

THE KEY

FUTURE CHALLENGE & MINDSET
BUSINESS VIABILITY STUDY



TEAM 4

Lavinia Arl
Christianne Bakker
Elena Bergmann
Matt Hamilton
Floris Hondmann
Luna Lannoy

Table of Contents

1.	About Mental Wellbeing	5
2.	History of Mental Wellbeing	6
3.	Technology Research	7
3.3.	<i>Artificial Emotional Intelligence</i>	<i>7</i>
3.4.	<i>Health Care Industry</i>	<i>8</i>
3.5.	<i>Costs of the Algorithm.....</i>	<i>11</i>
4.	Ethics Research	12
5.	NHS App Library Research	14
6.	Future Context Research	15
7.1.	<i>Education</i>	<i>15</i>
7.2.	<i>Society.....</i>	<i>15</i>
7.3.	<i>Impact of the Emerging Solution.....</i>	<i>15</i>
8.	Interviews	17
8.1.	<i>Master Student Clinical Physician</i>	<i>17</i>
8.2.	<i>Student Counsellor, Wellbeing Advisor, and Psychotherapist.....</i>	<i>19</i>
8.3.	<i>Personal Development Coach</i>	<i>21</i>
8.4.	<i>Consciousness Coach.....</i>	<i>22</i>
11.	Updated Business Model Canvas	25
12.	Target Market	26
12.1.	<i>Market Base and Customers</i>	<i>26</i>
12.2.	<i>Personas.....</i>	<i>26</i>
12.3.	<i>Market Size Increase</i>	<i>27</i>
13.	Competition and Differentiation	28
13.1.	<i>Competitors.....</i>	<i>28</i>
13.2.	<i>Differentiation.....</i>	<i>29</i>
14.	App Design	30
15.	Customer Journey	36
16.	Marketing Strategy	37
16.1.	<i>Marketing Timeline</i>	<i>37</i>
16.2.	<i>Communication Strategy</i>	<i>41</i>
16.3.	<i>Marketing Materials</i>	<i>42</i>
16.4.	<i>Brand Awareness Metrics</i>	<i>43</i>
16.5.	<i>Determined Partnerships</i>	<i>43</i>
16.6.	<i>PESO Model.....</i>	<i>38</i>
16.7.	<i>Gantt Chart</i>	<i>39</i>
17.	Online Channels	40

17.1.	<i>Social Media</i>	40
17.2.	<i>Website</i>	40
19.	Finances	43
19.1.	<i>App Development</i>	43
19.2.	<i>Market Share and Pricing</i>	44
19.3.	<i>Investment and Breakeven Analysis</i>	46
19.4.	<i>Marketing Costs</i>	49
20.	Crisis Management	52
21.	International Expansion and Growth Strategy	54
	Bibliography	57

Table of Figures

Figure 1: Views and studies on wellbeing through time	6
Figure 2: Three crucial components for emotions in AI	7
Figure 3: App ethics.....	12
Figure 4: NHS Digital Assessment Questions (DAG): Roadmap for developers	14
Figure 5: Updated Business Model Canvas	25
Figure 6: Market base and customers.....	26
Figure 7: Target app downloads and subscribers in 5 years: adding value by increasing market size.	27
Figure 8: App 30-day retention by primary incorporated technique.....	29
Figure 9: The Key app design prototype.	30
Figure 10: Customer journey from awareness to post purchase.....	36
Figure 11: Marketing strategy timeline: phases and events.....	37
Figure 12: Potential locations for guerrilla marketing campaign.....	38
Figure 13: Marketing flyer hand-out.....	42
Figure 14: Marketing promotional T-shirt and sticker hand-out.	43
Figure 15: PESO Model (Paid, Earned, Shared, and Owned Media).	38
Figure 16: Marketing strategy Gantt Chart	39
Figure 17: Effect of stickiness and share of profits from free and paid versions of the app	41
Figure 18: How The Key app increases engagement rates.	42
Figure 19: App development costs throughout 5 years.....	43
Figure 20: Data storage costs throughout 5 years	43
Figure 21: Users market share throughout 5 years.	44
Figure 22: The Key subscription prices for users.....	44
Figure 23: Potential strategies for seed venture funding.	46
Figure 24: Investment analysis throughout 5 years.....	47
Figure 25: Breakeven analysis chart from pre-launch to 5 years.....	48
Figure 26: Total marketing costs and expenses breakdown from pre-launch to post launch and ongoing costs for the following years	49
Figure 27: Number of people with mental health disorders, 2016.....	54
Figure 28: More than one in six people in EU countries have a mental health problem	54
Figure 29: Pros and cons of potential expansion countries	55
Figure 30: Estimated direct/indirect costs related to mental health problems across EU countries	56
Figure 31: Summary of expansion timeline.	56

1. About Mental Wellbeing

“Mental Health is the structure that influences how we think and feel about ourselves and others and how we interpret events. It affects our capacity to learn, to communicate and to form, sustain and end relationships. It also influences our ability to cope with change, transition and life events.”

Dr. Lynne Friedli, 2004.

Mental wellbeing is a prevalent concern in today's society, and young adults are commonly the most at risk and have less power over the outcome of their future mental health. It is crucial to support those at risk to understand, protect and sustain their mental wellbeing. Left unchecked, poor mental wellbeing will hinder individual lives and have a catastrophic effect on the national economy.

The terms mental health and mental wellbeing are commonly confused. They are not the same, but they do influence each other. Mental wellbeing is our overall long-term mental state, changing day by day, moment to moment (Mind, n.d.; CABA, n.d.). Good mental health is not just the absence of a mental illness, but low mental wellbeing for a prolonged period of time can cause diagnosable conditions (Everymind, n.d.; CABA, n.d.). As well as the other way around; a mental health condition can cause lower mental wellbeing more often, but it does not mean the individual is not able to maintain good mental wellbeing for longer periods (CABA, n.d.).

Currently, mental health disorders account for 13% of the total global burden of disease (Mental Health Foundation, 2016). Furthermore, by 2030, these disorders will become among the leading causes of mortality and morbidity worldwide and could cost our global economy about 16 trillion US dollars by 2030 (Mental Health Foundation, 2016; World Economic Forum, 2019). According to the Mental Health Foundation (2016), “young adults aged 26 to 24 were found less likely to receive mental health treatment than any other age group”. Moreover, students experiencing mental health problems have to wait up to 3 months to receive help from their universities, while since 2010, mental health issues have increased 5 times across campuses in the UK (McLaughlin, 2020). These startling statistics reflect the high concern for tackling mental wellbeing during a crucial phase in life for newer generations, since it can be a rather confusing stage in life that causes frustration for young adults and leads to anxiety, depression, and worst-case scenario, taking away their own life. An increase in electronic communication affecting social interaction and mood disorder is a common cultural trend affecting mental health (APA, 2019).

Within the UK, the third most common cause of sick leave was related to common mental health issues, such as anxiety, depression, and stress, as well as more serious problems (Mental Health Foundation, 2016). In fact, an estimated 1 in 6 adults experience a common mental health problem every week, mainly anxiety or depression, and 1 in 5 adults have considered taking their own life at some point (Baker, 2020; Mental Health Foundation, 2016). General anxiety disorders are suffered by 6 in 100 people in the UK, and 3 in 100 people suffer depression (Kirk, Scott & Wilson, 2019).

Some might argue that the increase in percentages of mental-health-related issues is due to people being more willing to report, admit and openly have a conversation about it. Although, as previously mentioned, 21st Century life involving social media influences, digital media interference with daily activities, and rising expectations of life aspirations, as well as economic uncertainty, are seen as possible causes driving this rise (Brown & Triggler, 2018; APA, 2019).

2. History of Mental Wellbeing

ANCIENT GREECE		<p><i>Socrates</i>: happiness is what the gods possess.</p> <p><i>Plato</i>: humans acquire wellbeing through the process of learning self-control.</p> <p><i>Aristotle</i>: happiness is the aim of life through goods of the soul and the body, and external goods.</p> <p><i>Zeno and Epicurus</i>: wellbeing is a private state, independent from external conditions, and ours to control.</p>
17TH – 18TH CENTURY		"Wellbeing and happiness is pursued by doing good."
19TH CENTURY		<p>"Pursuit of happiness and wealth are the same."</p> <p>"Wellbeing must be extended to all: unless all were happy, none could be happy."</p> <p>Mental health highly associated to noticeable mental and physical illness.</p>
19TH → 20TH CENTURY		Psychologists begin to think about the internal rather than external driver of wellbeing. The term "mental health" was popularized, replacing "mental illness".
20TH CENTURY	1925	Psychological research emerged on emotional experiences and positive mood.
	1930s	Rise of social indicators movement to measure wellbeing.
	1938	Longest-running study on human development studying physical and psychological traits of social life and IQ, published by Harvard University in 2012.
	1950s	Focus on physical health (post WWII and invention of antibiotics).
	1960s	Focus on social and intellectual wellbeing (social revolution). Increase in acceptance of different lifestyles and civil rights of individuals.
	1970s	Interest of economics in wellbeing research emerged. Development of the scientific concept on the stigma of mental disorders, and blame on psychiatry for being repressive, coercive and damaging on attitudes towards mental health.
	1980s	Era of economic prosperity and financial wellbeing. Decrease in acceptance of different lifestyles and higher importance of economic wellbeing.
	1990s	Focus on emotional and physical wellbeing through the rise of popular psychology, self-help, and regular exercise and health checks.
21ST CENTURY	2001-2005	Rise in analytical data and discussion on life satisfaction, happiness and wellbeing.
	2010	Socially low acceptability to openly discuss mental wellbeing and health.
	2012	79 countries in the General Assembly of the UN signed the Bhutan Agreement: the goal of a country is to enhance the wellbeing and happiness of its people. First data set published looking at aspects of wellbeing in the UK.
	Modern day	Improvement of stigmatizing attitudes toward mental health is more prevalent in younger generations, but some public attitudes remain unchanged. Holistic approach on personal wellbeing: inside and outside self-fulfillment.

Figure 1: Views and studies on wellbeing through time (Beech, n.d.; Borinstein, 1992; McDaid, 2014; Rössler, 2016).

3. Technology Research

3.3. Artificial Emotional Intelligence

3.3.1. Background Information

Artificial emotional intelligence (AEI) is a subset of AI and people refer to this technology often as affective computing (Cox, 2018; Jarboe, 2018; Luxton, 2016; Somers, 2020). This technology focuses on recognizing emotions of users by machines and implementations of technology. The main goal is for machines to have the ability to understand one's emotions (Luxton, 2016). AEI can “recognize, interpret, process, and stimulate human emotions and feelings” (Jarboe, 2018; Somers, 2020). To do so, deep learning algorithms are developed that detect emotions by a combination of facial expression analysis, body language, voice pattern and tone of voice analysis, physiological signals, eye movements, and deep learning (Kleber, 2018; Krakovsky, 2018; Whelan et al., 2018).

3.3.2. Market

Furthermore, research shows that it is expected that the market of affective computing will be worth \$41bn in 2022 (Business Wire Inc., 2017; Cox, 2018; Kleber, 2018). Also, technology is developing at a very high rate. Therefore, it is likely that all technologies surrounding us will have emotions in the next five years (Kaliouby, 2017).

3.3.3. Three Components

There are three crucial components when implementing emotions into AI, namely emotion recognition, emotion generation and emotion augmentation. These components can be seen below.

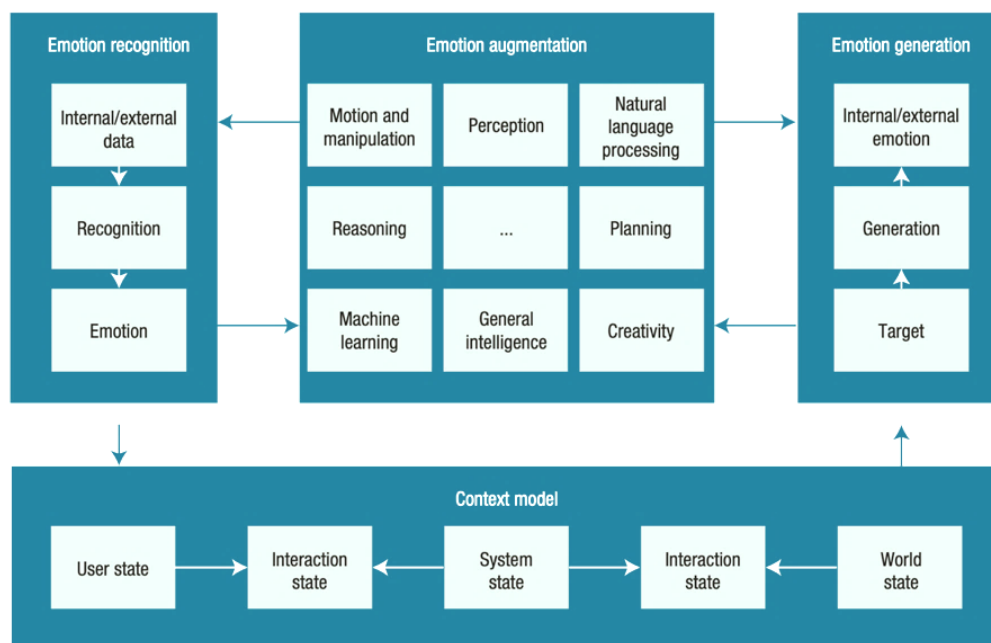


Figure 2: Three crucial components for emotions in AI (Schuller & Schuller, 2018).

3.3.4. Data Collection

When enough data about an individual or user is collected, researchers and experts are enabled to perceive aspects of this individual or user. Information from different time points even allows researchers and experts to make predictions about someone's life. Therefore, collecting data from users of an intelligent machine create several opportunities, as experts can provide help with "potential medical problems before they happen" (Poulin, Thompson, & Bryan, 2016).

There are six different steps in data collection, which is also known as the data workflow. The steps are collection, storage, processing, query, reporting and intervention. This specific workflow is used in the Durkheim Project, and it focuses on an application that prevents suicide (Poulin, Thompson, & Bryan, 2016).

3.4. Health Care Industry

3.4.1. Before, Now, and the Future

Before

Research shows that the first successful implementations of AI in the healthcare were expert systems, which were implemented in clinical decision support systems, also known as CDSS (Jackson, 1998; Luxton, 2014a) Two examples are the MYCIN from Stanford University in the 1970s and the DIAGNO by Colombia University between the 1960s and 1970s (Shortliffe, 1976; Bennett & Doub, 2016).

After this, machine learning algorithms were introduced and implemented in the AI and CDSS systems. Because of this, the implementation of AI went from knowledge-based to a more thinking-based technology. An example of this is Watson by IBM (Bellazzi & Zupan, 2008; Beer, 2000; Bennett & Doub, 2016).

Now

Right now, AI is still used in CDSS, and because of the development of the technology, it is now referred to as temporal modelling. This is a more dynamic way to collect information. Before, data was collected at one specific time point. With temporal modelling, information is collected across multiple decision timepoints (Bellazzi & Zupan, 2008; Beer, 2000); Boulesteix, Porzelius, & Daumer, 2008; Bennett & Doub, 2016). Furthermore, the implementation of AI in technology creates an opportunity for consumers for real-time monitoring. Users can adapt the product to their preferences, based on the collected personal data. Also, these users are provided with evidence-based treatments (Luxton et al., 2016).

Future

In the future, AI will be developed as cognitive computing technology. AI and CDSS tools will be aligned and simplified with the clinical environment. Also, the technologies will keep improving and become "smarter", (Modha et al., 2011; Bennett, Doub, & Selove, 2012; Bennett & Doub, 2016). According to Schuller & Schuller (2018), AEI needs to be seamlessly integrated into AI. This will make affective computing not addition on AI anymore, but an integrated part. The accuracy and efficiency of intelligent machines will keep improving over time, which enables self-care tools to become highly interactive (Luxton et al., 2016).

3.4.2. Expected Impact

According to Luxton (2016), AI is creating a paradigm shift for behavioural and mental health care. This technology can solve several problems and challenges that are facing in the health care industry. AI will make the health care systems more efficient and of higher quality, which results in more advancements of the technology in the industry.

Furthermore, users of self-care tools will create more interest in the technologies, as it is perceived that these tools do not have a personal bias, while traditional therapists may have this. Also, research shows that these users will experience less anxiety when personal issues are discussed. Consumers will feel more comfortable communicating with virtual humans regarding their personal issues than they will be traditional professionals (Gratch et al., 2007; Kandalaft et al., 2012; Lucas et al., 2014). The main reason for these experiences and feelings of consumers is that virtual humans have more time for them, as well as it is perceived that these virtual humans are more friendly (Bickmore et al., 2010; Luxton, 2016).

3.4.3. Challenges

Ethics and Privacy

When designing products with implementation of AI in the healthcare industry, some several issues and risks need to be considered which can impact “patient privacy, safety, autonomy, and trust” (Luxton, Anderson, & Anderson, 2016). Therefore, existing legislations, laws and requirements must not be violated. Ethics and privacy aspects are crucial to be considered (Luxton, Anderson, & Anderson, 2016), (Kaliouby, 2017; Whelan et al., 2018). This can be done by ensuring that already existing ethical standards are followed. The foundation of the medical ethics consists out of four aspects, namely “respect for autonomy, beneficence, nonmaleficence and justice” (Gillon, 1994; Luxton, Anderson, & Anderson, 2016).

When AI is used as a CDSS tool, they need to be presented as a decision-assistant and not as the decision-makers. Regarding privacy, patient privacy must be included in the entire development process (Bennett & Doub, 2016). Also, data collection and data security must comply with regulations. Nevertheless, the implementation of AI is still innovation and therefore, not all the ethical guidelines are adapted to this. Therefore, when designing intelligent machines, everything must be compliant with the existing “patient safety protocols, standards and procedures” (Anderson, 2011a, b). Also, developers need to be proactive to address accruing issues and create new ethical guidelines. Lastly, trust from the patients will be created based on respect and dignity (Moore & Unsworth, 2005), (Luxton et al., 2016). Also, transparency is needed to create this trust and consents from users are needed for the data collection (Poulin, Thompson, & Bryan, 2016).

Artificial Emotional Intelligence

Several implications are fundamental to address when creating an algorithm for AEI and when implementing AI in the behavioural and mental health care. The main goal is to develop machines that are serving peoples well-being. This needs to be done in a “fair and ethical manner” (Luxton, 2016). Schuller & Schuller (2018) state that AEI needs to be auditable, accountable, explainable, reliable and responsible.

Bias

Furthermore, the bias of the algorithm and technologies can be seen as a challenge (Kaliouby, 2017; Whelan et al., 2018). To create an unbiased AEI algorithm, it is necessary to use a diverse input of data sources and data points. Also, it is needed that diverse teams create the algorithm; only diversity in gender and ethic is not enough. Diversity in “socioeconomic status and view – negating anything from xenophobia to homophobia to ageism” is needed to minimize the bias of the technology (Purdy, Zealley, & Maseli, 2019). To create an algorithm which is validated, data needs to be used from a significant population, but also reliable data needs to be used (Luxton et al., 2016).

3.4.4. Benefits

Artificial Intelligence (AI) is a technology development that has been applied to several industries, as well as in the behavioural and mental health care. Benefits of the implementation of AI in the healthcare are for example, “computing methods for learning, understanding, and reasoning can assist healthcare professionals with clinical decision-making, testing, diagnostics and care management” (Luxton, 2016). When AI is applied into the healthcare, it creates better efficiency, accuracy and reliability when professionals have to complete complex tasks (Bindoff et al., 2011; McShane et al., 2012; Luxton, 2016).

Furthermore, this implementation can help with the advancement of self-care tools that patients and consumers can use. This will be mostly for people that are interested in “self-treatment or health-related information” (Luxton, 2016). These tools can help users with monitoring their health and achieving personal health-related goals.

According to Luxton (2016), the implementation of AI in mental health services will have great economic benefits, as it will decrease the costs. One can issue that technology will harm the job market in the health care industry. Nevertheless, in the past, the advancements of AI and other technologies in health care created great economic opportunities. Furthermore, these implementations will have a positive impact on all stakeholders, as well as the whole healthcare system (Luxton, 2014a).

With the implementation of AI, machines will have the ability to make customized health recommendations. This is done based on evidence from data and algorithms. Consumers will be provided with personal approaches based on their “profile, preferences, or treatment preferences” (Luxton, 2016).

According to Rucker (2020), AEI in health care can be a “game-changer”, as this technology helps to bring psychotherapy to more people. Ramesh (2019), states that using AEI in the “mental health awareness space” will be off added value because when emotions are identified at the right time, mental breakdowns and stress-related traumas can be minimized.

Furthermore, the algorithms are likely to be unbiased, although developers need to make sure that the algorithm is programmed that way. Also, researchers have developed a way to use data to detect depression, as emotions are something that can be measured (Krakovsky, 2018).

