University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Business Plan: BreakWell

IS6117 Design & Development Project
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Executive Summary

Caring for Those Who Care for Us

Employee health and wellness has been a hot topic for companies and employees across the world for many years. Not only do employers now use gym memberships, recreation rooms, and flexible working hours as a selling point to potential employees, but they choose to invest in these resources because of the well known business benefits of healthier, happier employees. According to Ireland's Health Service Executive (HSE), "Workplace health and wellbeing programmes have been identified by the WHO as one of the "best buy" options for prevention and control of non-communicable diseases and mental health and wellbeing. Some of the benefits to focusing on staff health and wellbeing include reduced absenteeism, increased productivity and improved staff morale". The global outbreak of COVID-19 in early 2020 added further pressure on organizations and businesses to prioritize and support the physical and mental health of their employees. It only makes sense that it was during this time that Cork Kerry Community Healthcare, a branch of Ireland's Health Service Executive, approached University College Cork's Design and Development of Digital Business program with a dream of developing an application that would support their employees' holistic wellbeing at work.

Cork Kerry Community Healthcare (CKCH) serves over 600,000 residents in the southwest of Ireland. CKCH asked for an easily accessible, digital intervention that would support the physical wellbeing of their staff. The solution is BreakWell: a Progressive Web App that is highly customized to the needs of healthcare staff, supports their holistic health, and allows employees to choose which supports are provided in the future. BreakWell will not only increase work attendance and improve employee morale, but it will ensure any future investment in WorkWell initiatives will be both desired and well attended.
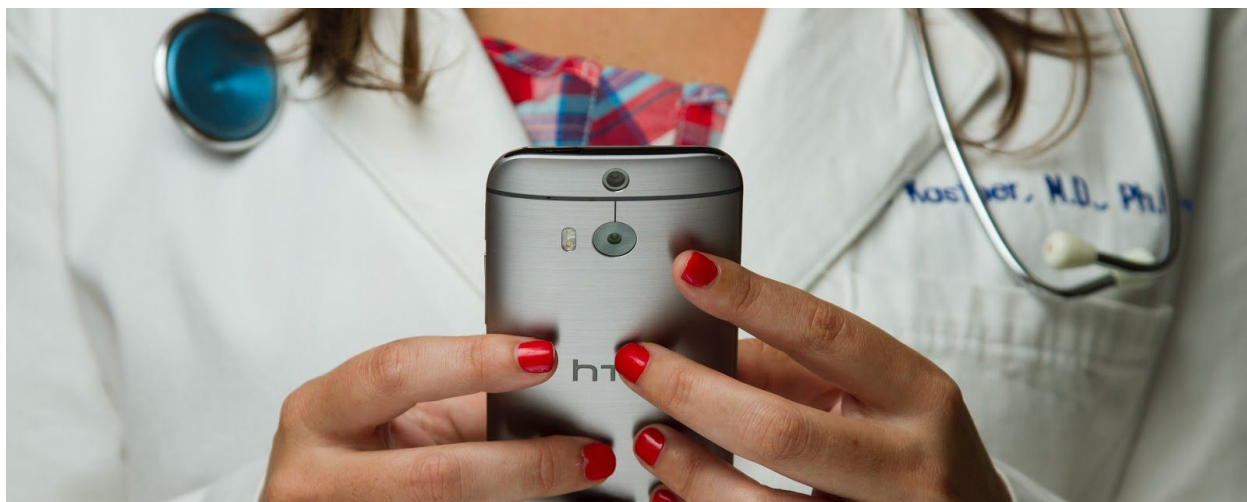

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A Solution, Not a Product

The result of 3 months of in-depth user research, empathetic design practices, and modern development techniques, BreakWell provides a highly customizable and accessible way for healthcare workers to utilize their precious break times to improve their wellbeing while at work. In order to develop a true solution, not simply another health app, BreakWell was created using qualitative and quantitative design research methods to ensure the project revolved around the healthcare workers' experience. Working closely with four members of CKCH, the design and development of the final solution was informed by data from over 120 HSE Cork-Kerry staff. Unlike other healthcare applications, BreakWell does not simply monitor vitals, exercise, or diet. Instead, the application utilizes the accessibility and functionality offered by mobile devices to make taking breaks desirable and highly rewarding for shift workers. By providing short but effective break activities, workers can reap the benefits of WorkWell resources in a way that suits their schedules. Taking time to take care of themselves becomes doable, encouraging them to do so more often. Over time this results in healthier, happier employees, less human error, better job performance, and healthier, happier patients.

Section Summary

Problem Statement
Outlines the context for the development of BreakWell, including the challenges medical shift workers face and Cork Kerry's Wellbeing at Work Unit.

Proposal
The details of BreakWell's innovative features and value proposition.

Market Analysis
A comprehensive breakdown of the current market environment and BreakWell's competitive positioning.

Operational Requirements
A description of everything that is needed to make BreakWell a reality.

Financial Projections
The cost and profit associated with development and implementation of BreakWell.

The Problem

The Toll of Shift Work

Over 20% of workers in Europe are shift workers, with a large percentage being employees of healthcare organizations. Working within a shift system involves periods of 6–12 hours work at a time with employees alternating on two, three, or four shifts within any 24 hour period. (Harrington, 2001) Even the healthiest workers who engage in shift work are likely to experience disrupted metabolism and circadian rhythms, poor diet, chronic disease, anxiety, and depression, which not only damages their health but their performance at work. Studies of COVID-19 front-line workers reported mild emotional health disturbances in 34.4% of workers, 22.4% with moderate disturbances, and 6.2% with severe disturbances, with medical staff reporting severe emotional stress and exhibiting clinically significant depressive symptoms. The stress of losing patients, fearing for their own health, and of long hours spent standing or moving have had critical impacts on their wellbeing. (Spoorthy, Pratapa and Mahant, 2020) hospital means staff regularly have to respond to unexpected, high-risk situations in real time. Human error due to poor health, stress, or exhaustion could be fatal. It has never been more imperative we take care of the wellbeing of those who take care of ours. While it is impossible to decrease their hours or what they might face during the workday, we can provide them with an intervention that suits their specific wellbeing challenges and works with, rather than against, their inconsistent and demanding schedules.

Cork Kerry Community Healthcare & WorkWell

Cork Kerry Community Healthcare is the branch of Ireland's Health Service Executive (HSE) for the southwest of the country and has over 8,000 employees. The average employee will spend up to a third of the day at work for more than a third of their lifetime. WorkWell was formed under the country-wide Healthy Ireland initiative, with the understanding of the tremendous impact the work environment has on staff health. Cork Kerry community health care is committed to staff health and wellbeing and aims to ensure that all employees are aware of the supports available to them. WorkWell divides health and wellbeing into physical, emotional, socio-cultural, environmental, intellectual, and financial health. An employee has the right to positive wellbeing in all of these areas, so Cork Kerry offers numerous resources for each. The following descriptions are from the Wellbeing at Work booklet:

Physical Wellbeing

Physical wellbeing is about being aware of your body and of what it needs to remain fit and healthy throughout your lifetime. It is about taking care of your physical body so that you are able to carry out your daily activities as well as possible.

Emotional Wellbeing

Emotional wellbeing is about being aware of thoughts and feelings and how they affect our behavior. By being aware of our emotions and how they impact us we are better able to respond rather than react to daily challenges and demands.

Occupational Wellbeing

Occupational wellbeing is about feeling sufficiently skilled and capable of fulfilling your day to day employment with the opportunity for learning, progression and growth, in a safe, healthy and supportive work environment.

Social & Cultural Wellbeing

Your social wellbeing refers to your ability to interact with people around you and to create connections that support you in your daily life. Having and maintaining social/community links of support are very important for maintaining positive health and wellbeing.

Intellectual Wellbeing

Intellectual wellbeing is about getting personal and professional fulfilment in work while still maintaining balance in our lives outside of work. It is also about expanding your knowledge and skills and engaging in creative and mentally stimulating activities.

Financial Wellbeing

Financial Wellbeing is being aware of your money and being able to manage and plan your finances by balancing, saving and spending efficiently and within one's means.

