AI CLOUD SOFTWARE WITH ANTHROPOMETRIC DATA

BIOLIBRARY

SUSTAINABLE HEALTH TECH SOLUTIONS

Index slide

Part One

Project Overview

Part Two

Market Overview

Part Three

Team Introduction

Part Four

Operations & Financing

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Part One

Project Overview

1.1 Problems & Solution

In orthopedics, **traditional plaster casts** are commonly used to immobilize fractures and support healing. However, they present sevral issues which **adversely affect the patient's comfort and recovery**.

LOW COMFORT AND USABILITY

The (30-35%) of patients complain of limitations in daily functions due to weight and bulk:

- They are heavy to wear (**weight loss**)
- They emit a **bad smell**

Need replacement due to:

- (5-10%) cracks, deformation or water damage
- (1-5%) impediment to fit

RISKS OF COMPLICATIONS

Cause of:

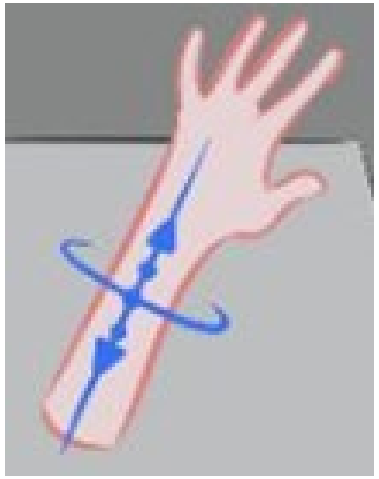
- Nerve compression
- (5-15%) Decubitus sores
- (~10%) Swelling and circulation problems
- (5-30% of the cases) Stiffness and muscle atrophy
- Skin irritation, sores, allergic reactions due to moisture or poor airflow

Biolibrary is an **AI Cloud Platform** that enables orthopedists and physicians to **automatically create 3D-print-ready models of prostheses and musculoskeletal supports**.

The company aims to revolutionize the procedures for making any prosthesis or musculoskeletal support.

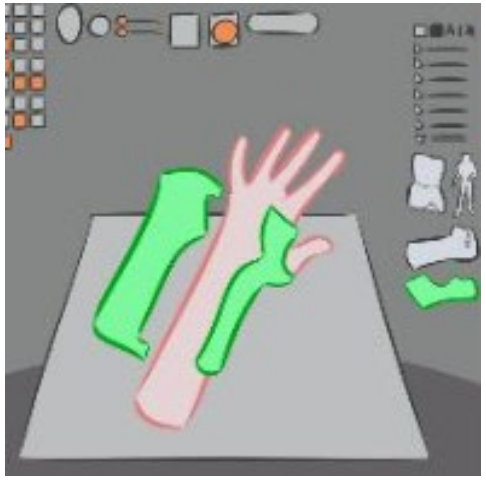
1.2 Patented Solution Process

A



- The orthopaedic surgeon take a **picture**
- Send through **AI Software Platform**
- Platform acquires **anthropometric patient data**

B



- **Artificial Intelligence** analyzes the patient's limb
- Selects, together **with the orthopedic surgeon**, the best possible model for the patient (**Library**)
- AI creates the product

C

- AI software sends the input to **3D Printer**
- You can print everywhere (it is **cloud based)**
- Enjoy the life

1.2 Key Features of The Project

BioLibrary provides **an innovative process** for the 'cast' and care of affected limbs.

with a click

Having taken 3 images of the patient, or an Rx, the AI Cloud Software acquires anthropometric patient data and calculates on its own the “volume” of the patient’s limb.

no waiting

Biolibrary allows doctors and orthopedic surgeons to avoid waiting for the article to be printed and dried.

In fact, with Biolibrary, the orthopedic doctor or engineer has already printed the best solution for the patient and the patient wears it comfortably.

one printing

The software, through its patented PCT algorithm, independently combines the solution selected by the orthopedist with the patient’s injured limb.

The orthopedist only has to observe the final result.

printing everywhere

The platform creates a file with a compatible format that can be printed anywhere in the world, without the need for specific Biolibrary software.

no check

You no longer need to make follow-up visits, which saves you a lot of time and work.

adjustable

The artifact is adjustable over time.

no errors

Not only that.