3.4.5. Design of AI in Healthcare

When designing AI implementations in healthcare, the information must be delivered from a decision-assistant point of view, instead of a decision-maker point of view (Bennett & Doub, 2016). These AI

self-care tools need to be integrated seamlessly into the daily lives of users. For this, it is needed to design the products with a user-centred view (Luxton et al., 2016). To create user-centred design, one can use the PACMAD (People at the Centre of Mobile Application Development) usability model. This model consists out of seven components: effectiveness, efficacy, satisfaction, learnability, memorability, errors and cognitive load (Harrison, Flood, & Duce, 2013).

3.5. Costs of the Algorithm

To minimize the costs to make and improve the algorithm, it is best to have a partnership with a company that already developed it.

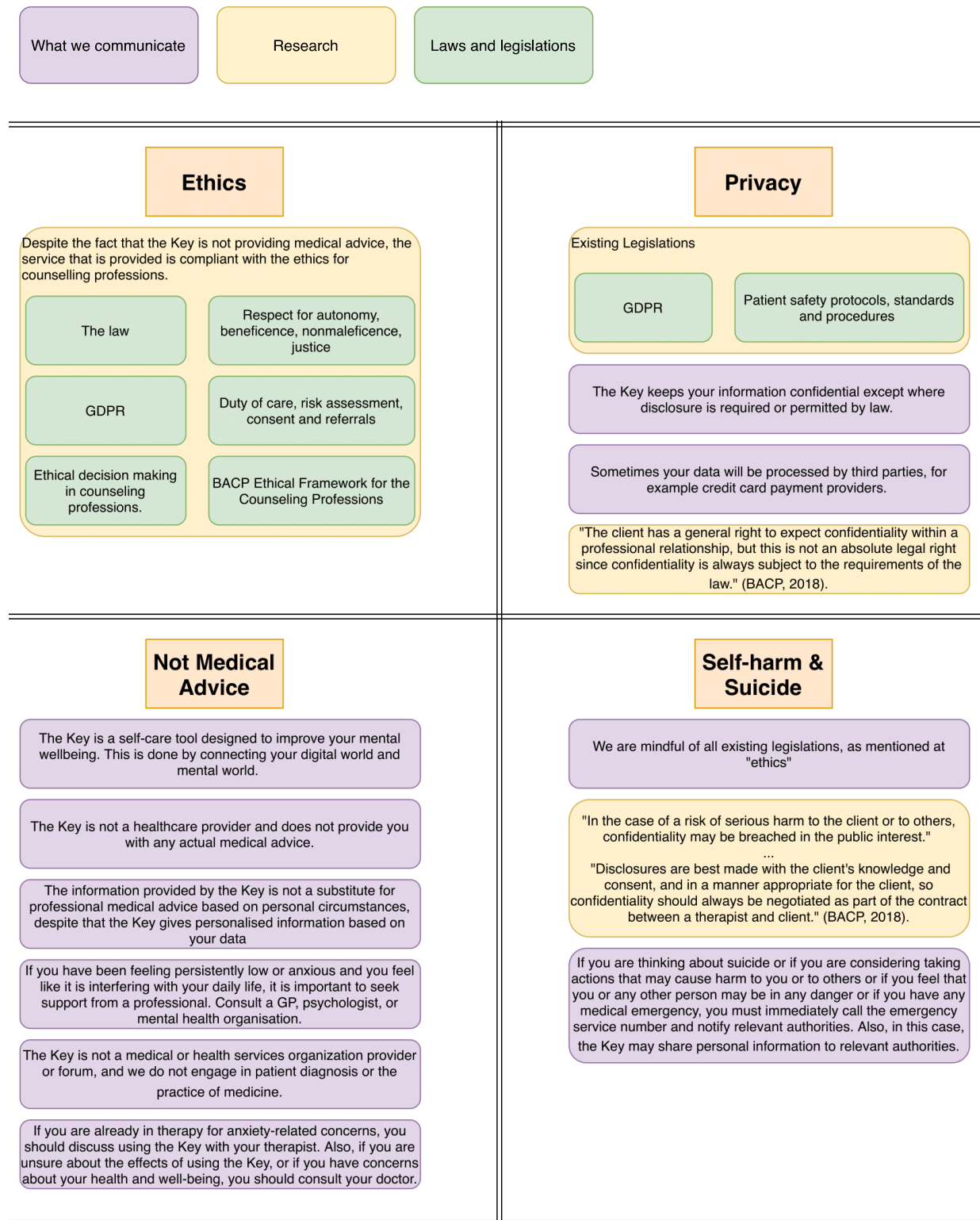
Examples for these partnerships are: CompanionMX, University of Ohio, Ginger.io, Affectiva, Philips and ABN AMRO (Somers, 2020; Kleber, 2018; Rucker, 2020; Jarboe, 2018; Whelan et al., 2018)

The different costs to consider when designing a product with AI are: (Krajewski, 2020)

1. Business consulting and feasibility studies
2. Data scientists and R&D
3. Computing power
4. MVP
5. Implementation
6. Maintenance and further learning

4. Ethics Research

Figure 3: App ethics.



Duty of Care summary

"We have the duty of care to all clients, ethically, contractually and under the law of tort. When a client is exploring suicidal ideation or intention, that duty of care may include careful risk assessment, regular monitoring and review of risk levels, and where appropriate and necessary, referral (e.g. for specialist medical or psychiatric services)" (BACP, 2018).

"The Duty of Care does not necessarily require referral in all cases where a client is contemplating suicide, but, as therapists, the law states that we cannot do any act which may intentionally encourage or assist the suicide of another person." (BACP, 2018).

Referral

"Following careful risk assessment, and consultation in supervision, a therapist may decide that referring a client who is at high and imminent risk of carrying out suicide to specialist medical or psychiatric and/or other services may be the best way to help that client, consistent with the therapist's ethical responsibilities and care of duty." (BACP, 2018).

"In the case of a risk of serious harm to the client or to others, confidentiality may be breached in the public interest." (BACP, 2018).

"Referrals should be made with the explicit knowledge and consent of the client, and usually will go to the client's GP or mental health practitioner." (BACP, 2018).

Bias of AEI and AI

Furthermore, the bias of the algorithm and technologies can be seen as a challenge (Kaliouby, 2017 ; Whelan et al., 2018). To create an unbiased AEI algorithm, it is necessary to use a diverse input of data sources and data points. Also, it is needed that diverse teams create the algorithm; only diversity in gender and ethic is not enough. Diversity in "socioeconomic status and view – negating anything from xenophobia to homophobia to ageism" is needed to minimize the bias of the technology (Purdy, Zealley, & Maseli, 2019). To create an algorithm which is validated, data needs to be used from a significant population, but also reliable data needs to be used (Luxton, June, Sano, & Bickmore, 2016).

Age

You may use the Key only if you are 13 years old or older and are not barred from using the Key under applicable law. To make a purchase via the Key, you must be over 18 years or older and capable of forming a binding contract.

5. NHS App Library Research

The NHS has an application library where consumers can find tools to help with managing their health and wellbeing. This platform is part of the NHS long term plan. One of the categories of the apps is mental health apps. According to the NHS, there are several benefits of having an app in their library. First of all, the app will have a wider reach, as the NHS community is targeted. Also, the app will be aligned with the NHS standards. The NHS website has 30 million visitors a month and the NHS library has around 25.000 visits a week with a 15% click-through rate (NHS, 2019a; NHS, 2019b)

All the apps in the NHS library are assessed, so that the apps “cover national standards, regulations and industry best practice help us to see how a product performs against important criteria” (NHS, 2019c). To start the assessment, an app needs to be available in the App Store or Google Play Store (NHS, 2019c). The Key can start with the assessment on May 1st, 2021 as this is the launch date of the app.

Applications are assessed by the NHS in four steps, consisting of digital assessment questions. (NHS, 2019b; NHS, 2019c)

- Step 1: check eligibility
- Step 2: register details
- Step 3: technical assessment and standards
- Step 4: get published on the library

We see the NHS app library as a key factor in targeting a wider consumer base and a possibility for earning credibility with our customers. As such we will ensure that we are compliant with their checklist so that The Key can be listed amongst their approved apps. The NHS assessment checklist is shown below. Furthermore, the app developers will develop the app with the “digital assessment questions roadmap for developers” in mind, as this shows future changes in the assessment (NHS, 2019c; NHS, n.d.).

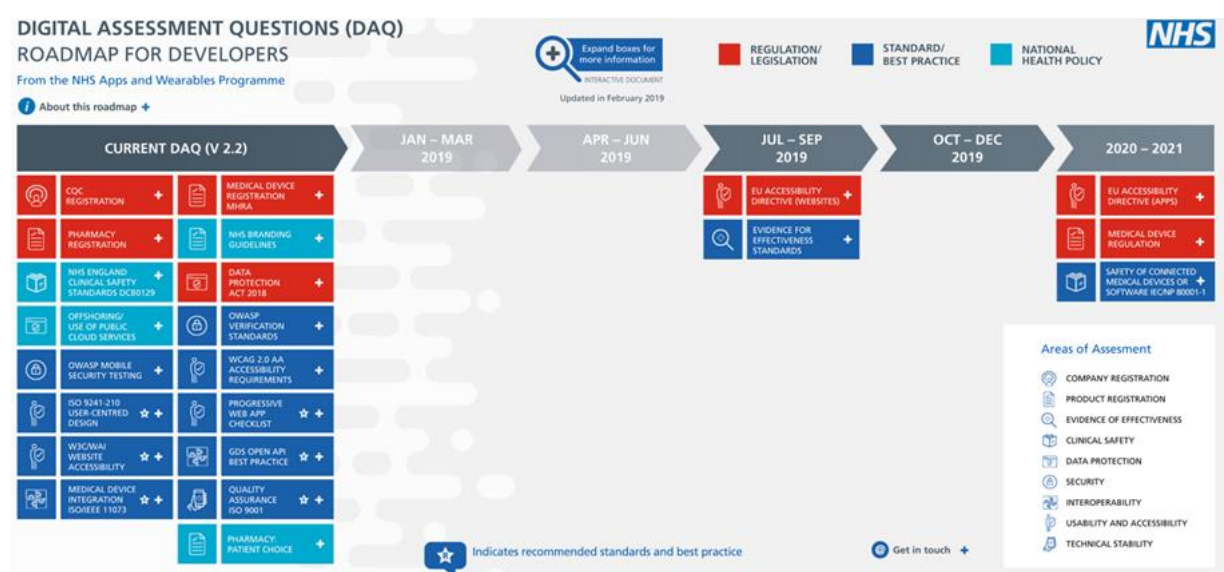


Figure 4: NHS Digital Assessment Questions (DAQ): Roadmap for developers (NHS, 2019c).

6. Future Context Research

7.1. Education

In his book, *The Social Animal* (2012), David Brooks developed the theory of the Odyssey Years. This ten year period, ages 20-30, represents a new phenomenon in society typified by a decade of wandering in which they delay their university studies, put off getting married and switch careers. In itself, this is harmless, however, previous generations had a clear path they could follow and the uncertainty this generation face is decreasing the mental wellbeing of this generation. Because of the increased competition for jobs and scrutiny from past generations the Odyssey generation will face many unique challenges today and in the future, where mental dexterity will have a major influence on these factors and how they will affect performances (Strycharczyk, D., & Clough, P. 2015).

Fortunately, this phenomenon is paired with increased social awareness regarding the importance of mental wellbeing care. Schools are regarded as an ideal location as it can reach students across all age ranges and has thus been identified as a key element of general education moving forward (Cefai & Cooper, 2017). Strycharczyk and Clough (2015) predict increased interest and commitment by parents due to the accessibility of wellbeing programs in schools and universities. This will shape the discussion around mental wellbeing for future generations and provide them with tools with which they can step into adulthood.

7.2. Society

The turn of the 21st century ushered in unparalleled societal shifts in urbanization, globalization and technology, including medical technology. These along with changing social values regarding family structures, romantic relationships and social mobility will introduce new challenges for diagnosing and treating mental health, but may also be the catalyst to intervene with novel opportunities to implement enhanced technologies (Prasad et al., 2016). Psychiatric practice has been particularly affected by these shifts in even newer social factors such as; virtual reality technology and artificial emotional intelligence.

As our society adapts to this evolution early prognosis may become The Key to shaping the presentation and prognosis of mental disorders (Prasad et al., 2016). Especially as we continue to become comfortable with the experience of communicating with virtual platforms and people we can start to democratize access and treatment for mental disorders (Gratch et al., 2007; Kandalaft et al., 2012; Lucas et al., 2014). This is contingent on the value that can be added through virtual experiences and the feeling of consumers that virtual treatment grants them more time and personalized friendly attention (Bickmore et al., 2010; Luxton, 2016).

7.3. Impact of the Emerging Solution

Within the next five years, “your personal device will know more about your emotional state than your own family,” says Annette Zimmermann, research vice president at Gartner (Goasduff, 2020). As artificial emotional intelligence expands its implementation capabilities we will see more and more of our everyday smart devices be able to capture and interpret human emotion and behaviour. According to Zimmerman, the melding of humans and technology is not as far-fetched as it once seemed as we are already approaching the technological capability for medical wearables to track patients 24/7. In

order to bring this technology to the general public, AEI must be integrated with AI applications in order to bridge the gap between isolated and case-oriented consideration of affective computing approaches (Schuller & Schuller, 2018).

According to Luxton (2016), AI is already creating a monumental shift in behavioural and mental health care. By leveraging this technology we can already solve major problems facing the healthcare industry. AI implementation allows automated customized health recommendations to reduce the burden on physicians. Likewise, Luxton identifies a more sophisticated application “computing methods for learning, understanding, and reasoning can assist healthcare professionals with clinical decision-making, testing, diagnostics, and care management” (2016, p. 1). As the accuracy and efficiency of AEI enhanced technology develops we will see a diversification in the application of this tool and the interactivity and value of self-care tools take-off (Luxton et al., 2016).

8. Interviews

8.1. Master Student Clinical Physician

Nicolas Van de Kar

1. What is your profession?

I am a Technical medicine student in the second year of my master. With this study you become a researcher that develops or improves medical equipment in hospitals or tech/med companies.

2. What is your opinion on AI in the health care industry?

AI is a fast-growing technique and is applied in many industries, including health care. It is very promising in the ability to solve problems because it uses big data and learning algorithms. These algorithms can be applied in many cases by training it to improve the performance. The performance is also determined by the amount of available data and the number of repetitions. These algorithms can match the distinguishing capabilities of humans.

3. Do you think it is an added value in the industry and why?

Yes, I think that for sure. Mainly because it ensures that loads are removed from the shoulders of surgeons and researchers. The algorithms will think for themselves and help the researchers in making decisions.

4. How quick is the development of AI in the health care industry?

AI is currently a hot topic in research also for applications in health care. For example, in the recognition of early stage tumours tissue on CT scans and programs that can make differential diagnoses based on input parameters from (physical) exams.

5. How long do you think it will take until AI is normal and integrated in the industry?

In some fields it is already used, so I think in 5 to 10 years it will be applied in a wide range of applications in health care.

6. Why do you think that?

During one of the previous courses I had, our professor showed us a graph that showed the number of search hits with machine learning in the last ten years. This showed that there is a massive increase in research being done on AI and ML. Due to the increased interest and the results of the research, it is likely that it will only take a maximum of 10 years before it is going to be integrated even more.

7. Do you think it is going to stay there?

Yes, when it is applied and has shown its added value and will therefore become a part of the process. Maybe the type of learning will change, like from machine learning to deep learning algorithms or even algorithms that can rewrite themselves.

8. How do you think it is going to evolve?

I think that a lot will be monitored by algorithms to assist us in daily life but also protect us like in health care or public safety.

9. What are the major challenges when implementing AI in the health care industry?

The major challenge is the responsibility. If the algorithms fail and that has serious consequences, who is to blame? The company that made the algorithm or the doctor. And will a doctor use the algorithm if he or she can be held responsible. The legal system is also not adapted to that yet. This is also a reason it is not fully implemented yet in some cases, in order to let the doctor still check the algorithm. Another challenge is the privacy regulations. All the data that is required needs to come from people and they need to approve that. It also must be stored somewhere safe. Let alone the storage capacity and computational power that is needed.

10. How can this be solved?

Experts, researchers and other stakeholders like companies who set the laws and legislations, but also governments need to work together to invent and implement new ethical legislations regarding AI and ML in the industry. This will enable the possibility for new ethical legislations and a better integration of the technologies.

11. Have you heard of AEI?

Yes, I know that China uses it to detect people that want to commit terrorist attacks. Casinos use it also, I think, to see if people are cheating.

12. What do you think that the challenges are with this in the industry?

It is a technique based on the biometrics of someone's face and is therefore determined by factors as light, resolution, angle etc. In order to apply it, it needs to be robust. It is also dealing with the privacy regulations.

13. (After explanation of AEI) What do you think that the challenges are with this in the healthcare industry?

I think privacy will be a major challenge, but also the massive amount of data you will have to require and store. And as with AI and ML, the ethical part can be a major challenge as well. As you will need access to a lot of personal information.

14. (After explanation of our concept) What do you think that the major challenges will be?

First, it would be assessing the data of the consumers. And after that the same challenges will be valid as mentioned before. Especially privacy, validated data and data storage will be major challenges to tackle.

8.2. Student Counsellor, Wellbeing Advisor, and Psychotherapist

Safaa Ramadan

1. How would you define mental wellbeing/mental health?

Such as physical health, mental health needs to be looked after (feelings, emotions, the way we interact with other people and ourselves, where we start and end relationships). Mental wellbeing becomes negative when you add “illness” or “difficulty”. Mental wellbeing is also about the physical and external parts, as human beings, we have an innate need for belongingness and social interaction, which affects our feelings and behaviours.

I always use the following definition: “Mental Health is the structure that influences how we think and feel about ourselves and others and how we interpret events. It affects our capacity to learn, to communicate and to form, sustain and end relationships. It also influences our ability to cope with change, transition and life events.” (Dr. Lynne Friedli, 2004)

2. How do you know if someone is mentally doing well? Not referring to diagnosed mental illnesses.

You notice these things in changes of behaviour, such as not spending time with friends and family but more alone, not looking after what they’re eating, their physical and hygiene. The idea of mental health continuum: we all move around throughout our days and lives, you can have very good mental wellbeing and you’re looking after yourself but when you’re feeling anxious or stressed the more you go down to the idea of bad mental wellbeing, and if you stay there long enough without bringing yourself back up, that’s when you can develop a mental health difficulty.

3. What current tools are usually used to help someone improve their mental wellbeing?

The most important tool is something that allows you to check-in almost daily or on a weekly basis because we need to understand how our mood fluctuates, even several times in a day. Checking in and tracking your feelings, emotions and behaviours at different stages. Writing down and checking in yourself with how you feel - journaling.

4. Do you believe digital platforms will get an enhanced way of tracking and working on one’s mental wellbeing?

Digital platforms give you quick access to looking after your mental wellbeing. Apps can track your behaviour and if you are experiencing something more serious where you see a doctor, this tracking can be given to him to understand your behaviour even more, which can allow them to better help you. Nothing compares to physical interaction though, there’s only so much apps can do.

5. A statement reads: consumers will feel more comfortable communicating with virtual humans regarding their personal issues than with traditional professionals. What is your opinion on this?

It makes a huge difference to see someone and be in the same room watching their body language, such as anxiously tapping your leg, which you can’t do over a phone call or video call. Digital platforms

might help people feel more at ease but it depends how you started; if you start online it is easier to continue that way, but if you start online and then go in person it is an environment they are not used to, and vice versa. It is in our human nature to need face to face interaction. There have been techniques developed for online helping, which have been popular for mild and moderate cases of mental health. Struggles between an app and face to face is that therapists in person go with their gut on how someone is feeling and then take it from there.

6. After explaining our app, what is your opinion? What features can be added to the app to give greater support to users?

I like the idea of using the app as a check-in for mental wellbeing, like a mood diary and giving suggestions. There are apps to check in your physical health such as calories and how much you've worked out, but not one to check in your mental health and what is going on in your head. Some people might not like journaling, but they can instead write 3 gratitude's each day for 21 days to rewire your brain to see the world in a more positive way. It can be useful to give people the option to a mental health professional through the app, since some people might like texting with someone instead of self-check-in. Partnering with external organizations with professionals users can reach out to, such as the UK Samaritans organization hotline (116 123) for mental health aid which is available 24h. Teaching people different modalities of practice, techniques and wording within the mental health world such as knowing the differences between a psychiatrist, clinical psychologist, a counsellor... Having a tick box: do you feel like doing a mindfulness meditation today? Yes, it leads you to it, and no, it gives you alternatives such as journaling, mindfulness colouring, physical activity, calling a friend...

