Design

MSIN0024

Individual Project

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JPMORGAN CHASE & CO.

finn
SM

by CHASE

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Situation and Complication

JPMorgan Chase & Company (JPM) is the largest Investment Bank in the US and third largest in the World, by total assets, with a 2018 revenue of $109B and costs totalling $77B[1]. It is also the World's most valuable Bank by market capitalisation ($330B)[2]. JPM provides value through in-depth knowledge of financial markets and provides profitable asset and investment management. Additionally, it provides retail banking deposits, withdrawals and mobile banking transactions in the US through its Chase subsidiary and brand.

To find out more detail of JPM's Business Model, refer to **Appendix 1**

In the past several years, traditional Banking firms including JPM have been under attack from disruptive FinTech start-ups, that are aiming to take away small components of JPM's business offerings through innovative alternatives[3]. Additionally, with immense political, geographical and regulatory uncertainty in the financial world, JPM desperately needs to diversify to maintain its strong historical competitive advantage.

One of JPM's newest innovations, to combat these challenges, is 'Finn by Chase'. A new mobile banking product that Chase rolled out mid-2018, with the products specific target customer being young "millennials"[4]. Mobile retail products have begun to emerge from JPM's competitors in the last two years; Goldman Sachs released Marcus, its own retail arm. Yet what makes this product so interesting is that it is a venture unlike any other from such a large Investment Bank, no other product offered by similar firms directly focuses on this target demographic[5].

Four years ago, JPM was unfamiliar with Design Thinking practices, yet has attempted to adapt, with 'Finn' being its first completed result[6].

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[1]*JPMorgan 2018 Financial Statement*

[2]*Ibid*

[3]*CBInsights, 2018*

[4]*Henry, 2018*

[5]*Chaperro, 2018*

[6]*Marous, 2018*

The Need for Design Thinking (Current Problems)

From implementing this new product offering to adapting to market conditions and remaining competitive, JPM needed to utilise Design Thinking in the best possible way. Being a traditional sector firm, with a history of over 200 years, it would be a challenge to make this entire legacy firm adopt to the ways of Design Thinking[1]. Yet it would be needed in order to truly understand what JPM's diverse range of customers wanted, how to truly provide value, and how to enter a market segment not touched by such a firm before.

As mentioned in *Darden's Design Thinkin for Innovation Course*, JPM could benefit from Design Thinking as their problem is **human-centered** (they need to appeal and meet the needs of different consumers), and currently **not clearly defined** (when developing 'Finn' they had no examples to base their research on) and there are high degrees of **uncertainty** (based on the aspects of the industry and disruptive nature of competitors).

	Design thinking is appropriate if …	Linear analytic methods may be better if …
Is the problem human-centered?	Deep understanding of the actual people (users) involved	There are few human beings involved in the problem or the solution
How clearly do you understand the problem itself?	We need to explore and get agreement	We understand the problem clearly and are sure we're solving the right one
What's the level of uncertainty?	There are many unknowns (large and small), and past data is unlikely to help us	The past is a good predictor of the future
What data is already available to you?	There is very little relevant existing data to analyze	There are several clear sources of analogous data

Therefore, this need for Design Thinking became significant not only for JPM consumers, who desired high quality services, but for JPM employees and shareholders, who desire sustained successful performance and high customer satisfaction.

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[1]*Marous, 2018*

Diagram: Coursera, Darden School's Design Thinking for Innovation

The Approach

I have managed to conduct **Independent Research** in the form of an **Interview**. Through LinkedIn, I approached the **Vice President of Mobile Product Management at Chase**, Gabe Eldred. The insights from my one-hour phone call with him are in **Appendix 2**. Partnering this primary data with reports and blogs, identified through my **Quid Analysis** (**Appendix 3**) of both the News and Company's Databases, I have determined the desired implementation of Design Thinking at JPM.