Environmental Wellbeing

Your surroundings and how you interact with them impact on your health and wellbeing, therefore having a safe and healthy work environment is essential.

The State of the Staff

While staff currently implement wellbeing activities outside of their working day such as spending time in nature, socializing with friends and family, and reading, 53% of surveyed Cork Kerry staff still find it difficult to maintain positive wellbeing. Like everyone else, staff face motivation and time challenges when trying to manage their health. They put patients' and family members' health and wellbeing ahead of their own. Since the outbreak of COVID Cork Kerry staff also face negativity from the media, understaffing and lack of resources, and increased expectations in the workplace. Staff care about their wellbeing, but do not feel they can make any time for it during their high pressure work day. This is despite 83% of staff already using apps to help manage their self care. In fact, 64% said they find using these applications helpful to managing their wellbeing, particularly the target setting and tracking, reminders, and positive feedback features. The problem lies in actually using these applications regularly. While popular wellbeing and health applications offer excellent resources and easy-to-use interfaces, they fail to make these accessible within a medical shift work schedule.

58% of surveyed Cork Kerry staff said they would use a wellbeing app offered by their employer. The 42% that said they would not use a wellbeing app made by their employer cited the following reasons:

> Lack of Personalization
> Desire for Less Screen Time
> Privacy Concerns
> Mistrust in Organization's Interest in Supporting Their Wellbeing
> An Existing Routine/Resource That They Feel Suits Their Needs

BreakWell combines what staff enjoy about the wellbeing apps they already use while addressing these concerns. Staff are most interested in the following resources in a mobile application:

> 61% Healthy recipes
> 58% Stand and stretch reminders
> 48% Short guided meditations
> 45% Workout videos
> 42% Step Counter

Only by making it as easy as possible for employees to incorporate these positive wellbeing activities will they actually improve their wellbeing over time. BreakWell provides the highly effective health resources created by the HSE and formats them in a way that makes them accessible to the medical shift worker. It also provides a special feature that no other wellbeing application currently offers: a way for management to know which wellbeing resources employees actually want and need.

BreakWell's Niche

There are a wide variety of applications people use to manage their schedules and wellbeing. The most popular include Microsoft Teams (usually provided by their employer) for scheduling and communication, MyFitnessPal by UnderArmour for exercise and diet tracking, and Headspace for meditation. However, none of these applications offer schedule, stress, exercise, and diet management all in one place. HSE staff value ease of access above all else; what's easier than having all three of these wellbeing resources combined? Most importantly, other wellbeing apps are not tailored specifically to those working in healthcare. BreakWell's strongest competitor is an app called WorkWell, which coincidentally shares its name with the HSE's initiative that spurred the research for BreakWell. WorkWell is tailored specifically to frontline workers, primarily healthcare professionals and clergy. WorkWell surveys its users' mindfulness habits and offers exercises aimed to relieve stress, spurr reflection, and improve emotional connection to one's work. It offers progress tracking and real-time reminders. This application was created by mental health wellbeing experts and clergy members and promises to improve emotional wellbeing by improving work-life awareness and satisfaction.

Again, the key differentiator for BreakWell is its framework around users' schedules. By visualizing how they can use their breaks and lunch time to improve their wellbeing one day at a time, BreakWell empowers healthcare workers by making it as easy as possible to holistically manage their wellbeing. By tailoring mindfulness exercises, workout and meal recommendations around healthcare workers schedules, BreakWell offers holistic support that automatically suits their lifestyle, rather than it being up to the user to determine how to blend healthy habits into their daily lives.

Wellbeing Apps Value Curve
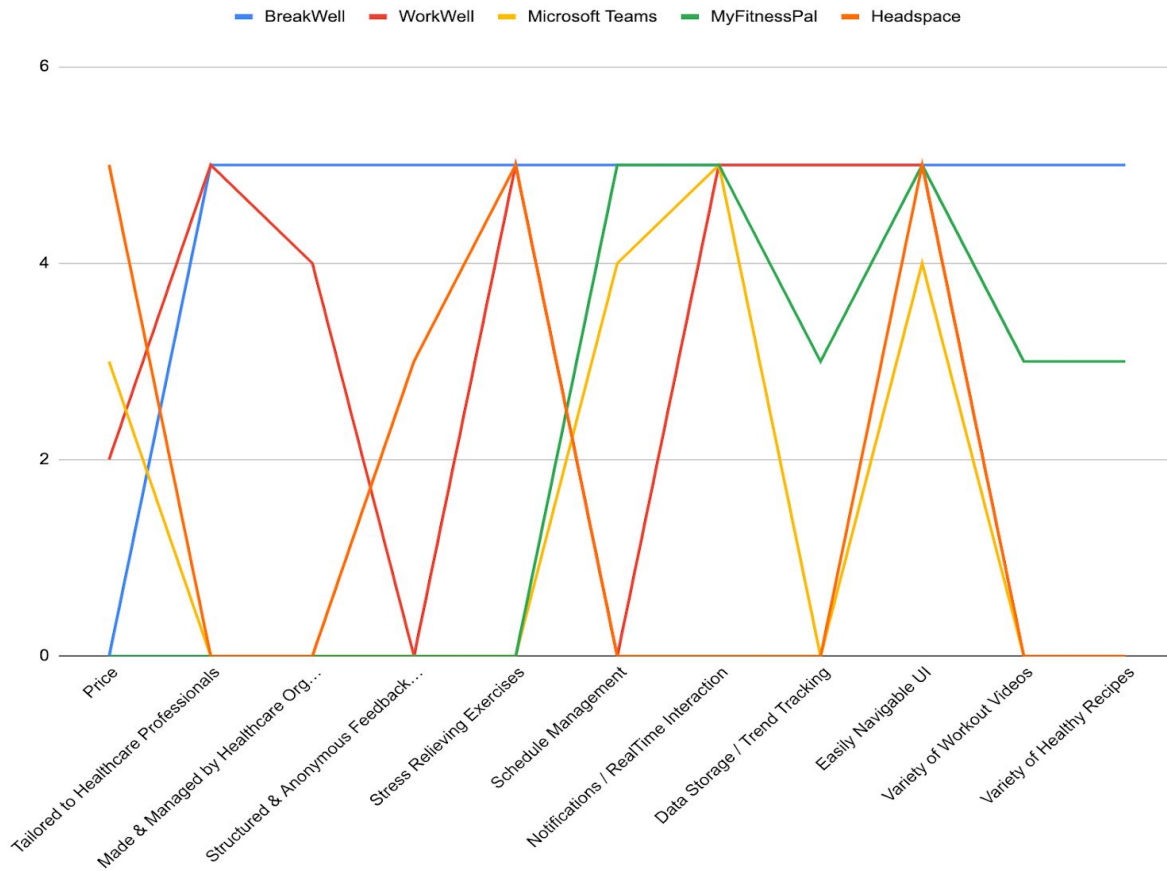
	BreakWell	WorkWell	Microsoft Teams	MyFitnessPal	Headspace
Price	**0**	2	3	0	5
Tailored to Healthcare Professionals	**5**	5	0	0	0
Made & Managed by Healthcare Organization	**5**	4	0	0	0
Structured & Anonymous Feedback Streams	**5**	0	0	0	3
Stress Relieving Exercises	**5**	5	0	0	5
Schedule Management	**5**	0	4	5	0
Notifications / RealTime Interaction	**5**	5	5	5	0
Data Storage / Trend Tracking	**5**	5	0	3	0
Easily Navigable UI	**5**	5	4	5	5
Variety of Workout Videos	**5**	0	0	3	0
Variety of Healthy Recipes	**5**	0	0	3	0

Proposal

BreakWell is a mobile platform for WorkWell content that provides accessible, enjoyable ways for staff to use their break times to improve and manage their wellbeing. The BreakWell app concept offers a simultaneously customizable and streamlined way for HSE staff to manage their holistic wellbeing. It offers emotional, physical, occupational, and social resources to staff and allows them to request resources for any aspect of their wellbeing. The app would improve staff health and work-life satisfaction. Staff would be healthier, happier, and more productive at work. This would benefit the HSE by decreasing sick days, improving productivity of employees and their quality of work, and ensuring that any time and funding invested in employee wellbeing resources would be both desired and well attended. Overall, the BreakWell app would be a sustainable way for the HSE to further the WorkWell initiatives in a way that meets employees' daily needs and is compatible with their digital habits. The following are the primary features of BreakWell, developed to directly meet the needs of Cork Kerry's staff.