7. How can we tackle when something goes wrong with one of our users?

Sometimes you do need to straight-up ask "are you going to harm yourself?" because no one really wants to hurt or kill themselves, this is the last case scenario. Include in the app a risk assessment, asking them if they will harm themselves or "can we connect you with someone?" can make a difference, such as calling the hotline which is for free.

8. What should be included in the app for you to recommend them to your customers?

Have all the different self-care activities, features and necessary information (like terms and definitions) all in one place and keep it up to date, since usually people must run from one place to another to find everything they need. All in one app to help users and therapists who might help their customers. Keeping it constantly up to date with new techniques and information.

9. What do you believe are the best channels to promote the app?

Through mental health professionals and social media. Social media: for those who are not necessarily seeing a therapist but are still interested in looking after themselves. Mental health professionals: usually professionals first test and try these apps themselves first and if they like it then they can be a great channel to recommend it.

10. What is the appropriate pricing strategy?

50 to 60 pounds a year. Have both monthly and yearly options. Yearly basis gets people to commit more. Giving a trial is a good option. Give students a reduced cost version to encourage them to take care after their mental health.

11. What is your perception of the privacy aspect of the app?

You need to make people feel as comfortable as possible, since tracking your mental health is usually people's highest vulnerabilities and highest insecurities. Reassuring people the information gathered is not stealing their privacy or will be used externally, but just to be there for you and support you in the best way possible. If someone looks up online "journaling", the app will give you journaling options, or if you look up "mental health professionals in Camden", then the app gives you options to contact professionals in Camden. Make people understand they can pull out of the app at any point. Key: giving people reassurance, comfort, security, and transparency.

12. What are the trends or challenges in the following 5 years for mental wellbeing?

Technology focus. Need for instant gratification, not waiting weeks to see or talk to someone. For the app, even if we have a waiting time to speak to someone, make sure you have solutions or things that help people in the waiting time, so they don't feel they are not being helped. A key element for the app that is more difficult to show than in-person therapy is showing empathy, people what to feel understood.

8.3. Personal Development Coach

Inge Michielsen

1. What is Mental Wellbeing to you?

Alignment of mind, body and spirit. Without one of the pillars the others crumble. I believe strongly in a holistic approach to wellness.

2. How do you know if somebody is mentally doing well?

A person who is at peace with themselves and derives their esteem from within rather than looking to outside stimulus to confirm their wellbeing. The answer is within us and a mentally healthy person trusts that the answer is within themselves and isn't afraid to look at themselves in the mirror.

3. What could help somebody to improve their mental wellbeing?

Personal development is a lifelong journey.

4. Do you believe that digital platforms will get an enhanced way of tracking and working on one's mental wellbeing?

It is the new frontier. Though I believe personal contact will always be important it would be silly not to use the technology available in the palm of our hands. There are so many opportunities to create tools for people to deal with their stress daily to prevent larger issues down the road.

5. What do you think are the biggest challenges when creating a mental wellbeing app?

Giving meaningful feedback is much harder through a digital platform. Oftentimes we can see ourselves better when we can reflect our behaviour on others. We are good at lying to ourselves and escaping accountability. An idea might be to allow users to upload videos of themselves revealing limiting beliefs so that people who have never done an exercise before knowing how it works.

6. What should be included in an application like this for you to recommend them to your customers?

Live-coaching availability.

7. What are the trends in the following 5 years for mental wellbeing?

Mind-gut connection, gene-based diet, and data will become all-knowing.

8.4. Consciousness Coach

Carolien Van der Kaaden

1. How would you define mental wellbeing?

As a Consciousness Coach I would say that mental wellbeing is to be aware of your own thoughts, emotions and feelings. You are able to observe them from a distance, instead of going into the stories about them. For me mental wellbeing is also connected to the holistic body. The 4 different bodies are all in place; The mental body, the physical body, the emotional body and the spiritual body.

2. How do you know if somebody is mentally doing well?

For me personally if they have energy, they are happy and they can focus. They are also able to accept problems and solve them independently while accepting opinions from others but still wanting to share their own. If someone is able to surrender to the circumstances instead of needing to prove themselves, I consider them mentally well. The ego reacts, the mind creates.

3. What could help somebody to improve their mental wellbeing? Are there specific tools or strategies? (Journaling for example)

From my side, to become aware of oneself. By searching inwards oneself instead of looking for solutions outside oneself and blaming the outside world, you will already create awareness around your own wellbeing. As a Consciousness Coach, I share this in a very simple way. There are 3 parts of the brain that influence the state of your mental wellbeing.

- **The R-Complex:** this is the oldest part of the brain. It entails a fight, flight and freeze mode. Here it is important to become aware of what the R-system is and what it does. One should not suppress the R-system. If the suppressing of the R-system continues for a longer time, depression will kick in.
- **The limbic system:** This is where emotions take place and individuals are able to experience uploaded programs from all our past experiences. Our whole life memories are uploaded in this part of the brain. It can draw visual memories. These are the uploaded programs of the

subconsciousness. To become aware of this subconsciousness, the brain will allow us to do something with it meaning; to acknowledge it, to change it or to let go of it. Past memories cost the brain a lot of unnecessary mental energy and therefore does influence our mental wellbeing either negatively or positively.

- **The Neo-cortex:** This part of the brain is used for higher thinking processes and possibilities. Here a human being can use words to interpret, explain, give meaning. This part of the brain can create understanding. As long as there are no threats of fears or unsafe feelings, the Neo-Cortex will work well. If not, the R-system discussed in point 1 above, kicks in and influences the Neo-Cortex. This causes that the Neo-cortex might not fully function.

If one is aware of above systems, this is a way to improve mental wellbeing.

Tools or strategies:

- Forgiving procedures: which means you forgive but you do not have to forget.
- Improving your level of integrity.
- Get away from all the story telling in your mind and see what is real.
- Take responsibility instead of playing the victim.
- Setting your own context instead of speaking from context experienced in the past.
- Let go of things in your mind that do not serve you to grow or do not empower you.

4. Do you believe that digital platforms will get an enhanced way of tracking and working on one's mental wellbeing?

Partly yes I do. It depends on the person though. If the person is inspired and motivated easily, I do see digital platforms as a major opportunity. But the mental state is a complex part of the human being and is not easy to access individually.

5. A statement reads: consumers will feel more comfortable communicating with virtual humans regarding their personal issues than with traditional professionals. What is your opinion on this?

My opinion is, yes humans might feel safer with a virtual human to share their personal challenges. But I see this also as an escape, they might be afraid to share it with the real world, and a real human being. My perspective on the other hand is, if you really want to go to the core of your mental wellbeing, a professional coach has the ability to get the person to go deeper and more outside of their comfort zone. Professionals tend to support the person by knowing their characteristics and behaviour from personal experiences. In the future technology will change how we deal with mental wellbeing, but I strongly believe that especially around energy and coherence, virtual humans are not capable enough yet.

6. What is your opinion on an app like this?

I am aware that apps already exist in this industry and I am happy that people do start to be open up for mental wellbeing. An app gives the introverts (and extroverts) an opportunity to explore themselves without having to share it with anyone.

7. What do you think are the biggest challenges when creating a mental wellbeing app?

To resonate with the energy of the human being and to have heart-coherence.

8. What should be included in an application like this in order for you to recommend them to your customers?

I would let them know that they will be working with a virtual human and that this is only a beginning towards improving their mental wellbeing. If the app-user feels that it does cost them too much mental effort, I would advise them to go to a consciousness coach or find a balance between both. Psychologists and coaches can support individuals on how to improve their mental wellbeing with less effort, not from doing it, but from the being.

9. How can we tackle when something goes wrong with one of our users?

That is a wonderful question, there are people who can be such perfectionists, they do everything the virtual human says and then they might be understood wrong mentally as some users might have underlying issues already. If the app-user sees that it does not work, then they should immediately contact a specialist. If the app is able to detect an error, it should guide the person towards an emergency number.

10. What are the trends in the following 5 years for mental wellbeing?

The importance of consciousness is rising in the world. Also in that heart-coherence, what means connecting with our heart instead of our mind is KEY. This will bring a higher energy frequency in the body and will improve the immune system. The one who does not follow the frequency will suffer. It is important to follow the trends and look after your mental wellbeing as it is a rising concern in our society.

11. Updated Business Model Canvas

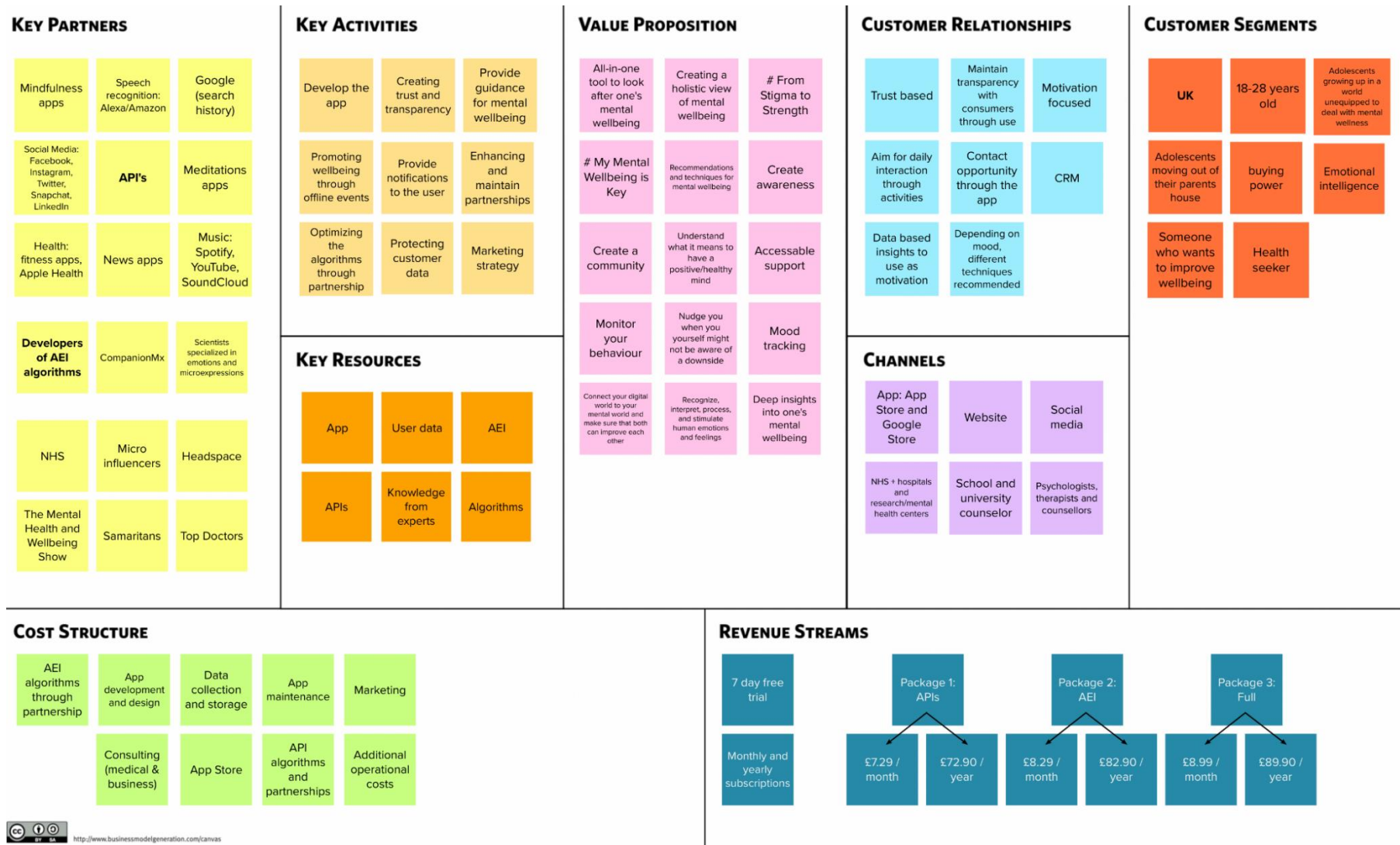


Figure 5: Updated Business Model Canvas.

12. Target Market

12.1. Market Base and Customers

Total Available Market

69M

We currently limit our total available market to the entire predicted population for the United Kingdom for 2025 (World Population Review, 2020).

Serviceable Available Market

9.4M

With our serviceable available market we have the entire predicted United Kingdom population for 2025 aged between 18 and 28 years old (World Population Review, 2020).

Target Market

500K

Of those reached, we aim to reach just over 5% which would make up our target market. Currently, 5% of 20 to 29-year olds in the UK have contact with mental health and learning disability services (NHS, 2019).

Users

15K

We aim turn 15,000 of our target market into paid subscribers in the first year

Figure 6: Market base and customers (NHS,2019d; World Population Review, 2020).

12.2. Personas

The Dreamer

For the user who spends time in the clouds and wants to ground themselves in their daily life. They have an average income level, live with old friends and/or family members and are active on all forms of social media. Dreamer's fall short of their potential and stand in need of daily tracking in order to feel fulfilled and motivated.

The Healer

The user who is still recovering from past experiences and are looking for daily help to maintain their balance. They are not comfortable with the current income, live with close friends in urban locations and heavily use Facebook and Instagram. Healers have high emotional intelligence but are fearful and lack the motivation to generate positive change for their wellbeing.

The Striver

The hardworking overstressed user on the precipice of a burnout. Strivers are income-driven, situated in dense urban areas and are active users of YouTube and Twitter. They require guidance and a more balanced lifestyle in order to find and maintain inner peace.

The Wanderer

The modern renaissance being who finds interests in everything around them but would like to find meaning in their life. They are less focused on income, live within close proximity to nature and regularly use social media platforms such as Instagram. Wanderer's are free-spirited but lack structured support to improve their mental wellbeing.

12.3. Market Size Increase

UK	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
% of market downloads	10.00%	17.50%	25.00%	30.00%	35.00%
Total app downloads	50000	87500	125000	150000	175000
App downloads per year	50000	37500	37500	25000	25000
% of market subscribers	3.00%	5.00%	7.00%	8.00%	9.00%
Total app subscribers	15000	25000	35000	40000	45000
App subscribers per year	15000	10000	10000	5000	5000

Figure 7: Target app downloads and subscribers in 5 years: adding value by increasing market size.

13. Competition and Differentiation

13.1. Competitors

13.1.1. Main Competitor

AEI technology based: *CompanionMx* uses active monitoring of voice and passive monitoring of other smartphone metadata to continuously produce acoustic and behavioural biomarkers that predict core symptoms of mood and anxiety disorders. Their platform allows health professionals to see patterns that help guide proactive patient care through telehealth. This means clinicians can use insights from the data via the Companion dashboard to respond sooner to warning signs and have more effective conversations with their patients (CompanionMx, 2020).

13.1.2. Other Competitors

Anxiety, Depression and Stress apps:

- Be Mindful
- Beat Panic
- Big White Wall
- Mindshift
- Happify
- MoodTools
- SilverCloud
- WorryTree
- Self-Help for Anxiety Management
- What's Up
- Mood Kit
- CBT Thought Record Diary
- MoodMission

Forum and/or Expert Support:

- Ieso
- MeeTwo
- My Possible Self: The Mental Health App
- Student Health App
- Talkspace online therapy
- Sanvello

Gamification:

- Cove
- eQuoo: Emotional Fitness Game
- Feeling Good: Positive Mindset
- Thrive

PTSD:

- PTSD Coach
- Breathe2Relax

Suicide/Self-Harm Prevention:

- Bluelce
- Calm Harm
- distrACT
- NotOK

Sleep Support:

- Sleepio
- SleepStation

Eating Disorders:

- Recovery Road
- Rise Up and Recover

Mindfulness/Meditation apps:

- Headspace
- Calm
- Ten Percent Happier Smiling Mind

Bipolar Disorder:

- iMood Journal
- eMoods

OCD:

- Nocd
- WorryWatch

Addiction apps:

- Twenty-Four Hours a Day
- Quit that!

13.2. Differentiation

CompanionMx is the closest competitor to the The Key since it uses the same technology, Artificial Emotional Intelligence, to help individuals improve their mental wellbeing. The main differentiation is that The Key is directly targeted to help the end consumer without a third party involved such as health professionals.

All the other mentioned competitors offer solutions to different issues that can affect mental health, but non include the technology implemented in The Key. This means The Key is an all-in-one tool that recognizes, interprets, processes, and stimulates human emotions and online behaviour through deep learning technology. Furthermore, The Key offers several different techniques and activities to improve mental wellbeing, while competitors are focused solely one technique, such as meditation, a mood tracker, peer support or breathing exercises. To conclude from figure 8, apps that offer more techniques perform better in user retention.

