Weave Business Plan

Z0972973

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Abstract

This business plan was prepared with a view to procure funding of £50,000 from a business angel with experience in bring apps to market and building a user base.

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1 Executive Summary

Weave is a revolutionary new dating app that combines a machine learning algorithm with locative media to introduce you to people as you go about your day. Weave takes a current trend of personality-based dating to the next level, allowing users to build real connections with people in real life.

Weave was founded in September 2016 as a limited company. Weave is owned 90% by the founder, and the remaining 10% is owned by the two other developers. Three developers currently work on the app and a prototype has been completed. A limited test launch is expected in August 2017 in three UK university campuses and a full launch is scheduled for October 2017.

The aim of Weave is to bring the app to market successfully, and to grow the user base through a large advertising campaign, before selling the company in its entirety in early 2018.

There are no plans to implement any revenue producing features. Advertising appears very viable as the extensive information collected about users in order to match them could also be used to target advertisements. However, Weave believes that effort would be better spent growing the user base, and not risking turning users away with ads.

The greatest risks to Weave's success were identified as the risk of user privacy concerns making users wary of installing the app and giving away their personal data, and the risk of a leak of user data leading to large fines.

2 Company Profile

2.1 Business Overview

Weave is a mobile dating app that matches based on personality with minimal input from the user. Weave was established in September 2016 and an initial prototype of the app is complete.

Dating apps have long been focussed on looks and first impressions. Weave capitalises on the emerging counter-culture of personality-based dating services.

There is no such thing as scrolling through profiles, and first impressions are done in person. Weave's key value proposition for the user is a focus on in-person meeting.

Weave is designed from the ground up to minimise ongoing costs of business. The app is built around a peer-to-peer network, meaning every user acts as a server, minimising the number of centralised servers hosted by the business. Advertising is a very lucrative opportunity with Weave, as the match algorithm can also use the collected user data to "match" users to adverts.

2.2 How Weave Works

Weave's core is a machine-learning algorithm that connects two users based on how they answer a set of questions, and how they express themselves on social media. When the app is first installed, the user fills in questions and optionally gives Weave read-only access to their public social media accounts. Then, the user puts their phone away and goes about their day.

As the user walks around, Weave constantly looks for other users using Bluetooth¹. When another user is found, the phones automatically determine whether the users are a match. If they are, both phones vibrate and ask whether their user has time to talk to a match. If both users say yes, the phones guide the users together. This is the first time they have seen each other, and they still know nothing about each other. The users are encouraged to chat, and afterwards to rate the match. This rating is used to improve the machine learning algorithm automatically.

2.3 Company History

Weave was created in September 2016, after promising preliminary market research and a successful start to prototyping the app. Steven, the founder, quit his job and re-mortgaged his house to begin working on Weave full time. In February 2017, a programmer specialising in machine learning was hired to develop the underlying match algorithm. In late March 2017, an additional front-end developer was hired to work on the design and development of the user interface and user experience. Today, a working prototype of the app has been developed,

¹Bluetooth LE is the low-energy version of Bluetooth, meaning the app will consume minimal battery on the user's phone (Bluetooth SIG, Inc., 2017)

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demonstrating its functionality and design.

3 Business Analysis

3.1 Risk Analysis

A Risk Analysis was performed (see Appendix B.1) to identify major areas of risk in the business. The main risk identified was the risk of a security flaw in the app leading to a leak of user data. A leak of "personal data" can lead to a multi-million Euro fine under EU regulation (European Parliament, 2016).

This risk will be mitigated by following best practices in storing and transmitting private data, and by only storing the data on the user's device, which also reduces storage costs. A firm will be hired before the app launch to check for vulnerabilities in the app that could lead to a leak of user data.

3.2 Business Model Canvas

The Business Model Canvas completed in Appendix B.2 highlighted a number of key areas of focus, including the quality of the matches, keeping the app updated so that it works on as many user devices as possible, and keeping staff happy so that they don't quit, leading to a huge time loss in training new staff. A minimum viable product (MVP) was also established as an app which uses surveys to match users automatically with other users that are nearby.

3.3 SWOT Analysis

A SWOT analysis was performed in Appendix B.3. Weave's strengths extended to its low cost and ability to create great matches automatically. The main weakness identified was that users are not actively using the app for very long, and will stop using it once a match is made. Users' privacy concerns were identified as the main threat to Weave's success.

4 Market Research

Dating apps have exploded in popularity (McGrath, 2015), especially looks-based, Tinder-like apps (see Appendix C.3), based entirely on first impressions.

Since the launch of Tinder, a counter-culture has emerged, with apps being released that focus on building real connections with people (see Appendix C.4).

Indeed, physical looks were ranked as only the fourth most important trait in a potential mate, after kindness, exciting personality, and intelligence. Approximately 14% of males and 3% of females valued physical looks the most (Buss & Barnes, 1986).

4.1 Porter's Five Forces

The Porter's Five Forces analysis performed in Appendix C.1 revealed intense competition in the industry. The incredibly high fixed costs and almost zero variable costs lead to a market where every user is fought over. In addition, it was highlighted how much power Google and Apple have, with their ability to unilaterally adjust their revenue cut, or simply remove the app from their stores. There is also little stopping users from switching to another dating app. It is clear that in order to succeed, Weave must be the best, producing the best matches, and suiting the needs of its users.

4.2 PESTLE Analysis

A PESTLE analysis was performed in Appendix C.2. The analysis was dominated by a prevailing theme of explosive expansion in the industry, ubiquitous use of smartphones, and a social and physical environment ripe for Weave to capitalise on. The macro-environment is perfect for Weave to be introduced into.