Schedule

Wellbeing Area: Occupational, Emotional

BreakWell's functionalities are based around a Scheduler, providing the customization necessary for healthcare professionals to manage their constantly changing schedule.

Staff would input their schedule on a weekly basis and would be able to edit their hours at any time.

By putting wellbeing activities in the context of their work schedule, the app acts as a home base rather than an accessory. This alleviates the stress of trying to manage their wellbeing separately from managing their work schedule.

Everything is accessible in one highly customizable app.

Dashboard

The dashboard shows users' daily schedule with all of their wellbeing activities integrated together. This visualizes the opportunities in their routine for valuable moments of rest and wellness.

Wellbeing Area: Occupational, Social

Staff will feel empowered to take advantage of their breaks rather than viewing their work schedule as something that inhibits their wellbeing. This also acts as a way of tracking positive behaviors, visualizing how all their little efforts add up throughout the week.

50% of surveyed staff expressed an interest in short guided meditations and stretch breaks. BreakWell allows users to choose from guided stretch breaks, meditations, and motivation videos from the HSE's Minding Yourself series.

Morning messages from management would display at the top of the dashboard. These would be displayed on a weekly basis and would be sent by management only to their corresponding team members. These messages connect coworkers in a positive way and show staff that their organization and fellow team members recognize their work and value their efforts.

Workout Library

45% of surveyed staff would use workout videos in a wellbeing app.
Wellbeing Area: Physical
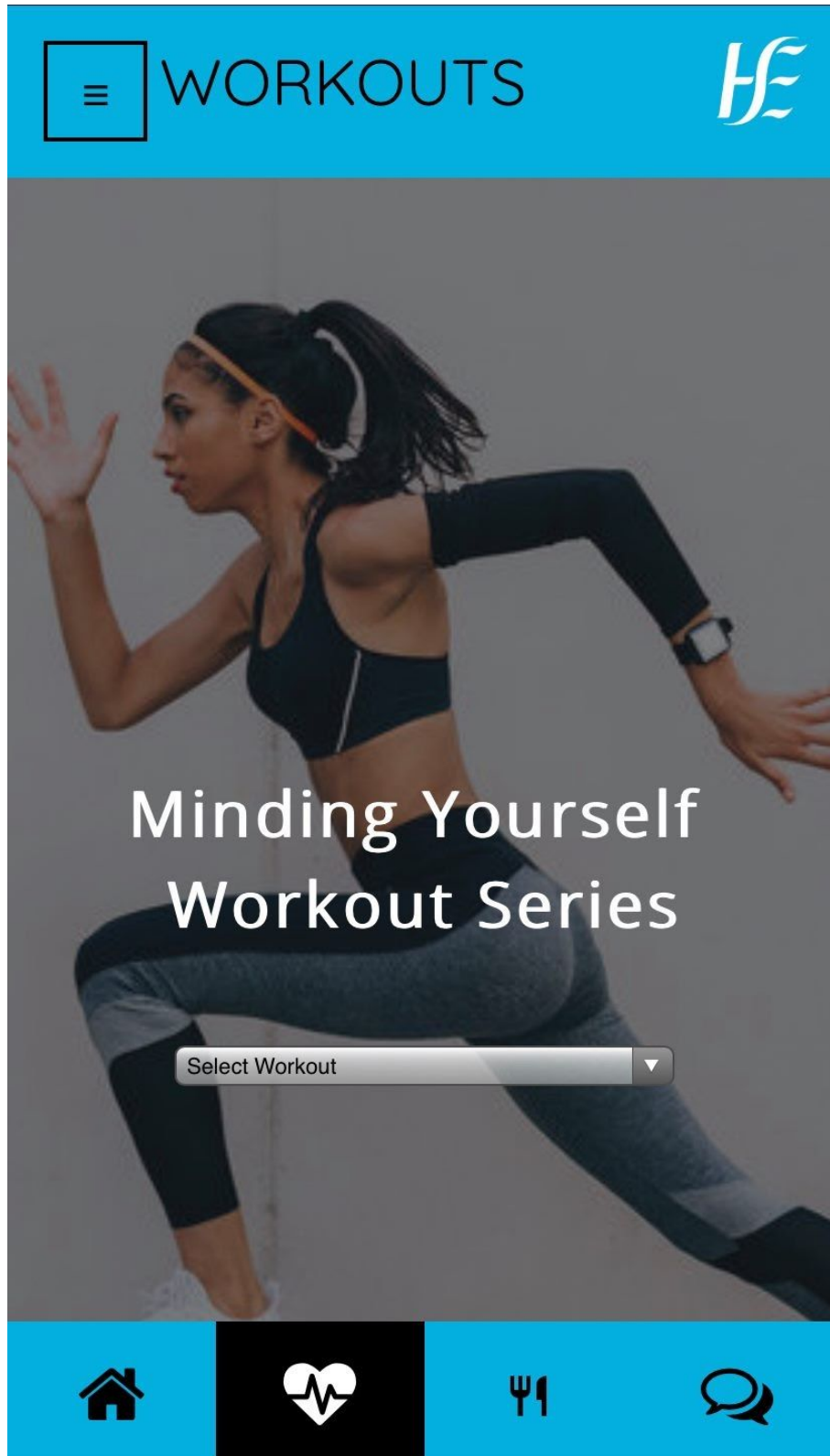
The workout library offers HSE branded workouts, linked directly from the Minding Yourself workout series on Youtube.

BreakWell includes the walk your way to fitness, full body strengthening, and desk stretch videos, offering something for all fitness levels.

Recipe Library

61% of surveyed staff would use healthy recipes in a future app.
Wellbeing Area: Physical

The recipe library offers HSE approved healthy recipes from safefood's 101 Square Meals.

BreakWell includes recipes for mexican bean burritos, spice bag, spinach mandarin salad, and pepperoni pizza, showing staff that they can still eat their takeaway favourites while supporting their physical health.

Feedback Forum

Wellbeing Area: Social, Occupational, All

BreakWell's distinguishing feature: a suggestions forum where staff can post ideas for wellbeing resources anonymously.

Staff can also "like" ideas that other staff have posted.

This ultimately supports all aspects of their wellbeing since the HSE can strategically choose which resources to offer in the future based on employee interest.

This in turn ensures the HSE is investing in wellbeing resources that are truly needed and desired by staff. It also ensures staff feel listened to by their employer and empowered to participate in a supportive wellbeing community that understands the specific challenges they face, improving morale and emotional health.

Value Proposition

Nationally Approved Health Resources

BreakWell is a truly innovative app that not only provides wellbeing resources from a national healthcare organization, but makes them accessible to the staff who need to be using them most. The HSE's resources cannot be utilized if they are not accessible. BreakWell will act as a one-stop-shop for Cork Kerry to deliver their WorkWell resources directly to their staff.

Simple, Modern Interface

BreakWell offers users plenty of customization options while maintaining a clean appearance. Navigation is tailored to ease use via touch screen on a mobile device.

Customization & Privacy

The application requires official HSE credentials in order to log in. This ensures only staff members will have access to the application. BreakWell saves user information so staff only have to log in once, and any schedule information will be saved so users do not have to manually enter their shifts each time. The app does not encode any user information from the suggestion box, ensuring true anonymity. In this way BreakWell offers the best of both customization and privacy for staff.

True Accessibility As a PWA

In the modern age the most accessible way to access and spread information is via mobile devices. BreakWell is a Progressive Web Application, making it accessible to all operating systems and easily updatable. Its responsive design is easy to interact with and adjusts to all mobile screen sizes. Running BreakWell is as easy as managing a website and is not reliant on application stores like Google Play or Apple Store. This provides more competitive and flexible options for hosting, database management, storage, and development.