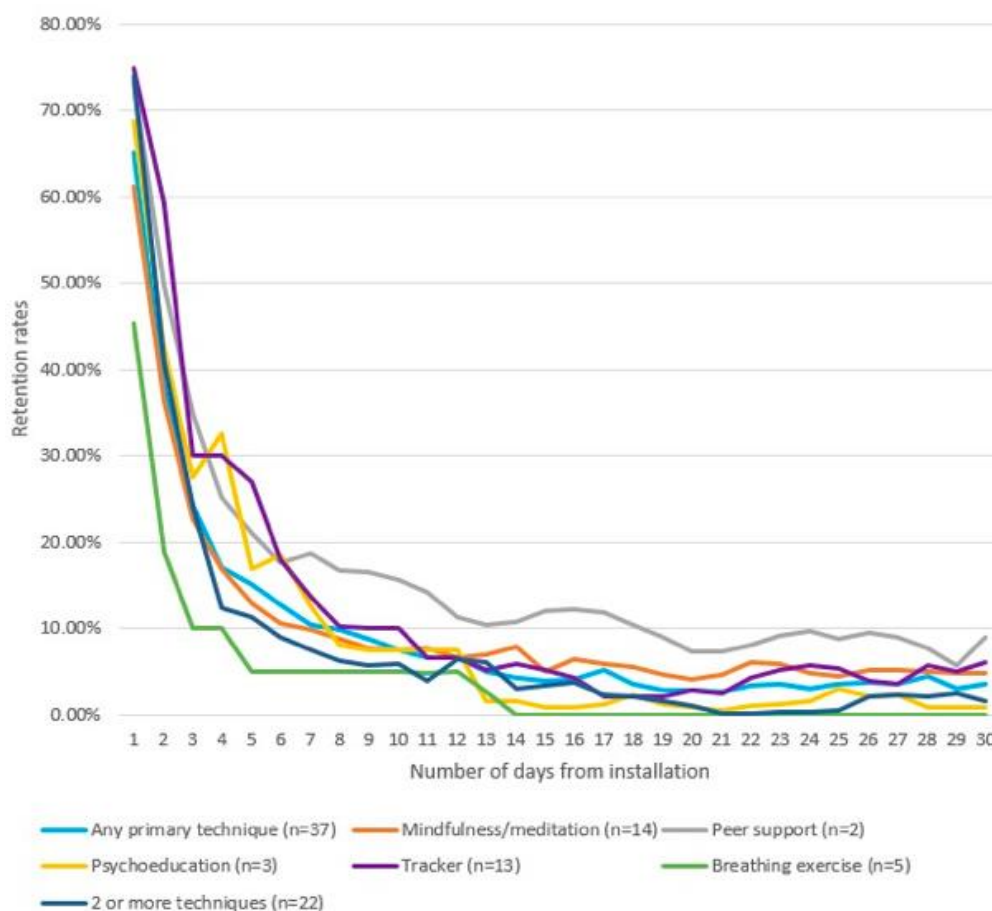
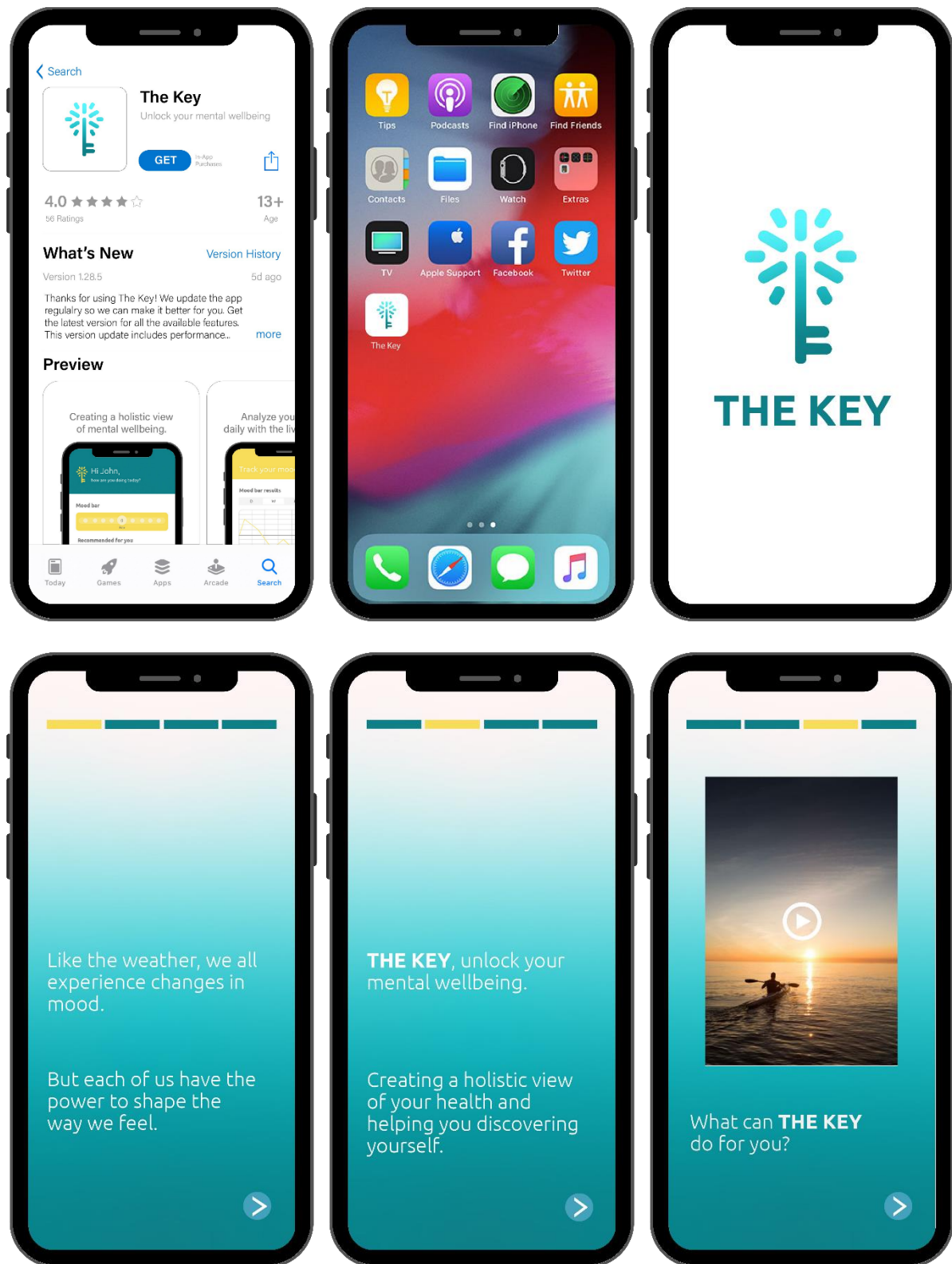
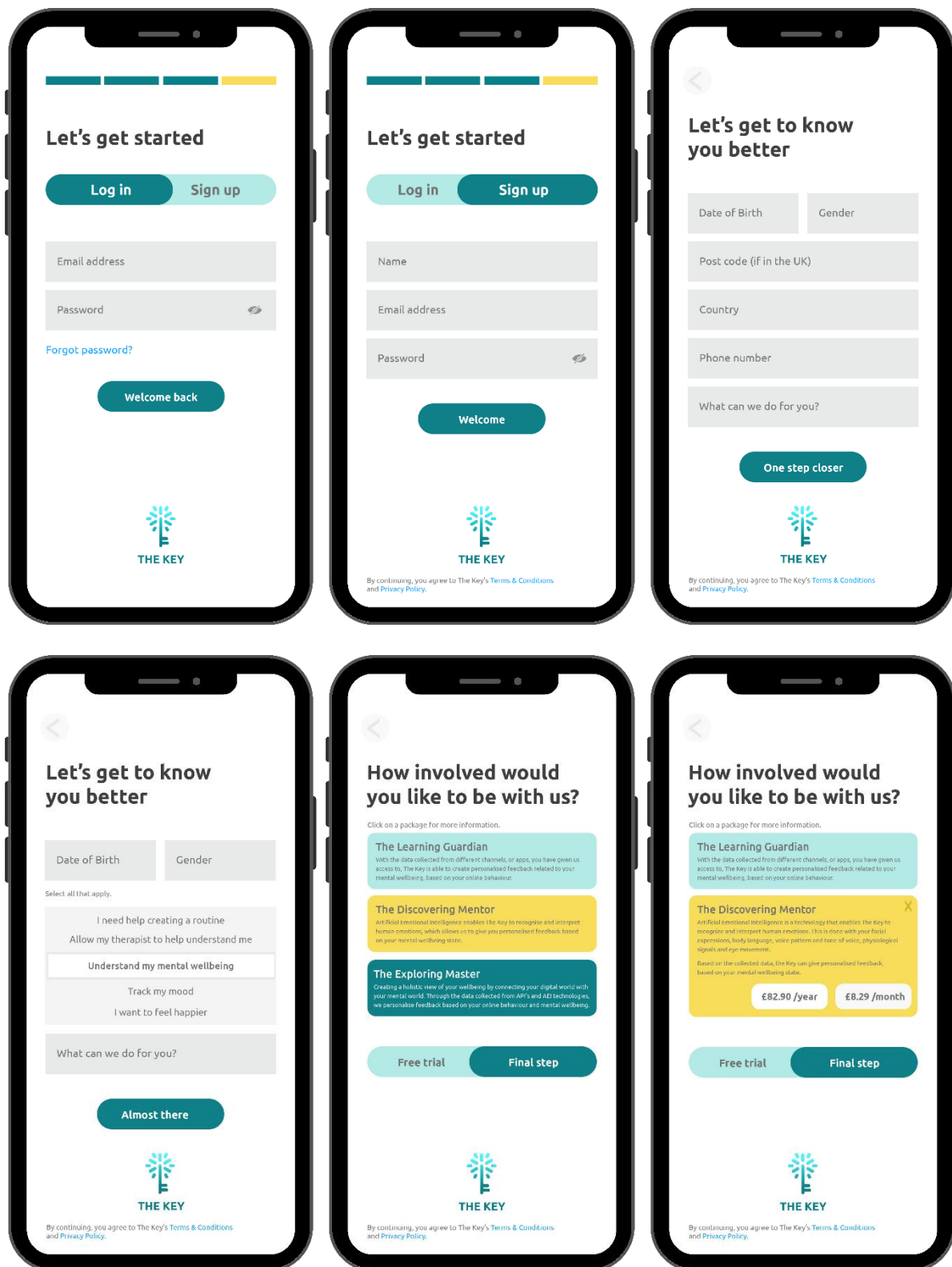


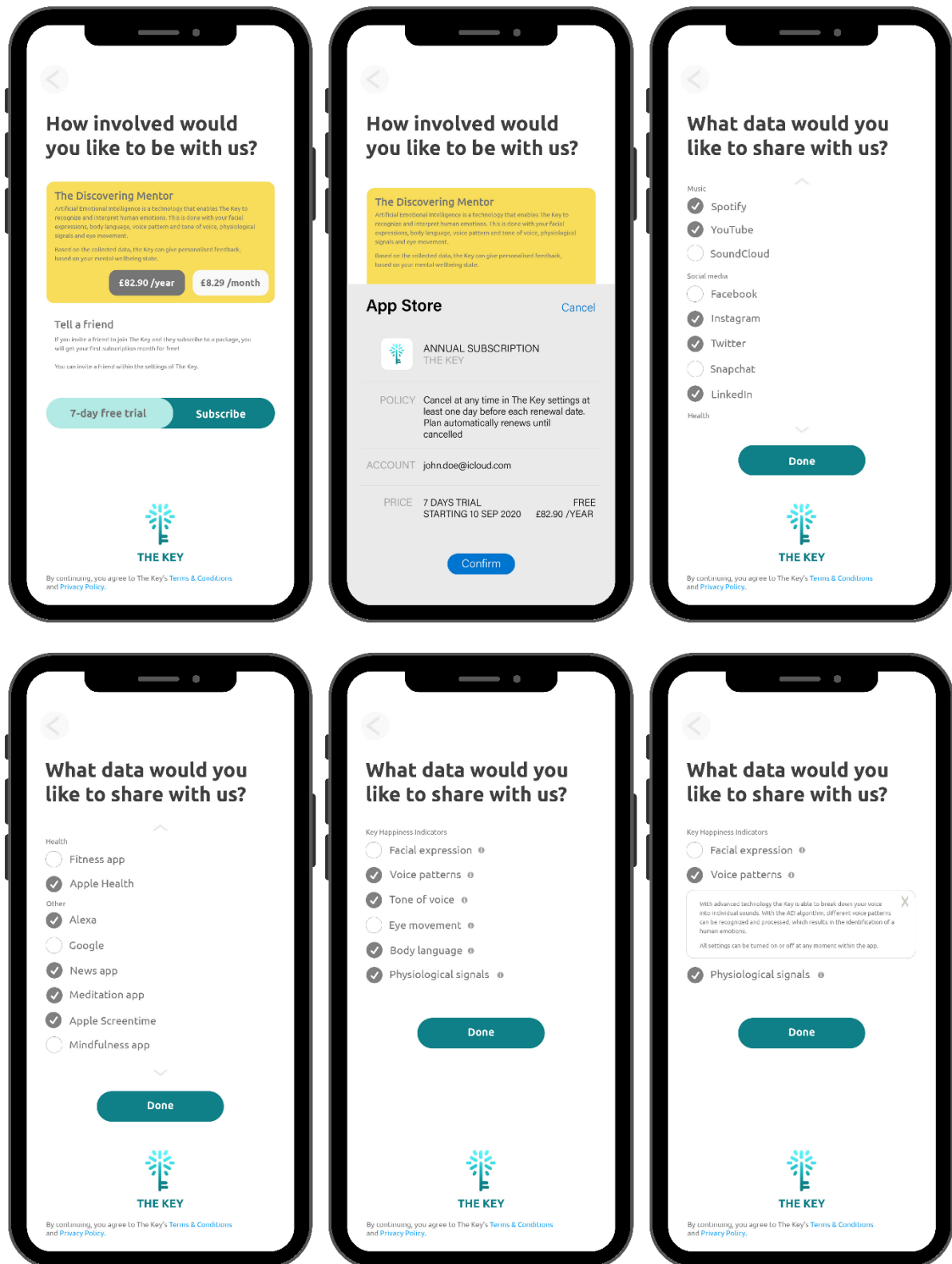
Figure 8: App 30-day retention by primary incorporated technique where the percentage reflects the number of users who opened the app from day 1 to day 30 out of the number of users who installed and opened the app on day 0 (Baumel et al., 2019).

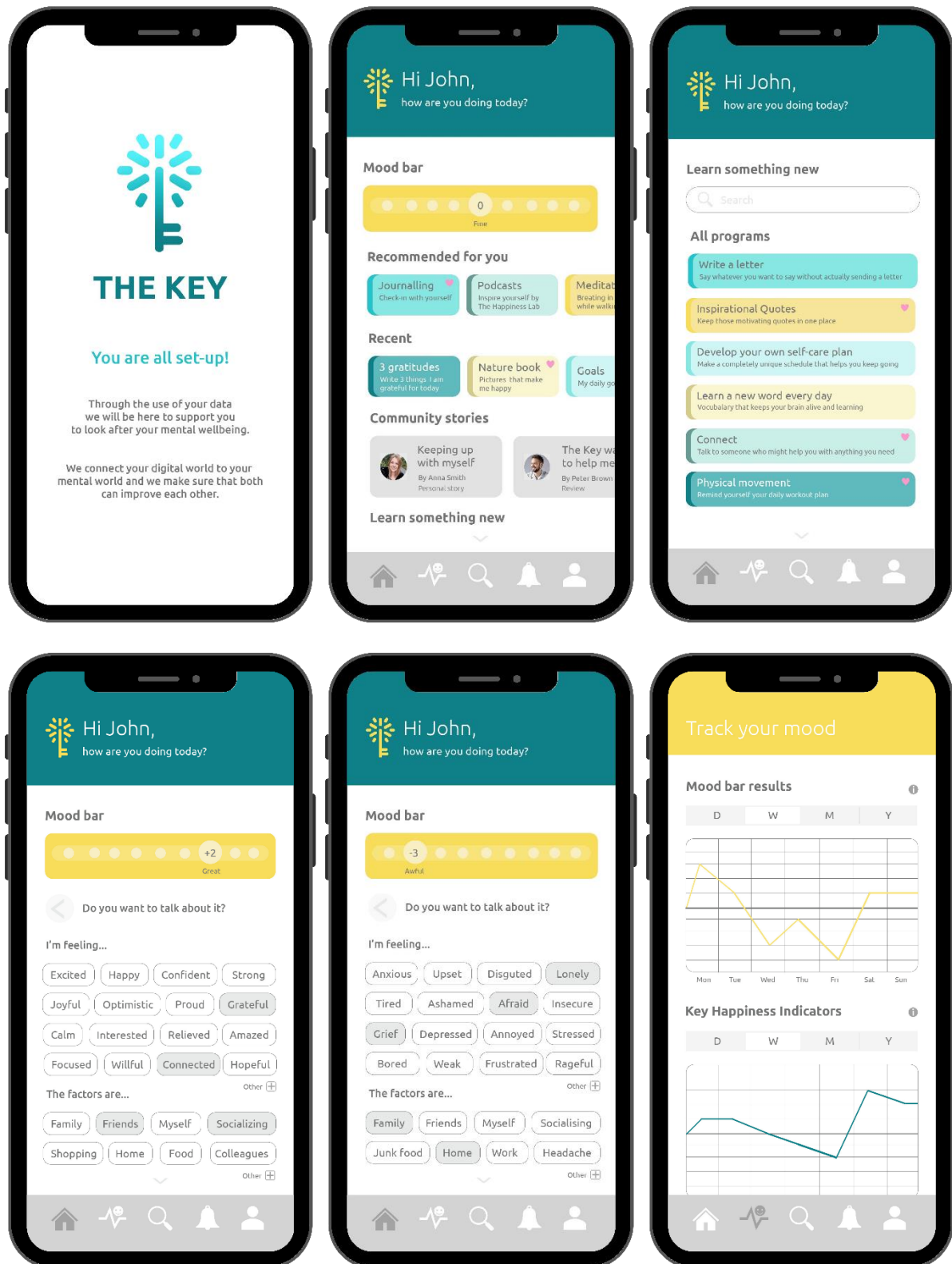
14. App Design

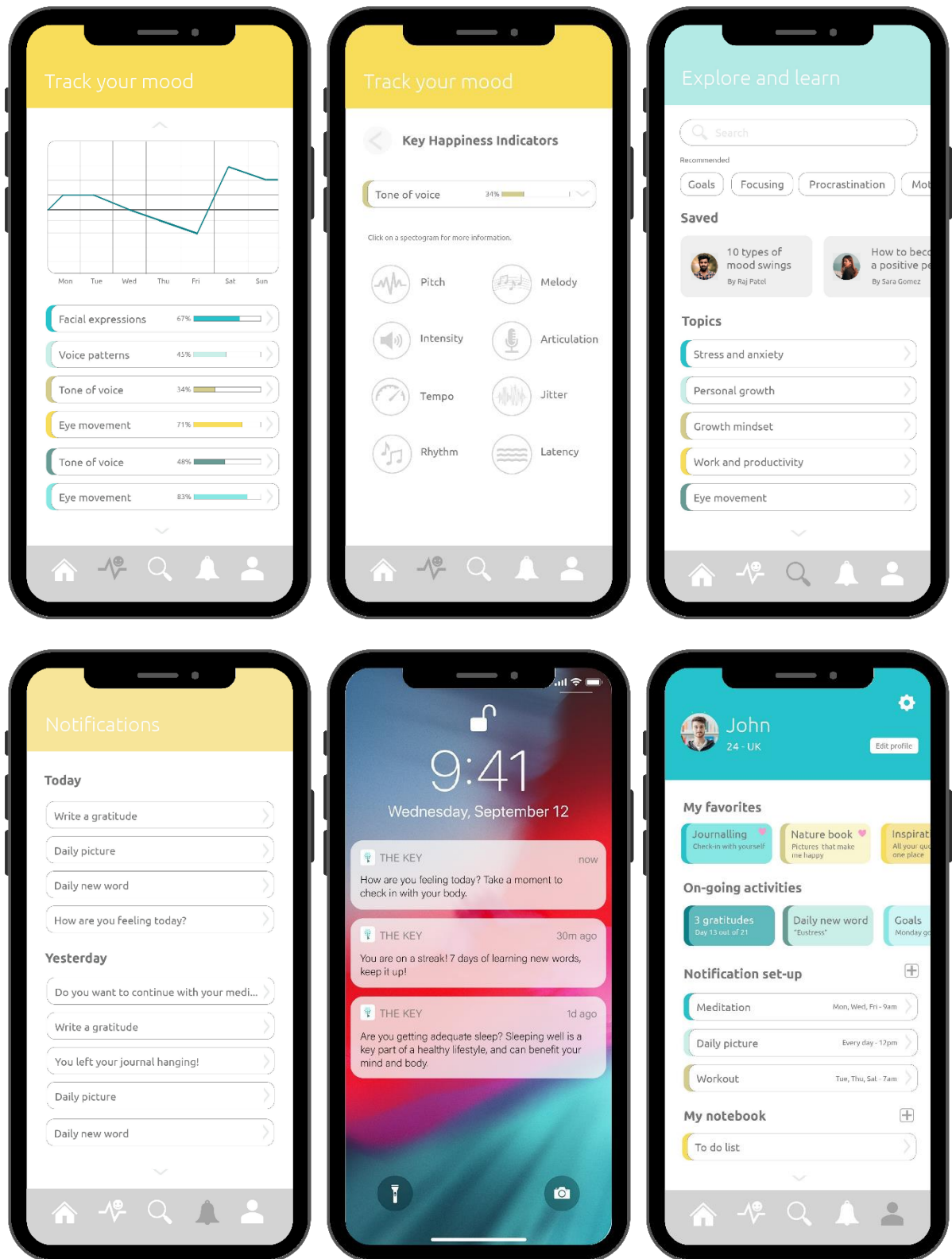
Figure 9: The Key app design prototype.

