to gauge the outperformance of a trading portfolio over a normalised portfolio. It is one of modern portfolio theory's statistical measures used to quantify the returns made from an investment against a benchmark. An alpha of 1% means the investment's return on investment over a selected period of time was 1% better than the market during that same period; a negative alpha means the investment underperformed the market.

Alpha signal is used to quantify the returns made from an investment against a benchmark. Higher the Alpha signal, the better is the performance of an investment against market indices. Using the alpha signal, fund managers can make buy and sell decisions on their portfolios without having to invest a huge amount of money on near-perfect prediction algorithm strategies. For this process to be implemented efficiently, analysts need to understand the emotions of the customers accurately.

OBJECTIVE

In this project, we built a simple model for predicting the alpha signal for hedging⁵. The data sets available to us consisted of several stock tickers, along with tweets associated with them, seven financial factors of stocks, and the categorical alpha values. The alpha has four states, labelled as 1, 2, 3 and 4.

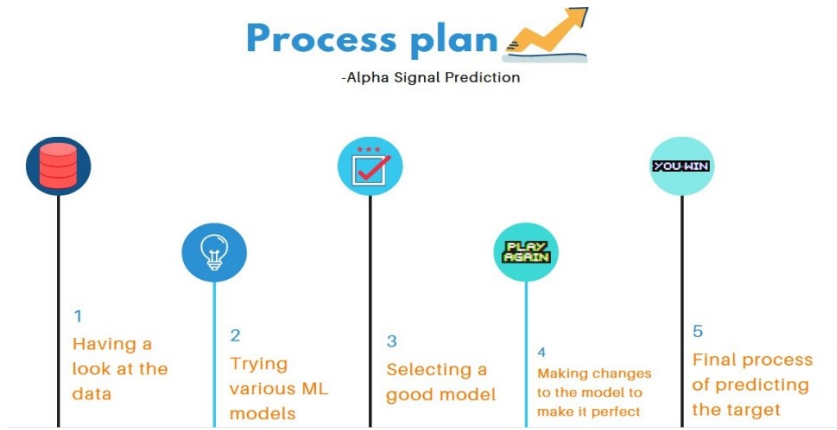
Objective was to build a model which could most accurately predict the alpha value for every ticker, based on the sentiments of tweets and the seven stock factors.

This is primarily a classification model, which initially works through extracting the sentiment score of every tweet from a microblogging site. These sentiment scores along with the seven known stock factors were used as inputs to our classification model to predict Alpha value.

-
- ⁵ As per Investopedia, hedging is a risk management strategy employed to offset losses in investments by taking an opposite position in a related asset.

PROCESS-PLAN

The Process plan to predict Alpha is represented visually below.



DATA USED

The entire data for this project was collected in four files:

TRAINING DATA	TEST DATA
An Excel file which had seven anonymous stock factors and corresponding alpha signal for several stock tickers. The alpha signal was one of the variables in training the model.	An Excel file which had seven anonymous stock factors for the same tickers as in the training data. The alpha signal for each ticker, as predicted by the model, was compared with the actual alpha signal to compute the model's accuracy.
A JSON file with more than one million tweets and their sentiment scores.	A JSON file with more than eleven thousand tweets. The sentiment score was predicted using the model.

The training dataset consisted of:

(a) an Excel file with 27,000 observations, broken down into 1304 distinct tickers (stock symbols), along with their dates, the seven anonymous stock factors, and the alpha signal, and

(b) a JSON file for the tweets data, consisting of 10,39,130 observations with the attributes 'stocktwit_tweet', timestamp and ticker. The tweets data was used to obtain the sentiment score, which was subsequently used in the model.

The test data consisted of

(a) an Excel file containing 11,576 observations, broken down into the same 1304 stock tickers, their dates, and the anonymous stock factors, and

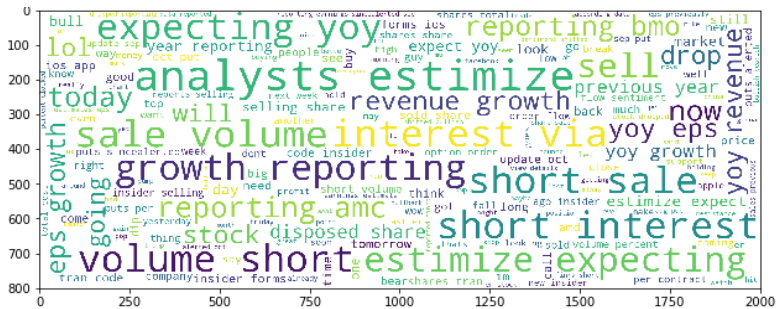
(b) a JSON file containing financial tweets about the stock tickers.

EXPLORATORY DATA ANALYSIS USING WORD CLOUD

Once we got the data, we created Word Clouds using Python to understand the sentiment scores of various tweets. These scores depict three types of sentiment i.e. negative (0-1), neutral (2-3) and positive (4). It can be seen that presence of words like “short”, “bear”, “sell” in a tweet indicates a negative sentiment, while words like “buy”, “long”, “bullish” lead to a positive sentiment.



Sentiment score – 0 (Negative)



Sentiment score - 1



Sentiment score - 3



Sentiment score - 4

DATA PREPROCESSING

Our next task was to build the models for predicting alpha signal. But before we could do that, we had to do extensive pre-processing of the data to get it ready for model building.

The tweets data was semi structured (not in the proper format to be utilized directly). So it had to be pre-processed and refined before we could develop our model. The process involved removing URLs of the tweet, Hashtag, numeric values and emojis. This was done in Python by using an inbuilt library called 'preprocessor'.

The tweets were in text form and hence not suitable for a neural network which accepts only numeric input. So the tweets were vectorised (converted into numeric values) before they could be used as input.

With these pre-processing steps, our data was ready to be used in the classification models.