Firstly, it was key for JPM to **understand its user's** true needs, this was important to ensure that it could offer services that would be more valuable compared to competitors as well as venture into new business areas, such as with 'Finn'. Being such a large and powerful institution, with significant resources (**Appendix 1**) JPM can align proposed ideas within its diverse business offerings and can overcome large technical constraints through its significant investment into technology ($10B annually)[1]. It is then the 'User Needs' that JPM needs to carefully understand correctly.
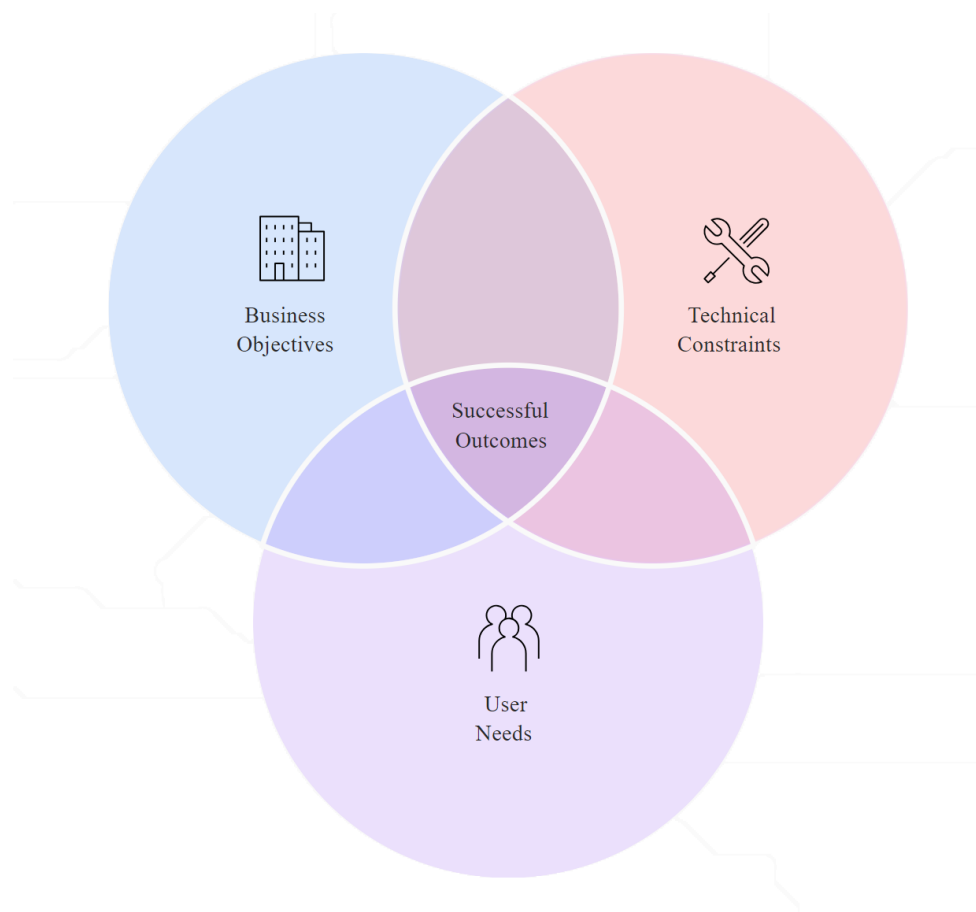
JPM has done this through undertaking implicit **ethnographic research**. For CEO Jamie Dimon and fellow C-Suite Execs, this meant taking two weeks out of every year to travel the US and visit their retail outlets[2]. This started four years ago, and they do it to speak to employees of their retail stores and customers, in attempt to bridge the "empathy" gap[3]. The relationships they build allow for indirect use of **sponsored users**; conversations helping 'co-create meaningful value'[4], as well as aim to remove the bubble that being in a high-ranking executive position can provide, as described in **McKinsey's The Business Value of Design**.

Additionally, being a large legacy institution was not on JPM's side when it came to implementing Design Thinking. That is why **understanding their users was not enough**. From the perspective of Chase Head of Design and VP of Mobile Product[5], they needed to completely innovate their back-to-front **product launching and testing**. They decided that taking inspiration from other large technological corporations that had adopted lean, start-up like design approaches, including IBM and Intuit was needed[3]. This meant incorporating ideation learning launches and tests that follow a similar framework to the one defined below[5]. This aimed to help ideas flow better through the company, and for ideas to be efficiently tested – to not only be first to market but meaningful also[4].
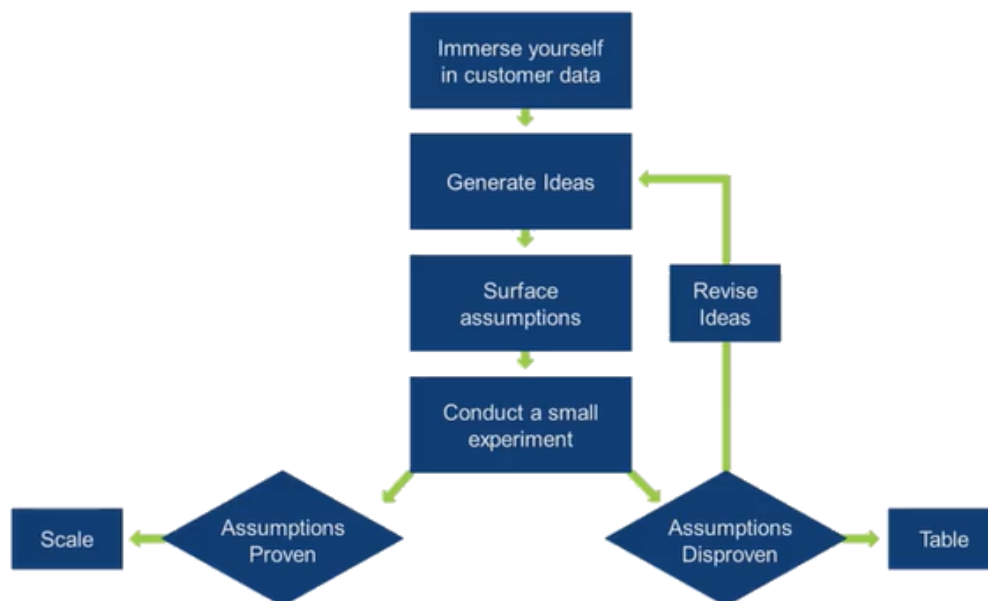
[1] *JPMorgan Chase & Co 2018 Financial Statements2*

[2]*Dimon, 2018*

[3]*Owens, 2018*

[4]*IBM, 2019*

[3]*Najir, 2018*

[4]*Evans, 2017*

[5]*Gabe Eldred Interview*

Diagram 1: IBM's Design Thinking for Enterprise Program

Diagram 2: Coursera, Darden School's Design Thinking for Innovation

Resources and Competences

For effective Design Thinking to be implemented, resources and competences needed to be combined.