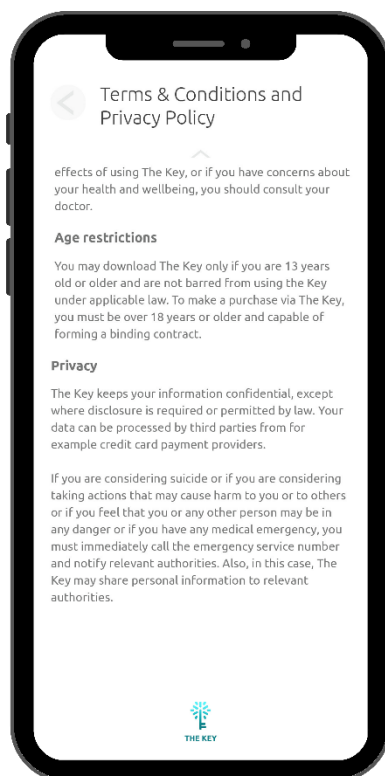
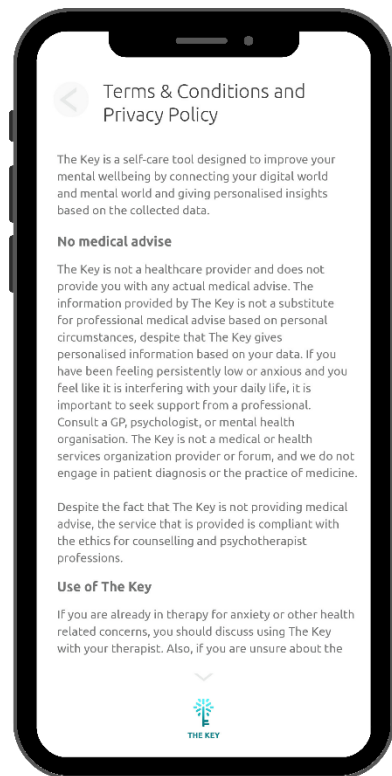
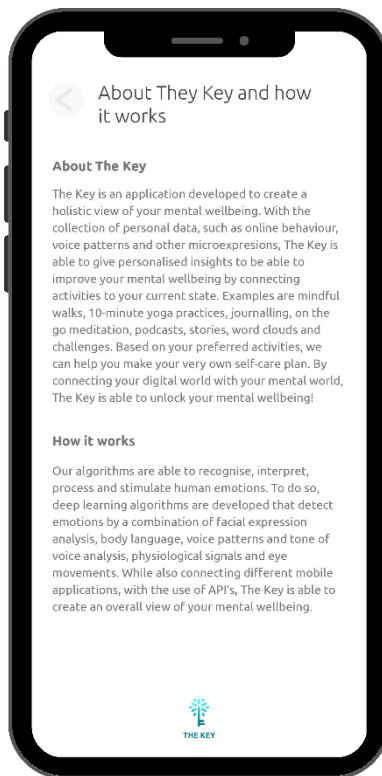
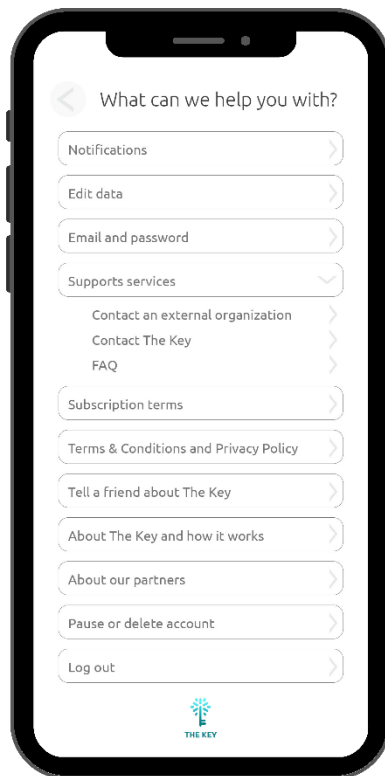












15. Customer Journey

	Awareness	Discovery		Shop			Purchase		Post Purchase		
Customer Decision Making Process	Determines whether or not they have a need for the app	Determine how they want to improve their mental well being	Determine if an app meets their needs to improve their mental wellbeing	Search mental wellbeing apps	Research competitors in the market	Determine which app is best suited to their needs	Determine how to purchase app	Purchase app	Download app	Use/interact/monitor app	Review app experience
Touch points	Facebook Instagram Snapchat YouTube App store Company website Ambassadors Events Podcasts Flash Mobs Search engines	Facebook Instagram Snapchat App store Google Play store Company website Ambassadors WOM communication Search engines Other app users Psychologists Mental health websites Blogs Events Podcasts Flash Mobs		App store Google Play Store Website (directing to App Store or Google Play) Search engines (for product research) Product review websites Blogs			App Store Google Play store Website (directing to App Store or Google Play) Online payment In app purchases		Receipts Email communications Post purchase surveys App Store reviews Google Play reviews Android store reviews Product review websites		
Considerations	How important is my mental wellbeing to me? Can I improve my mental wellbeing? How can I improve my mental wellbeing?	How do I want to improve my mental wellbeing? Is an app the right product for me? What can the app do for me? Is this something that interests me? How can the app benefit me?		How much am I willing to spend How much does the app cost? Is this app right for me? How are they using my data? How does the app help improve my mental wellbeing? Does the app meet my expectations? How much do I want to spend? Whose opinions do I trust? How does the app improve my mental wellbeing? How does monitor my mental wellbeing?			How/where can I purchase the app? How will I benefit from the app? How happy am I with the accessibility of the app? How much does the app cost?		How much data do I want to share? How satisfied am I with the app? Did the app meet my expectations? Why/why not? Would I recommend the app to a friend? What improvements are going to be made to the app? I would change this... How happy am I with the purchase experience? How does the app work? What would I change about this experience?		
Emotions	Stressed Tired Overwhelmed Unfulfilled Motivated	Motivated Curious Stressed Tired Overwhelmed Unfulfilled		Motivated Curious Optimistic Concerned Uncertain Stressed Tired Overwhelmed Unfulfilled			Motivated Satisfied Optimistic Certain Stressed Tired Overwhelmed Unfulfilled		Satisfied Relief Relaxed Peaceful Confident Motivated Happy		

Figure 10: Customer journey from awareness to post purchase.

16. Marketing Strategy

16.1. Marketing Timeline



Figure 11: Marketing strategy timeline: phases and events.

16.1.1. Pre-Launch Phase

- Design and build the website backend.
- Approach potential partnership businesses.
- Discuss partnership deals.
- Agree on partnership.
- Design marketing communications.
- Purchase web domain: thekey.co.uk.
- Trial website.
- Launch website:
 - Paid SEO for keywords:
 - The Key.
 - Mental Wellbeing.
 - CompanionMX.
- Launch social media accounts - Facebook, Instagram, Twitter and Snapchat

Advertising Campaign Phase 1

Five to eight weeks before product launch event.

Purpose: Launch of the brand “The Key” and initiate digital communication.

- Micro influencers/psychologists/Headspace/Heads Together promotion on personal digital media channels.
- **Instagram ads:** promoting app benefits and launch date.
- **Facebook ads:** promoting app benefits and launch date.
- YouTube ads.
- Personal non-paid social media posts.
 - On all four of The Key’s channels:
 - Introducing The Key.
 - Communicating information with our market.
 - Directing users to our website and other social media channels.

Advertising Campaign Phase 2

One to five weeks before product launch event.

Purpose: generate mass brand awareness and promote the message of improving mental wellbeing.

- **Guerrilla marketing campaign - Flash mobs:**
 - Positioned in public areas throughout the UK: we aim to generate buzz around the launch of The Key with a series of flash mobs in London. We have considered a combination of highly populated areas of the city as well as sections which have a higher density of our target audience for these flash mobs.

High Density Location	High Potential Customer Location
Buckingham Palace After the Changing of the Guard as this daily event attracts 15 million tourists per year (UNCSBRP, n.d.).	Blackfriars Station Financial district is home to the stock exchange and a notoriously hard working culture with young urban professionals trying to make their way in the industry (Britannica, 2019).
Leicester Square The beating heart of London's West End welcomes over 250,000 visitors every single day (Style Intelligence, n.d.).	Holborn Law district is home to the royal courts of justice and many university buildings. Combining a unique mix of young professionals and university students who could become users of The Key (Byers, 2016).
Oxford Street Europe's busiest shopping street attracts 120,000 visitors per day (Lantern London, n.d.).	Bond Street Located between the consulting firm districts of Marylebone and Mayfair the area is home to the high-paced and often high-stress consulting industry (Visit London, n.d.).

Figure 12: Potential locations for guerrilla marketing campaign.

- The aim is to generate free WoM communication through the media, viewers, video's being shared online and through person to person mediums.
- Each Mob consist of 50 people.
- Mob members will be wearing specifically branded "The Key" t-shirts.
- Flyers and Stickers will also be handed out.
 - Flyers promoting QR code directing users to our website.
- Promoting hashtags #MyMentalWellbeingIsKey #FromStigmaToStrength.
- **Paid social media communication:**
 - Instagram ads - promoting hashtag.
 - Build a sense of community by re-sharing guerilla marketing videos online.
 - Livestream.
 - Directing interested users to website.
 - Promoting hashtags #MyMentalWellbeingIsKey #FromStigmaToStrength.
- **Snapchat ads:**
 - Geo-tagging.
 - Snapchat filter for guerrilla campaign.
 - Directing interested users to website.
 - Promoting hashtags #MyMentalWellbeingIsKey #FromStigmaToStrength.

- **Facebook ads:**
 - Livestream.
 - Directing interested users to website.
 - Promoting hashtags #MyMentalWellbeingIsKey #FromStigmaToStrength.
- **Website campaign**
 - Virtual pledge to improve mental wellbeing and email sign up:
 - To receive notifications about app launch.
 - Specific product information.
 - “The Key’s” mission.
 - Aim is to gather personal data - specifically email addresses but would also obtain name and DOB.
- **Personal non-paid social media posts:**
 - On all four of The Key’s channels:
 - Communicating information with our market.
 - Connecting them to blog posts.
 - Directing users to our website.
 - Promoting hashtags #MyMentalWellbeingIsKey #FromStigmaToStrength.
 - Utilising GIFs from our flash mob.
- **Instagram, Facebook, and YouTube ads:**
 - Promoting hashtag and promoting the value of The Key.
 - Directing interested users to website.

Advertising Campaign Phase 3

One week before product launch event.

Purpose: generate product launch hype.

- This Morning event with Phillip Schofield and Holly Willoughby.
- Newspaper articles explaining and promoting The Key and the app’s benefits.
 - Positioning and promoting ‘The Key’ as a disruptive innovator helping to change perspectives towards improving mental wellbeing.
- Instagram, Facebook and YouTube ads.
- Email campaign promoting the launch of app:
 - Reminded of app launch:
 - One week before.
 - One day before.
 - Highlights apps key benefits.
 - Highlights revolutionary ways apps can provide personalised feedback to meet consumer moods and wellbeing needs.
- Personal non-paid social media communication promoting the launch.
- Launch website countdown timer with one week to go.

16.1.2. Product Launch Phase

First Key Staggered Event

- Product launch event:
 - **Where:** The Whitehall Suite, Royal Horseguards Hotel.
 - **Who:** Capacity of 350 attendees.
 - Partners
 - Key UK media outlets
 - Host
 - **When:** Friday May 7, 2021.
- Digital media communication:
 - **Instagram:**
 - Livestream of event.
 - Interviews with event attendees.
 - Promote event hashtag #MyMentalWellbeingIsKey.
 - Prizes for sharing and promoting platform.
 - **Facebook:**
 - Livestream of the event.
 - Interviews with event attendees.
 - Promote event hashtag #MyMentalWellbeingIsKey.
 - **Snapchat:**
 - Posts on social media channel from the event.
 - Interactive event filter.
 - **YouTube.**
- Flyers: event QR code direct to app/google play store download.

16.1.3. Post Launch Phase

Second Key Staggered Event

One to six months post launch.

Purpose: follow-up communications from app launch.

- Follow-up communication:
 - Facebook and Instagram.
 - Email communication.
 - Introduce fortnightly email communication email database.
 - Communicating the app has launched.
 - Promoting users to download and sign up
- Partner and support The Mental Health and Wellbeing Show: <https://www.mhwshow.co.uk/>
 - **When:** May 20, 2021.
 - Book two + regular exhibitor stands: <https://www.mhwshow.co.uk/Conference/>
 - Produce flyers and stickers to distribute at the event.
 - Non-paid social media communication promoting event partnership and support.
 - All channels.

- Social media paid advertisements - not associated with the event.
 - Facebook and Instagram ads.
- Non-paid social media communication: all media channels.

Third Key Staggered Event

Six to twelve months post launch.

- Mental Wellbeing podcast series.
 - Six podcasts released once a week for six weeks - 20 minutes long each.
 - With mental health experts and industry professionals.
 - Success stories of The Key.
 - Ways to improve your mental wellbeing.
 - Hired expert host.
 - **Partners:** Headspace.
- Instagram, Spotify, Facebook, and YouTube ads.
- Non-paid social media communication: all media channels.

16.2. Communication Strategy

16.2.1. Ambitions

The foundation of our communication strategy rests on a responsive app that is user friendly and is driven by the community. We want to build a “family” without community that is so strong that we can turn stigma into strength.

Tracking and adapting in this relationship are key:

- How often do users visit our platform?
- What content do they use?
- Who are our users?
- How long do we keep them engaged?

16.2.2. Communication

The essence of communication is sharing the right message with the right people at the right time. To achieve this, we will focus on three key pillars:

- The **people**, both those that use The Key and read the stories surrounding The Key.
- The **message**, that The Key curates to advance the conversation around mental wellbeing.
- The **technology**, to unite the first two elements with ground-breaking emotional technology.

16.2.3. Tone of Voice

The Key exists to be a beacon of light and an oasis for those looking to reconnect with their mind.

- Storyline shared openly and honestly about the successes and struggles of our users.
- Social posts are short and clear to reach our loyal users.
- We celebrate our victories and embrace our struggles.

16.2.4. Community

Through the use of AEI enhance technology, The Key creates a hub for individuals to explore themselves and like-minded individuals to find each other.

Our communication strategy reflects these goals through The Key's...

- Application, website and social channels,
- Partner channels,
- User channels,
- Influencer channels.

16.3. Marketing Materials

16.3.1. Flyer Hand-Out

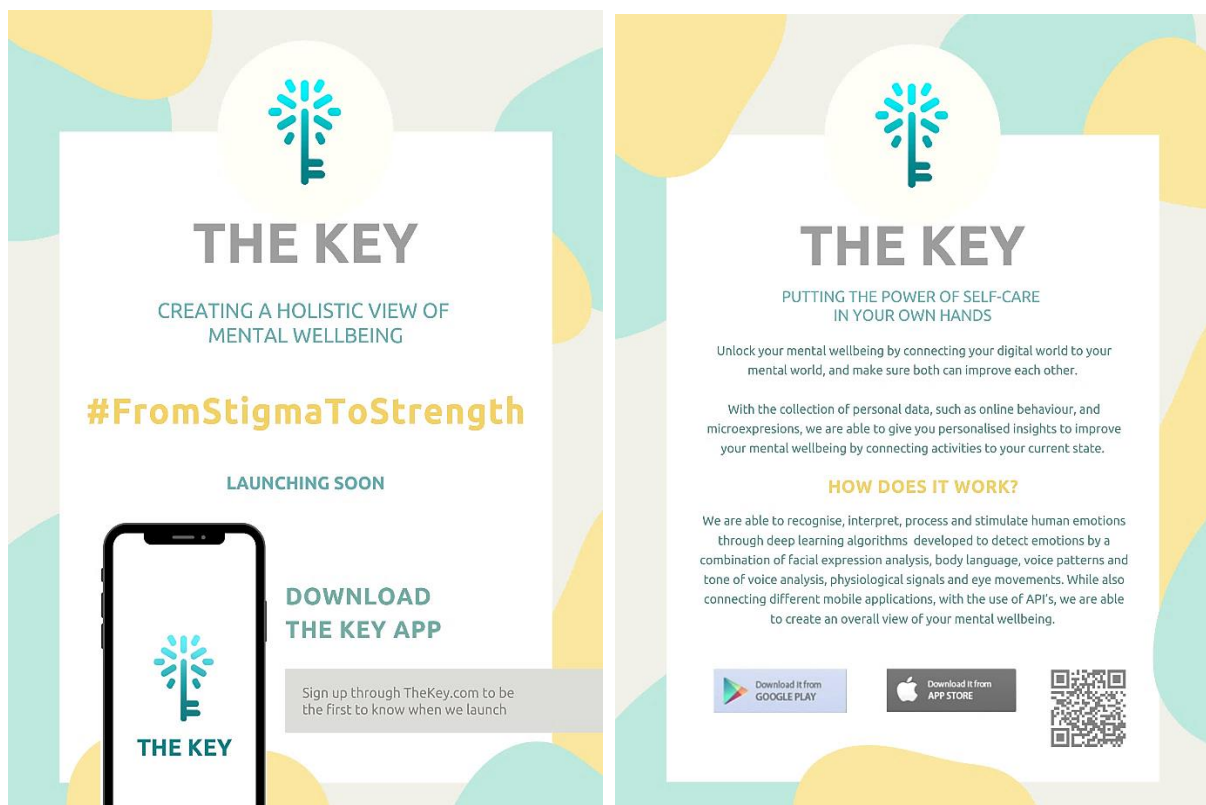


Figure 13: Marketing flyer hand-out.

16.3.2. Promotional T-shirt and Sticker



Figure 14: Marketing promotional T-shirt and sticker hand-out.

16.4. Brand Awareness Metrics

The Key will utilise marketing metrics to measure the success of the planned campaigns.

Brand Recognition

Create brand awareness in our pre-launch phase by using flash-mobs in order to achieve brand recognition from our target segment, eventually leading to a total of 25K followers on the three platforms combined; Facebook, Instagram and LinkedIn. This can be measured by analysing the number of followers on social media channels, the amount of earned media and the website traffic.

Subscriptions

Obtain 15K subscriptions, whereby at least 60% will be covered by “The Exploring Master” package, by the end of year 1. This will be done through different marketing communication strategies during the launch and post launch phase of The Key. This will be measured by revenue numbers and the number of new subscriptions obtained per month.

16.5. Determined Partnerships

16.5.1. Headspace

To provide assisted meditations on our app. The partnership would provide The Key with up to 10 assisted meditations. Hereby, generating brand awareness for The Key without demining Headspace's revenue sources.

16.5.2. Samaritans

Would serve as a hotline to The Key if a user desires a person to person conversation regarding their own mental wellbeing.

16.5.3. Top Doctors

Would allow users who wish to seek further advice for a psychologist, Top Doctors can provide users with direct access to UK psychologists. This can come in the form of e-consulting or they can see the availability of the psychologist and book directly with the psychologist of their choice. Top Doctors

allows you to see what geographic location the psychologist operates in, what they look like, their areas of expertise and cost.

16.5.4. The Mental Health and Wellbeing Show

We would partner the event as a sponsor and attended with our own stall exhibitions and seminar giving information to industry professionals about The Key. The show aims to promote positive mental health through open conversation, promoting awareness and sharing real-life experiences. Alongside this is an exhibition with over 60 charities, organisations and companies promoting their helpful resources, services and initiatives designed to support positive mental health and wellbeing.

16.6. PESO Model

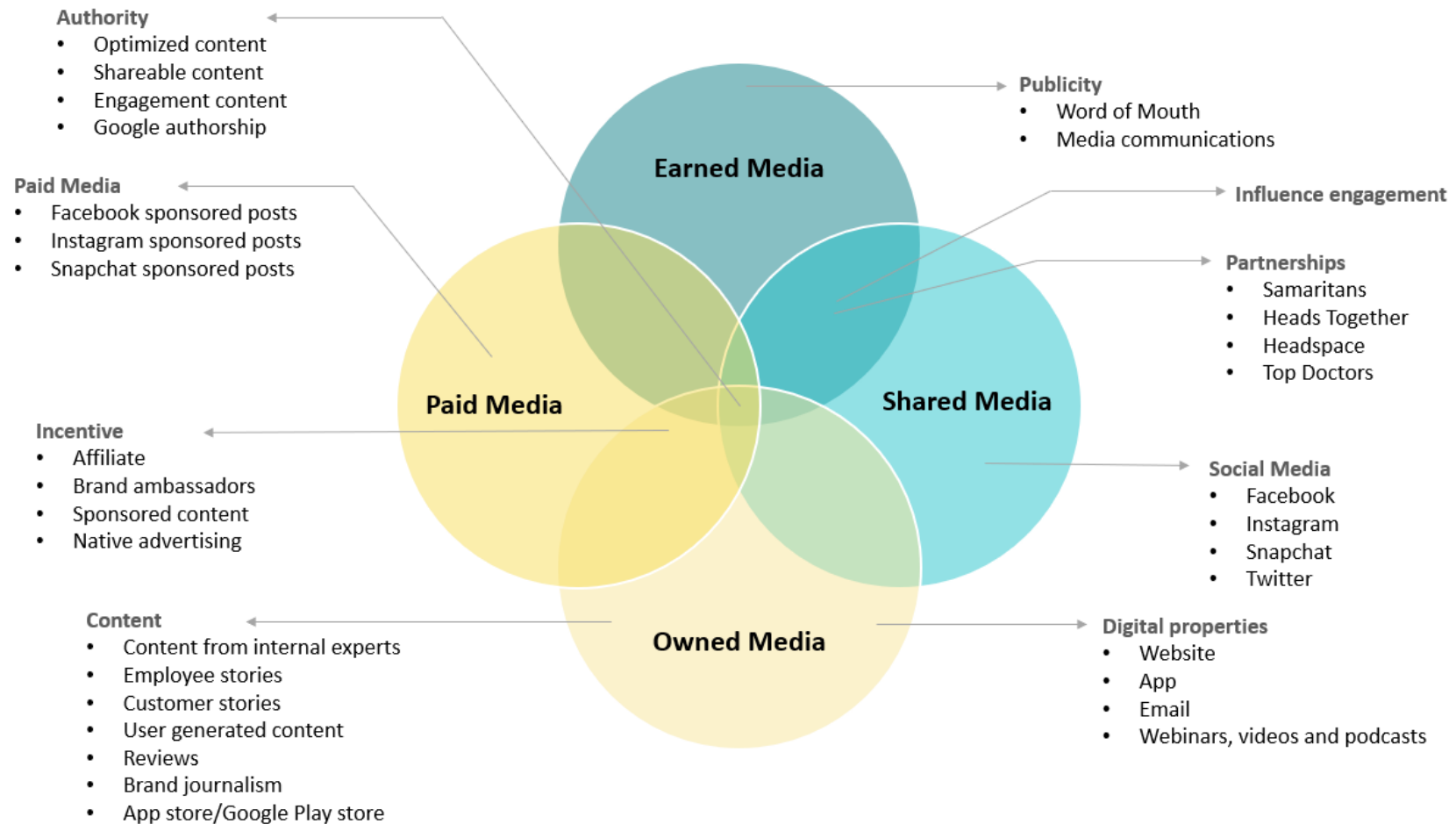


Figure 15: PESO Model (Paid, Earned, Shared, and Owned Media).