MODEL BUILDING

As the volume of text data in the JSON file was huge, we built the initial classification models using the seven stock factors only which were numeric. A total of six classification models were built. Then we applied those models on the test data to find the predicted classes of the test records, and selected the model which had the highest accuracy of 70%. This was our initial model, using **only the numeric data**.

In the second phase, we enhanced the initial models by adding the sentiment scores from tweets from the JSON file.

In this phase, first we applied three alternative methods namely TF-IDF, Simple RNN, and LSTM RNN⁶ on the tweets dataset to find the sentiment score.

⁶ TF-IDF (Term Frequency Inverse Document Frequency) is a statistical method to compute the relative importance of word in a text document. While traditionally used in information retrieval and text analytics, it is not based on artificial neural network and not as powerful as RNN (Recurrent Neural Network) and LSTM RNN (Long Short

TF-IDF method gave us very low accuracy, hence it had to be rejected.

By using Simple RNN the accuracy increased to around 73%, but it took a long time to get the output. The reason behind the long computational time is that it holds all the information even if some of them are not necessary to predict the sentiments for the tweets data. This limitation of Simple RNN occupies more memory and reduces the computational power. Though it gave a higher accuracy than the TF-IDF method, it still was not the best fit.

The LSTM RNN gave a similar accuracy as Simple RNN and it took less time to process the data. In LSTM RNN, the information is preserved only if it is necessary; if some of the information is not important, those are ignored. In this way it consumes less memory even though the computational power is increased. So, LSTM RNN method was found to yield a better result and efficient approach for such tweets data. The accuracy for training dataset was 76.5%, and for test dataset 73.4%.

After obtaining the sentiment score of tweets using LSTM RNN, we merged it with the numeric data and used Random Forest⁷ to predict the Alpha signal, which was the eventual output of the project. This process yielded a higher accuracy of nearly 80%, compared with 70% when using only the numeric data.

A comparison of the models showed us that the Random Forest model which used the tweets had better accuracy than the one which used only the numeric data, although it took more time to build the tweet-based model.

Term Memory Recurrent Neural Network), which are different algorithms based on artificial neural networks used for classification problems, such as predicting the sentiment score from tweets.

⁷ Random Forest is an ensemble method, which relies on the outputs of multiple base classifiers (rather than just one) to do the classification. It employs a “majority decision” rule on the outputs of the base classifiers to decide the class. Generally such ensemble methods have higher accuracy compared to that of a single base classifier.

SUMMARY

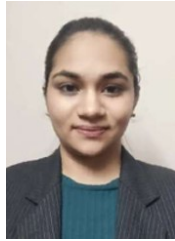
Sentiment analysis interprets the emotions within the text data to identify the customer sentiment towards their brand. Social media have let customers communicate for or against their brands and express their thoughts. There have been many instances where a company's poor customer service were campaigned on social media like Twitter, Facebook, and Instagram, following which their stock prices dropped. Hedge funds and other financial companies can unearth such sentiments about specific companies using sentiment analytics as described here. However most of the social media data are unstructured and unorganized, as companies collect enormous data through tweets, emails, likes/dislikes, number of shares and many more. This makes the job of sentiment analytics quite challenging.

The model that has been created is a robust one which can be used in financial markets. The model supports prediction of movements of stocks which can be used not only in trading of equities but also in futures and options as a hedging strategy. The Model has satisfactory accuracy, acceptable to the dynamic financial market.

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This white paper is based on a capstone project undertaken by Kaushik Swaroop, Srinidhi Srinivasan, Mukunda SB, Bhuvnes Kumar, David Immanuel, and Kartik Bora of PGDM 2019-21 Batch, as a requirement of fulfilment of Super Specialization Program in Analytics, offered at Jagdish Sheth School of Management(formerly, IFIM Business School) in partnership with International School of Engineering (INSOFE). Students received inputs from Dr. Supriyo Ghose, Professor & Chairperson – Digital Business & Analytics area, Jagdish Sheth School of Management. The authors acknowledge the help from Ms. Bhamathi Bulusu, INSOFE during the writing of this white paper.

TALENT ACQUISITION: AN ENGAGING ALTERNATIVE THROUGH A PHYGITAL TOOL

**ANKITHA RAJESH
KANCHAN BELANI**

HR DISRUPTED

The world of Human Resource Management, like every other field, is undergoing major disruptions because of the introduction of technology. One such disruption is how a company uses technology to engage with a potential talent pool.

Every organization has to depend on educational campuses, open labor markets, or internal resources to get talented people. Companies attempt to engage the potential talent pool in several ways. The age-old system for engaging talent in educational campuses is through pre-placement talks, case competitions, war rooms, sponsorship, campus talks, etc. It is found that this is insufficient to engage the candidates especially the millennial and generation Z who are tech-savvy, socially networked, and scavengers for new opportunities. Our informal interaction with several management educational campuses revealed that campus recruitment using pre-placement talks and other conventional engagement methods do not create sufficient engagement. The students tend to call the process "boring".

Is there a more innovative approach to engage the students on the campus, and create a strong employer brand perception? Phygital Campus Engagement is a potential tool to address this problem.

WHAT IS THE PHYGITAL ENGAGEMENT TOOL?

Phygital engagement system is a game-based competency assessment system with inbuilt methods to engage the young talent pool. The system has both digital and physical phases.

PHYGITAL CAMPUS ENGAGEMENT

The future of recruitment, like any other Human Resource function, is undergoing a massive transformation due to COVID 19. This has necessitated a shift in the recruitment process from physical to digital. Both companies and the students we surveyed informally agree that it has to be digital but, not all of it can be digital. The notion of 'Phygital' (Physical + Digital) has become very important to bridge this gap. To attract and employ appropriate candidates, it is necessary to focus not only on the experience of the candidate but also on the underlying competencies. We are thus faced with the twin challenges - building a more reliable framework to assess competencies and doing it in a digital and fun-filled way.

THE STUDY

This is an experimental study on the use of a Phygital campus recruitment tool to assess the competencies while at the same time engaging the potential candidates.