4.3 Market Gap Analysis

A market gap analysis was performed in Appendix C.4. It is clearly evident the intense competition that has appeared in the personality-based dating app sector. However, it is also clear how Weave attempts to push farther than any other app, with its complete focus on personality.

4.4 Company Goals and Objectives

A number of milestones have been established to provide a time-line for the successful operation and launch of the app.

- By June, have the app developed to the point that it could be released. This will be achieved by continuing work within the team. Stop working remotely and rent an office to allow for better communication within the growing team.
- By July, fully prepare the app for launch. Focus groups must be conducted to determine how the design should be improved.
- By July, employ a marketing professional to work on the marketing surrounding the launch of the app.
- By August, launch the app in a small test environment, focussing marketing efforts on three university campuses.
- By October, redesign and improve the app based on feedback in the test environment. Expand the programming team and port the app to iOS such that it can be used on both major mobile operating systems. Officially launch the app with significant marketing efforts in universities around the country.
- In Early 2018, sell the business in its entirety to a 3rd party.

4.5 Vision and Mission

Weave aims to radically change what is expected from a dating app. Users should be so confident in the app's algorithm that they trust it over their own instincts. If Weave manages to bring together people that would never have given each other a second look, it has done its job.

4.6 Legal Structure

The business is structured as a limited company, to allow for greater protection in case of insolvency (Goode, 2011). This also allows the sale of shares, necessary for you to invest in the business and for offering equity to potential employees (Government Digital Service, 2017). As the exit plan for the business involves the sale to a third party, the shareholder's agreement contains a "drag-along" clause to allow for sale of 100% of the business (Investopedia, 2017).

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Staff currently own 10% of the business. To mitigate the risk of staff leaving and taking their shares, their work contracts contain a clause which makes them give up their shares should they leave before January 2018.

4.7 Location

Currently business is conducted entirely remotely to reduce operating costs with occasional meetings in cafÃl's and public areas. Weave aims to move to a modest office in June 2017 to accommodate new staff and bring the employees together physically before the test launch. Programming is easily done remotely but other activities such as marketing benefit from the close proximity of staff.

Weave's users will be spread all around the world. The app works best when many users are grouped closely together, so it will inevitably be more popular in cities and population centres. The initial test launch in August will concentrate on three UK university campuses to maximise the potential user concentration.

4.8 Intellectual Property

All of the code used in the app is automatically protected by copyright upon its completion (European Parliament, 2009). This provides legal protection from other apps copying the code or algorithms used in the app. The visual design of the app will also be automatically copyrighted separately, meaning that an exact visual clone of the app would be unlawful (UKCS, 2017b).

In the case that work is copied illegally, the costs of legal action may be prohibitive. To reduce the costs of legal action, the artwork and code will be registered with the UKCS, the UK Copyright Service. This means that in the case of legal action, the government has a verifiable copy of the work at the time it was registered (UKCS, 2017c). The cost of registering a work is £72.50 (UKCS, 2017a), and updating the work costs £19.50 (UKCS, 2017d). These costs are economical when considering the future inconvenience that is prevented.

Copyright does not prevent an app with similar functionality from being implemented, it simply provides legal recourse in case the exact implementation has been copied. A competing company could use "Clean Room Design", in which the app is reverse-engineered and reimplemented from scratch, to recreate the app

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without violating copyright (COMPUTERWORLD, 2001). However, they may still have violated the design rights, which cover the general look-and-feel of the app (UKCS, 2017b).

5 Personnel

5.1 Current Personnel

- Steven Lowes, Founder, Developer. Steven founded Weave in 2016 and currently works on implementing the user discovery functionality. His full CV is available in Fig. 1 on page 15.
- Kennard Upton, Back-end Developer. Kennard joined Weave in February 2017 and is developing the match algorithm. He has extensive experience in machine learning, working at Google to develop the advert targeting algorithm for YouTube. Ken took a lower salary along with a 7% share of the company to work for Weave. His full CV is available in Fig. 2 on page 16.
- Lindsey Bennett, Front-end Developer, Artist. Lindsey joined Weave in March 2017 and is developing the app front-end, user experience, and art style. Lindsey's most notable work is her part in the design of the front-end of BBC iPlayer. Lindsey took a lower salary along with a 3% share of the company to work for Weave. Her full CV is available in Fig. 3 on page 17.

5.2 Future Plans

- **Developers:** Weave aims to hire two additional developers after the test launch to work on a port of the app for iOS, allowing the app to run on Apple devices.
- Marketing: Market share is of utmost importance to Weave's functionality.
 With this in mind, a large marketing effort is planned before release. Weave
 will hire three marketing professionals to design and implement this campaign. A marketing firm could be hired additionally if a larger advertising
 effort is needed on short notice.

• Research: Before the full launch of the app, it is important that the user experience is designed with the users in mind. A two-man research team will focus on finding improvements for the app based on user feedback and focus groups. This team will also keep track of industry trends to provide strategic information guiding the company into the future.

5.3 External Personnel

Some tasks are needed so rarely that it does not make economical sense to hire an employee full time for that task. Expertise is therefore outsourced when needed to fill these roles. Situations in which external personnel are brought in currently extend to Accountancy and Legal services.

6 Branding and Marketing

6.1 Branding

Weave's name was chosen for a number of reasons:

- Taken literally, the app weaves its way through your life, and the interactions you have with other people.
- Weave promotes imagery of threads, akin to the 'thread of fate' spun by the Greek and Roman goddesses of fate. This focus on fate was meant as a tongue-in-cheek reference to the fact that Weave is there for you when fate/destiny falls short.
- Dating app names must be easily memorable and short. One-word names are the norm.
- The name is not used by any other major app.