16.7. Gantt Chart

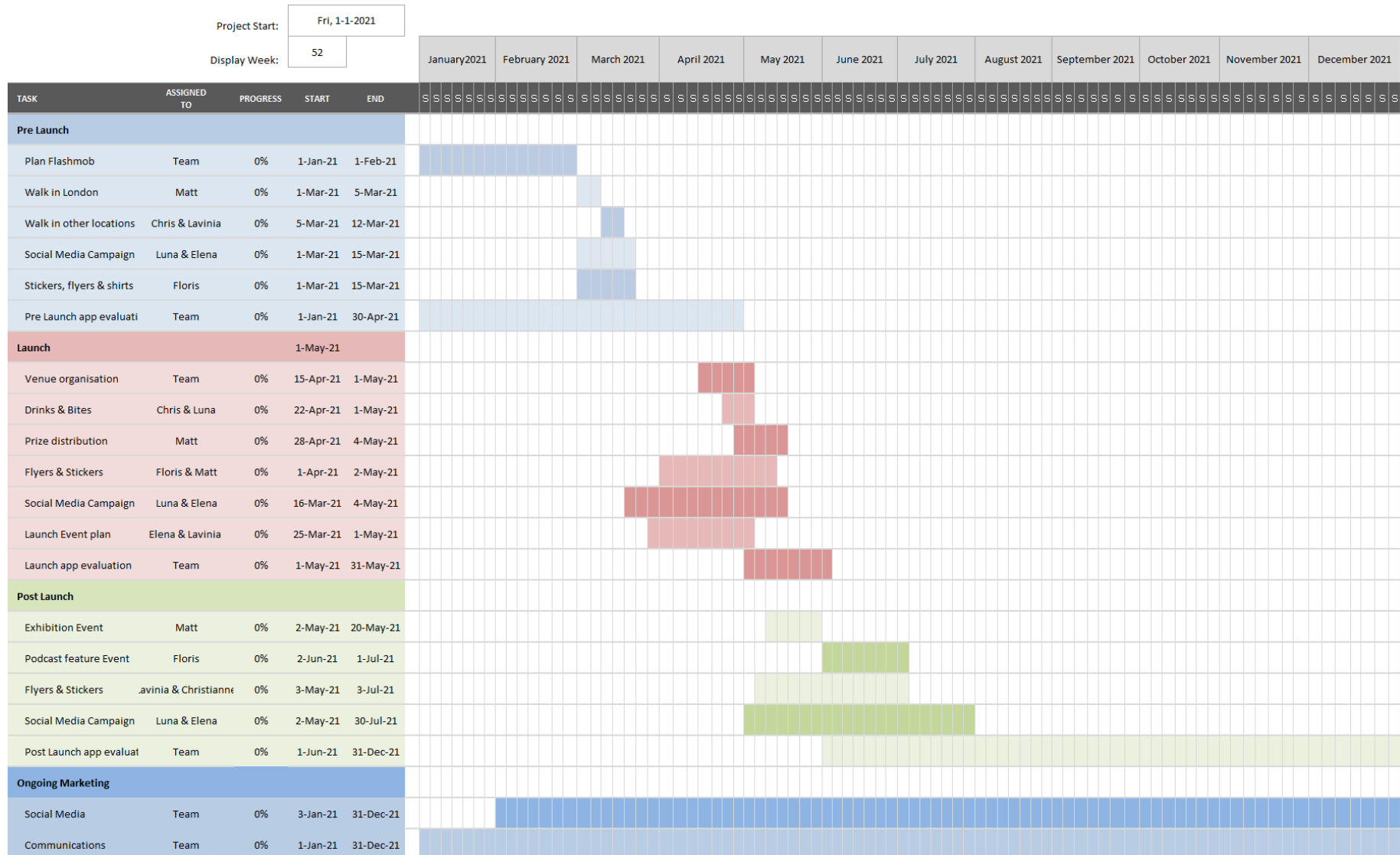
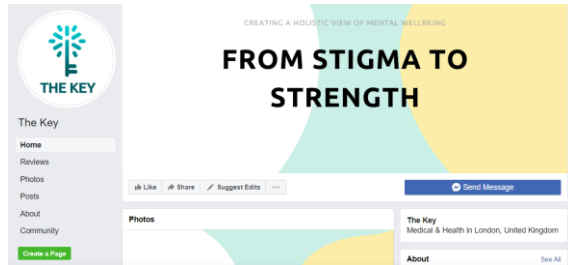


Figure 16: Marketing strategy Gantt Chart.

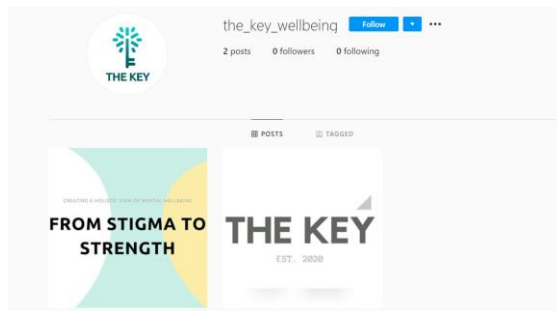
17. Online Channels

17.1. Social Media

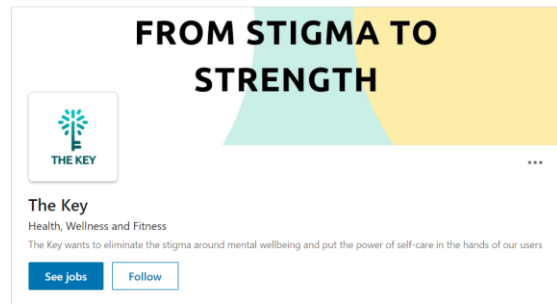
Facebook link: <https://www.facebook.com/The-Key-100368614988234>



Instagram link: https://www.instagram.com/the_key_wellbeing/

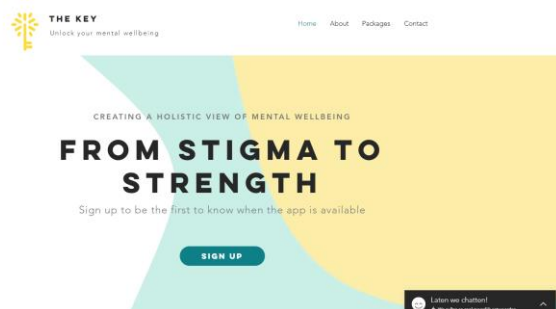


LinkedIn link: <https://www.linkedin.com/company/the-key-wellbeing/>



17.2. Website

Link: <https://christiannebakker.wixsite.com/thekey>



18. Retention and the Monetization of Paid Apps

Today's mobile market relies on two types of revenue streams; paying consumers and paying advertisers. The choice between offering your app for free or paid heavily depends on the retention rate (Baumel et al., 2019).

According to Appel et al., (2017), there are two types of apps; the ones that are downloaded to enjoy and the ones that are downloaded for their functions. The applications in the function category are perceived as providing added value.

Apps that use intense advertising are seen as having a low retention rate due to the drop-out rate that is caused by annoyance from the user. Another reason for decreased retention is; the app holding costs, meaning that the app uses memory capacity, cost of battery and causes a decreased smart phone speed (Appel et al., 2017). If the entire utility of the app can be experienced in early stages of the use, it is likely to increase drop-out rates.

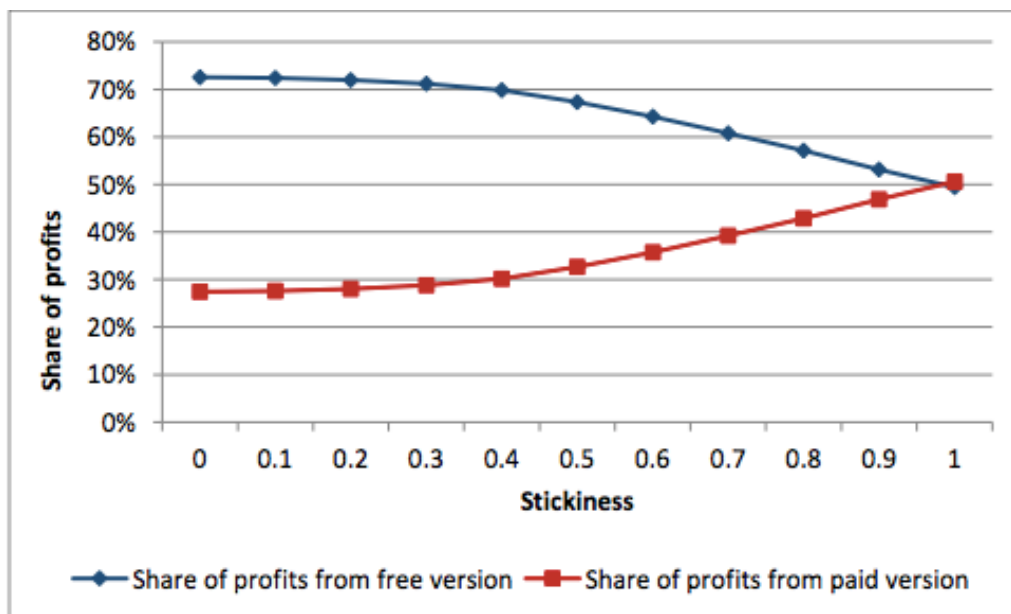


Figure 17: Effect of stickiness and share of profits from free and paid versions of the app (Appel et al., 2017).

If stickiness from the user increases, so does profit from the paid version of an app, whereas profits from free apps decrease due to lower retention rates (dropping out due to the annoyance of advertisements). The more functions the app offers, the higher the retention rate (Appel et al., 2017). If the user is uncertain whether the app matches their interests, but they do tend to stick to that app, it is likely that the consumer will decide to choose the paid version and therefor increase profit for the app.

The next table summarizes what apps should include in order to increase retention rates for paid versions, including how The Key makes use of these different indications.

<i>Techniques for repeated use without learning a direct skill</i>	Meditation/Mindfulness Mood trackers Journaling Picture board Growth Mindset Techniques Self-Care plans
<i>A therapeutic framework about how to use the right app at the right time</i>	NHS approval
<i>Take a public health engagement approach</i>	NHS + Flash mobs
<i>Create a dynamic process for the app</i>	The Key offers different functions on the app
<i>Make sure the utility of the app is not being experienced too early on</i>	We offer different packages to be explored by users, the more you use the app, the more techniques are discovered
<i>Make sure you know your target audience and their needs in order to increase their certainty of a utility match with the app.</i>	The Key has clearly developed a suitable target segment after in-depth research
<i>Offer only one version of the app (only paid or only free)</i>	The Key offers a paid version only
<i>Add value through functions (health is considered a high retention category)</i>	The Key makes use of techniques that call to action and help individuals improve their wellbeing
<i>Higher retention rates are a result of higher levels of utility of the app</i>	The Key offers various techniques and user options through the different packages
<i>Have a long-term app</i>	The Key provides ongoing evaluation of one's behaviour and is developed to be used over a longer time period

Figure 18: How The Key app increases engagement rates.

19. Finances

19.1. App Development

		Development	Year 1	Year 2	Year 3	Year 4	Year 5	
1	Design	in-house						0
2	Data Collection and Storage		427050	711750	996450	1138800	1281150	4555200
3	Maintenance		25000	15000	15000	15000	15000	85000
4	Marketing	500000	250000	250000	250000	250000	250000	1750000
5	AEI	200000	0	0	0	0	0	200000
6	App Store	25	99	99	99	99	99	520
7	Development	100000	0	0	0	0	0	100000
8	API Partnerships		90000	90000	90000	90000	90000	450000
9	API Algorithm	2400		2400	2400	2400	2400	12000
10	Additional Operational Costs		100000	120000	144000	172800	207360	744160
11	Consulting (medical & business)	500000	500000	250000	500000	250000	500000	2500000
	Total	1,302,425.00 €	1,392,149.00 €	1,439,249.00 €	1,997,949.00 €	1,919,099.00 €	2,346,009.00 €	10,396,880.00 €

TOTAL COSTS 10.396.880 €
TOTAL COSTS 9,045,286 GBP

Figure 19: App development costs throughout 5 years.

Data Storage Costs

Subscribers	15000	25000	35000	40000	45000
Usage in GB	2737500	4562500	6387500	7300000	8212500
Usage in TB	2737.5	4562.5	6387.5	7300	8212.5
Costs per TB	\$75 a month for 5TB	\$75 a month for 5TB	\$75 a month for 5TB	\$75 a month for 5TB	\$75 a month for 5TB
Usage divided by 5	547.5	912.5	1277.5	1460	1642.5
Costs per month	35587.5	59312.5	83037.5	94900	106762.5
Costs per year	427,050.00 €	711,750.00 €	996,450.00 €	1,138,800.00 €	1,281,150.00 €

Figure 20: Data storage costs throughout 5 years (Business.com, 2020).

19.2. Market Share and Pricing

<div> <div>Year 1</div> <div>Year 2</div> <div>Year 3</div> <div>Year 4</div> <div>Year 5</div> </div>							
	Market Share	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Users	Downloads	50000	87500	125000	150000	175000	587500
	Subscribers	15000	25000	35000	40000	45000	160000
	Lowest Potential (cheapest package per year)	1,093,500.00 GBP	1,822,500.00 GBP	2,551,500.00 GBP	2,916,000.00 GBP	3,280,500.00 GBP	11,664,000.00 GBP
	Highest Potential (most expensive package per month)	1,618,200.00 GBP	2,697,000.00 GBP	3,775,800.00 GBP	4,315,200.00 GBP	4,854,600.00 GBP	17,260,800.00 GBP
	Average	1,355,850.00 GBP	2,259,750.00 GBP	3,163,650.00 GBP	3,615,600.00 GBP	4,067,550.00 GBP	14,462,400.00 GBP
	Accumulated revenue		3,615,600.00 GBP	6,779,250.00 GBP	10,394,850.00 GBP	14,462,400.00 GBP	

Figure 21: Users market share throughout 5 years.

Prices	Trial	Packages	Monthly subscription	Per year price	Yearly subscription	Yearly price broken down per month
	7 days free trial	The Learning Guardian	7.29 GBP	87.48 GBP	72.90 GBP	6.08 GBP
	7 days free trial	The Discovering Mentor	8.29 GBP	99.48 GBP	82.90 GBP	6.91 GBP
	7 days free trial	The Exploring Master	8.99 GBP	107.88 GBP	89.90 GBP	7.49 GBP

Figure 22: The Key subscription prices for users.

19.2.1. Pricing Research

In order to price The Key's different packages, the company looked into the process of customer decision making when purchasing an app. Influential factors are found to be WoM, the usefulness of the app, monetary value, trialability and app enjoyment (Kim, Kankanhalli, & Lee, 2016). Furthermore, the price sensitivity and its influence on app popularity have been assessed where the UK places in the lower half, indicating that other factors such as app enjoyment are comparably more relevant than low pricing (Kübler, Pauwels, Yildirim, & Fandrich, 2018).

The Key has a 7-day free trial period for all users as it reduces uncertainty and lowers the perceived risk when purchasing a package (Kim, Kankanhalli, & Lee, 2016). A free trial stimulates more users to test the app and thus, increases the likelihood of customer referrals as well as WoM (Lin, Guo, & Easley, 2017).

Studies have shown that a significant share of App revenue is often generated by a small percentage of the user base, which proves the importance of early identification of profitable customers (Voigt & Hinz, 2016). The Key makes sure to only invest in profitable customers by eliminating non-paying users after the first week. This was a conscious decision to be able to streamline resources towards those customers with a potential high customer lifetime value. Moreover, by streamlining the customer base, The Key is able to deliver more value and commitment to its users.

Other revenue streams such as advertisement have been considered but out ruled due to ethical concerns of placing ads in the context of mental wellbeing. The aim behind the chosen pricing model is to push customers to buy the all-inclusive app package (the exploring Master) which is why the prices have been chosen to contextualise the Master as the best possible deal. The other two packages function as anchor points and decide at what price point the customer's consideration commences.

The pricing is loosely oriented around competitor prices and was elevated there as The Key's technology is far more advanced than other apps on the market. It offers more value to the customer and is accordingly monetised with a premium positioning. At the same time, the chosen messaging aids the customer segment to contextualise the price. By communicating that for the cost of only 2 or 3 coffees per month, a user can fundamentally improve his or her mental wellbeing, the young audience is challenged to compare what they allocate their share of wallet to.

19.3. Investment and Breakeven Analysis

19.3.1. Seed Venture Funding

The Key was developed to combat a societal trend close to our team's heart. We are the generational companions of the users we aim to help and therefore our purpose is at the core of our business. As we look to fund our business we aim to partner with financial backers that believe in our vision and are equally committed to helping individuals manage their mental wellbeing and thereby turn the stigma of mental wellbeing into the strength of the community we hope to build on our platform.

Investor Profile

We recognise that societal norms play a significant role in the discussion and treatment of mental wellbeing. Likewise, we want to maintain control of our venture and see it through its growth stages. Therefore, we are looking for an Angel Investor based in the United Kingdom who has a deep understanding of local culture and a passion for, and knowledge of, digital health solutions. We are looking for a partner in this venture who is willing to contribute both capital and experience to our team.

Funding Strategy

Designing the optimal funding strategy that satisfies our investor profile requires knowledge of future projections. Considering the turbulent climate we currently find ourselves in this can be quite tough. Therefore, we have deduced that the current optimal strategy, which minimizes the risk for our investor, is to raise only as much capital as is necessary to hold us over till we reach our breakeven point. This will protect us from unnecessarily diluting the value of the company and will reduce the hurdle to achieve our first round of financing.

We have calculated pre-launch costs of just over 1.1 M GBP (see chapter 17.3.2. for financial forecasts). As such, we hope to achieve funding to oversee this period until we reach our breakeven point and can deliver value to our investor(s). To do so we have devised 2 rounds of funding strategies.

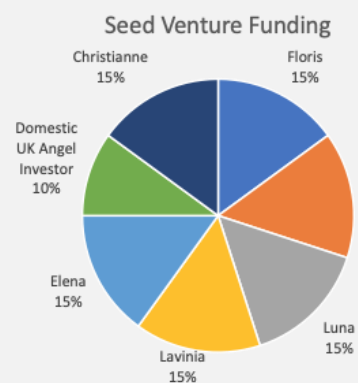

Round 1 - Capital Investiture	Round 2 - Equity Collateral
<p>Investment: 1.1m GBP</p> <p>ROI: 100% after 2 years given financial projections</p> <p>Following 3 years at 5% of gross profit</p> <p>Key benefit: Quick ROI and maintain independence</p>	<p>Equity: 10% at current valuation</p> <p>ROI: Based on our prognosed profit, our Angel Investor would receive about 48% of the initial investment after 5 years</p> <p>Key benefit: High upside with international expansion (see chapter 19 for expansion plan)</p>  <p>The pie chart, titled 'Seed Venture Funding', illustrates the equity distribution for the second round of funding. It is divided into seven segments: Christianne (15%), Floris (15%), Matt (15%), Luna (15%), Lavinia (15%), Elena (15%), and a Domestic UK Angel Investor (10%).</p>

Figure 23: Potential strategies for seed venture funding.

Based on our five year financial projections we estimate a breakeven point in our second year of operation. While the projections are positive we recognize that running a business will present a plethora of challenges. Thus, we are keen on an Angel Investor who is willing to invest capital and their contacts to help us achieve our projected growth. Beyond the first round of funding we see our partnership with our angel Investor as a gateway to larger capital sources as we expand international and upscale the business. It is precisely in this growth period where we will lean on the expertise and experience of our Angel Investor to help us navigate the muddy waters of start-up expansion.

19.3.2. Investment and Breakeven Analysis



Users	Pre-Launch	1st year of operation	2nd year	3rd year	4th year	5th year	Total
Costs in EUR	1,302,425 €	1,392,149 €	1,439,249 €	1,997,949 €	1,919,099 €	2,346,009 €	10,660,960 €
Costs in GBP	1,133,110 GBP	1,211,170 GBP	1,252,147 GBP	1,738,216 GBP	1,669,616 GBP	2,041,028 GBP	9,275,035.20 GBP
Revenue in GBP	0 GBP	1,355,850 GBP	2,259,750 GBP	3,163,650 GBP	3,615,600 GBP	4,067,550 GBP	14,462,400.00 GBP
Profit	-1,133,110 GBP	144,680 GBP	1,007,603 GBP	1,425,434 GBP	1,945,984 GBP	2,026,522 GBP	5,417,114.40 GBP
Accumulated Profit	-1,133,110 GBP	-988,429 GBP	19,174 GBP	1,444,608 GBP	3,390,592 GBP	5,417,114 GBP	
Accumulated Costs	1,133,109.75 GBP	2,344,279.38 GBP	3,596,426.01 GBP	5,334,641.64 GBP	7,004,257.77 GBP	9,045,285.60 GBP	
Accumulated Revenue	0.00 GBP	1,355,850.00 GBP	3,615,600.00 GBP	6,779,250.00 GBP	10,394,850.00 GBP	14,462,400.00 GBP	
Investment	1,133,109.75 GBP						
ROI per year	-100%	13%	89%	126%	172%	179%	478%
Accumulated ROI		13%	102%	227%	399%	578%	
Potential Investor Equity	10%						
Investor Profit	-113,311 GBP	14,468 GBP	100,760 GBP	142,543 GBP	194,598 GBP	202,652 GBP	541,711.44 GBP
Accumulated Investor Profit		-98,843 GBP	1,917 GBP	144,461 GBP	339,059 GBP	541,711 GBP	
Divident after 5 years in % of the initial investment	48%						

Figure 24: Investment analysis throughout 5 years.