Not Just a Library, But an Assistant

Healthcare staff's workdays are hectic enough without having to manage their wellbeing activities via several different apps. BreakWell ensures implementation of positive wellbeing exercises by putting proven effective healthcare resources into bite size pieces and demonstrating exactly when to use them. This eliminates the complexity of figuring out which activities would benefit staff most. They can simply open the app and select which 10 minute break they're interested in doing that day. Their schedule, meals, exercises, and meditations are all in one place. By decreasing the time and steps necessary to take advantage of these resources, BreakWell makes it less daunting for employees to care for themselves, ultimately making them more likely to incorporate these activities on a daily basis.

Further Development

BreakWell is currently in its prototype phase. This interactive version would allow further user testing and development of the back end resources necessary to support real-time use of the application. Three months of development are necessary to add the following features which would greatly improve the user experience by allowing staff members to access the app's resources as easily and enjoyably as possible:

Search Feature
- Necessary as the libraries expand to allow for faster navigation
- Alternatively, a "Favourites" function would allow users to see their preferred recipes, workouts, and meditations at the top of the list or on a separate list

Notifications
- To ensure health care workers maintain their healthy habits throughout their day, push notifications are crucial to the app's success
- Weekly reminder to input new work schedule
- 10 min reminder before an activity
- Link to meditation, workout or recipe appearing at time of scheduled activity

Database Development
The following databases would need to be developed, hosted, and managed:

1. In order to save chosen schedule and activities, a secure database must be developed to hold these data and connect them to the appropriate user information; users emphasized that having to log in and out each time they use the app would deter them from using it entirely, so cookies would need to be used to ensure details are saved and accessed each time a user opens the application
2. Databases for recipes and workouts will allow for better consistency and accessibility for users rather than individually embedding URLs
3. Database to hold morning messages from managers and link them to the appropriate staff teams will allow personalized messages that help employees feel connected with one another and cared about
4. Feedback comments and number of "likes" will also need to be stored so they can be collected, read, and analyzed to develop further wellbeing at work initiatives

Morning Message System
- Morning messages from managers supports the goal of making staff feel cared about in their work environment in order to support their emotional health
- Managers will need a way to submit a morning message and have it distributed only to their relevant team members

Market Analysis

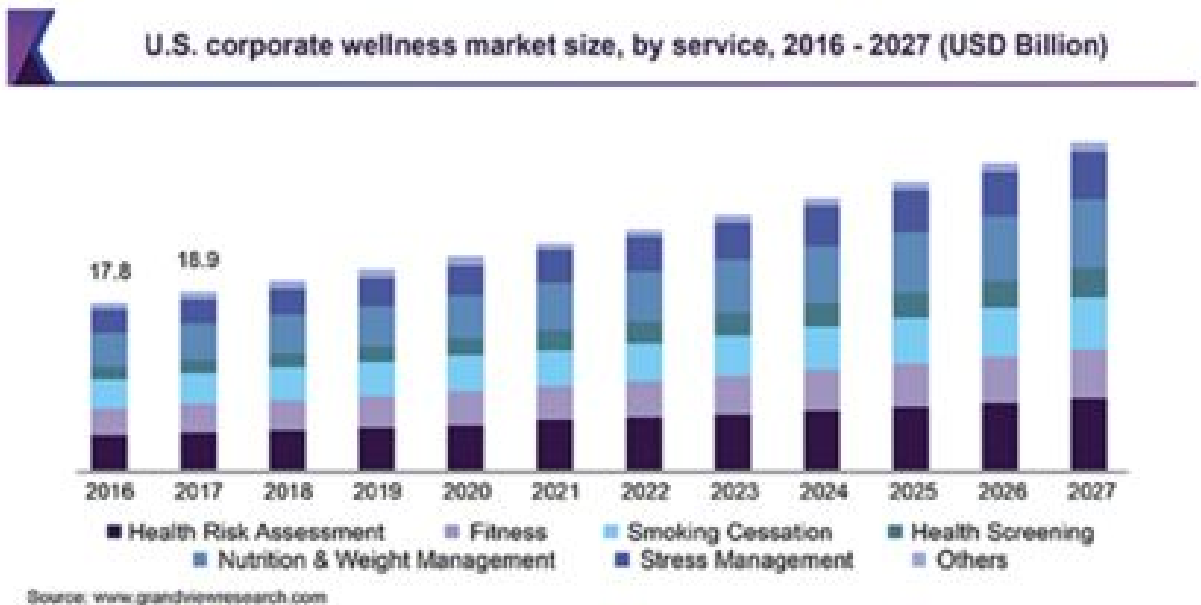## Working to Live Rather Than Living To Work

As an adult, you might spend a third of your day at work.(HSE, 2020) Having positive wellbeing and attitude towards work will highly affect your long term mental health. In today's high paced world, more companies are realizing that their staff is their most valuable asset. Staff with a great working attitude are more productive and can generate more profit for the company, benefiting the company's long term development.

Johnson & Johnson pioneered this realization with their Live For Life Program. The mission of this program is to encourage employees to accept responsibility for their own health and wellbeing by providing them and their families with resources and opportunities that result in healthier lifestyles. By the end of the project, over 90% of employees participated. 95% of them rated the program as "useful" and "excellent". (Isaac and Flynn, 2001) Since then, many other forward-thinking companies like Apple and Nike have realized the importance of positive wellbeing in the workplace. They have acknowledged the connection between healthier, happier employees and increased productivity and loyalty, and generated their own programs that focus around physical, financial, mental health and more.

In the past several years, the market for corporate wellbeing has exploded, and as of 2017 is estimated to be a $47.5 billion market, increasing at 4.8% per year. (Bersin, 2019) Jeffery Pfeffer in his book, Dying for a Paycheck: How Modern Management Harms Employee Health and Company Performance – and What We Can Do About It pointed out that "The workplace is the single biggest source of stress in America." He pointed out that over 60% of workers find it difficult to maintain work-life balance. Between 2017 and 2018, employees lost half of their workday's worth of work due to stress, anxiety and depression related to work.

Central Michigan University (CMU) has been committed to "building a culture in which health and wellbeing are part of employee's daily lives" for over 20 years.(Bersin, 2019) Using the Virgin Pulse Platform, they have published a variety of health related instruction and behavior-changing aids, from encouraging better diet by posting healthy recipes to step tracking and workout videos. Staff are rewarded for maintaining a healthy daily habit by gift cards or deposited to their personal bank account. (Bersin, 2019) These resources and positive reward systems have dramatically benefited staff and faculty's wellbeing. BreakWell is made to serve large firms or organizations who aim to improve their staff's satisfaction and productivity. BreakWell holistically enhances and supports the healthcare workforce's wellbeing journey.
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Figure 1: US corporate wellness market size

U.S. corporate wellness market size, by service, 2016 - 2027 (USD Billion)

Health Risk Assessment ■ Fitness ■ Smoking Cessation ■ Health Screening
■ Nutrition & Weight Management ■ Stress Management ■ Others

Source: www.grandviewresearch.com

ImageSource: www.grandviewresearch.com

In 2019, the estimate for the global corporate wellbeing market was valued at USD 57.2 billion. Companies and organizations in all stages of development have begun to implement employee health plans, which promote market growth, reducing overall operating costs and increasing employees' awareness of their own health and welfare. (Grand View Research, 2020) BreakWell offers these same benefits to Cork Kerry's employees and will produce these same benefits for the HSE as an organization.

Health Resources at Your Fingertips

As mobile technology has evolved, the prevalence of wellbeing applications is affecting employee happiness and efficiency. Digital technology is highly accessible given the widespread use of personal mobile devices and provides cheaper interventions than traditional health plans. Employees receive greater support and better health, all while simplifying the job of human resources.(Thomas, 2017)

With the use of digital media on mobile phones surpassing desktops devices, a dramatic change has taken place in the mobile market. Smartphones and tablets now account for 71% of digital traffic in the United States.(Hall, 2018) With this shift, application developers are paying more and more attention to UI and UX design for mobile, and the convenience of using applications has become the better choice for users compared to traditional websites. Information is easily gained at any time of day and professional health advice is at the average person's fingertips.