THE CONCEPT

Phygital campus engagement tool used in the study is a custom-designed 'Scavenger Hunt'. This is done using digital gaming tools and activities from which competencies can found out. In other words, "Scavenger Hunt" is a game-based competency assessment tool. While the students participate in the game which engages them, they also demonstrate behaviors from which competencies can be identified.

SCOPE

Being an experiment for proof of concept, the Hunt mentioned above was built around HR themes and the participants were those who had taken or intend to take HR electives in a business school. The digital component of the experiment was conducted, but the physical component was deferred till the restrictions imposed due to COVID ease.

DESIGNING THE PHYGITAL TOOL

A Phygital Scavenger Hunt tool was created using the characters of Jones (the VP) and Davy (the consultant) to match the general sentiments of the participants about their bosses and consultants. The journey/voyage of the pirates of the Caribbean was used as an analogy to mimic the employee life cycle. This analogy was used to create engagement with Gen Z and Millennial minds. The core idea of a Scavenger hunt is to search for various clues/objects, understand and analyze the clues, and reach the target at the fastest time using problem-solving tools along with having fun.

The issues highlighted in the tool were HR concepts and employee life cycle. However, any other concept can be used. The story had missing links that could be knitted together by solving challenging puzzles. These puzzles were sufficiently challenging to engage the top B-school students.

In sum, the purpose was to create a tool that could test the problem-solving skills, logical reasoning, attention to detail, team collaboration, code deciphering, and the retention of the concepts, the story selected was meant to create engagement of the young b-school students and the missing links were meant to create the challenge.

Dare2Compete was the basic platform used for the tool. It was integrated with Instagram, Facebook, and Twitter, digital streaming platforms like YouTube; video conferencing platforms such as Zoom, PDFs, and Google drive. The tool also enabled students to compete with students from other business schools. This added to the challenge and the enjoyment associated with using social media.

The tool is a hybrid between digital and physical engagement. Hence, once the candidates are shortlisted using the gaming tool, formal physical

interaction would take place. It is expected that the tool will enable shortlisting candidates, engage the candidates, create a favorable brand image for the company, and make the recruitment more effective.

A GLIMPSE OF THE HUNT

Only the team leader could open the hunt. Thereafter, the leader could share the screen with the other members of the team. The hunt was divided into 5 rounds and each round was open to all teams – i.e. the rounds were non-eliminative and so, all teams could participate in all the rounds which would be impossible in a physical context because of the huge administrative requirements. The winners were decided based on the number of questions answered correctly. In case of a tie, cumulative time taken was used to decide the winner.

METHODOLOGY

Social Media Engagements before the Phygital Scavenger Hunt. A week before the execution of the pilot project (Phygital Scavenger), social media posts were used to attract participants. A series titled "Word of the Day" was created, and trending HR terminologies were posted. Queries of the participants were answered and feedback data collected and analyzed.

Social Media Engagements During the Hunt. To keep the participants engaged, two contests were held on Facebook. The first one was a selfie contest, where the participants were required to click a picture while participating in the hunt. The second one was a contest on sharing the experience of the hunt. Both these contests had a monetary prize, and it was observed that the reviews were very positive.

ASSESSING THE IMPACT

After the successful implementation of the hunt on the Dare2Compete platform, the event was evaluated to assess the success of the Scavenger hunt. Using the extremely useful "Email Participants" tool provided by Dare2Compete, we emailed the engagement survey consisting of 15 questions. The questions pertained to the structure, handling of the event, HR concepts, and if the company should adopt this method for pre-placement and internship offers. The engagement survey was mailed one day after the

experiment. Five days after the event, a retention survey was also done. The retention survey aimed to understand how well the participants could recollect the content delivered to them. This survey also had 15 questions. These surveys were filled by 102 teams.

IMPORTANT FINDINGS

The pre-project social media engagement helped to muster 251 teams. 94 were two-member teams and 157 were three-member teams as given in Figure 1.

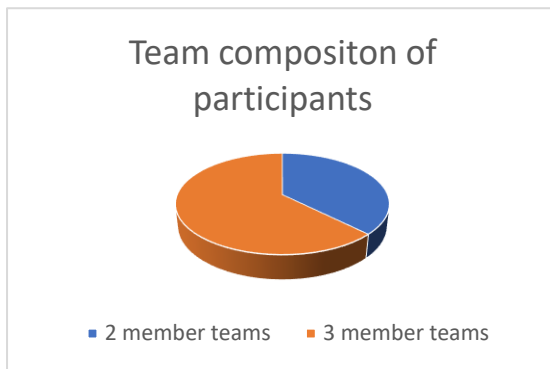


Figure 1: Team size details

Registration pattern showed that 175 out of 251 teams (68%) came from top business schools as given in Figure 2 below. This suggests that the tool has adequate acceptability in the top business schools and that the tool can capture good potential talent.