Weave's logo is currently in development.

6.2 Advertising

A major source of public awareness of Weave will be word-of-mouth and chance encounters. Seeing people walking along, then pulling out their phones, turning around, and meeting someone will be so unusual that when that person eventually learns about Weave, they should remember that event, making the app immediately appear popular. In addition, the app is so unique that users will talk to their friends, demonstrating the new technology in use. The app is free to use, so the friends will likely install the app to try it too.

Of course, word-of-mouth will not be sufficient to build a user base. Weave envisions the advertising campaigns used to be a combination of formats. Examples of planned channels include articles in blogs, especially tech blogs, in addition to news-like sites such as BuzzFeed and maintaining a strong social media presence.

6.3 Markets Served

It is feasible that Weave, in some future incarnation, could serve as the main mechanism through which people discover potential partners. Indeed, a large user base is essential to the effective functioning of the app. However, it is understood that such a goal is impossible in the short-term, and that a more targeted approach is initially required.

6.3.1 Initial

The market that will be targeted initially is university/college students. This market was selected primarily for its incredibly high density of potential users. 91% of 18-44 year olds in the UK own a smart phone (Deloitte, 2017), and will be very densely packed on the university campus, meaning that the app will find more potential matches. University students are often prime romantic partners, due to them being single more often than other groups (Office for National Statistics, 2016), and having similar education levels, economic status, and of a similar age.

6.3.2 Future Plans

Those aged 18-24 are most likely to use online dating, but over one fifth of adults aged 18-44 use online dating (Smith & Anderson, 2016). Weave's archetypal user sits in this age range, is a busy professional with little time to spend sifting through profiles, and is put off by the superficial nature of other dating apps. However, the app could have a wide reach outside of this group, and will be tailored to the people that end up actually using the app through frequent focus groups and examining user data.

7 Finances

The start-up funds of £51,000 were investment by from the founder, which has been sufficient until now due to Weave's lean operation. In order to expand the company and bring the app to a test market, Weave is requesting £50,000 of investment from you in exchange for a 15% share of the company. It is expected that future investment of £300,000 will be sought before the full launch in October.

7.1 Revenue Streams

It is not expected that Weave will generate any revenue until after it is sold. There are various revenue streams available, such as targeted advertisements, which appear very lucrative (see Appendix E.2). However, Weave determined that taking the time to implement any revenue generating features would slow development and delay the app's launch, in what is a very fast-moving market (McGrath, 2015).

Weave understands that the most valuable part of the business is the user base, and there is little concern over the app's ability to turn a profit once the user base is established and the app entrenched in the industry. When 1 in 4 users only open an app once, and only 38% use it more than 10 times (O'Connell, 2016), Weave is wary of implementing intrusive ads that could turn users away. Weave's focus is decidedly on creating value rather than profit. Ignoring revenue streams until the app is established is a tried-and-tested route for dating apps (Barrie, 2015; Tepper, 2016; Grindr LLC., 2017).

8 Conclusion

Weave is unlike any other app and could change the way we think about meeting people, by matching users together with incredible accuracy and becoming the de-facto standard in the industry. The more popular Weave is, the better the underlying algorithm will be at picking the best match. There is unbounded potential for growth, and Weave has the opportunity to become the dominant force in the personality-based dating sector, which is heavily contested but with no real leader. Your investment has the capacity for huge returns in under one year, and will allow Weave to change the world.

Appendices

A Current Staff CVs

A.1 Steven Lowes

Steven Lowes is the founder and general Java developer for Weave. He owns 90% of the business. His CV is available in Fig. 1 on the next page.

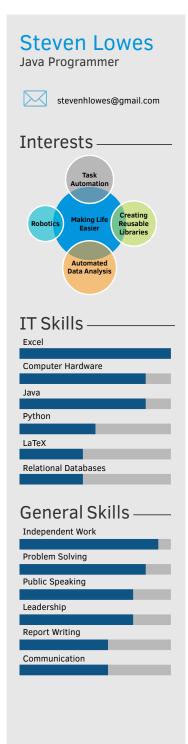
A.2 Kennard Upton

Kennard Upton is the machine learning expert at Weave, working on the underlying algorithm for the app. He began working at Weave in February 2017, after meeting Steven online and becoming interested in the app. He owns a 7% share of the business. His CV is available in Fig. 2 on page 16.

A.3 Lindsey Bennett

Lindsey Bennett is the front end designer and artist for Weave. She began work in March 2017, and owns a 3% share of the business. Her CV is available in Fig. 3 on page 17.

Figure 1: Steven Lowes' CV



Education

Expected Dec 2019 **BSc.. Computer Science Durham University** Durham, UK 2015-16 MEng., General Engineering **Durham University** Durham, UK (Not Completed) . Year 1 Grade: 2:2 Introduction to Programming Module: 89% • L1 Essay Competition: 1st Prize Founded Bureaucracy Society and got ratified, now has >10 members 2013-15 A-Levels Park View Sixth Form Chester-le-Street, UK Business: Distinction* Maths: A Physics: A Chemistry (AS): C · Created school radio station, lead team with hundreds of listen-· Completed Extended Project on Wind Turbine Efficiency 2008-13 **GCSEs** Park View School Chester-le-Street, UK 3x A*, 6x A: 6, 1x B, 1x C, 1x Distinction • Best in School — UKMT Maths Challenge • Ran a healthy eating campaign with Durham County Council

Experience

Dec 2017 -	
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Present Android developer

Weave

Worked on proximity based user detection and communication over Bluetooth.