Corresponding to this greater access to information, concerns about obesity and other chronic diseases are increasing.(Grand View Research, 2020) People are beginning to use wearable products, such as body monitors and activity trackers, which provide real-time information about overall health. These wearable products provide information needed to track data such as blood pressure, oxygen level, sleep quality and quantity, calorie intake, cholesterol level, heartbeat monitoring, etc throughout one's daily activities. At the same time, the outbreak of the COVID-19 pandemic crisis has expanded the role of wearable technology in the field of healthcare. BreakWell not only meets the trend of technological development for health tracking, it offers flexible technology employees can use to improve their health at work in real time.

Made By the Market for the Market

BreakWell's value proposition is a highly customized design made specifically for healthcare workers by a healthcare organization. BreakWell is tailor made using research of actual healthcare workers. BreakWell combines the functions the staff themselves said they will actually use with the HSE's medically backed WorkWell resources. BreakWell is designed with the input of Irish healthcare workers, for Irish healthcare workers, using the data and resources that the HSE has developed over the years specifically to meet the health needs of Irish citizens. The only way another application would be able to replicate BreakWell is to work directly with the HSE. Given the current investment Cork Kerry and the WorkWell Unit has put into developing BreakWell, it is unlikely they would begin a new application rather than updating BreakWell.

Any barriers to entry would come from funding and administrative complexities within the HSE. However, BreakWell's integration of WorkWell content ensures that it drives the goals set out in Ireland's Healthy Ireland Initiative. This incentivizes the HSE to further fund the application. BreakWell will be a highly worthwhile investment as it modernizes access to the pre-existing WorkWell content and will be able to be easily updated to incorporate future content. It is a flexible, accessible platform that will evolve alongside HSE's wellbeing at work initiatives.

Competitor Analysis

Competitor	Strengths	Weaknesses	BreakWell's Competitive Advantage
Competitor 1: MyFitnessPal	- Detailed calorie calculator - Lack of instruction information - Big nutrition data set for over 5 million foods	- Not targeted at healthcare staff - Single function for dietary needs	- Full healthy recipes for staff to choose - Additional workout section - Designed by and for a healthcare organization - Emotional and occupational wellbeing resources in addition to physical resources
Competitor 2: Headspace	- Used by big firms like Google and LinkedIn - Focus on mental health; made with mental health professionals - Reminders and specific instructions to help you get started and build habits	- Oversimplification of the process of meditation - Single function - mental health - No interaction with the company.	- Simple insert scheduler can help staff manage their meditation time - Provides system of support from and feedback streams to management - Physical and occupational resources in addition to

			mental health resources
Competitor 3: Hotseat	- Encourages friendly competition inside office - Increases interaction between colleagues - Gets employees away from their desks more often	- Single function - occupational health - Focuses solely on office exercise	- Designed by and for healthcare organization - Flexible timetable - Emotional and physical resources in addition to occupational resources
Competitor 4: WorkWell	- Supports the mental health of front line workers - Beautiful, intuitive UI - Created by mental health professionals and clergy members	- Single function - mental health - Only available via professional associations at an enterprise level	- Designed by and for shift work with flexible timetable - Puts exercises in context of busy schedule to encourage use - Physical and occupational resources in addition to emotional resources

Customer Value Proposition

Mission Statement
To improve the holistic wellbeing of Ireland's healthcare workers.

Stakeholders

Healthcare Workers
Those working as full or part time employees in Ireland's Health Service Executive. This includes doctors, nurses, administrative, and operational employees.

Value Added
HSE healthcare workers will experience improved holistic wellbeing. Physically employees will decrease sensations of strain and exhaustion, improve their energy levels, and all other benefits associated with a balanced diet and exercise routine. Emotionally, they will decrease their stress levels, feel happier and more alert at work, and have an increased sense of social support and connection. Occupationally they will have opportunities to shape what resources are available for themselves and others. They will also gain back time they previously spent hopping from one application to another manually entering in schedules and attempting to connect their wellbeing apps to one another.

Health Service Executive
Those managing and directly overseeing employees at all levels of Ireland's Health Service Executive, as well as the HSE as an organization.

Value Added
The HSE will see decreased absenteeism, increased efficiency and accuracy, and increased loyalty and enthusiasm in its workforce. Employees will feel supported and significantly less stressed by their challenging work environment, making them more likely to stay employed in their roles for longer. The HSE will save money in correcting mistakes that were the result of human error. Healthier employees means less stress on Ireland's healthcare system overall. Happier employees will result in happier patients. Better patient experiences mean an overall more positive public view of the organization, both internally and externally. This will ultimately drive support and funding nationally and via partnerships with other organizations.

Pricing Model
BreakWell will be offered free to employees of the HSE. Funding will need to allocated up-front to its development and then for continuing management from the WorkWell Unit under Ireland's Healthy Ireland initiative.

Marketing

BreakWell will be distributed internally to HSE employees and will therefore require minimal marketing. Employees would be shown the application, its features, and its benefits as part of onboarding training. The app will be widely used and eventually employees will "sell" it to each other, recommending their favourite meditations, workouts, meals, etc. It will be a standard part of daily workflow for current employees, therefore marketing itself to any new employees as part of the work culture. Posters will also be put up around HSE workplaces with a QR code that employees can simply scan and be directed to the app's login page (Appendix Item 1).

Brand

BreakWell's tagline is "a wave of relief in your busy workday". BreakWell's brand, both functionally and visually, is all about promoting rejuvenation, relief, and self care by holistically supporting healthcare workers' wellbeing. While offering a variety of health and wellbeing resources to be used at any time, the break activities and reminders are what will really impact employees' wellbeing. BreakWell will be seen as a safe place for employees to take a minute away from their hectic work schedules and breathe. The app will be a space for relieving stress via meditations, community building, and physical exercises. This is why blue was chosen as the highlight colour in BreakWell's design, using hex code #00B0E0. Blue is known to be a relaxing colour with similar therapeutic benefits to shades of green. It is also a trusting colour, instilling confidence in the application since privacy was a priority for staff. The wave symbol is not available for commercial use. It is a placeholder for presentation purposes, created by Freepik and downloaded from flaticon.com. It would need to be replaced by a custom wave symbol created specifically for BreakWell's brand. The wave was chosen as a pun on the word "break", referring to both a time of rest during the workday and a "wave break". BreakWell is also a play on the WorkWell initiative, emphasizing the connection between WorkWell content and the application.

Development Operations

Cloud Architecture

Azure App Service

A web application that can use HTML, CSS, JavaScript, images and videos along with server-side scripting i.e., node, js and PHP. These were some of the main reasons for choosing Azure Web App Service for the web server.

Benefits

1. It can access external databases.
2. Provides flexibility to manage webserver configurations and administration.
3. Auto scaling while managing high traffic and requests.
4. Managed production environment by auto patching and OS maintenance.
5. Optimizing DevOps by connecting with Azure DevOps, GitHub, etc. for CI/CD.
6. VS Code Integration with the Azure App Service.

Azure DevOps

Benefits

1. Azure Boards is visually interactive for the purpose to create Workloads for team members and create a new branch for each item.
2. Azure Repos is a repository with two types of version control, and we use Git. It is connected to VS Code using Azure Repos extension.
3. Azure Pipelines was used for the Continuous Integration which simplifies testing code by building continuously.

Hostinger MySQL DB -> MySQL DB

A free database service used in the current prototype of BreakWell. This can be easily migrated to Azure MySQL DB which is perfect for HSE BreakWell.

Benefits
1. Easy to migrate from Hostinger to Azure SQL DB using SQL Server Management Studio (SSMS)

2. Provides access to total exploitation of data through Power BI and is compatible to use powerful 3rd party BI like tableau.

3. Elastic in terms of storage and computing capacity.

4. It will marry well with Azure Active Directory which will be core for developing the administrative side (back-end).

5. Data analytics by assessing the input of users and to gain knowledge to customize the user experience by providing tabs such as recent views.

6. Easy to manage cloud service.

Software Architecture

N-Tier Software Architecture

BreakWell is based on N-Tier Architecture which comprises both software and hardware elements: Web client (browsers), App Server, DevOps Server, MySQL DB.