19.3.3. Breakeven Chart

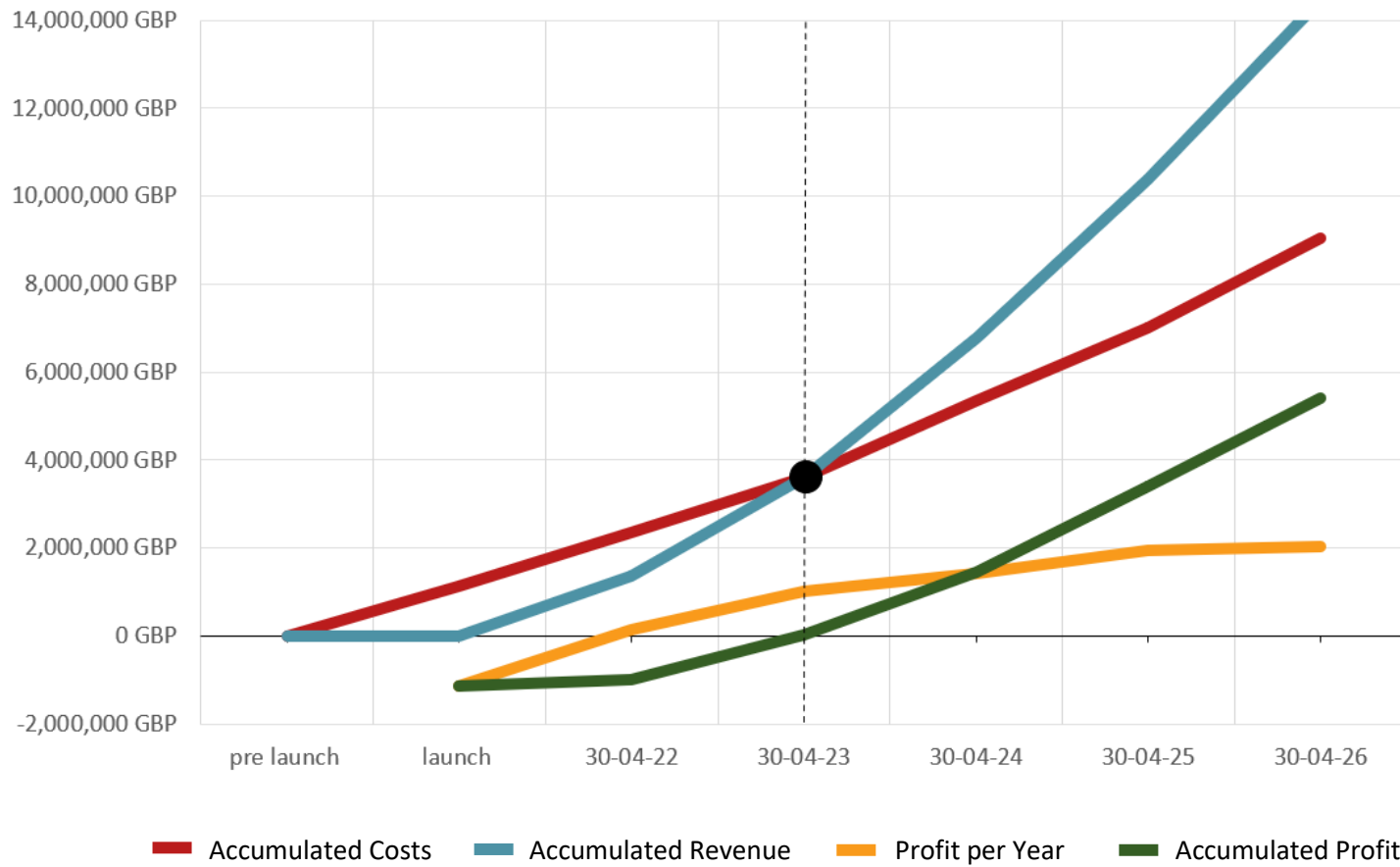


Figure 25: Breakeven analysis chart from pre-launch to 5 years.

19.4. Marketing Costs

Figure 26: Total marketing costs and expenses breakdown from pre-launch to post launch and ongoing costs for the following years.

MARKETING STRATEGY EXPENSES

Budget	£ 2,000,000.00
Timeline	5 YEARS
Pre-launch	8 WEEKS
BUDGET	£ 1,000,000.00

ONGOING COSTS FOR THE FOLLOWING YEARS

	COST
SEO Monthly Retainer for 5 years	£ 180,000.00
Instagram Ads	£ 227,250.00
Facebook Ads	£ 54,750.00
Period of paid Ad	5 years
Daily Budget for Ad	£ 30.00
Number of clicks obtained	34 - 106 clicks
Another flyer production (20000)	£ 305.00
Another sticker production (30000)	£ 1,000.00
Email Marketing	£ 15,000.00
Number of emails per month	50000
Time period	5 years
Cost for 50000 emails	£ 250.00
Workforce (6)	£ 750,000.00
TOTAL FOR 5 YEARS	£ 1,228,305.00

PRE-LAUNCH

	COST
Purchase website domain: thekey.co.uk	£ 48.99
SEO project based	£ 10,000.00
TOTAL	£ 10,048.99

PRE-LAUNCH PHASE 1

	COST
Micro influencer	£ 20,000.00
Psychologist (cost per post for Dr. Soph)	£ 5,750.00
Heads Together	/
Instagram Ads (8 weeks)	£ 7,575.00
Facebook Ads (8 weeks)	£ 5,600.00
Days	56
Daily Budget	£ 100.00
Estimated number of clicks	34 - 106 clicks
SEO monthly retainers	£ 8,000.00
TOTAL	£ 46,925.00

PRE-LAUNCH PHASE 2

	QUANTITY	COST
Flash Mobs	25	
Individuals needed	50	£ 25,000.00
Company shirts	1500	£ 5,705.00
Flyers	20000	£ 305.00
Stickers	30000	£ 1,000.00
Instagram Ads		/
Facebook Ads		/
SEO monthly retainers		£ 8,000.00
TOTAL		£ 40,010.00

PRE-LAUNCH PHASE 2

	QUANTITY	COST
Flash Mobs	25	
Individuals needed	50	£ 25,000.00
Company shirts	1500	£ 5,705.00
Flyers	20000	£ 305.00
Stickers	30000	£ 1,000.00
Instagram Ads		/
Facebook Ads		/
SEO monthly retainers		£ 8,000.00
TOTAL		£ 40,010.00

PRE-LAUNCH PHASE 3

	COST
Video Production YouTube (30 sec)	£10,000.00
Newspaper publicity: Times (Education Section 4 x per month)	£ 22,000.00
Instagram Ads	/
Facebook Ads	/
Email Marketing (50 000 emails per month)	£ 250.00
SEO monthly retainers	£ 8,000.00
TOTAL	£ 40,250.00

PRODUCT LAUNCH EVENT 1

	COST
Launch Event (5*HOTEL)	£17,500.00
Cost per person	£ 50.00
Capacity of the venue	350
HOST	£ 750.00
Drinks & Bites	£ 26,250.00
Prizes for sharing the #	£ 1,000.00
Flyers (event specific)	£ 375.00
Stickers (event specific)	£ 673.00
SEO monthly retainers	£ 8,000.00
TOTAL	£ 54,548.00

POST LAUNCH EVENT 2**COST**

<i>Second Event 2 exhibition stands (plus VAT)</i>	£ 590.00
<i>HOST</i>	£ 500.00
<i>Sponsorship costs</i>	£ 5,000.00
<i>Flyers (event specific)</i>	£ 375.00
<i>Stickers (event specific)</i>	£ 673.00
<i>Instagram Ads</i>	£ 7,575.00
<i>Facebook Ads</i>	£ 5,600.00
<i>SEO monthly retainers</i>	£ 8,000.00
TOTAL	£ 28,313.00

POST LAUNCH EVENT 3**COST**

<i>Third follow up event (podcast feature)</i>	£ 10,000.00
<i>HOST (Dean Sam/Hult Alumni)</i>	£ 500.00
<i>Drinks & Bites</i>	£ 12,750.00
<i>Flyers (event specific)</i>	£ 375.00
<i>Stickers (event specific)</i>	£ 673.00
<i>Instagram Ads</i>	/
<i>Facebook Ads</i>	/
<i>SEO monthly retainers</i>	£ 8,000.00
TOTAL	£ 32,298.00

WORKFORCE**COST**

<i>Salary</i>	£ 32,950.00
<i>Employees</i>	6
TOTAL	£ 197,700.00

COMMUNICATIONS**COST**

TOTAL	£ 25,000.00
--------------	--------------------

OPERATIONS**COST**

TOTAL	£ 25,000.00
--------------	--------------------

TOTAL COST**£ 500,092.99**

20. Crisis Management

At The Key we define a wellness crisis as any situation in which a person's behaviours puts them at risk of hurting themselves or others and/or when they are not able to resolve the situation with the skills and resources we make available to our users on our platform. The Key provides our users with a holistic view of mental wellbeing and the tools to actively work on their personal wellbeing. Thus prevention is at the core of our company. We recognize our responsibility as a wellness app to shepherd the wellbeing of our users and have thus developed the Crisis Management Plan.

24-Hour Crisis Hotline

We recognize that in dire circumstances our users might need personal guidance to soothe their worries or concerns. As such, The Key will be equipped with a 24-Hour Crisis Hotline that are connected to national Emergency suicide prevention hotlines that are staffed with experts in the field. In our launch market of the United Kingdom this will be:

Samaritans – For Everyone

<https://www.samaritans.org/>

Call: 116 123

Email: jo@samaritans.org

Campaign Against Living Miserably (CALM) – For Men

<https://www.thecalmzone.net/>

Call: 0800 58 58 58 – 5pm to midnight every day

Visit the webchat page - <https://www.thecalmzone.net/help/webchat/>

Papyrus – For People Under 35

<https://papyrus-uk.org/hopelineuk/>

Call: 0800 068 41 41 – Monday to Friday 9am to 10pm, weekends and bank holidays 2pm to 10pm

Text: 07860 039967

Email: pat@papyrus-uk.org

Childline – For Children and Young People Under 19

<https://www.childline.org.uk/>

Call: 0800 1111 – the number will not show up on your phone bill

Crisis Resolution and Home Treatment (CRHT) teams

Crisis teams are meant to be accessible to anyone in The Key community at any time. They are available 24 hours a day, seven days a week and 365 days a year to meet face-to-face with a person in a mental health crisis, conduct a mental health crisis assessment and create a crisis treatment plan. There are different ways you can access your local crisis team during a crisis, depending on your situation and how your local team works. These can include:

- Users can contact the team themselves. If the user is already in contact with a crisis team, the user might have been given details for getting in touch with them during a crisis.
- Users can be referred. Many crisis teams can only support people who have been referred to them by another health care professional. For example, a user might be referred to a crisis

team after visiting A&E (<https://www.mind.org.uk/information-support/guides-to-support-and-services/crisis-services/accident-emergency-ae/>) or their GP.

- Through the user's care plan. If the user is currently being supported by a community mental health team (CMHT), their care plan should include details of who to contact in a crisis, which will often be their local crisis team.

21. International Expansion and Growth Strategy

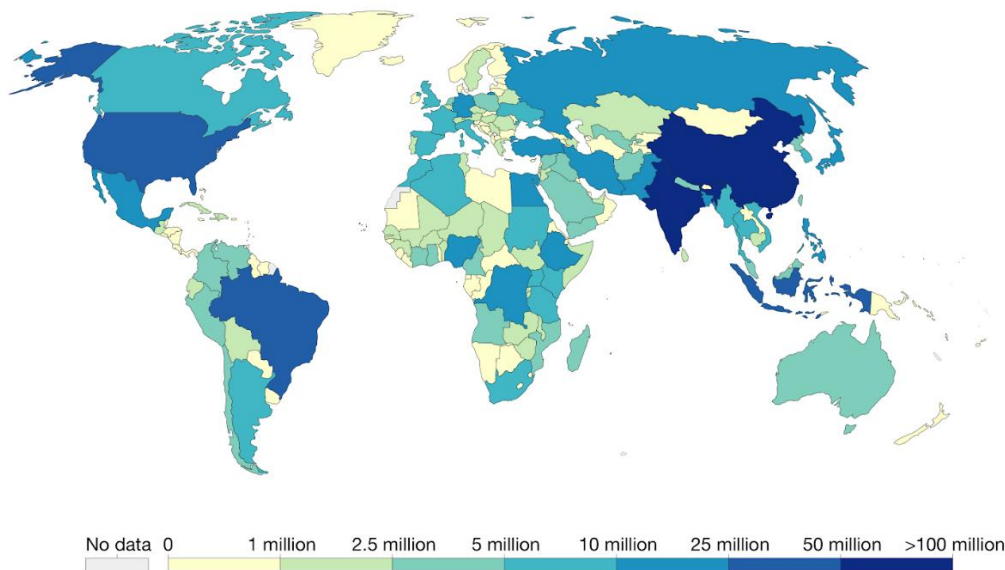
The aforementioned strategies are all tailored to The Key's operation in the UK market. Should the business proceed and grow as projected, an expansion plan has been developed to add value by increasing the market size.

Figure 26 and 27 show that mental health is a worldwide issue to tackle which indicates potential for The Key in markets all over the globe.

Number of people with mental health disorders, 2016

Number of people with mental health and neurodevelopmental disorders, not including alcohol and drug use disorders. Figures attempt to provide a true estimate (going beyond reported diagnosis) of prevalence based on medical, epidemiological data, surveys and meta-regression modelling.

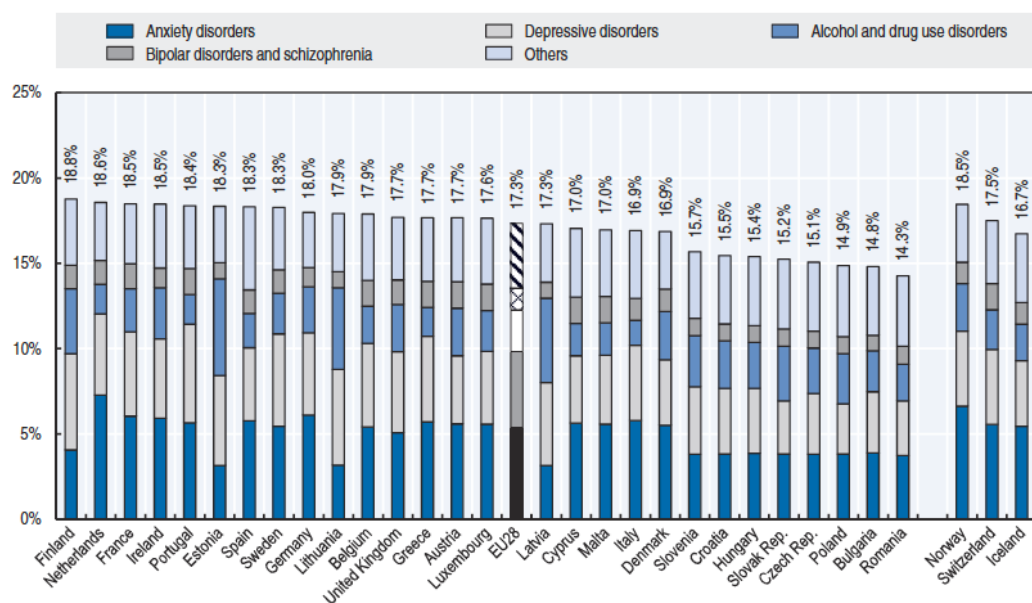
Our World
in Data



Source: IHME, Global Burden of Disease

CC BY

Figure 27: Number of people with mental health disorders, 2016 (Ritchie, 2018).



Source: IHME, 2018 (these estimates refer to 2016).

Figure 28: More than one in six people in EU countries have a mental health problem (OECD/EU, 2018).

The following data and considerations have led to a staggered approach that is explained below. Main aspects that were considered are the match between the target culture and the product, familiarity and openness around the topic, infrastructural requirements and the company's knowledge and association with potential target countries (Entrepreneur Europe, 2020).

Potential country	Pro's	Con's
European market	<ul style="list-style-type: none"> • Geographical proximity • Same time zone • Similar values • European Union 	<ul style="list-style-type: none"> • Need for translation • Some European cultures are opposed to talking about mental wellbeing in an open manner • Brexit
English speaking market	<ul style="list-style-type: none"> • No translation costs for the app • No international customer service required • Cultural proximity due to Commonwealth • Australia and NZ are open to addressing the topic • Australia and NZ are good testing markets 	<ul style="list-style-type: none"> • Different time zones • Long distances • Business operations potentially need to deal with visas/work permits in different countries • Especially the US and Canada are huge markets and they differ substantially from NZ and Australia

Figure 29: Pros and cons of potential expansion countries.

The first expansion is planned to be to Ireland after 6 months of operation to get familiar with the process of expansion and to explore the additional communication and operation that are required to grow The Key internationally.

Due to the enormous effort and costs that would come with translating The Key into other languages, the second expansion will be into Australia and New Zealand after 1 year. These markets offer great opportunities to test products, new features, and establish the company in societies of affluent and tech-savvy consumers (the Economist, 2015; Kumar, 2015). Australians are seen as "hungry for new experiences" (Fry, 2015) and furthermore, if the expansion should fail, it is unlikely that it would impact other parts of the growth strategy due to the rather isolated geographical position of the two markets.

After 2 years, once The Key is profitable in the original UK market, the business will take the step to expand into the US and Canada, accompanied by Floris Hondmann as a geographical manager of North America. Once these international expansions have been successful, the European strategy starts in the Netherlands and Denmark, where the App itself can be launched in English while the communication will be translated into the local lingo before expanding into further European countries such as the DACH countries, France and Spain where everything will be translated.

Priority will be given to the European countries where the cost related to mental wellbeing are comparably high as The Key sees great business opportunity in those markets.

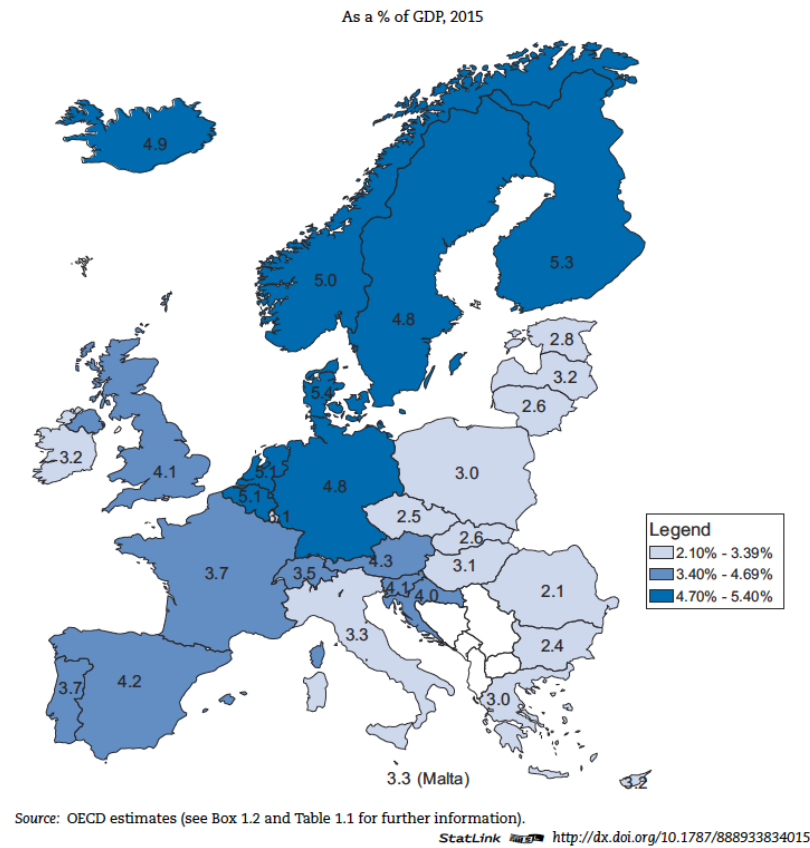


Figure 30: Estimated direct and indirect costs related to mental health problems across EU countries (OECD/EU, 2018).