Sep 2013 -Present

Excel, VBA, Java programmer

Lowes Financial Management

- Using Excel, worked unsupervised to create and deploy two tools for financial product data analysis
- One of the tools, the Autocall Backtester, has produced graphs and data that have been published in brochures for Lowes' financial products, and have been used in online newspapers on the topic.
- The latest version of the Backtester is written in Java features an SQL database backend and user-friendly GUI implemented using a library of my own creation to simplify GUI creation for similar projects.

Jul 2016 -Oct 2016

Java Programmer

E. Hall Tripe & Poultry Ltd.

- Worked from a brief to develop a logisitics system for the factory, which recorded orders and repeat orders, and performed the routing calculations for the delivery vans.
- My program saved over 10 hours per week of work, in addition to recovering lost revenue by recording customer debts where previously they were often forgotten.

Mar 2013 -Present

IT Technician

Administration & Accounting Services Ltd.

- · Designed and implemented on and off-site backup solutions
- Deployed new systems as needed unsupervised

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Figure 2: Kennard Upton's CV

Kennard Upton

Last Updated on 2nd May 2017

http://kennardupton.com kupton@gmail.com | 01207 235555

EDUCATION

CORNELL UNIVERSITY

MENG IN COMPUTER SCIENCE Dec 2014 | Ithaca, NY Cum. GPA: 3.94 / 4.0

BS IN COMPUTER SCIENCE

Dec 2013 | Ithaca, NY Conc. in Software Engineering College of Engineering Dean's List (All Semesters) Cum. GPA: 3.92 / 4.0 Major GPA: 3.94 / 4.0

LA MARTINIERE FOR BOYS

Grad. May 2011| Kolkata, India

LINKS

Github://kupton LinkedIn://kupton YouTube://kupton Twitter://@kupton Quora://kupton

COURSEWORK

GRADUATE

Advanced Machine Learning Open Source Software Engineering Advanced Interactive Graphics Compilers + Practicum Cloud Computing

UNDERGRADUATE

Information Retrieval
Operating Systems
Artificial Intelligence + Practicum
Functional Programming
Computer Graphics + Practicum
(Research Asst. & Teaching Asst)
Unix Tools and Scripting

SKILLS

PROGRAMMING

Over 50,000 lines:
Java • Shell • JavaScript • Matlab
OCaml • Python • Rails • MEX
Over 10,000 lines:
C • C++ • CSS • PHP • Assembly
Familiar:
AS3 • iOS • Android • MySQL

EXPERIENCE

WEAVE | MACHINE LEARNING SPECIALIST

Feb 2017 - Present | Durham, UK

GOOGLE | Machine Learning Engineer

Dec 2014 – Jan 2017 | Mountain View, CA

- Worked on the YouTube advertising targeting team in Java, to develop a
 machine learning algorithm to match users to the adverts that would appeal
 most to them.
- All code was reviewed, perfected, and pushed to production.

GOOGLE | SOFTWARE ENGINEERING INTERN

May 2013 - Aug 2013 | Mountain View, CA

- Worked on the YouTube Captions team in primarily vanilla Javascript and Python to plan, design and develop the full stack implementation of a new framework to add and edit Automatic Speech Recognition captions.
- Created a backbone.js-like framework for the Captions editor.
- All code was reviewed, perfected, and pushed to production.

RESEARCH

CORNELL ROBOT LEARNING LAB | HEAD UNDERGRAD RESEARCH

Jan 2014 – Dec 2014 | Ithaca, NY

Worked with Ashesh Jain and Prof Ashutosh Saxena to create PlanIt, a tool which learns from large scale user preference feedback to plan robot trajectories in human environments. Publication submitted.

CORNELL PHONETICS LAB | HEAD UNDERGRADUATE RESEARCHER

Mar 2012 - May 2013 | Ithaca, NY

Lead the development of Quick Tongue, the first ever breakthrough tongue-controlled game with Prof Sam Tilsen to aid in Linguistics research. Publication submitted.

AWARDS

2014	top 52/2500	KPCB Engineering Fellow
2014	2nd most points	Google Code Jam, Qualification Round
2014	1st/50	Microsoft Coding Competition, Cornell
2013	National	Jump Trading Challenge Finalist
2013	7th/120	CS 3410 Cache Race Bot Tournament
2012	2nd/150	CS 3110 Biannual Intra-Class Bot Tournament
2011	National	Indian National Mathematics Olympiad (INMO) Finalist
2010	National	Comp. Soc. of India's National Programming Contest

SOCIETIES

2014	top 12%ile	Iau Beta Pi Engineering Honor Society
2014	National	The Global Leadership and Education Forum (tGELF)
2012	National	Golden Key International Honor Society
2012	National	National Society of Collegiate Scholars

Figure 3: Lindsey Bennett's CV

Address

31 Bolinabroke Street Newcastle upon Tyne

LindseyBennett

Software Designer, Artist

Tel & Skype 0191 265 5269

Ibennett86

Experience

03/17 - Now App Designer, Artist

Mail

lindsey.bennett gmail.com

Web & Git Ibennett.net

Design and implementation of user environment, user experience optimisation, creating art assets for the Weave app.

01/12 - 02/17 Freelance Developer & Consultant

Design and development of Android Applications, Web Solutions, Unix and GNU/Linux software.

12/09 - 12/11 Project Manager and Web designer

BBC

Design, development and management of the iPlayer web frontend.