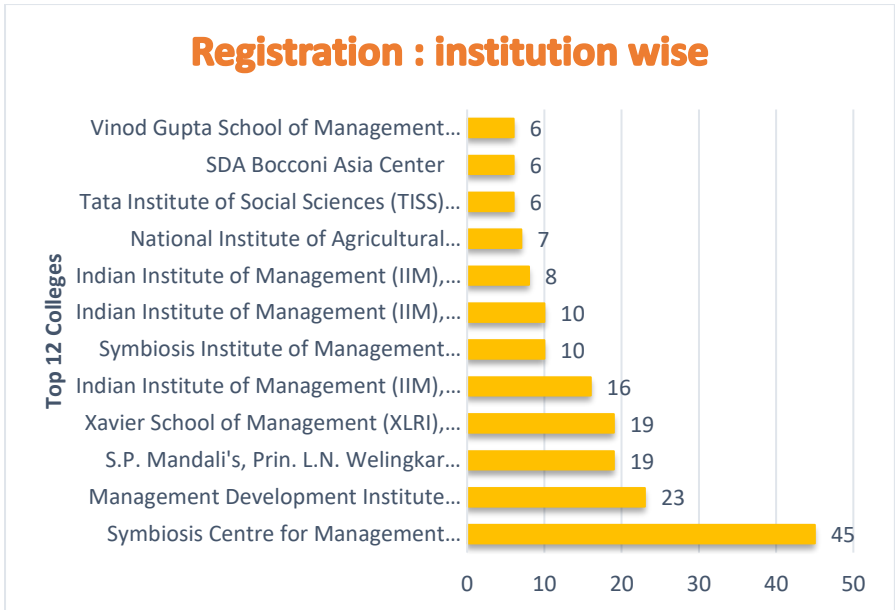


Figure 2: Registration institution wise

Social media activity achieved a reach of 1380, engagement of 711 and 169 New Page Likes between Aug 31 and Sep 27, 2020 as given in Figure 3.

Aug 31 - Sep 27

Last 28 days ▼



Figure 3: Social media input

Post reach indicates the number of people who have received the social media post. Post Engagement shows how they are engaged. Typically, engagement would be reflected by 'like' comments in the social media. New page is a page created in another social media. It may also be a page created by another person on the same subject in the same social media platform.

Social media engagement during the event helped in 62% retention (round 1 to completion of the event which was run over 2 days) as given in Figure 4.

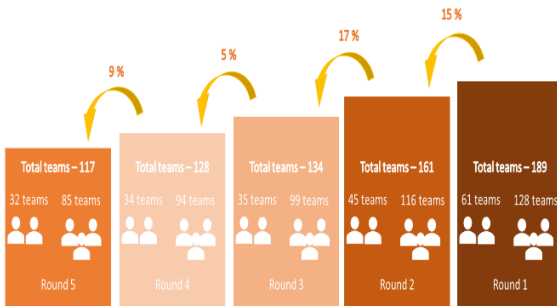


Figure 4: Retention rate

The average scores of various rounds indicate a trend towards increasing average score till Round 3 and dropping off. The increase in round 3 could be because of less efficient teams dropping out (see retention rate graph above). Low average score in Round 5 could be because of the degree of difficulty induced to find the talent cream as given in Table 1.

ROUNDS	AVERAGE OUT OF 4 MARKS
Round 1	2.00
Round 2	2.57
Round 3	3.08
Round 4	2.69
Round 5	0.56 (out of 2)

Table 1: Score of various rounds

Feedback on various parameters show a high level of engagement (94%). Methodology has high acceptance (82%) as given in Figure 5. These show that the method is effective.

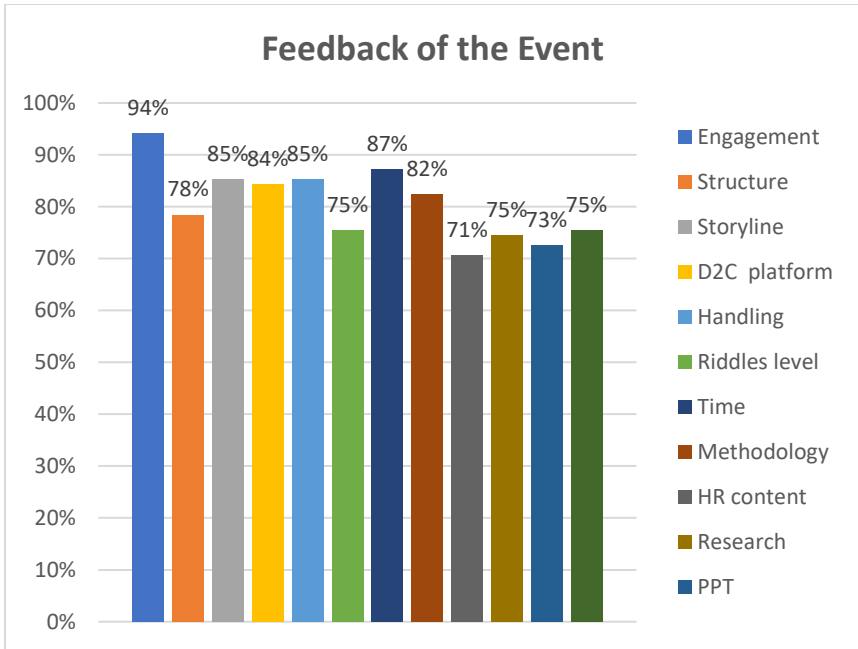


Figure 5: Feedback of the event
PPT – Pre-placement talks, PPI – Pre-placement interviews

Most engaging comments appear to be related to winning as given in Figure 6.

MOST ENGAGING POSTS



**Congratulations
to our winners - A...**
September 21

Reach	1.1K
Engagements	240



**Ahoy!!! The winner
for our selfie cont...**
September 23

Reach	93
Engagements	30



**Congratulations
also to our runner...**
September 21

Reach	88
Engagements	19

WHAT ARE THE OUTCOMES?

Although the specific details of the study cannot be revealed for organizational confidentiality reasons, we found the following:

- The hunt was successful, and the reviews were positive. Out of 508 reviews received on the D2C platform (Dare2Compete), 418 were positive. 182 reviews had 5-star grading and 177 had 4 stars.
- The participant drop-out ratio was relatively low, i.e., out of 251 teams registered, 189 teams turned up for the event despite the B-school schedule and the COVID 19 limitations and 117 remained till the end, i.e., 62% retention. This would not have been possible if it were an entirely physical event.
- The data was collected from the Dare2Compete platform, engagement & retention survey, and social media (Facebook) page.

There were two approaches that were used to develop insights. One of them was to develop higher-level insights (generic) and insights on the overall impact of the event. The second was to develop college-specific and team-specific insights. The study could identify commonalities for top scoring teams and common issues faced by all teams. The input from these could help to make the hunt better. It was also possible to analyse the profiles of the top scorers to understand their educational background, their B-School, and their work experience. This helped to group various traits of the star performers accurately.