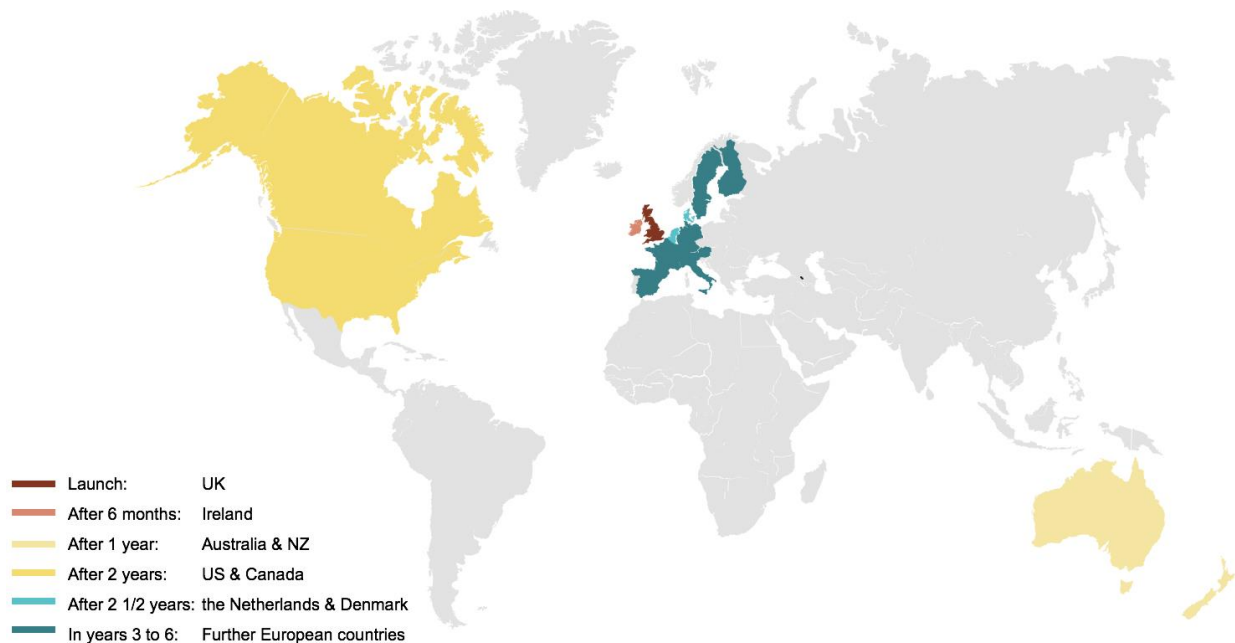


Figure 31: Summary of expansion timeline.

Bibliography

- American Psychological Association. (2019, March 15). Mental health issues increased significantly in young adults over last decade. Retrieved from ScienceDaily: <https://www.sciencedaily.com/releases/2019/03/190315110908.htm>
- Anderson, S. L. (2011a). Machine Metaethics. *Machine Ethics*, 21–27. <https://doi.org/10.1017/cbo9780511978036.004>
- Anderson, S. L. (2011b). The Unacceptability of Asimov's Three Laws of Robotics as a Basis for Machine Ethics. *Machine Ethics*, 285–296. <https://doi.org/10.1017/cbo9780511978036.021>
- Appel, G., Libai, B., Muller, E., & Shachar, R. (2019). On the monetization of mobile apps. *International Journal of Research in Marketing*. doi:10.1016/j.ijresmar.2019.07.007.
- Arora, N., Prashar, S., Parsad, C., & Tata, S. (2019). Influence of celebrity factors, consumer attitude and involvement on shoppers' purchase intention using hierarchical regression. *Decision : Official Journal of Indian Institute of Management Calcutta*, 46(3), 179-195. doi:10.1007/s40622-019-00208-7.
- BACP. (2018). GPIA 057 Legal Resource: Suicide – legal issues when working in the counselling professions in England and Wales. British Association for Counselling and Psychotherapy, Lutterworth, UK.
- Baker, C. (2020). Mental health statistics for England: prevalence, services and funding. UK: House of Commons Library. Retrieved from <https://commonslibrary.parliament.uk/research-briefings/sn06988/>
- Baumel, A., Muench, F., Edan, S., & Kane, J. M. (2019). Objective User Engagement With Mental Health Apps: Systematic Search and Panel-Based Usage Analysis. *Journal of medical Internet research*, 21(9), e14567. <https://doi.org/10.2196/14567>
- Beech, H. (n.d.). The Changing Face of Health and Wellness. Retrieved from 2CV: <https://www.2cv.com/what-we-think/2012/05/the-changing-face-of-health-and-wellness.aspx>
- Beer, R. D. (2000). Dynamical approaches to cognitive science. *Trends in Cognitive Sciences*, 4(3), 91–99. [https://doi.org/10.1016/s1364-6613\(99\)01440-0](https://doi.org/10.1016/s1364-6613(99)01440-0)
- Bellazzi, R., & Zupan, B. (2008). Predictive data mining in clinical medicine: Current issues and guidelines. *International Journal of Medical Informatics*, 77(2), 81–97. <https://doi.org/10.1016/j.ijmedinf.2006.11.006>
- Bennett, C. C., & Doub, T. W. (2016). Expert Systems in Mental Health Care. *Artificial Intelligence in Behavioral and Mental Health Care*, 27–51. <https://doi.org/10.1016/b978-0-12-420248-1.00002-7>
- Bennett, C. C., Doub, T. W., & Selove, R. (2012). EHRs connect research and practice: Where predictive modeling, artificial intelligence, and clinical decision support intersect. *Health Policy and Technology*, 1(2), 105–114. <https://doi.org/10.1016/j.hlpt.2012.03.001>
- Bickmore, T. W., Mitchell, S. E., Jack, B. W., Paasche-Orlow, M. K., Pfeifer, L. M., & O'Donnell, J. (2010). Response to a relational agent by hospital patients with depressive symptoms. *Interacting with Computers*, 22(4), 289–298. <https://doi.org/10.1016/j.intcom.2009.12.001>
- Bindoff, I., Stafford, A., Peterson, G., Kang, B. H., & Tenni, P. (2011). The potential for intelligent decision support systems to improve the quality and consistency of medication reviews. *Journal of Clinical Pharmacy and Therapeutics*, 37(4), 452–458. <https://doi.org/10.1111/j.1365-2710.2011.01327.x>
- Bloom, D. E., Cafiero, E. T., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L. R., & Fathima, S. (2011). The Global Economic Burden of Non-communicable Diseases. Retrieved from http://www3.weforum.org/docs/WEF_Harvard_HE_GlobalEconomicBurdenNonCommunicableDiseases_2011.pdf

- Borinstein, A. B. (1992). Public Attitudes Toward Persons With Mental Illness. DYG Inc. New York: Health Affairs.
doi:10.1377/hlthaff.11.3.186
- Boulesteix, A.-L., Porzelius, C., & Daumer, M. (2008). Microarray-based classification and clinical predictors: on combined classifiers and additional predictive value. *Bioinformatics*, 24(15), 1698–1706.
<https://doi.org/10.1093/bioinformatics/btn262>
- Britannica. (2019). City of London. Retrieved from Britannica: <https://www.britannica.com/place/City-of-London>
- Brooks, D. (2012). The social animal: The hidden sources of love, character, and achievement. Random House Incorporated.
- Brown, D., & Trigg, N. (2018, December 4). Mental health: 10 charts on the scale of the problem. Retrieved from BBC News: <https://www.bbc.com/news/health-41125009>
- Business.com (2020). Top 10 Cloud Storage Services for Business. Retrieved 19 April 2020, from
<https://www.business.com/articles/top-10-cloud-storage-services-for-business/>
- Business Wire Inc. (2017, September 27). Global Affective Computing Market 2017-2022 - Market Growth at CAGR of 42.63% - Research and Markets. Retrieved 21 March 2020, from
<https://www.businesswire.com/news/home/20170927005549/en/Global->
- Byers, C. (2016). Holborn London Guide. Retrieved 20 April 2020, from
<https://www.movebubble.com/renterhub/london/area-guides/holborn-london-guide>
- CABA. (n.d.). What is mental wellbeing? Retrieved from Chartered Accountants Benevolent Association:
<https://www.caba.org.uk/help-and-guides/information/what-mental-wellbeing>
- Carmel Cefai, & Paul Cooper. (2017). Mental Health Promotion in Schools : Cross-Cultural Narratives and Perspectives. Brill | Sense.
- CompaniMx. (2020). THE COMPANION SYSTEM & COMPANIONMx. <https://companionmx.com/about/>
- Cox, L. (2018, October 29). Artificial Emotional Intelligence. Retrieved 21 March 2020, from
<https://disruptionhub.com/artificial-emotional-intelligence-disruption-5278/>
- Entrepreneur Europe. (2020). How to Take Your Company Global Global growth can be both daunting and rewarding. Here are the steps to take, the mistakes to avoid, and the basics of exporting and importing. Retrieved 19 April 2020, from <https://www.entrepreneur.com/article/159252>.
- Everymind. (n.d.). Understanding mental health and wellbeing. Retrieved from Everymind:
<https://everymind.org.au/mental-health/understanding-mental-health/understanding-mental-health-and-wellbeing>
- Fry, E. (2015). Why global business tests its products in Australia. *Fortune*. Retrieved 19 April 2020, from
<https://fortune.com/2015/10/26/australia-test-products/>.
- Gillon, R. (1994). Medical ethics: four principles plus attention to scope. *BMJ*, 309(6948), 184.
<https://doi.org/10.1136/bmj.309.6948.184>
- Goasduff, L. (2020, January 22). Smarter with Gartner. Retrieved from:
<https://www.gartner.com/smarterwithgartner/emotion-ai-will-personalize-interactions/>
- Gratch, J., Wang, N., Gerten, J., Fast, E., & Duffy, R. (2007). Creating Rapport with Virtual Agents. *Intelligent Virtual Agents*, 125–138. https://doi.org/10.1007/978-3-540-74997-4_12

- Harrison, R., Flood, D., & Duce, D. (2013). Usability of mobile applications: literature review and rationale for a new usability model. *Journal of Interaction Science*, 1(1), 1. <https://doi.org/10.1186/2194-0827-1-1>
- Hulme, J. (2017). *The School of Wellbeing: 12 Extraordinary Projects Promoting Children and Young People's Mental Health and Happiness*. Jessica Kingsley Publishers.
- Jackson, P. (1998). *Introduction to Expert Systems* (3rd ed.). Harlow, England: Addison-Wesley.
- Jarboe, G. (2018, June 11). What Is Artificial Emotional Intelligence & How Does Emotion AI Work? Retrieved 21 March 2020, from <https://www.searchenginejournal.com/what-is-artificial-emotional-intelligence/255769/#close>
- Kaliouby, Rana. (2017). We Need Computers with Empathy. *MIT Technology Review*, 120(6), 8–9. Retrieved from <https://www.technologyreview.com/s/609071/we-need-computers-with-empathy/>
- Kandalafi, M. R., Didehban, N., Krawczyk, D. C., Allen, T. T., & Chapman, S. B. (2012). Virtual Reality Social Cognition Training for Young Adults with High-Functioning Autism. *Journal of Autism and Developmental Disorders*, 43(1), 34–44. <https://doi.org/10.1007/s10803-012-1544-6>
- Kim, H., Kankanhalli, A., & Lee, H. (2016). Investigating decision factors in mobile application purchase: A mixed-methods approach. *Information & Management*, 53(6), 727–727.
- Kirk, A., Scott, P., & Wilson, J. (2019, May 14). The charts that show how the UK is in the midst of a mental health awakening. Retrieved from The Telegraph: https://www.telegraph.co.uk/health-fitness/mind/world-mental-health-day-charts-show-uk-midst-mental-health-awakening/?utm_source=headtopics&utm_medium=news&utm_campaign=2019-05-14
- Kleber, S. (2018, July 31). 3 Ways AI Is Getting More Emotional. Retrieved 21 March 2020, from <https://hbr.org/2018/07/3-ways-ai-is-getting-more-emotional>
- Krajewski, R. (2020, February 10). Costs Of AI Development - What You Need To Take Into Account? Retrieved 1 April 2020, from <https://www.ideamotive.co/blog/costs-of-ai-development>
- Krakovsky, M. (2018). Artificial (emotional) intelligence. *Communications of the ACM*, 61(4), 18–19. <https://doi.org/10.1145/3185521>
- Kübler, R., Pauwels, K., Yildirim, G., & Fandrich, T. (2018). App popularity: Where in the world are consumers most sensitive to price and user ratings? *Journal of Marketing*, 82(5), 20–20.
- Kumar, K. (2015). Australia is the favourite global hub for product testing by top companies. Retrieved 19 April 2020, from <https://www.ibtimes.com.au/australia-favourite-global-hub-product-testing-top-companies-1478655>.
- Lantern London. (n.d.). Destination branding for global icon Leicester Square | Work | Lantern. Retrieved 19 April 2020, from <https://www.lanternlondon.com/leicester-square>
- Lin, H., Guo, H., & Easley, R. (2017). A mobile platform's in-app advertising contract under agency pricing for app sales. *Production and Operations Management*, 26(2), 189–202. doi:10.1111/poms.12647.
- Lucas, G. M., Gratch, J., King, A., & Morency, L.-P. (2014). It's only a computer: Virtual humans increase willingness to disclose. *Computers in Human Behavior*, 37, 94–100. <https://doi.org/10.1016/j.chb.2014.04.043>
- Luxton, D. D. (2014a). Artificial intelligence in psychological practice: Current and future applications and implications. *Professional Psychology: Research and Practice*, 45(5), 332–339. <https://doi.org/10.1037/a0034559>
- Luxton, D. D. (2014b). Recommendations for the ethical use and design of artificial intelligent care providers. *Artificial Intelligence in Medicine*, 62(1), 1–10. <https://doi.org/10.1016/j.artmed.2014.06.004>

- Luxton, D. D. (2016). An Introduction to Artificial Intelligence in Behavioral and Mental Health Care. *Artificial Intelligence in Behavioral and Mental Health Care*, 1–26. <https://doi.org/10.1016/b978-0-12-420248-1.00001-5>
- Luxton, D. D., Anderson, S. L., & Anderson, M. (2016). Ethical Issues and Artificial Intelligence Technologies in Behavioral and Mental Health Care. *Artificial Intelligence in Behavioral and Mental Health Care*, 255–276. <https://doi.org/10.1016/b978-0-12-420248-1.00011-8>
- Luxton, D. D., June, J. D., Sano, A., & Bickmore, T. (2016). Intelligent Mobile, Wearable, and Ambient Technologies for Behavioral Health Care. *Artificial Intelligence in Behavioral and Mental Health Care*, 137–162. <https://doi.org/10.1016/b978-0-12-420248-1.00006-4>
- McDaid, D., & Cooper, C. (2014). *Wellbeing: A Complete Reference Guide, Economics of Wellbeing (Vol. VOL 5)*. Wiley Blackwell. Retrieved from <https://books.google.com.mx/books?id=r7fQAgAAQBAJ&lpg=PA13&ots=kAPGmJqq0V&dq=A%20Short%20History%20of%20Wellbeing%20Research&pg=PP1#v=onepage&q=A%20Short%20History%20of%20Wellbeing%20Research&f=false>
- McLaughlin, A. (2020, January 31). Inside the Student Mental Health Crisis. Retrieved from Creative Review: <https://www.creativereview.co.uk/student-mental-health-crisis/>
- McShane, M., Beale, S., Nirenburg, S., Jarrell, B., & Fantry, G. (2012). Inconsistency as a diagnostic tool in a society of intelligent agents. *Artificial Intelligence in Medicine*, 55(3), 137–148. <https://doi.org/10.1016/j.artmed.2012.04.005>
- Mental Health Foundation. (2016). *Fundamental Facts About Mental Health 2016*. London: Mental Health Foundation. Retrieved from
- Mind. (n.d.). How to improve your mental wellbeing. Retrieved from Mind UK: <https://www.mind.org.uk/information-support/tips-for-everyday-living/wellbeing/wellbeing/>
- Modha, D. S., Ananthanarayanan, R., Esser, S. K., Ndirango, A., Sherbondy, A. J., & Singh, R. (2011). Cognitive computing. *Communications of the ACM*, 54(8), 62. <https://doi.org/10.1145/1978542.1978559>
- Moore, A. D., & Unsworth, K. (2005). 'Introduction' to *Information Ethics: Privacy, Property, and Power (Vol. 11)*. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1980898
- NHS. (2019, November 28). *Mental Health Bulletin: 2018-19 Annual report*. Retrieved from NHS: <https://files.digital.nhs.uk/B4/835CFE/MHB-1819-Reference%20Tables.xlsx>
- OECD/EU. (2018). *Health at a Glance: Europe 2018: State of Health in the EU Cycle*. OECD Publishing: Paris. Retrieved 19 April 2020, from https://doi.org/10.1787/health_glance_eur-2018-en.
- Poulin, C., Thompson, P., & Bryan, C. (2016). Public Health Surveillance. *Artificial Intelligence in Behavioral and Mental Health Care*, 205–230. <https://doi.org/10.1016/b978-0-12-420248-1.00009-x>
- Prasad, KrishnaM & Angothu, Hareesh & Mathews, ManilaM & Chaturvedi, Santosh. (2016). How are social changes in the twenty first century relevant to mental health?. *Indian Journal of Social Psychiatry*. 32. 227. 10.4103/0971-9962.193195.
- Purdy, M., Zealley, J., & Maseli, O. (2019, November 18). The Risks of Using AI to Interpret Human Emotions. Retrieved 1 April 2020, from <https://hbr.org/2019/11/the-risks-of-using-ai-to-interpret-human-emotions>
- Ramesh, Namita. (2019, December 14). AEI: Artificial 'Emotional' Intelligence. Retrieved 21 March 2020, from <https://towardsdatascience.com/aei-artificial-emotional-intelligence-ea3667d8ece>
- Ritchie, H. (2018). *Global mental health: five key insights which emerge from the data*. Retrieved 19 April 2020, from <https://ourworldindata.org/global-mental-health#all-charts-preview>.

- Rössler, W. (2016, July 28). The stigma of mental disorders: A millennia-long history of social exclusion and prejudices. *EMBO Reports*, VOL 17(9), 1250–1253. doi:10.15252/embr.201643041
- Rucker, M., PhD. (2020, January 28). Using Artificial Intelligence for Mental Health. Retrieved 21 March 2020, from <https://www.verywellhealth.com/using-artificial-intelligence-for-mental-health-4144239>
- Schuller, D., & Schuller, B. W. (2018). The Age of Artificial Emotional Intelligence. *Computer*, 51(9), 38–46. <https://doi.org/10.1109/mc.2018.3620963>
- Shortliffe, E. (1976). *Computer-Based Medical Consultations: MYCIN*. Retrieved from <https://www.elsevier.com/books/computer-based-medical-consultations-mycin/shortliffe/978-0-444-00179-5>
- Somers, M. (2019, March 8). Emotion AI, explained. Retrieved 21 March 2020, from <https://mitsloan.mit.edu/ideas-made-to-matter/emotion-ai-explained>
- Strycharczyk, D., & Clough, P. (2015). *Developing Mental Toughness : Coaching Strategies to Improve Performance, Resilience and Wellbeing: Vol. Second edition*. Kogan Page.
- Style Intelligence. (n.d.). Europe's busiest shopping street to become a 'people only' place; London's Oxford Street to transform from 2018. Retrieved 19 April 2020, from <https://www.styleintelligence.com/blogs/news/oxford-street-to-be-pedestrianised-in-2018>
- The Economist. (2015). Kiwis as guinea pigs. A small, technophile country is a great place to test digital products. Retrieved 19 April 2020, from <https://www.economist.com/business/2015/05/21/kiwis-as-guinea-pigs>.
- UNCSBRP. (n.d.). London's Tourism Industry. Retrieved 19 April 2020, from <http://www.uncsbrp.org/tourism.htm>
- Visit London. (n.d.). Bond Street. Retrieved from Visit London: <https://www.visitlondon.com/things-to-do/place/7883674-bond-street>
- Voigt, S., & Hinz, O. (2016). Making digital freemium business models a success: Predicting customers' lifetime value via initial purchase information. *Business & Information Systems Engineering: The International Journal of Wirtschaftsinformatik*, 58(2), 107-118. doi:10.1007/s12599-015-0395-z.
- Whelan, E., McDuff, D., Gleasure, R., & vom Brocke, J. (2018, February 5). How Emotion-Sensing Technology Can Reshape the Workplace. Retrieved 21 March 2020, from <https://sloanreview.mit.edu/article/how-emotion-sensing-technology-can-reshape-the-workplace/>
- World Economic Forum. (1st of November, 2019). This is how we can empower 8 billion minds by 2030. Retrieved from: <https://www.weforum.org/agenda/2019/11/future-of-mental-health-technology/>
- World Population Review. (2020). United Kingdom Population 2020. Retrieved from World Population Review: <https://worldpopulationreview.com/countries/united-kingdom-population/>