Internal Resources included utilising the vast network of subsidiaries and already established partnerships JPM had, such as the vast retail outlet platform JPM has in the US[1]. This platform, combined with the large data capturing and processing competencies that JPM has, allowed for a rigorous approach to interviewing and gaining understanding of users[2]. Of course, a downside to this approach was that JPM had to be careful to not be too analytical and needed help in producing more abstract design thinking approaches.

This is where JPM utilised *External Resources*, partnering with highly specialised Design Thinking practicing firms. Such strategic partnerships include Otterbein School's Design Consultancy Lab[3]. This was to help JPM break their mould of highly rigid analytical work, and aimed to create more empathetic and creative thinking through the skills that external partners provided.

Furthermore, any firm that attempts a paradigm shift on the way they want their employees to act needs to provide further *training and guidelines*. IBM is a great model for how to implement a Design Thinking handbook into employee training[4]. JPM hasn't been as extensive and full-committing as of yet. However they have started to roll out "Creative Processing" frameworks as part of the training material for their Strategy, Operations and Corporate Analyst Development Program[5], the latter of which I will be interning in this summer. Nevetherless, for the firm to feel the full benefits of Design Thinking, it would need to roll out resources to the entire employee base, and as shown through IBM, this can be significantly complex[4].

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[1]*Macheel, 2018*

[2]*Gabe Eldred Interview*

[3]*Ponce, 2018*5

[4]*InVision, 2018*

[5]*Najir, 2018*

A great focus point for analysing and benchmarking the effectiveness and outcomes of Design Thinking at JPM is with 'Finn'. As this was the first complete service rolled out by JPM that incorporated the desired Design Thinking processes from start to finish.

'Finn' rolled out last July, including features such as 'rating transactions' and 'spending overviews', both of which have a design language that is very vibrant and youthful, illustrating their app is aimed at young consumers (aged 15-24) that are just getting into personal finance[1].

However, 'Finn' has received criticism from consumers. From my *Quid analysis* I found that 53% of all news articles related to 'Finn by Chase' had an overall negative sentiment[2].

Despite this, utilising *McKinsey's The Business Value of Design* report, the actions of JPM do seem promising. It is in the top 60% of companies (based on number surveyed in the report) for talking to the end users during development; even incorporating sponsored users, just as illustrated through *IBM's Guidebook*. However, JPM is not among those companies recognised by McKinsey as implementing Design Thinking well enough to enter the MDI Index. Perhaps signalling there is more that JPM can do with regard to implementing Design Thinking.

Additionally, regarding *Frog Design's The Business Value of Design* framework, it can be argued that JPM has managed to achieve Speed to Market (being first to market), Market Reach (through its impressive retail network in the US) and Internal Capability Development (through it's $10B annual investment in technology). However, to go the final step and then to extend into long-term benefit, JPM must continue to build relationships with its intended users, in order to create products and services that earn engagement & loyalty, alligning its Design Thinking efforts to create a visionary transformation:
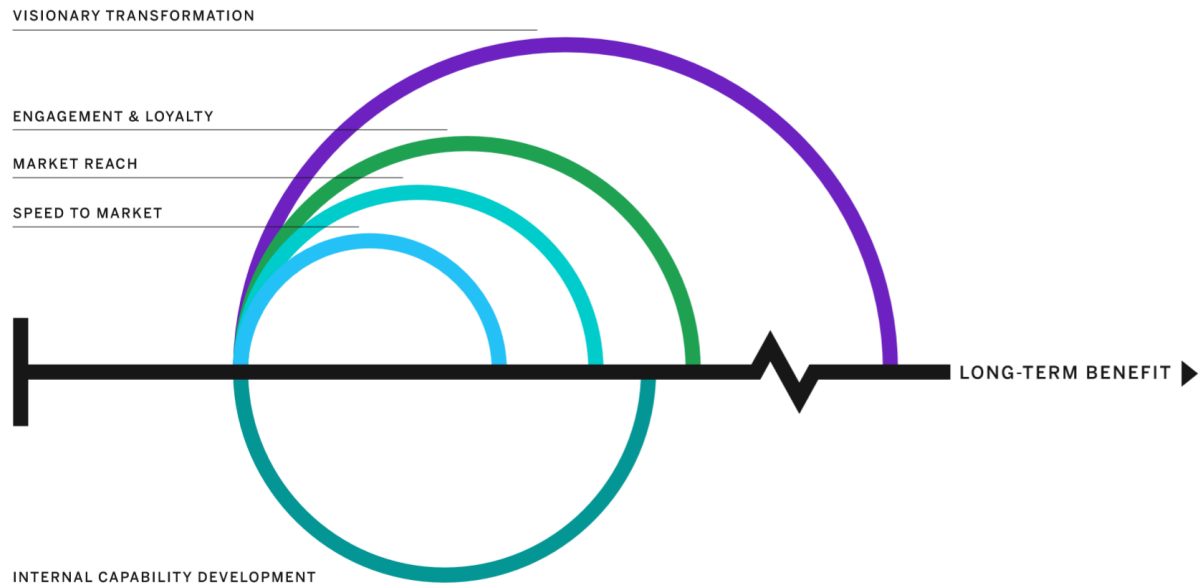
Furthermore, according to **IDEO's Field Guide to Human Centered Design**, JPM has a long way to go to establish true human centered mindsets from its 256,000 employees. IDEO states that this takes time, as requires all employees understand the perhaps inately difficult 'learning from failure is key' and that iteration is the cornerstone of how Design Thinking needs to be implemented – aptly illustrated in **IBM's 'The Loop'** Design Thinking model:

The Loop

Understand the present and envision the future in a continuous cycle of observing, reflecting, and making.

Observe

Reflect

Make

Of course, no project that attempts Design Thinking comes without its challenges. Here a singnificant issue JPM preliminarily faced was to understand a consumer segment that they had never targeted before. As demonstrated earlier, the design language the firm has adopted for this product clearly aimed to relate to the intended audience. Yet whether these consumer want a product to fit this particular style still seems unclear. For example, the negative sentiment score could illustrate that milennials are in fact happy with much more professional and mature looking products, such are offered from competing firms (e.g. Marcus by Goldman Sachs). If this is the case, then it is clear that JPM has not been successful with truly understanding their user's needs and desires.

Regarding other stakeholders, JPM's financial situation has not improved since implementing 'Finn'; its stock price has dropped (most likely due to external factors and not significantly due to 'Finn', yet it did not boost its price either), and 'Finn' has failed to capture the market nearly as much to be deemed a striking success (it accounts for 2% of the 'neo-mobile' banking app market in the US[3]). Of course, the financial industry is an extremely volatile one, and it may take a more mid-to-long term outlook to fully understand Finn's significance and how JPM can learn from this Design project when going forward with implementing Design Thinking.

[1]Chaparro, 2018

[2]Appendix 3.4

[3]Henry, 2018

Image: JPMorgan Chase & Co

Diagram 1: Frog Design The Business Value of Design Report

Diagram 2: IBM's Design Thinking for Enterprise Course

Conclusion and Insights

JPM has only in the past four years realised the need for Design Thinking, shaped from their increased competition and importance to stand out as a high quality service provider in a saturated finance market. In this time, JPM has attempted to implement Design Thinking processes. These include; conducting interviews, ethnographic research, adopting sponsored users, and attempting to adopt lean and iterative ideation development.

These processes are putting JPM on the right path and is well ahead of other Investment Banking firms when it comes to utilising Design Thinking[1]. However, time and further projects are needed to help shape Design Thinking uniquely for JPM, just like at all great corporations that implement Design Thinking, including those in McKinsey's MDI Index. JPM's CEO has consistently praised the firm embracing Design Thinking practices[2], and it appears that the organisation plans to continue to invest further into Design Thinking, through implementing training materials and strategic partnerships.

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[1]*Najir, 2018*

[2]*Dimon, 2018*

Sources: JPMorgan website, 2019 & JPMorgan Chase & Co 2018 Financial Statements.

Value Propositions

JPMorgan Chase & Company (JPM) is the largest bank in the United States, the world's third-largest bank by total assets ($2.623 trillion) and the world's most valuable bank by market capitalisation ($341.65 billion). Therefore, JPM is in the perfect position to offer in-depth knowledge of financial markets to its clients, with operations in over 100 countries and specialists in every industry amongst its 256,000 employees. JPM also offers profitable assets and investment management to its clients, with an average annual return of 9.5% (third best return from the nine largest "bulge bracket" banks in 2018). Additionally, JPM offer retail banking solutions to the entire US population, providing credit and debit card services and over 5,600 branches nationwide.

Revenue Streams

JPM's revenue (totalling $109 billion in 2018) can be broken down into the following channels:

Administration and Commission (25%), Investment Banking fees (20%), Deposit fees (15%), Card Income (14%), Return on investment portfolio (13%), Mortgage Income (8%), Securities gains (5%).

Cost Structure

JPM's costs (totalling $77 billion in 2018) can be broken down into the following segments:

Employee compensation (30%), Legal (25%), Taxes (20%), IT platform and development (12%), Operation centres (6%), Interest paid (4%), Transaction costs (3%).

Customer Segments

Through JPM's diverse product and service offerings, they help to provide high-quality service to the following customers:

Consumer & Community Banking – small to mid-size enterprises globally and individuals living/operating within the US.
Corporate & Investment Banking – prominent corporate entities that seek advice on raising capital.
Asset & Wealth Management – institutional clients and very high net worth individuals (+ $5 million net worth) that seek high returns and expert advice on their investments.
Government & Treasury – global Governments, municipalities and sovereign funds that seek financing and support in their transactions to manage their capital.

Customer Relationships

JPM has a history that dates back to over 200 years ago (founded 1799), during this long history JPM has developed high levels of trust with long-term clients, particularly Governments and institutional funds. Additionally, JPM has a proven track record of security, experience and stability; the vast majority of JPM's initial competitors have fallen or been acquired by JPM, showing the excellent experience and execution JPM has to offer its clients. Regarding each specific client, they are provided an always present and dedicated advisor/y team that helps develop an intimate long-term relationship.