- The survey was analysed question-wise, domain-wise, and round-wise to ascertain which question/HR Topic or Domain/Round imparted learnings that were retained by the maximum number of students. This could help while creating customized events for the companies.

CONCLUSION

The study highlights the value of Talent Acquisition and employer branding through alternatives to the conventional approach of campus recruiting methods. Creative concepts such as a scavenger hunt attract and engage candidates and could form an important part of an organization's search for talent.

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Ankitha Rajesh and Kanchan Belani are two enterprising and innovative emerging HR professionals of Jagdish Sheth School of Management (formerly IFIM Business School). The business school is known for its innovative pedagogy and the project was done as part of their micro super-specialization in HR. The project was facilitated by Logarithm HR consulting, a partner organization which supports projects as part of the micro-super specialization.

NBFC ACCOUNT AGGREGATOR - USE CASES FOR MILLENNIAL CUSTOMERS

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INTRODUCTION

An Account Aggregator (AA) is a new class of licensee under NBFC-Account Aggregator (RBI) Directions 2016 - draft RBI Guidelines that were notified in March 2016 and a subsequent framework for registration and operation was established in Sep 2016. This is a new category of non-banking financial company (NBFC), which leverages technology to gather relevant financial data of any individual entity (customer) to help the customer access a new financial asset – for example, a housing loan. This is achieved by providing this aggregated financial data obtained from a Financial Information Provider (“FIP”, e.g. Bank or Credit Agency) to the Loan Provider, commonly known as Financial Information User (FIU) – and this could be done for many types of assets and transactions but only with the consent of the customer.

Account Aggregation is not new but has been in operation in many developed markets including the US and the UK. Considering the Indian context, where there is a class of unsophisticated or even financially-illiterate individuals and where scams have been recurring quite frequently, given this reality, the Central Bank (viz. the RBI) felt that introduction of the Account Aggregators to assist customers would help achieve the objective of financial asset growth in a safe and controlled manner leading to financial stability and would prevent any malpractices since the AA would act at the behest of the customer. This meant that the RBI needed to license institutions that met certain criteria to prevent any “fly-by-night” operators as AAs.

The Planning Commission (now christened NITI Aayog) has formulated the Data Empowerment and Protection Architecture (DEPA) that empowers every Indian citizen to have control over their own personal and financial data. DEPA also democratizes the sharing of data using Application Programming Interfaces (APIs) and on top of a standardized technology architecture connecting service providers that is secure, privacy-preserving and interoperable. DEPA forms the Consent Layer of India Stack, which needs customer consent and is enabled through new operators called Consent Managers who enable consent management for the user (individual customer). Consent Managers themselves are unable to view any of this information and the process essentially involves an AA seeking customer consent through the Consent Layer operated as aforementioned. The AA ecosystem is designed so that every AA can work with every FIP and FIU and this enables true market interoperability.

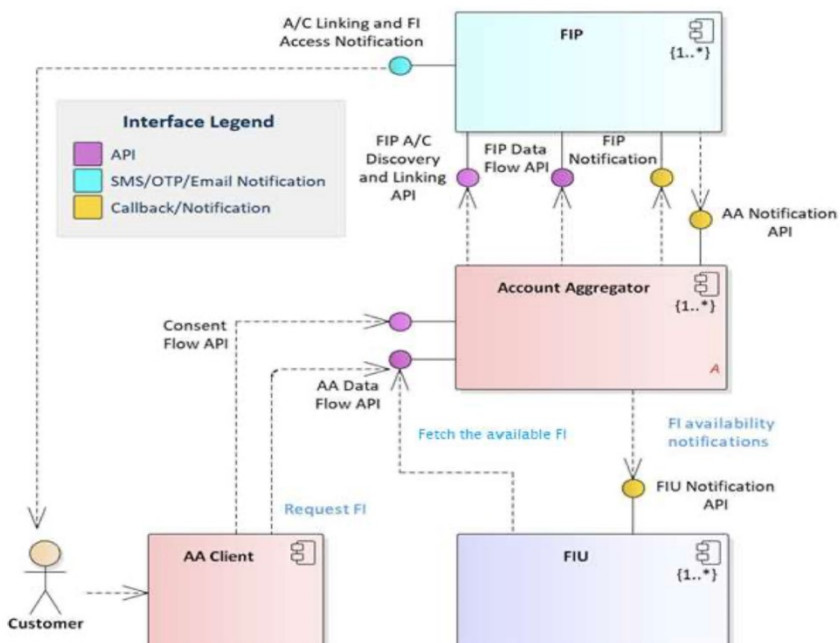
Clearly, the announcement of the NBFC – Account Aggregators (AA) and the announcement of new entrants who have been issued the “right to operate” by the RBI, signal the birth of a new era of open banking in India. This includes CAMS FinServ, FinSec AA and Cookiejar Technologies who have received the required license from RBI while players like Perfios AA Services, Yodlee Finsoft (market leader in US), Jio Info Services and NESL Data have received “in-principle” approval.

In the FinTech sector, the way the new AA-aided services will function is that customers will use, for instance, a Lending App to access a new financial asset provided by a FIU (typically a fund-based NBFC or Bank or FinTech). The AA will obtain the necessary consent from the customer to access necessary and sufficient data from the FIP only for the purpose of this transaction and forward it to the FIU. The FIU will then decide whether to approve the asset for the customer or decline based on its own evaluation of the data provided. There are alternate options like having a Digi Locker or e-signatures for filling up forms digitally which are available to the customer.

The DigiSahamati Foundation (hereafter mentioned as Sahamati) is a Collective of Account Aggregator ecosystem that has been set up as a not-for-profit private limited company. Sahamati has applied for a NBFC - AA License with the right to operate. With the above background and context, this paper intends to present some *use cases* for the AA business, which were developed at the behest of Sahamati.