06/09 - 09/09 Internship

Atitlan Engineering SRL, Pisa, Italy

Management and migration of servers. Development of web templates and interfaces. Management of SQL databases.

Programming

bitbucket.org/lbennet86

github.com/lbennet86



Education

2009 - 2012 Master's Degree in Computer Engineering

Università di Pisa, Italy

Curriculum Networking and Multimedia.

Main subjects: Network Applications, Systems Architecture and Security, Mobile Applications, Multemedia Information Processing.

Title of the Thesis: "A Handoff Algorithm based on Link Quality Prediction for Mass Transit Wireless Mesh Networks"

Relators: Prof. Enzo Mingozzi, Ing. Carlo Vallati, Prof. Luciano Lenzini.

OS Preference

GNU/Linux **** Unix **** MacOS ★★★★ Windows ★★★★

2005 - 2009 **Bachelor's Degree in Computer Engineering**

Università di Pisa, Italy

Main subjects: Matematics and Physics, Programming, Operational Research, Telecommunication Systems, Digital and Analogical Electronics.

Title of the Thesis: "Development, Management and Migrations of web contents and applications'

Thesis activity carried out during an internship period at Atitlan Engineering

Personal Skills



Scientific Disploma. 2000 - 2005

Liceo Scientifico, Matera, Italy

Scientific Secondary School.

Main subjects: Mathematics, Physics, Computer Science.

Certifications

02/2013

Intro to Computer Science Building a Python Search Engine Udacity. E-learning

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B Business Analysis

B.1 Risk Analysis

Risk analysis is the process of examining the risks to a business, their likelihood, and their impact, and ensuring that there are adequate protocols for prevention of risks and recovery from impact. A complete risk analysis for Weave can be found in Table 1 on the following page.

B.2 Business Model Canvas

The business model canvas is a template for developing new business models, which guides new firms in formally describing their business model (Osterwalder, 2008). The completed business model canvas for Weave can be found in Fig. 4 on page 20.

B.3 SWOT Analysis

A SWOT analysis is a tool to aid in planning a business venture. It indicates areas for concern and opportunities for success. SWOT stands for Strengths, Weaknesses, Opportunities, and Threats (David, 2011). The full SWOT analysis can be found in Fig. 5 on page 22.

Table 1: Risk Analysis

Hazard	Impact	Likelihood	Risk	Recovery /
				r reparation
App does not fill	High: Nobody uses	Med: No demand for exact app	Mod	Pivot, use components
customer need.	the app.	but for personality focus.	INICA	for other purposes.
oct of and	Low: Server costs	Low: Chance of popularity		Secure funding or
App is coo	increase, but are	extreme enough to cause a	Low	add adverts to pay
populai	still insignificant.	problem is negligible.		server costs.
Staff member	High: Money & time	Low: Staff are invested in		Hire new staff or
quits before	cost of hiring and	the company and own stocks	Med	contractors to get
launch	training new staff.	so want the app to succeed.		MVP completed.
Arra coto	Mod. Dolar in onn	Med: Apps get rejected		Update the app
App gets	wed: Delay III app	often, and requirements	Med	so it meets
negoefai	ielease.	constantly change.		requirements.
$\mathbf{App} \mathbf{doesn't}$	Med: Varying Delay	Med: Issues in app code occur	Мод	Continue working
\mathbf{work}	in app release	often, but are rarely major.	INICO	on app as usual.
Sociinity Hour	High Extensive	Med: Staff are experienced		Encrypt all user
in one	ingii. Extensive	but the wealth of user data	High	data, hire pen-
шарр	usei uata iean	collected makes it a target.		$tester^2$ pre release.
Unable to procure	High I ong Dolay	I our. There are many courses		Release the
second round of	ingii. Long Long in opp completion	LOW. THE CALCINGARY SOURCES	Med	prototype with ads
funding	πι αρρ συπρισωσι	or randing.		and then update it.

² Penetration testers are companies that are hired to attempt to hack or otherwise gain access to companies/software and notify you of vulnerabilities. (Henry, 2012)

Figure 4: Business Model Canvas

Key Partners	Apple and Google run the app stores, take a percentage of revenue, and could delete the app if they are upset with anything. Weave staff are very important, training new staff in the codebase will take a long time. Amazon Web Services will provide server hosting, but other providers exist that can provide an identical service. Tech blogs, online newspapers, and Facebook communities will be vital in building brand awareness.
Key Activities	Advertising to increase the user base. Writing and updating the app, so that it can work an all devices. Improving the quality of the match algorithm to generate better matches. Looking into use data collected from the app to understand how users are using the app. Research and focus groups to understand user mentality and what users are looking for.
Key Resources	Code is most important resource Customer awareness and user-base Customer data can be used to target adverts and can be examined to help plan the future of the app.
Value Propositions	Completely automatic meetings with potential dates, where users have personality matches. Meet with people you would never have thought to talk to Find a partner/date/lover/friend MVP: App with questions to answer, notify the user when another user who answered the questions similarly is nearby.

Figure 4: Business Model Canvas Cont.

Customer Relations	Tech blogs, news-like sites, like BuzzFeed, Word of mouth will be important to build awareness. Ideally people will notice when a match happens in public. No customer relationships have been established so far.
Channels	YouTube sponsored content and sponsored celebrity endorsement increases brand awareness and trustworthiness. Advertising using Locative media could be effective. Facebook and other online ads News articles, tech blogs, online blogs
Customer Segments	Looking for a relationship Looking for friendship (maybe?) Teenagers, early-mid 20s are early adopters, and are likely to have access to and use smart phones.
Cost Structure	Staff salaries and advertising are the largest costs of business. This is due to the key activity of the business being to grow the user base. Server costs are minimal due to the peer-to-peer nature of the app.
Revenue Streams	In order to maximise user acquisition, no revenue streams are built into the product. Future versions of Weave could produce revenue through a number of streams such as adverts in the app, or a premium version of the app that will provide more features If Weave is sold to a larger player in the dating services industry, Weave could be provided as a free app linked to their main service, driving subscriptions to the main service.