Channels

JPM operates in over 100 countries, with corporate offices in all major financial cities across the globe. JPM also develops reports containing business and markets insights, publishing these reports to provide key insights to potential clients. Regarding commercial banking, JPM offers over 5,600 branches nationwide in the US, over 16,000 ATMs and three mobile banking apps (Chase, Chase pay and Finn by Chase).

Key Activities

JPM's advisory and investment banking, portfolio building, risk management and financial analysis helps in providing the key services for its corporate and wealth management clients. Macroeconomic and sector reporting provides key insights for potential clients. The retail banking activities of withdrawals and deposits and mobile and card-based payments helps support commercial and retail customers. Additionally, financial transaction processing helps support Government and institutional clients and provides the basis of all of its service offerings.

Key Resources

JPM has assets totalling $2.623 trillion and 256,000 employees, of which many are industry experts and market leaders. JPM also has a consumer base of tens of millions, of which their brand and entire global (over 100 countrywide) network is a key resource. Additionally, JPM's IT capabilities are amongst the best of any financial organisation of any size (JPM invests over $10 billion in technology annually), with many propriety and patented technologies (e.g. Ethereum-based blockchain payments) that are crucial to the organisation's operations (Das, 2018).

Key Partners

JPM has established and long-term relationships with global investors of varying sizes, from very high net worth individuals to family funds to institutions. These interact with the subsidiaries of JPM (Chase, JPMorgan, JPMorgan Cazenove, One Equity Partners), with the subsidiaries themselves interconnecting and supporting each other. JPM also has a vast number of shareholders, being publicly listed. Additionally, JPM recruits the advice of regulators and risk monitoring agencies to ensure JPM is adhering to all global regulation and is executing its clients' interests most effectively.

Key Partners 🔗

Investors (very high net worth individuals to family funds to institutions)

Subsidiaries (Chase Bank, JPMorgan Cazenove, One Equity Partners)

Shareholders – Publicly Listed

Regulators

Risk monitoring agencies

Key Activities ✔

Advisory and Investment Banking & Portfolio building

Risk management and mitigation

Financial analysis to build reports

Accommodating deposit and withdrawals and mobile banking transactions

Financial transaction processing

Key Resources 👥

Assets $2.623 trillion

256,000 employees

Consumer base of tens of millions – global brand and presence

IT capabilities

Proprietary technologies (e.g. Ethereum-based blockchain)

Value Propositions 🎁

The largest Bank in the US
World's third largest bank by total assets
World's most valuable bank by market capitalisation

In-depth knowledge of financial markets
Profitable assets and investment management
Retail banking deposit and withdrawals and mobile transactions

Customer Relationships ❤

Over 200 year history

Proven track record - Trust, Security and Tradition

Dedicated advisory teams specific to each client for intimate long-term relationships

Channels 🚚

Corporate Offices in over 60 countries

Operations in over 100 countries

Reports – business and markets insights

5,600 branches with over 16,000 ATMs nationwide in the US

Customer Segments ⚫

Consumer & Community Banking – small to mid-size enterprises and individuals living/operating within the US.

Corporate & Investment Banking – prominent corporate entities that seek advice on raising capital.

Asset & Wealth Management – institutional clients and very high net worth individuals (+ $5 million net worth) that seek high returns and expert advice on their investments.

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Cost Structure 🏷

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Revenue Streams 💰

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Appendix 2: Insights from Interview conducted

I reached out and connected with Gabe Eldred, Vice President of Mobile Product Management at Chase, via LinkedIn. I then conducted a one-hour phone call with Gabe, discussing his understanding of Design Thinking practices at Chase and their effectiveness as well as how practices at JPM have changed in the past four years. The insights from my one-hour phone call with him are as follows:

1. Each Partner and Product Manager has to participate in two weeks-worth of training per year, with a primary focus on collaboration and encouraging creativity and design thinking.
2. Four Years ago, when Finn was simply a concept, they had no real idea on what or who should be the intended audience and target market. They then did numerous trials and interviews and market scoping in order to try and break the empathy gap.
3. In the past four years, it has no been deemed necessary by Jamie Dimon that everyone involved in the business must immerse themselves in their intended users – for every product offering, especially in the retail space. This involves an annual nationwide trip by Dimon and the other C-Suite Execs to talk with staff and users to build empathy and understand as clear as possible where the value of the services needs to come from.
4. There is a very dynamic and collaborative working environment at Chase, especially in the mobile platform development teams – all work spaces are open, and feel like 'a design studio itself', with practices taken from agile technology companies, including lean sprint development of infrastructure and product testing.
5. Regarding product innovation, they roughly follow a What is? What if? What wows? And What Works? Framework, however, this was not explicitly referenced; this was the process flow that Gabe gave me and agreed with principles that I mentioned in reference to these Design Thinking practices.
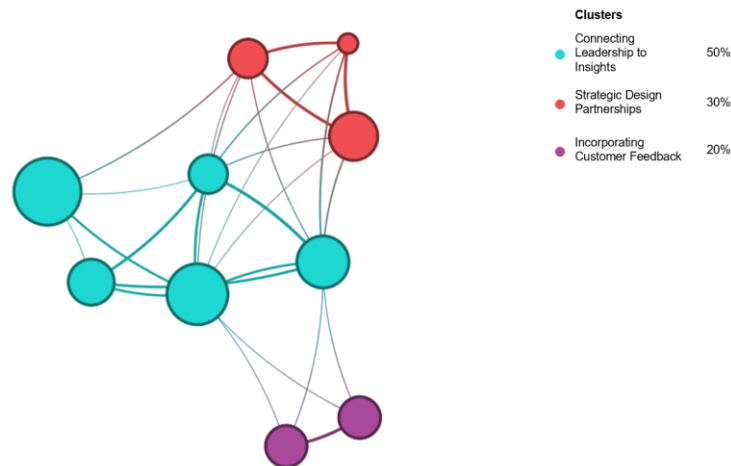
Appendix 3: Quid Searches