App Server

Webserver comprises web server software that uses protocols (mainly http) to connect with the clients requests. The webserver specification and processing ability determines the number of users that can view the hosted content simultaneously. The webserver holds the files that constitute a website like HTML, media and JavaScript and the web server software. The webserver software is chosen considering several factors such as the OS (Operating system), handling of server-side programming, security, SEO and site building tools. Considering that HSE needs to support multiple users connecting with the server simultaneously, it needs to be supported by a powerful Webserver and hence using HSE App Service.

MySQL (Azure SQL DB)

Storage, management of databases and data is the most essential part of any web application. Database servers are used to store, manage and provide data analytics to authorized users. They hold data definitions, application information, tables, columns and row data. It needs to handle several requests from the App service simultaneously. The PWA needs to handle data privileges and keep them in the database. A powerful database management system such as MySQL DB needs to be in place to handle enterprise level requests and phpMyAdmin should be the DB management software.

DevOps Server

DevOps is specifically designed to serve the development operations. It does not have the demanding resources to run web applications. It needs to be in place to manage code repository, create workloads, create branches, pipelines and continuous integration/ continuous deployment of the application builds. It relates to the app service to run applications. The DevOps service processes the code and returns the result to the app service. BreakWell's DevOps server serves the purpose of building the code to App Service. It can handle multiple branches using push, pull, commit capabilities and sync them with the master branch.

Web Browser

As a Progressive Web Application, BreakWell needs web browsers to transform HTML, CSS and JavaScript code and files into visual representation on a user device.

BreakWell sends only the following information to the browser:

1. HTML
2. JavaScript
3. Cookies(php)
4. Service Workers
5. JSON or WebManifests

Every user session is handled using tokens after authentication. This token provides re-authentication to every other process that requires sign-in procedure.

IDE

Visual Studio Code is the most compatible IDE for Azure and it has extensions that would connect the IDE with the Azure repository. Thus we were able to perform various tasks such as PUSH, PULL and COMMIT code directly to the master, or to the branch and then sync it with the master repository.

phpMyAdmin

The MySQL Database needs a powerful software to create and manage the database. This tool is user friendly with GUI mode.

Server Coding Language

PHP and node.js are two powerful backend coding languages. PHP is used for functions that are responsible for accessing the web server and database. Node.js is used to create and manipulate Service workers.
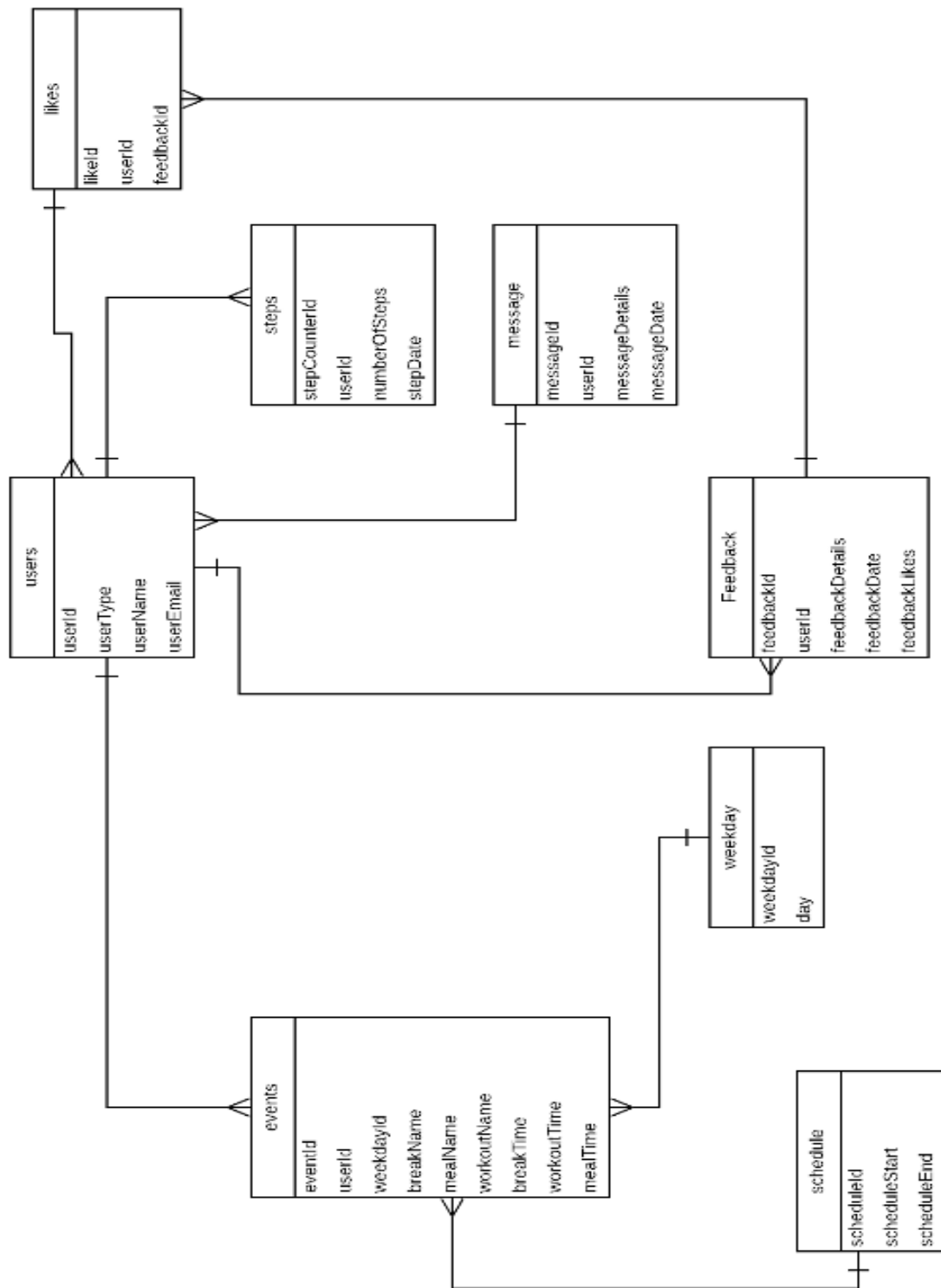
Client Coding Language