ACCOUNT AGGREGATOR (AA)

The Account Aggregator ecosystem needs an interoperable, consent-driven architecture, and a set of standard APIs to facilitate secure, seamless and consented sharing of various kinds of financial information. The RBI has specified three APIs, viz (i) Account Aggregator API; (ii) financial information provider API; and (iii) financial information user API. Figure 1 presents a high-level architecture showing various interfaces and system interactions in the AA ecosystem.



Source: RBI: "NBFC-Account Aggregator API Specification", 8 November 2019, p

In case of application for a new loan or other financial products, which is time consuming, the entire procedure can be shortened to a great extent. This is done by increasing the ease and convenience of the documentation and verification processes, which is highlighted in the diagram above, in terms of automating the process flows based on user consent.

The process starts with the user approaching the bank for a loan or applying to a NBFC offline or online through an app. The request is then processed via the AA framework, as the bank requests the data holders (FIPs) to share the documentation data in real time.

The user is immediately intimated about the data-sharing request to give their consent to share their relevant personal or financial data. Once the user gives the confirmation, the data is shared in real-time with the bank (FIUs), which speeds up the entire approval process considerably. The same applies for any relevant use case.

The base infrastructure for information exchange needs to be secure since it is a financial transaction and carries related information (personal data), so it is similar to the PCI DSS standards which are followed by NBFCs while communicating such data through a secure network. The data is encrypted so that intermediaries who are not the FIU cannot decipher and leverage the data elsewhere, apart from the fact that the data access is provided only for a particular transaction and is labelled accordingly.

PROJECT ASSIGNED BY SAHAMATI

Sahamati was set up on 25 July 2019 as a not-for-profit private limited company under Section 8 of the Companies Act 2013 of India. It aspires to be a self-regulatory organization to oversee the Account Aggregator ecosystem, and to promote adoption of the AA technology framework through awareness programs and workshops with potential AAs, FIPs, and FIUs.

As a part of its promotional activities, Sahamati has identified a couple of 'use cases' related to lending, advisory, and wealth management services, but it has been looking for more new cases. In this context, Sahamati engaged a group of PGDM students of Jagdish Sheth School of Management (formerly IFIM Business School) and tasked them to develop new use cases, mainly around millennial customers who were born between 1981 and 1996.

The specific objectives of the Sahamati assignment were as follows:

- i. Conducting a rapid survey of millennial customers to assess their level of awareness of and needs for AA services; and

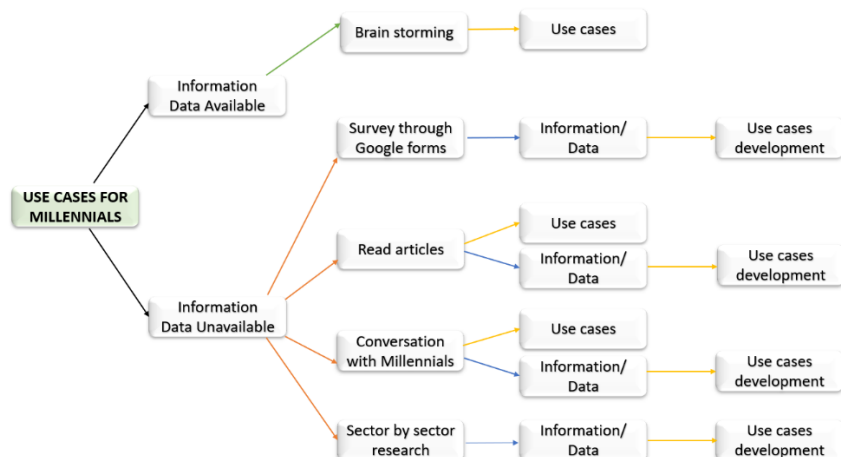
- ii. Developing a couple of new use cases, keeping in view of millennial customers.

APPROACH AND METHODOLOGY

A use case is a description of all the ways an end-user wants to “use” a system. These “uses” are like requests of the system, and use cases describe what that system does in response to such requests. In other words, use cases describe the conversation between a system and its user(s), known as actors. Conversely, it could be an instance where any demographic profile (millennial, middle-aged, retired, etc.) could use the service for a similar intended functional benefit so that the use case is the same across diverse customer profiles.

To develop these new use cases, we adopted the following approaches:

- Personal Interviews
- Google form survey
- Sector wise research
- Articles study



PERSONAL INTERVIEWS

For data collection, our primary approach was to conduct face-to-face interviews with the Millennials residing in Bangalore. The sampling was limited by geographical restrictions, which made us interact with around 85 individuals including students and working professionals. The flow of conversation with millennials included understanding of the financial transaction bottlenecks and documentation issues they faced, a 'day in the life' simulation of their typical daily activities and, sometimes when warranted, explanation of the Account Aggregator concept to those who were unaware.

GOOGLE FORM SURVEY

The rapid survey using Google Forms was performed to identify potential areas of appreciation and apprehension directly from the responses we received from millennials. We received around 500 responses, out of which only 300 were considered after due cleansing of data. Just under 100 of these respondents were aware of the Account Aggregator (AA) as a concept. Hence, significant time was devoted to explaining the basics of AA as well as how it can help them. This may have caused some bias in the responses but some good insights were obtained from the more knowledgeable and insightful millennials who were interviewed. This formed the basis for developing our long list of use cases, from which we derived the final 6 use cases.

The following questions were used for our project:

- Your age group?
- Your occupation?
- Are you aware of Account Aggregator concept?
- On a scale of 1-5 how important it is for you that your personal data remains confidential?
- How secure do you feel about the current financial system being free from data leaks?
- Do you face any issues in filing your tax returns?
- Do you think the existing VISA Application process is efficient? (regarding document verification processes, delivery of services etc.)

SECTOR WISE RESEARCH

By utilizing secondary data from the existing sector wise research, we refined the research requirements which created a basis for designing new use cases. The sectors we reviewed during the research included Pharmaceuticals, FMCG, Automobiles, Hospitality, Financial Services, Information Technology, Banking, etc.