I have produced and analysed four Quid searches, three on Quid's News and Articles Database and one on the company's database. Finding a collective of 26 highly relevant and detailed articles to analyse and read through to uncover the Design Thinking practices at JPMorgan Chase & Company.

3.1 Search 1: "Jamie Dimon" AND ("design thinking") 25/01/2017 to 25/01/2019 (Mid & High Quality)

Cluster Network of Articles related to Design Thinking implemented at JPMorgan Chase & Co
News article network with 10 stories. Colored by clusters. Sized by sentiment positive score. Labeled by clusters.
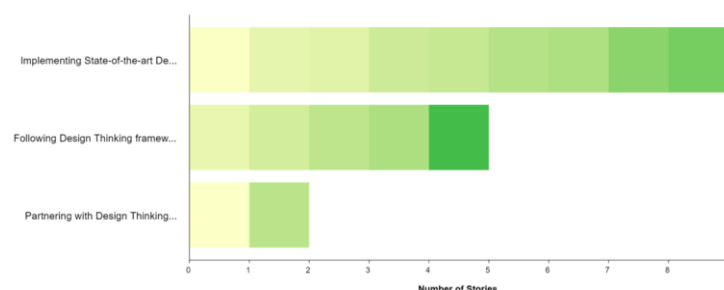
Clusters

●	Connecting Leadership to Insights	50%
●	Strategic Design Partnerships	30%
●	Incorporating Customer Feedback	20%

Source: Quid®

3.2 Search 2: "JPMorgan Chase" AND ("design thinking" OR "human-centered design" OR "human centred design" OR "strategic design" OR "service design") from 25/01/2018 to 25/01/2019

Bar Chart segmenting the different Sub-Categories of Design Thinking Initiatives
News article bar chart with 16 stories. Colored by sentiment combined score.

Implementing State-of-the-art De...

Following Design Thinking framew...

Partnering with Design Thinking...

Number of Stories

Source: Quid®

Sentiment Combined Score

0.45   1

3.3 Search 3: ("JPMorgan Chase & Co." OR "J.P.Morgan" OR "Chase") AND (Design OR "Design Think" *) No Filtering, Companies Database

Heat Map View Summarising JPMorgan Chase's Design Thinking Partnerships

Company heatmap showing 3 rows

	Clusters	Num. Companies	Founding Year Median	Inv. Rcvd. Count (sum)	Inv. Rcvd. Amt. (sum)	Inv. Rcvd. Amt. (median)	Inv. CAGR (2015 - 2018)
	Strategic Relationships with Software Development Specialists in Design	21	1999	33	$317.8M	$16.7M	-70.9%
	Partnerships with Design and Creative Market Research Agencies	17	2008	1	$0	N/A	N/A
	Creative and Strategic Consultant Partnerships	11	2010	7	$72.3M	$10.0M	N/A

Source: Quid®

Value
Low ▬▬▬▬▬▬▬ High

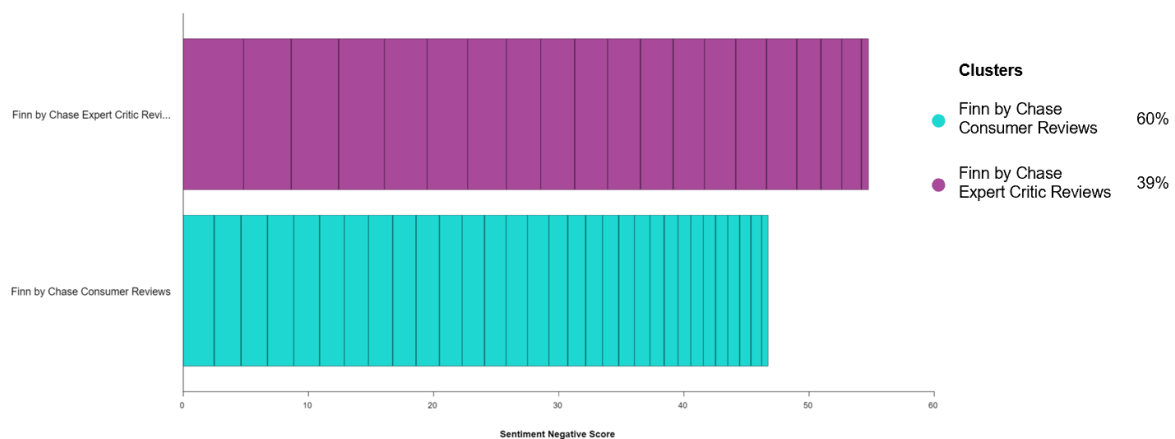**3.4 Search 4:** "Finn by Chase" from 01/09/2018 to 31/03/2019 (Mid & High Quality)

Negative Sentiment Score of 'Finn by Chase' in Articles

News article bar chart with 51 stories. Colored by clusters.