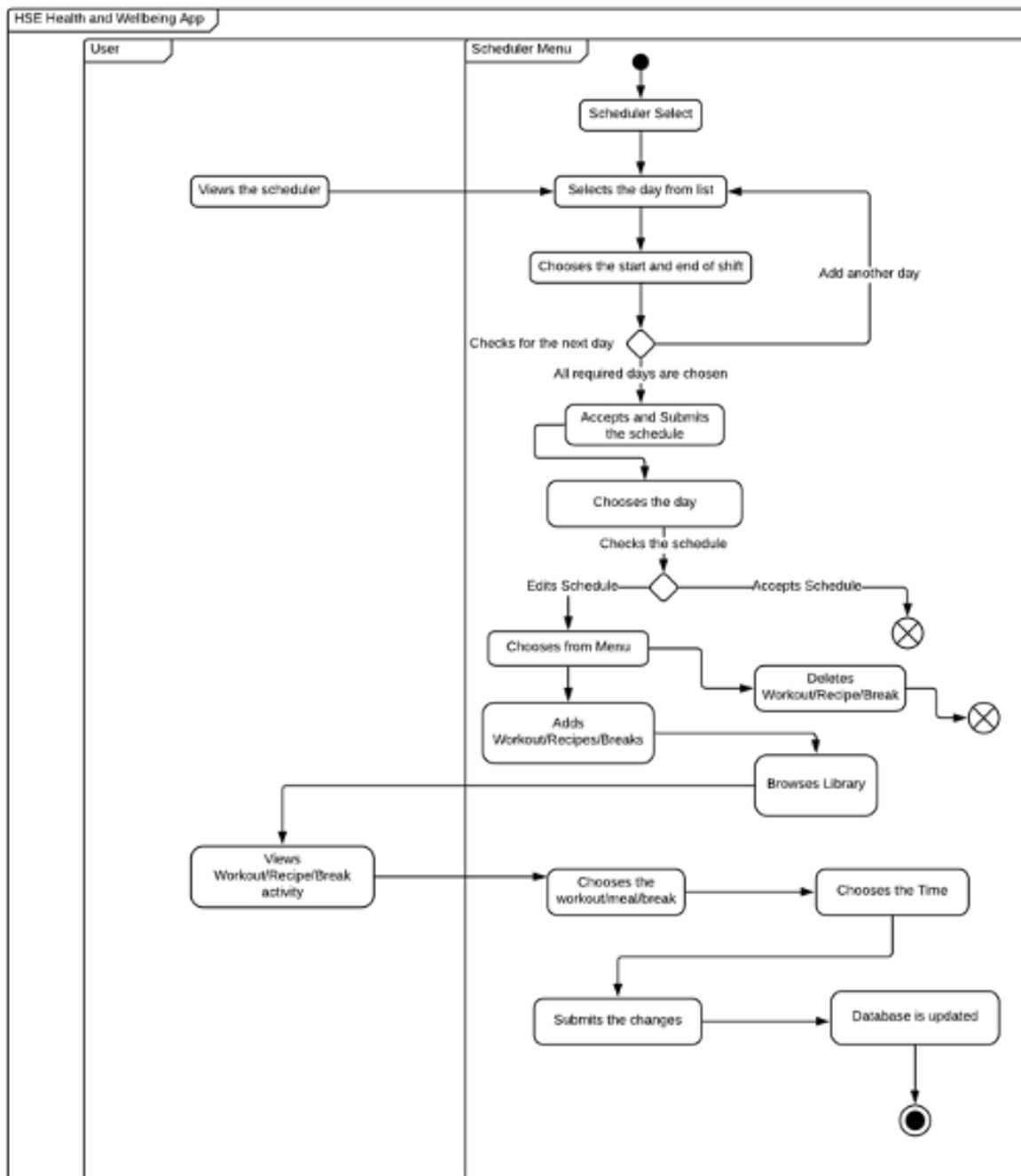HTML, CSS and JavaScript are used to create frontend UI.

Systems Diagrams

The following diagrams will guide the development phases of BreakWell. These outline the structure and requirements of the fully developed software system.
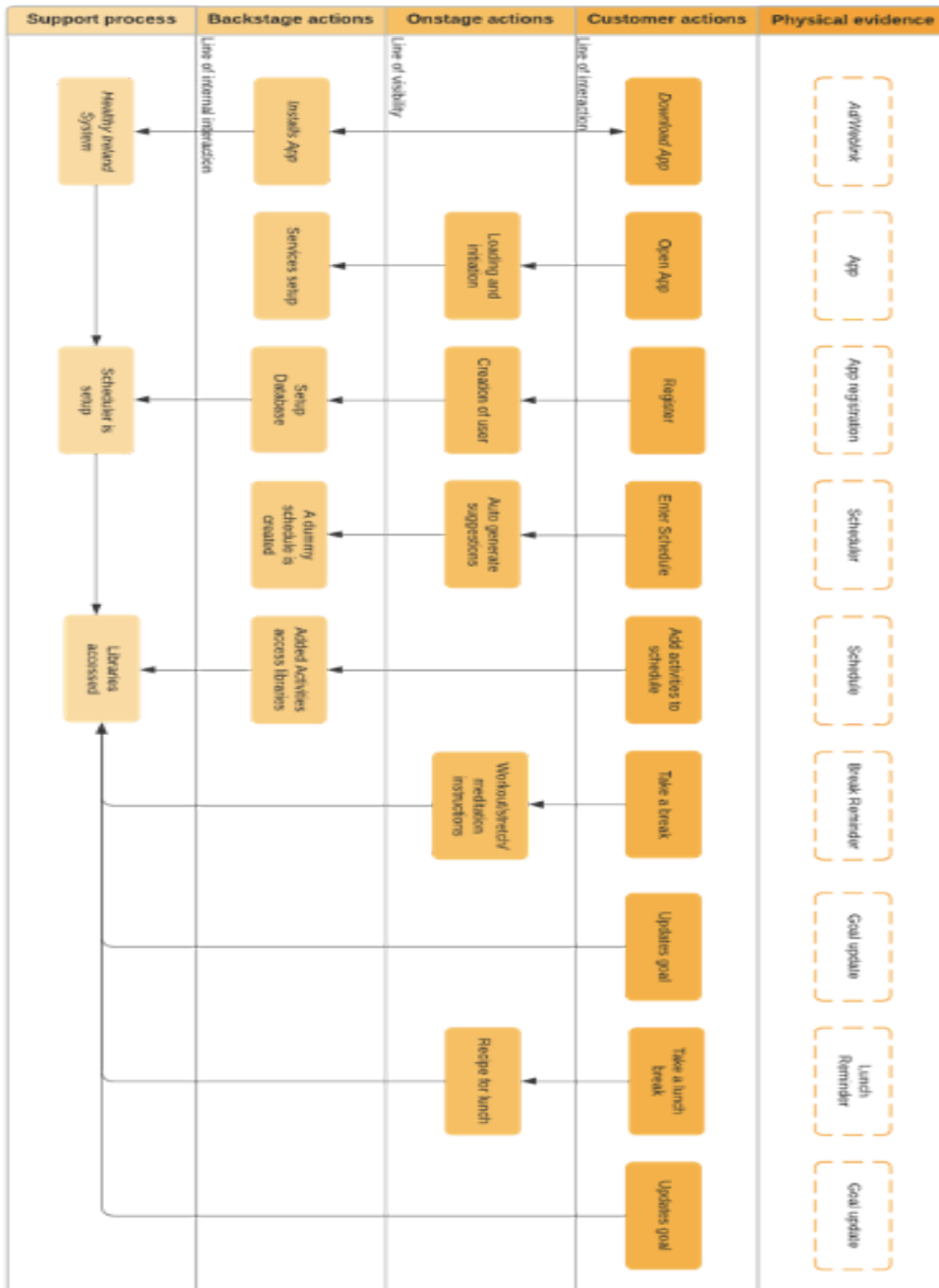
ERD DIAGRAM

ACTIVITY DIAGRAM

SERVICE BLUEPRINT

Support process	Backstage actions	Onstage actions	Customer actions	Physical evidence
Healthy Ireland System	Install App		Download App	Ad/Weblink
	Services setup	Loading and initiation	Open App	App
Scheduler is setup	Setup Database	Creation of user	Register	App registration
	A dummy schedule is created	Auto generate suggestions	Enter Schedule	Scheduler
Libraries accessed	Added Activities access libraries		Add activities to schedule	Schedule
		Workouts/stretch/ meditation instructions	Take a break	Break Reminder
			Updates goal	Goal update
		Recipe for lunch	Take a lunch break	Lunch Reminder
			Updates goal	Goal update

CLOUD ARCHITECTURE

Multiple Users   App Services   Azure DevOps   Azure Repos

Azure Database
for MySQL
Servers

Financial Operations

Development Team		Cost
Fullstack Developers		€400/day
Systems Administrator		€400/day
Azure Systems Engineer		€400/day

The above employees are necessary to continue development of BreakWell.

Fullstack Developers

Fullstack developers who can work on the frontend client side (HTML, CSS, JS, Angular, Vue) and backend server side coding (python, php, node.js).

Azure System Engineer

Azure systems engineer is responsible for maintaining the Azure DevOps environment that impacts the delivery of the application builds, the Azure App Service, and the Azure MySQL Database storage, backup and DML. They are also responsible for monitoring the application traffic.

System Administrator

System Administrator is responsible for user and cloud service access management. They are also responsible for managing the MySQL DDL.

Development Technology	Cost
Environment Visual Studio & Azure DevOps	€00.00/month
Web Hosting Conversion from S1 to B1	€46.17/month Prod €27.09/month Dev
Database Azure MySQL 250GB	€26.01/month

Cloud Service Estimates

Azure App Service

Configuration

Basic Tier; 1 B1 (1 Core(s), 1.75 GB RAM, 10 GB Storage); Windows OS

Cost

Dev/Test Phase   : 27.09 EUR/month
Prod Phase   : 46.17 EUR/month

The financial estimations of the cloud infrastructure for development/test phase and production phase are different. The web app service is available for a lesser cost When in the Dev phase of the application (27.09 EUR/month) than it will be available for production environment(46.17 Eur/month).