Figure 5: SWOT Analysis

Strengths

Talented team, including specialists in design and machine learning Weave uses mostly p2p³ technologies, allowing server costs to be kept to a minimum

Weave integrates with the user's social media accounts to quickly understand more about the user
Weave runs in the background without requiring users to interact with it
Weave becomes more intelligent and will produce better matches over time

Weaknesses

Because Weave runs in the background, ads may be less effective in the app, as the user is actively using the app less often

At first, matches may not be perfect, as the algorithm takes time to improve If a match was successful, contact details are exchanged and the users are no longer using the app Team has no experience in legal issues or many other important aspects of the business. These must be outsourced.

Opportunities

Due to the amount of information Weave collects about users, adverts can be highly targeted.

The match algorithm is not constrained to the app as it is designed. It could be applied to other problems such as chat roulette

The idea of notifying users when another user is nearby, can be used as a basis for many other apps

Threats

Users are increasingly privacy concious and may be reluctant to share so much information (Lobel, 2015)

There are many personality-based dating apps, though all are small, and none as extreme as Weave⁴

³ p2p (peer-to-peer) is a class of technologies that involve the users' devices communicating with each other, as opposed to the devices communicating with a central server (Schollmeier, 2002).

⁴ This is likely due to the fact that Tinder dominates so much in the looks-based app market (see Fig. 8 on page 28)

C Market Analysis

C.1 Porter's Five Forces

Porter's five forces is a framework used to examine the effects of competition in an industry (Porter, 1979). The completed Porter's five forces analysis can be found in Fig. 6 on the following page.

C.2 PESTLE Analysis

PESTLE Analysis is a framework used to analyse the macro-environment surrounding an organisation, and assess the external factors that affect the business (CIPD, 2015). A completed PESTLE analysis can be found in Fig. 7 on page 25.

C.3 Competitor Analysis

There are a number of competing services available for singletons looking for love. Table 2 on page 27 describes some of the services that Weave will be competing against.

C.4 Market Gap Analysis

A Market Gap Analysis is used to plot competing services on two axes representing two values, with the service being plotted based on the extent to which it expresses the value represented on the axis. (King, 2007).

In Fig. 8 on page 28 see a Market Gap Analysis of the dating websites, apps, and services that appear in the competitor analysis (Table 2 on page 27). We plot them in terms of their Cost and whether they focus on matching people up based on looks or based on personality. This second measure is naturally qualitative, but was based on their promotional materials where no obvious indicator was present.

Figure 6: Porter's Five Forces Analysis

Entrv
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Threat

Creating a new app has a very low barrier to entry, but creating a quality app is much harder.

Dating apps rely on a large user base to be effective, which is costly to build An app costs almost the same no matter how

delete the app and leave

Weave helpless

Google or Apple could

Supplier Power

app costs annost the same no matter no many people use it
Distribution services are available to all app developers for a small fee

Competitive Rivalry

Weave to use any company

in particular

there is nothing forcing

from many companies,

Servers can be leased

There are lots of competitors to Weave.

The market is growing, but at a slower rate than was seen in recent years.

Large players can absorb any additional users without any problem

There are little variable costs so there is lots of competition for market share

Threat of Substitution

There are very many dating apps, and many are personality-focussed.

Buyer switching costs are low, only the time it takes to create a new profile. Many customers use multiple dating apps already. No competing products are completely free, but some are free with ads.

in the industry for good

programmers

Employees have a large

amount of bargaining power; there is a need

revenue leaving Weave

with no option but to

accept less revenue.

App distributors could

increase their cut of

Buyer Power

There are many more customers than there are apps, but no limit to the number of customers an app can have Customers would have to band together in order to affect change

Buyers are not price sensitive once a service is not free. Industry prices vary widely, and customers will pay for a good service.

firmly entrenched, there

is no opportunity to

vertically integrate

App distributors are

Figure 7: PESTLE Analysis

<u></u>	F	
Political	Economic	Social
Trade restrictions or tariffs are unlikely to affect mobile apps.	Interest rates are very low, meaning that it will be inexpensive to borrow ⁵ .	People lead much busier lives than they used to ⁸ , and will relish the opportunity
If the app becomes hugely popular, it could be	The economy is improving, and people have more	to filter through people automatically.
exploited by governments to	disposable income ⁶ .	People will often dismiss
control the flow of	The online dating industry	talking with others based on
information between people	is growing and was worth	first impressions ⁹ .
	£165m as of 2014^7	Dating apps and online dating
		are very trendy, with the
		stigma surrounding them
		slowly disappearing ¹⁰ .
		Smart phones are ubiquitous
		and tightly integrated with everyday life.

⁵ (Bank of England, 2016) ⁶ (Office for National Statistics, 2017) ⁷ (McGrath, 2015) ⁸ (WorkplaceTrends, 2015) ⁹ (Dobrin, 2013) ¹⁰ (Finkel et al., 2012)

Figure 7: PESTLE Analysis Cont.

