

Alma Mater Studiorum - Università di Bologna
Curriculum: Business and Administration
32763 - DUE DILIGENCE LAB



MIRA

Your Mental Health Harmony

PART 2 – FINANCIAL DESCRIPTION

Giulio Camuffo	974099
Christian Celentano	972255
Alessia De Donatis	972249
Hristina Miljkovic	972257
Naila Risso	972335

FINANCIAL MODELS MAIN FOUNDINGS AND ASSUMPTIONS

1. REVENUE FORECASTING

Revenue Forecasting (excel sheet "revenue")

The company is expected to start generating revenues from \$3.16 million in year 1, \$3.86 million in year 2 and circa \$4.72 million in year 3. In year 0, we expect no revenues as the period is dedicated to R&D effort, prototyping and a free trial period. Due to the nature of the technology and the fact that the app is devoted to the human mind, a large amount of data is required to reach adequate performance levels. Hence, the app will be offered for free to enhance the learning capacity of the AI and machine learning technology, and in order to gain critical mass and network externalities followed by a period of free trials to gather data and gain market.

The financial modelling of revenues is based on the following assumptions:

1. Price assumption: The insights from industry analysis showcase that the median price of the industry is \$14.99 whereas the mean price is \$20,50 per month. As a part of marketing strategy and in order to undermine the competition and reach scale, the price of MIRA will be below the median price of the industry for the first three years of operation. That is, \$10 per month giving \$120 per year of subscription.
2. User base assumption: The insights from market analysis indicate that the industry average is 11.000 new subscribers per month. Hence, 132.000 per year. Given our value proposition, R&D efforts and prototyping phase, our assumption is that we will reach industry average in this period. Although, we assume an average retention ratio of 20%.
3. Growth assumption: We assume that we will reach average market growth rate and continue to grow with a constant growth rate of 22% per year, as the industry is predicted to.

According to our statistical analysis using Montecarlo method based on 1.000 random trials, showcases that the average income for the first year is \$3.168.088 with a minimum and maximum ranging from \$3.162.878 to \$3.173.931. The probability of low sales is 10%.

Sales upper limit	Frequency	Relative Frequency	Explicit category
3.168.078	477	48%	$x < 3168078$
3.188.078	521	52%	$3168078 < x < 3188078$
3.208.078	0	0%	$3188078 < x < 3208078$
3.228.078	0	0%	$3208078 < x < 3228078$
3.248.078	0	0%	$3228078 < x < 3248078$
3.268.078	0	0%	
3.288.078	0	0%	
3.308.078	0	0%	
3.328.078	0	0%	
3.348.078	0	0%	
3.368.078	0	0%	
Total check		100%	

Looking at the frequency table for average revenues in year 1, we can see that the probability of revenues being lower than that \$3.17 million is 48%. Whereas the probability of revenues being between \$3.17 million and \$3.19 million is 52%.

2. FINANCIAL MODELS FORECASTING

Looking at the income statement, we forecast to have a negative net income only in year 0, as MIRA will still be downloadable free of charge and entirely dedicated to R&D and data gathering. This means it will incur costs without any revenue, such as operating expenses and especially SG&A, where the salary costs of our staff would be the most onerous part.

From Year 1, instead, we plan to achieve a **positive and yearly growing net income**, thanks to the funds coming from our main Revenue stream, that is the monthly subscriptions from therapists' patients.

Moreover, analyzing the Balance Sheet, it can be noted that MIRA's **asset structure is mainly rigid**, thus made by (intangible) fixed assets (almost \$500.000,00) due to the total absence of current assets.

From the liabilities & equity point of view, we have planned not to have **neither short term nor long-term debt**. However, we are going to invest personal equity in the value of \$1.5 million. We hope to be backed up by a **series A investment circa \$ 2 million** by a Venture Capital firm from year 1 onward.

Indeed, when it comes to the Cash-Flow Statement, it can be seen that, differently from many other start-ups, we present a **positive and growing ending cashflow** starting from year 1.