Azure MySQL Database Server

Configuration:

Basic Tier, 1 Gen 5 (1 vCore) x 1 Month, 5 GB Storage, 10 GB Additional Backup storage - LRS redundancy

Cost:

Dev/Test Phase   : 26.01 EUR/month
Prod Phase   : 26.01 EUR/month

The Azure MySQL database however is constant, independent of whether it is in the development or production phase.

Azure DevOps Service

Configuration:
      5 Basic Plan license users, 0 Basic + Test Plans license users, Paid tier - 0 Microsoft Hosted Pipeline(s), 1 Self Hosted Pipeline(s), 2 GB Artifacts, 1 VUMs

Cost: None

The Azure DevOps Environment service is available free of cost when using only 1 pipeline but can be accessed by 5 members, and considering only one Fullstack developer will be required it will be in the best interest to use the Free Environment.

Azure Support Service
The support for the Azure services can be availed free of cost.

Total Estimation

There is no upfront payment needed for availing the Azure cloud services environment. The below is an estimated cost for dev and production phase. This can further be reduced by availing yearly billing.

*The total estimation for the development phase is **53.09 Eur/month**.*

*The total estimation for the production phase is **72.18 Eur/month**.*

Estimates for Development Environment

			Microsoft Azure Estimate (Dev and Test)		
Service type	**Custom name**	**Region**	**Description**	**Estimated monthly cost**	**Estimated upfront cost**
App Service		West Europe	Basic Tier; 1 B1 (1 Core(s), 1.75 GB RAM, 10 GB Storage) x 1 Month; Windows OS	€27.09	€0.00
Azure DevOps			5 Basic Plan license users, 0 Basic + Test Plans license users, Paid tier - 0 Microsoft Hosted Pipeline(s), 1 Self Hosted Pipeline(s), 2 GB Artifacts, 1 VUMs	€0.00	€0.00
Azure Database for MySQL		West Europe	Basic Tier, 1 Gen 5 (1 vCore) x 1 Month, 5 GB Storage, 10 GB Additional Backup storage - LRS redundancy	€26.01	€0.00
Support			**Support**	€0.00	€0.00
			Licensing Program	**Microsoft Online Services Agreement**	
			Total	**€53.09**	**€0.00**
Disclaimer					
All prices shown are in Euro (€). This is a summary estimate, not a quote. For up to date pricing information please visit https://azure.microsoft.com/pricing/calculator/ *This estimate was created at 8/13/2020 10:26:19 AM UTC*					

Estimates for Production Environment

Microsoft Azure Estimate (Prod)

Service type	Custom name	Region	Description	Estimated monthly cost	Estimated upfront cost
App Service		West Europe	Basic Tier; 1 B1 (1 Core(s), 1.75 GB RAM, 10 GB Storage) x 1 Month; Windows OS	€46.17	€0.00
Azure DevOps			5 Basic Plan license users, 0 Basic + Test Plans license users, Paid tier - 0 Microsoft Hosted Pipeline(s), 1 Self Hosted Pipeline(s), 2 GB Artifacts, 1 VUMs	€0.00	€0.00
Azure Database for MySQL		West Europe	Basic Tier, 1 Gen 5 (1 vCore) x 1 Month, 5 GB Storage, 10 GB Additional Backup storage - LRS redundancy	€26.01	€0.00
Support			**Support**	€0.00	€0.00
			Licensing Program	**Microsoft Online Services Agreement**	
			Total	**€72.18**	**€0.00**

Disclaimer

All prices shown are in Euro (€). This is a summary estimate, not a quote. For up to date pricing information please visit https://azure.microsoft.com/pricing/calculator/

This estimate was created at 8/13/2020 10:26:29 AM UTC.

Appendix

Item 1

Mobile App Business Model Canvas

Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer Segments
- HSE - Irish Government - Medical Staff - HSE Employees	- Workouts - Cooking Recipes - Peaceful Meditation - Break Reminders - Anonymous Interaction Board - Support and Maintenance	- Free Download - Easy To use - Universally age friendly - Health Conscious app - Health Reminder for individuals -	- Personal customization of workouts - Exercise assistance -	- Nursing Staff - Employee Households - Medical Employees - Part Time workers - Employees Who work from home

Existing App Alternatives	**Key Resources**		**Channels**	
- Workwell - Microsoft Teams - My Fitness Pal - Headspace	- Reliable application and website. - Easy Organisation		- iPad - Tablets - Smart Phones - Laptop	

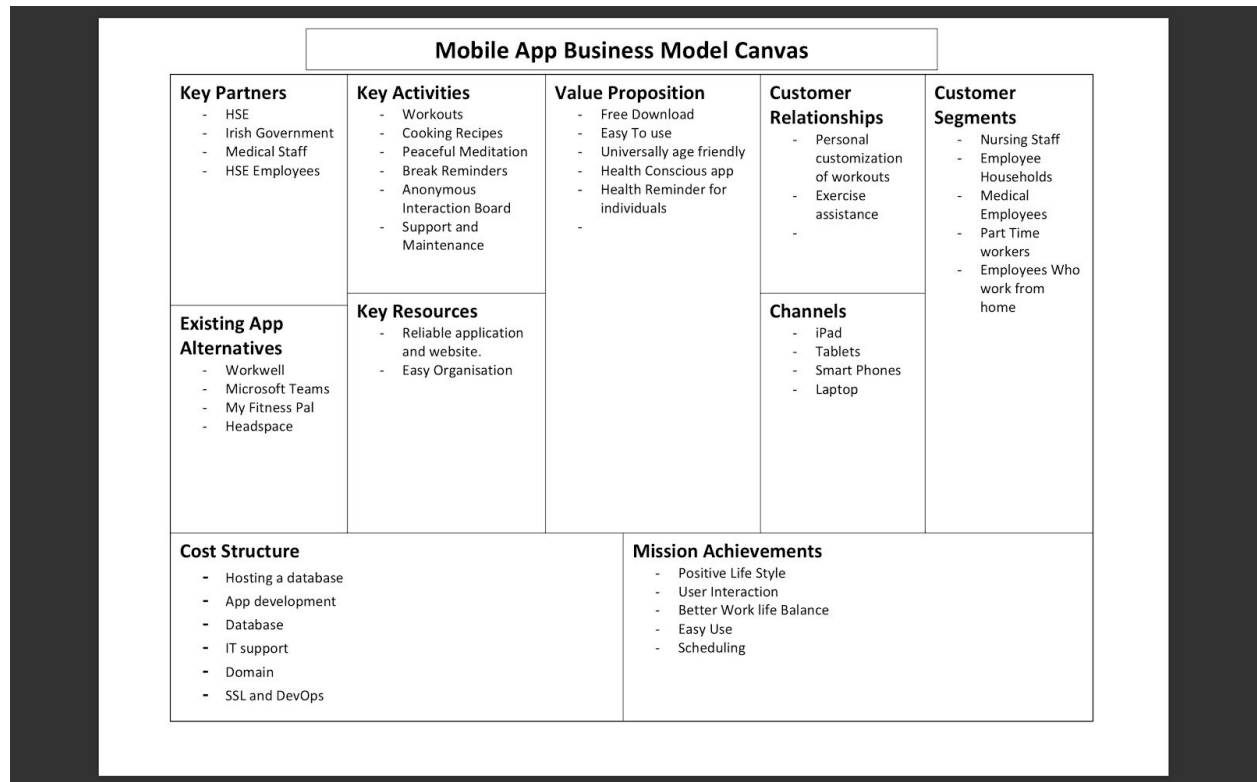| **Cost Structure**	**Mission Achievements**
- Hosting a database - App development - Database - IT support - Domain - SSL and DevOps	- Positive Life Style - User Interaction - Better Work life Balance - Easy Use - Scheduling

Item 2: Business Model Canvas

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