Clusters

● Finn by Chase Consumer Reviews — 60%

● Finn by Chase Expert Critic Reviews — 39%

Source: Quid®

3.5 Iteration of Searches

Search	Key Takeaways from the Search
"JPMorgan Chase" AND "design thinking"	As a preliminary investigation, I searched to see what quantity of data I was potentially working with on the articles database. I was satisfied with the quantity (150 stories) of data here and hence refined my search to reduce noise.
"JPMorgan Chase" AND ("design thinking" OR "human-centered design" OR "human centred design" OR "strategic design" OR "service design")	Here, the goal was to uncover as precise as possible information relevant to Design Thinking at JPM. I was left with 16 high quality stories that I could directly draw reference and insight from.
("JPMorgan Chase" OR "JPMorgan" OR "J.P.Morgan" OR "Chase") AND ("design thinking" OR "human-centered design" OR "human centred design" OR "strategic design" OR "service design")	Here, the goal was to see if adding synonyms of JPM to the search revealed even further connections to design thinking – it was, in fact, the case that this was not true and simply adding further noise to the search.
"JPMorgan Chase" AND "Jamie Dimon" AND ("design thinking" OR "human-centered design" OR "human centred design" OR "strategic design" OR "service design")	Furthermore, from preliminary researching, I have discovered how prominent JPM's CEO Jamie Dimon was with implementing Design Thinking at the organisation. Therefore I added his name to the search to see if specific examples and insights were provided
"Jamie Dimon" AND ("design thinking")	Furthering the search above, I refined and removed all statements that were in fact not contributing to the insights I wanted to draw (solely based on Jamie Dimon). Helping me to find 10 highly quality stories to further my understanding.
"JPMorgan Chase & Co." AND "Design Think*"	Here, the goal was to see if there was adequate data on the company's database to analyse and refine; I was happy with a 1k result base.
("JPMorgan Chase & Co." OR "J.P.Morgan" OR "Chase") AND (Design OR "Design Think*")	Here, I have added more specified terms to my company's database search, in order to reduce any non-value adding results and to uncover true connections to JPM (and subsidiaries) through design thinking.

3.6 Research Articles Collected from Quid Analysis (12)

I have collected a total of 12 high-quality and insightful articles and reports detailing Design Thinking practices related to JPMorgan Chase & Company and Finn by Chase specifically. The articles and reports are cited below:

Chaparro, F. (2018). *JPMorgan Chase launched an online bank for millennials called Finn, and I prefer it to the real thing*. [online] Business Insider. Available at: https://www.businessinsider.com/jpmorgan-chase-online-bank-finn-for-millennials-2018-7?r=UK&IR=T [Accessed 25 Jan. 2019].

Dimon, J. (2018). [online] Seeking Alpha. Available at: https://seekingalpha.com/article/4226297-jpmorgan-chase-and-co-jpm-ceo-jamie-dimon-presents-goldman-sachs-u-s-financial-services [Accessed 25 Jan. 2019].

Evans, M. (2017). *Conference: Design Thinking for Banks & Financial Services*. [online] MISC. Available at: https://miscmagazine.com/marcus-evans/ [Accessed 25 Jan. 2019].

Henry, D. (2018). *JPMorgan Chase takes smartphone account 'Finn' nationwide*. [online] U.S. Available at: https://www.reuters.com/article/us-jpmorgan-accounts-finn/jpmorgan-chase-takes-smartphone-account-finn-nationwide-idUSKBN1JO1MI [Accessed 25 Jan. 2019].

Macheel, T. (2018). *'We're living in the golden age of payments': How JPMorgan Chase is integrating payments into banking – Tearsheet*. [online] Tearsheet.co. Available at: https://tearsheet.co/payments/were-living-in-the-golden-age-of-payments-how-jpmorgan-chase-is-integrating-payments-into-banking/ [Accessed 25 Jan. 2019].

Marous, J. (2018). *Chase Commits To Long-Term 'Digital Everything' Strategy*. [online] The Financial Brand. Available at: https://thefinancialbrand.com/75286/chase-digital-mobile-banking-strategy/ [Accessed 25 Jan. 2019].

Najir, C. (2018). *Mobile banking at JPMorgan Chase: Q&A with Head of Design*. [online] Justinmind.com. Available at: https://www.justinmind.com/blog/the-future-of-digital-banking-experiences-according-to-jpmorgan-chases-head-of-design/ [Accessed 25 Jan. 2019].