After developing the use cases, a few of them were finalized after taking into account the opinions of millennials obtained through the Google-form survey.

ARTICLE STUDY

After going through articles related to data aggregation, millennial spending, consumption, behavior trends, Account Aggregation, etc., we created some additional use cases.

The project led to creation of 30 use cases across various domains. They were developed through the aforesaid methods. After consulting with Sahamati and prioritizing the needs of its stakeholders, six use cases were shortlisted and finalized.

LITERATURE SURVEY

The sector reports from CB Insights Market Intelligence Platform were studied so that we were aware of all the latest innovations in the Fintech sector globally.

After that we started following the leading personalities in the Fintech industry on LinkedIn and Twitter to gain ideas about the latest transformations. Writings of Adhil Shetty, Sarbvir Singh and Naveen Kukreja were immensely helpful to us.

We went through Sahamati's blogs as well as various online resources available to summarize the blogs and understand what the company is about and what Account Aggregation is.

We searched for research articles and literature published to identify useful information to build use cases and guide us. We consulted websites like

millennialmoney.com, Moneycontrol.com, and Businesswire.com, which turned out to be helpful.

We also did an in-depth study of research reports published by Deloitte, PwC, LinkedIn and various other resources.

We subscribed to various Fintech newsletters to learn and keep ourselves updated on the latest news. The links below are examples of the sources we used in this regard.

- <https://thefintechblog.com/>
- <https://thefinanser.com/>
- <https://blog.faisalkhan.com/>
- <https://www.fintechweekly.com/>
- <https://www.researchgate.net/>

We then started an in-depth research on the latest news of the banking and finance sector involvement in Account Aggregation, which might be relevant for developing use cases. The sources and methods we used were via Google news updates, various personal blogs and WordPress accounts.

We started discussing the use cases as a team and trying to improvise on them. We paid special emphasis to ensure the use cases were valid in India and viable to implement and sustain.

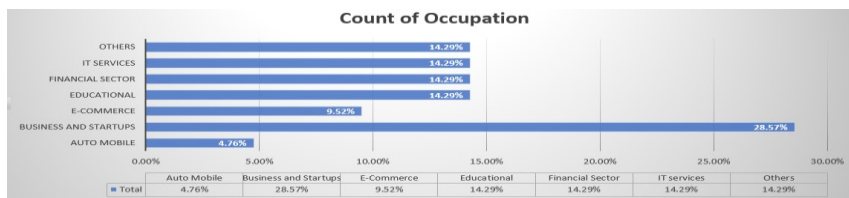
KEY FINDINGS

Since the thought process and perceptions change across the sub classifications, it is not viable to combine the results across different categories and proceed with a consolidated data and utilize an all-inclusive approach to develop the use cases.

From our detailed research paper, here are the summary observations:

Awareness about Account Aggregation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	202	67.3	67.3	67.3
	Yes	98	32.7	32.7	100.0
	Total	300	100.0	100.0	



As estimated, out of the respondents who are aware about the AA concept, most of them belonged to finance sector followed by IT sector. Thus, we realized that the AA concept was applicable outside the Financial Services domain and could also be applicable to IT Sector Services. Hence, we felt it would be apt to target IT sector use cases also for this exercise.

Of the respondents who are aware of the AA concept, only 1/4th (22 out of 98) expressed the need to have any third-party assistance in their financial decisions which could be more advisory in nature. We chose to interpret this as representing help from 3rd parties who would help manage the documentation and take the drudgery out of a normal financial transaction for such millennials and not any other form of assistance.

Almost all (93 out of 98) rated the need for personal data remaining confidential at high or very high. And this was 278 out of the entire sample of 300. So clearly, the role of maintaining confidentiality was important to almost all respondents.

On the question of how secure they felt on data leaks being absent in the current financial system, only a third (91 out of 300) gave a rating above 8 on a 10 point scale. On the other hand, around 90 respondents rated this at 5 or below on the same scale.

Most respondents would not admit to needing assistance while filing their IT Returns (131 out of 300 said they needed some assistance) while over half of the respondents felt that the visa application process was inefficient and possibly not transparent (160 respondents). Further, as many as 188 respondents felt that the visa approval system could be enhanced with the help of a third party service provider. We therefore chose this as one of the use cases.

Similarly, 182 respondents felt that the lending process in banks was inefficient in terms of processes and documentation. As many as 245 respondents wanted the financials to be managed properly and were possibly also seeking investment advice. With the added inputs from the personal interviews, the use cases were pared down from the initial list of 30 down to 6.

PERSONAL DATA CONFIDENTIALITY (RATING SCALE 1-5)	DATA LEAK IN CURRENT FINANCIAL SYSTEM (RATING 1-10)	NEED ASSISTANCE FOR FILING IT RETURN	VISA APPLICATION PROCESS INEFFICIENT	LENDING PROCESS INEFFICIENT	FINANCIALS NEED PROPER MANAGEMENT. SEEK INVESTMENT ADVICE
Rating 4-5 : 278	Rating 8-10:91	Yes: 131	Yes: 160	Yes: 182	Yes/Maybe: 245
Rating 1-3 : 22	Rating 1-5:90	No: 169	No: 140	No: 118	No: 55

SELECTED USE CASES

The long list of Use Cases as conceptualized by us was shared with Sahamati. They accepted the ones below from the long list (Annexure-1) though we are not at liberty to share Sahamati's views or preferences in this paper.

Details of the benefits of the shortlisted Use Cases (in order of preference) for which we sought views of the respondents are as follows:

USE CASE 1: VISA APPLICATION

Problem: Longer wait times, extensive documentation processes to get done, non-transparent issuance timelines.

Issue with current solutions: Existing solutions are equally time consuming and have inherent inefficiencies.

Benefit of AA driven solution: One shot collection of relevant data from FIP(s) to feed into Visa Application process. This includes bank account statements; passport copy and other government documents as proof of identity.