	П	H
Technological	Legal	Environmental
The core algorithm is at the	Data protection laws dictate	Populations are increasingly
cutting edge of what is	how user data must be	concentrated in cities ¹³ .
possible. It is reasonable to	handled. For example, the	This high population density
assume that the algorithm	data cannot be personally	is perfect for Weave due to
will improve over time.	identifiable ¹¹ .	its reliance on users
Smartphones are very powerful	The app can be protected via	crossing paths.
and are growing more so over	copyright and design rights ¹² .	People are increasingly
time. The algorithm can		trying to reduce the role of
become more complex as the		technology in their lives ¹⁴ .
devices become more powerful.		For many, Weave will be a
		step too far.

11 (UK Government, 2017)
 12 (UKCS, 2017b; European Parliament, 2009)
 13 (United Nations, 2014)
 14 (Morrison & Gomez, 2014)

Table 2: Weave Competitors

Name	Unique Selling Point	Price	Type	Users (mil)
Weave	Talking in person	Free	$^{ m App}$	N/A
Tinder	Swipe to "Like"	$Freemium^{15}$ \$9.99/19.99/mo	App	50
(Tinder, Inc., n.d.)	Match when "Like" each other Only talk with matches	for add. features (Barrie, 2015)		(Biltong, 2014)
Bumble	Woman messages first	Fremium $\$9.99/mo$	Арр	-
(Bumble Trading Inc, n.d.)	24h window to start	for add. features	•	(O'Brien, n.d.)
	conversation	(Tepper, 2016)		
Match.com	"Match" visible on profiles	$£29.99/\mathrm{mo}$	Web	23.6
(Match.com, n.d.)		(DatingSitePrices, 2017)		(Statistic Brain, 2016)
OkCupid	Extensive Questionnaires	Freemium \$9.95/mo	Web	က
(OkCupid, 2017)	Get to know the real you	for add. features		(Dating Sites Reviews, 2016a)
		(Dating Sites Reviews, 2016b)		
Grindr	Location-based	Freemium \$11.99/mo	App	12
(Grindr LLC, 2017)	Gay Hookups	for add. features		(Grindr, 2015)
		and ad-free (Grindr LLC., 2017)		
Happn	Only people you are near	Free with ads	App	10
(Happn, n.d.)	in real life appear	(Edmunds, 2017)		(Shead, 2016)
Coffee Meets Bagel	One high-quality match	Freemium \$35/mo	App	2
(Coffee Meets Bagel, n.d.)	per day	for info about matches		(Ariav, 2016)
		(Moon, 2017)		
Her	Lesbian focus, dating	Freemium $$14.99$ /mo	App	1
(HER, n.d.)	app & social	for add. features		(Bearne, 2016)
	media combo	(Bloomer Inc., 2017)		
Professional	Better matches picked	\$5,000 - \$50,000	In-person	Unknown
Matchmaker	by real people	(Brooks, 2017)		

¹⁵ Freemium describes an app which is free by default, but where users can pay for additional benefits (BusinessDictionary, 2017).

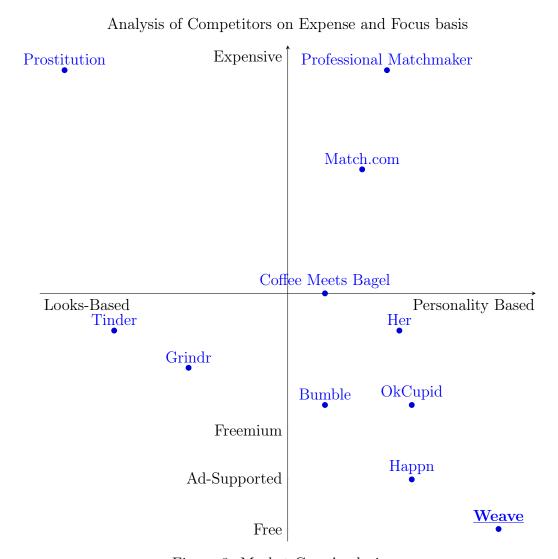


Figure 8: Market Gap Analysis

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D User Count Predictions

Table 3 shows the projected number of active users using Weave. The numbers were derived from a number of sources which can be seen in more detail in the table footnotes.

Table 3: Projected Number of Users (1,000s)

Month	Aug-17 16	Sep-17 ¹⁶	Oct-17 ¹⁷	Nov-17 ¹⁷	Dec- 17^{17}	$Jan-18^{17}$	Feb- 18^{17}	Mar-18 ¹⁷
Best-Case ¹⁸	6	18	20	150	350	650	850	1,000
Expected-Case ¹⁹	3	9	15	40	90	150	250	400
Worst-Case 20	1	3	5	8	10	8	12	20

¹⁶ These numbers are calculated as a percentage market penetration of a student population of 60,000, with final penetration percentages of 30%, 15%, and 5%.

E Finances

E.1 Cash Flow Forecast

Table 4 on page 31 describes the cash flow forecast and an overview of cash flow until this point. The table is split across the following two pages.

E.2 Potential Advertising Revenue

Table 6 on page 33 shows the ad revenue that the app could make, calculated as:

 $Monthly Users \times Monthly Impressions Per User \times Revenue Per Impression (1)$

The Monthly Users value is taken from Table 3. The Monthly Impressions per User will depend on how engaged with the app the users are, and the Revenue per Impression will depend on how well targetted the ads are. These values will be set separately for the best, expected, and worst-case scenarios.

¹⁷ These numbers are derived from usership numbers of competing dating services.

¹⁸ Numbers derived from those seen by Tinder during their start-up (Hackett, 2015).

¹⁹ Numbers derived from those seen by Happn during their start-up (Rappaport, 2015).

²⁰ Numbers derived from those seen by Match.com over the period Nov-13 - Jan-14 (Diffen, 2014).