Expense estimations

MIRA financial costs' are based on the following assumptions:

- **COGS:** for COGS we used 15% of Sales as Main Assumption, since this represents the average % of COGS for Saas (Software as a Service).

However, for year 0, despite the fact that we assume MIRA will be distributed free of charge for that entire year, we will still incur other costs, and so we calculated COGS as % of the expected Revenues for the following year (year 1).

- **Operating expenses:** operating expenses have generally been considered as the sum of the maintenance cost of initial investment in AI development, mobile application development and Cognitive Behavioral Therapist (CBT) consultancy, taken as the “rule of thumb” as **20%** of the initial investment each year; R&D expenses, which we assume will be **6,9%** of the respective year’s revenues.

This is the method applied only for year 0 only, as all expenses related to IT Infrastructure (Database, Servers, Storage Security and Power BI License) will be free only for that year, taking advantage of the Amazon Web Service Free-tier offer.

From Year 1, on the other hand, we assume to add to the Maintenance and R&D Cost all IT Infrastructure expenses that will be fixed and chargeable each year.

Below are all the information about each specific IT Infrastructure section:

IT Infrastructure:

- o **Servers:**

AWS servers t2.micro(free-tier) * 7 (initial number of servers needed);
memory 1 GB per server;
monthly Cost = \$9 per month * 12 * 7 = **\$756 per year from year 1, not 0**
(<https://www.startupschool.org/posts/31676>)

- o **Database:**

Amazon RDS t3.db.micro (free-tier);
number of connections = 6; 20 GB of General Purpose (SSD) DB storage.
Price = \$13/mo **\$156 per year from year 1, not 0**
(<https://www.startupschool.org/posts/31676>)

- o **Storage:**

Amazon S3 (free tier)

([Cloud Object Storage – Amazon S3 – Amazon Web Services](#))

Assuming 50 TB as monthly storage for the first years, the monthly price (after one free year) is calculated assuming data is stored in California Region: 50 TB Tier:

51.100 GB x \$0.023 = \$1.177,6 per month = **\$ 14.131,2 per year, from year 1**

([Prezzi di Amazon Simple Storage Service \(S3\) – Amazon Web Services](#))

([Amazon Simple Storage Service \(S3\) — Cloud Storage — AWS](#))

- o **Security:**

Amazon Macie,

1 GB processed by the content classification engine; discovering, classification and

protection of data --> **always free for existing or new AWS accounts** ([Sensitive data discovery and protection - Amazon Macie - Amazon Web Services](#))

Software licenses:

- o Power BI: \$9,99 per user per month. 1 user, cost of the license: **\$ 119,88 per year**
- o Python: open source
- o Java script: open source

Total IT Infrastructure Cost: \$15.162,88 per year

- **SG&A:** As for SG&A, these are composed by the sum of marketing expenses, wages and office rent.

Concerning **marketing expenses**, we consider the pre-Launch components: market research (\$15.000,00), beta testing (\$5.000,00), to make sure MIRA is ready for launch, and App Store Optimization (\$1.500,00 per month) to allow our potential users to find and easily download MIRA. As we are a service tailored to the use with professional psychotherapy, we will begin our primary promotion on the specialized yearly psychology fairs and similar initiatives that would allow us to get closer to therapists who can eventually recommend us to their patients as we are a tool that can benefit the both sides. Then, our promoting channels will be US psychology magazines such as Psychology Today, APS Observer, Scientific American Mind, social media such as Facebook and Instagram involving psychology influencers to reach both youngsters and adults (\$30.000,00).

Once MIRA is ready to be launched in the market, we assume to incur in CPA (Cost per action), that is a specific action that app marketers expect mobile users to take. In our case, account registration (\$8) and annual payment subscription are mandatory for the basic functioning of MIRA service (\$120 per user yearly).

Lastly, we include Push Notification costs which are \$200 per month.