For enabling the service, the applicant is required to pay a nominal fee.

USE CASE 2: PROPERTY SALES

Problem: Slow speed of transfer of documentation (title deeds, affidavits, etc.).

Issue with current solutions: Limited functionality for online registration of documents in some Government offices (Mumbai) but still do not tackle the problem end to end.

Benefit of AA driven solution: Faster transfer of title deeds and transaction closure.

For enabling the service, the buyer/seller (whoever requisitioned the service from AA) is required to pay a nominal fee.

USE CASE 3: ACCIDENT INSURANCE

Problem: Accident Insurance Policy with inapplicable riders; premiums high due to lack of better understanding of user's driving history (safe driver or not).

Issue with current solutions: Users select the lowest cost or bumper-to-bumper insurance plan that requires data about the vehicle age, model and claim history (for No Claims Bonus) but without understanding anything about the driver's driving history leading to average pricing of risk, which penalizes a safe driver due to higher premium.

Benefit of AA driven solution: Driver behaviour and car travel data could be obtained to correctly price the Insurance Policy and maximize the automation. Some parts of the process may not be automated (e.g., filing of FIR before a claim is lodged) but most parts of the claim process could be automated as well, apart from the renewal stage at correct premium pricing.

For enabling the service, the user or acquiring insurance companies (whoever requisitioned the service from AA) is required to pay a nominal fee.

USE CASE 4: LICENSE FOR NEW STORES

Problem: Trade License for new shop owners is tedious and long drawn with multiple touchpoints.

Issue with current solutions: Documents and forms related to the license are not automated or obtained in a predictable manner – involves multiple submissions of documents at the registrar office, municipal corporation, banks, and other government organizations.

Benefit of AA driven solution: Documentation could be digitised and authenticated through India Stack (Aadhaar) which could considerably ease the documentation around proof of identity as well as sourcing relevant proofs from FIPs, which eases the process of getting the license.

For enabling the service, the user is required to pay a nominal fee.

USE CASE 5: HEALTH RECORDS

Problem: Lack of a consolidated Medical History or Personal Health Record causing incorrect diagnosis.

Issue with current solutions: Each hospital or clinic maintains its own history and limited view of patient history. There is no consolidated medical history of such patients, which is necessary for correct diagnosis and treatment of any illness.

Benefit of AA driven solution: The medical records may not classify in the strict charter of Financial Information that is the charter of AA. But the problem

could be the next big thing for an equivalent AA participant for the Healthcare industry.

USE CASE 6: OVERSEAS INVESTMENTS

Problem: Extensive documentation needs for making an overseas investment in a business.

Issue with current solutions: Sound and integrated advice on the entire process will be difficult to obtain for millennials doing start-ups and planning to expand overseas given their access to established legal and tax advisory firms.

Benefit of AA driven solution: The documentation needs could be streamlined, ensuring a predictable timebound process. However, tax and legal matters remain extremely important and needing expert advice.

CONCLUSION

The concept of Account Aggregation is relatively new in India; variants of the concept exist in western countries but they may not be directly implementable in India. As a result, it was challenging to get user feedback on the same. The project helped us to understand the immense possibilities of Account Aggregators and how they could solve some of the deficiencies in the current financial system. Our understanding is that the use cases developed will help Sahamati and will be further developed into a Product Offering for Millennials.

WAY FORWARD

Given the current stage of evolution of AA legislation and licensing, Sahamati needs to primarily focus on spreading awareness about AAs and operationalizing the working of the Account Aggregator ecosystem and its various stakeholders, followed by onboarding of more FIUs and FIPs. Once this is successfully achieved, they would likely be able to develop and incorporate more use cases pertaining to other external hindrances like new

legislation that enables AA use across sectoral boundaries, resulting in the unhindered growth of the Account Aggregator ecosystem.

REFERENCES

https://en.wikipedia.org/wiki/Use_case

<https://www.ibef.org/research/reports>

<https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/deloitte-2019-millennial-survey.pdf>

<https://blog.faisalkhan.com/>

<https://sahamati.org.in/blog/>

<https://www.aljazeera.com/ajimpact/millennials-coronavirus-economic-blow-awakens-bad-memories-200327195953278.html>

<https://www.medianama.com/2019/09/223-rbi-payment-aggregators-and-gateways/>

Madara S.R., Maheshwari P., and Selvan C.P., 2018. "Future of millennial generations: A review". Abu Dhabi, Advances in Science and Engineering Technology International Conferences (ASET). Page-. <https://ieeexplore.ieee.org/abstract/document/8376927>

Stewart, J.S., Oliver, E.G., Cravens, K.S., Oishi, S., 2017. "Managing millennials: Embracing generational differences". Business Horizons, Volume 60, Issue 1, Pages 45-55, ISSN 0007-6813, <https://doi.org/10.1016/j.bushor.2016.08.011>.

ANNEXURE 1 – USE CASE LONG LIST

1. Visa Application
2. Tax Filing Requirements
3. Property Sales
4. Combining Multiple Bank Accounts
5. Credit Providers
6. Loans (Car Loan, Student Loan Etc.)
7. Accidental Insurance (Uber)
8. Wealth Management and Financial Planning
9. Fee Reimbursement
10. Documentation for Entrepreneurship
11. License for New Stores

12. Health records
13. Pharmaceuticals
14. Passport processing
15. Information Sharing on Overseas Investments
16. Grant / Subsidy
17. Collection Agency
18. Keep a check on what you eat
19. Locating safe essential stores
20. Purchase recommendation to kirana and small retail stores
21. service and repair history of second-hand vehicles
22. Healthy food recommendation
23. Transfer of medical and patient records
24. Unutilized services due to future pandemics
25. Career advisory
26. Research Papers at One Place
27. Protection from Hackers
28. Automatic preparation of documents and reports
29. Combined billing
30. Recommendation of certifications and online courses

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