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Note that these figures, the best-case figures in particular, are unrealistic. Realising these numbers would require every aspect of the business to follow the best-case scenario, with each aspect having a multiplicative effect on the outcome.

Table 4: Cash-flow History & Forecast (\mathcal{E})

Month Start Balance	Dec-16	Jan-17 960	Feb-17 960	Mar-17 47,760	Apr-17 41,860	May-17 85,760	Jun-17 79,860	Jul-17 59,760	Aug-17 38,600
Receipts Director investment	1,000	ı	50,000	ı	ı	ı	1	ı	1
Equity Investments	. 1	ı	. 1	ı	50,000	ı	ı	ı	ı
Total Receipts	1,000	I	50,000	I	50,000	1	I	1	ı
Pre-Expenditure Balance	1,000	096	50,960	47,760	91,860	85,760	79,860	59,760	38,600
Expenditure									
Equipment Purchases	ı	ı	1	ı	1	1	10,000	2,000	ı
Office supplies	1	ı	1	1	ı	1	300	100	100
Premises repairs and maintenance	,	1	1	,	1		200	200	200
Advertising/Marketing			1		1				6,000
Webpage design	ı	ı	1	ı	ı	1	200	1	ı
Rent	ı	ı	ı	ı	ı	ı	1,500	1,500	1,500
Full-time Wages	ı	ı	3,200	5,900	2,900	2,900	5,900	9,400	9,400
Contractors	ı	ı	ı	ı	200	ı	200	200	200
Focus Groups	1	1	1	1	1		,	000,9	3,000
Communication ²¹	ı	ı	1	ı	1	1	200	200	200
Utilities	ı	ı	ı	ı	ı	1	300	350	350
Content insurance			1		1		100	100	100
Webpage maintenance	ı	ı	1	ı	ı	1	ı	10	10
Copyright Fees	ı	ı	ı	ı	1	1	ı	200	100
Company registration fee	40	ı	ı	ı	ı	1	1	1	ı
Total Expenses	40	ı	3,200	5,900	6,100	2,900	20,100	21,160	22,060
Net Closing Balance	096	1	46,800	-5,900	43,900	-5,900	-20,100	-21,160	-22,060

 21 Communication encapsulates all bills relating to communication, including telephone and internet.

Table 5: Cash-flow History & Forecast Cont. (\mathcal{E})

Month	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	T_{0}
Start Balance	16,540	277,330	233,430	170,930	117,230	66,830	19,430	LOCAL
Receipts								
Director investment	ı	ı	1	ı	1	1	1	51,000
Equity Investments	300,000	ı	1	1	1	1	1	350,000
Total Receipts	300,000	ı	ı	1	ı	ı	ı	401,000
Pre-Expenditure Balance	316,540	277,330	233,430	170,930	117,230	66,830	19,430	
Expenditure								
Equipment Purchases	4,000	1	2,000	2,000	1	ı	1	20,000
Office supplies	100	100	100	300				1,100
Premises repairs and maintenance	200	200	200	200	200	200	200	5,000
Advertising/Marketing	5,000	20,000	30,000	20,000	15,000	15,000	15,000	126,000
Webpage design	4,000	1	1	1	1	1	1	4,500
Rent	1,500	1,500	1,500	1,500	1,500	1,500	1,500	15,000
Full-time Wages	16,500	16,500	20,000	24,000	24,000	24,000	24,000	194,600
Contractors	200	4,000	4,000	4,000	5,000	5,000	5,000	29,200
Focus Groups	000,9	1	3,000	1	3,000	1	3,000	24,000
Communication	200	200	200	200	200	200	200	5,000
Utilities	400	400	200	200	200	200	200	4,300
Content insurance	100	100	100	100	100	100	100	1,000
Webpage maintenance	10	200	200	200	200	200	200	1,230
Copyright Fees	100	100	100	100	100	100	100	1,000
Company registration fee	ı	ı	ı	1	1	1	ı	40
Total Expenses	39,210	43,900	62,500	53,700	50,400	47,400	50,400	431,970
Net Closing Balance	260,790	-43,900	-62,500	-53,700	-50,400	-47,400	-50,400	$-30,970^{22}$

 22 The forecast ends with a negative balance. Weave hopes to sell the business before this stage, but additional funding could be procured externally, or through advertising in the app, in order to keep the business afloat.

Table 6: Potential Monthly Advertising Revenue (£1,000s)

Month	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Best-Case 23	46	138	153	1,148	2,680	4,975	6,506	7,654
Expected-Case ²⁴	23	69	115	306	689	1,148	1,914	3,062
Worst-Case 25	8	23	38	61	77	61	92	153

²³ The ad impressions per user per month is set at 1,350. This figure is based on the average user spending 45 minutes per day on the app, half of what is achieved by Tinder (Biltong, 2014), and navigating to a new page every 1 minute. The revenue per 1,000 impressions is equal to that of Facebook, at £5.67 (Gotter, 2017). This is achievable due to the extensive targetting information Weave collects about users.

²⁴ The ad impressions per user per month is set at 450. This figure is based on the average user spending 30 minutes per day on the app, and navigating to a new page every 2 minutes. The revenue per 1,000 impressions is set at £3.00, which is on the high end of a non-targeted site with Google adsense (Maier, 2013).

²⁵ The ad impressions per user per month is set at 150. This figure is based on the average user spending 10 minutes per day on the app, and navigating to a new page every 2 minutes. The revenue per 1,000 impressions is set at £1.00, which is on the low end of a non-targeted site with Google adsense (Maier, 2013).

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