Owens, L. (2018). *JPMorgan Chase: Putting Customers First in a Global Platform | Pega*. [online] Pega.com. Available at: https://www.pega.com/customers/jpmorgan-chase-co [Accessed 25 Jan. 2019].
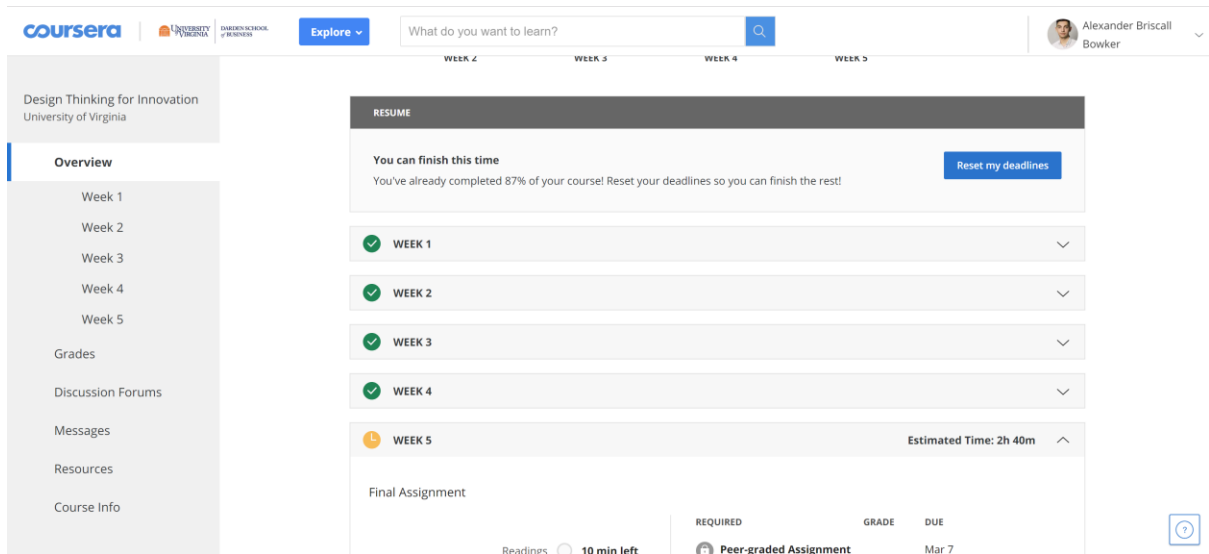
Ponce, R. et al. (2018). *JPMorgan Chase Partnership*. [online] Otterbein.edu. Available at: http://www.otterbein.edu/jpmorgan-chase-partnership.aspx [Accessed 25 Jan. 2019].

Turner, M. (2018). *There's a subtle shift underway at JPMorgan, and it shows how Amazon's influenced the Wall Street giant*. [online] Business Insider. Available at: https://www.businessinsider.com/theres-a-subtle-shift-underway-at-jpmorgan-and-it-shows-how-amazons-influenced-the-banking-giant-2018-4?r=US&IR=T [Accessed 25 Jan. 2019].

YouTube. (2018). *Artificial Intelligence Products with User-Centered Design | J.P. Morgan*. [online] Available at: https://www.youtube.com/watch?v=Ku8x1ina_N4 [Accessed 25 Jan. 2019].
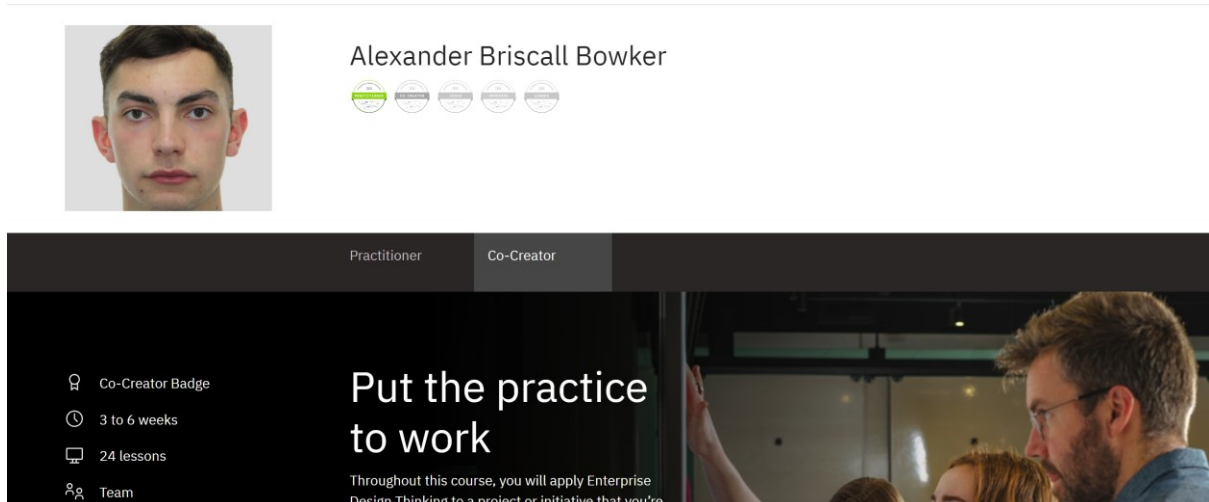
Appendix 4: Evidence of Utilising Online Design Thinking Resources

4.1 Evidence of Utilising Coursera Webinars

4.2 Evidence of Utilising IBM's Design Thinking Practitioner Program

References:

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