Total Marketing Expenses: \$70.558,00 per year

- o Senior Data Engineer: \$160.559
(https://www.glassdoor.com/Salaries/los-angeles-lead-data-engineer-salary-SRCH_IL.0,11_IM508_KO12,30.htm?countryRedirect=true&countryRedirect=true&countryRedirect=true)
- o Senior Data Scientist: \$147.540
- o Data Scientist: \$75.000
(<https://www.indeed.com/career/junior-data-scientist/salaries>)
- o Senior Machine Learning Engineer: \$156.193 (This data has been retrieved taking the Average of all the Average Salary for only Machine Learning Engineers based in California (US) ([15 Top Cities for Machine Learning Engineer Salaries \(dice.com\)](#)))

- Full Stack Software Developer: \$110.125,00
([Full Stack Developer salary in California \(indeed.com\)](#))
- Data Analyst: \$61.000
(2022 Junior Data Analyst Salary in Los Angeles (Updated Daily) | Built In LA)

Total Wages: \$710.417 per year

Finally, being San Francisco our planned headquarter, the rent per square feet is \$87,18. Assuming an office for 5 to 10 people with 50 sqm per perso

Total Office Rent: (8*50) * \$87,18 = \$34.860 (monthly: \$2905)

Total SG&A Cost = \$815.835 per year

- **FIXED ASSETS:** The initial investment is equal to the sum of the two main intangible fixed assets that make up MIRA's core, the AI and mobile app development:
 - **AI development:** On one side, for a complex AI (Artificial Intelligence), we will rely on a third-party provider firm for about 12 months for a total of 1500 hours. In the US, the hourly rate required by AI companies/consultant ranges from \$200 to \$350. We will assume \$300. In addition, for the conceptual fundamentals of MIRA, the historic cost of the AI must also take into account the cost of involving of a **CBT Consultant**. The average hourly salary for a Cognitive Behavioral Therapist in California (US) as of June 2022 is \$28 ([cognitive behavioral therapist hourly cost california - Google Search](#)). Assuming 300 hours of consultancy to provide the proper conceptual basis to our AI developers, the **total investment: \$8400**. This will bring up the Total investment to \$412.500 + \$8400 = \$420.400,00
 - **Mobile App development:** On the other side, for the mobile app development, we plan to hire a software developer consultant. The average from the market says it takes between 4 and 9 months. We then assume a **700-hour long project**, given the complexity of the product. The hourly rate of a software developer consultant is between \$60 and \$80. Assuming \$80, **the total investment: \$56.000** (Project duration: <https://spdload.com/blog/app-development-cost/>, developer hourly rates, US: <https://arc.dev/freelance-developer-rates/full-stack>).

Total Fixed Assets: \$476.000

3. SUSTAINABLE GROWTH MODEL

In order to achieve the predicted milestones, in year 0 we will invest \$1.5 million of our own equity gathered from our family, friends and personal trust funds. As this year is dedicated to prototyping and data gathering, no revenues will be achieved hence the necessary new equity at the end of this period is around \$2 million to cover the initial investment. After year 2, we will be able to recover the additional equity investment and in year 3 we will recover both personal equity and additional equity investment.

Model assumptions:

- Asset/Equity= 1 – no debt financing
- Sales/Equity= 1.82 - retrieved from MIRA's financial statements, typical for this industry
- EBIT slope= 85% - retrieved from MIRA's financial statements, typical for the nature of the business
- EBIT intercept= - \$456.000 – fixed costs of MIRA attributable to AI tech and mobile app development, and CBT specialists supervision/consulting
- Tax = 21% - US national start-up tax level
- Targeted growth rate 22% - under the assumption we will reach market average growth rate (look revenue assumptions)

4. CASH FLOW BREAK EVEN POINT

Under our assumptions, MIRA will be unprofitable in year 0 and profitable from year 1 onwards. Looking at the net income BEP we can expect to be break even from year 1 when we reach 5.220 subscription, which in monetary terms is equal to \$626.414. As well, MIRA will reach cash flow BEP in year 1, indeed, given low COGS, high fixed costs but a scalable business model, we expect to have high contribution margins. Cashflow BEP will be reached at year 1 with \$570.120.

MIRA's cost structure is characterized by no change in NWC and high fixed costs, in year 1 we will need \$2.2 million of cash, indeed we will need additional financing to cover our initial costs.