The Biolibrary artifact allows to avoid all those errors and problems of post-traumatic rehabilitation due to the inevitable human factors.

1.3 Advantages & Innovation

Patient Benefits

No Bad Smell: It is not prone to odor because the backing allows the affected area to breathe.

No Muscle Loss: Physiotherapy is possible right away, thanks to the dedicated holes for not losing muscle tone.

Bone Support: Biolibrary is not only dedicated to surgical interventions or post-traumatic therapies, but also to the preparatory phase of the interventions themselves!

Moreover, Biolibrary's technology will allow in the future bone reconstruction through regenerative media by means of stem cell culture.

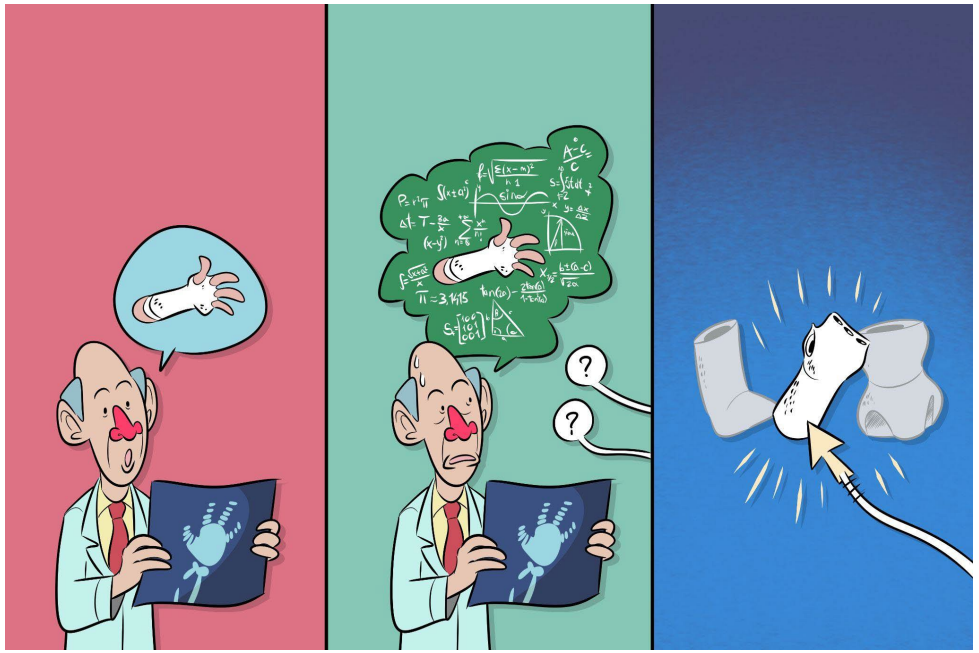
Easy Shower: Unlike traditional media, you can shower in it without a problem because the media produced by Biolibrary is not subject to shape change!

1.4 R&D Capability and Technical Level

- **Intellectual Property: The production process** behind the **AI Cloud Software platform** is **protected** by **intellectual property,** by depositing at European level (patent no. 007690243-0001) and International level (PCT/EP2020/084228).
- **Technical Features, Content & Barriers:** The key advantage lies in automation: **no need for skilled hands during selection and production.** It takes more time and costs than plaster but requires far less qualified labor.

- **Photogrammetry**- patient's volume reconstruction.
- **Detection** - determines the patient's biometric data.
- **Modelling** – after the selection made by the doctor of a model in the library (orthopaedic solution), the software will merge the 3D model data with the patient's anthropometric data (3D Mesh) and you will obtain a personalised device for the patient.
- **Creation** - An STL or DWG or similar file of the 3D digital prototype is created.

- **Achievements:** BioLibrary has partnered with **Rizzoli Orthopedic Institute (Ranked #5 globally)** to successfully validate 3D-printing applications in orthopedic therapeutics.



The **3D models (orthopaedic solutions)** in the software **library** will **be certified through Blockchain** and will be updated over time.

SERVIZIO SANITARIO REGIONALE
EMILIA - ROMAGNA
Istituto Ortopedico Rizzoli di Bologna
Istituto di Ricovero e Cura a Carattere Scientifico

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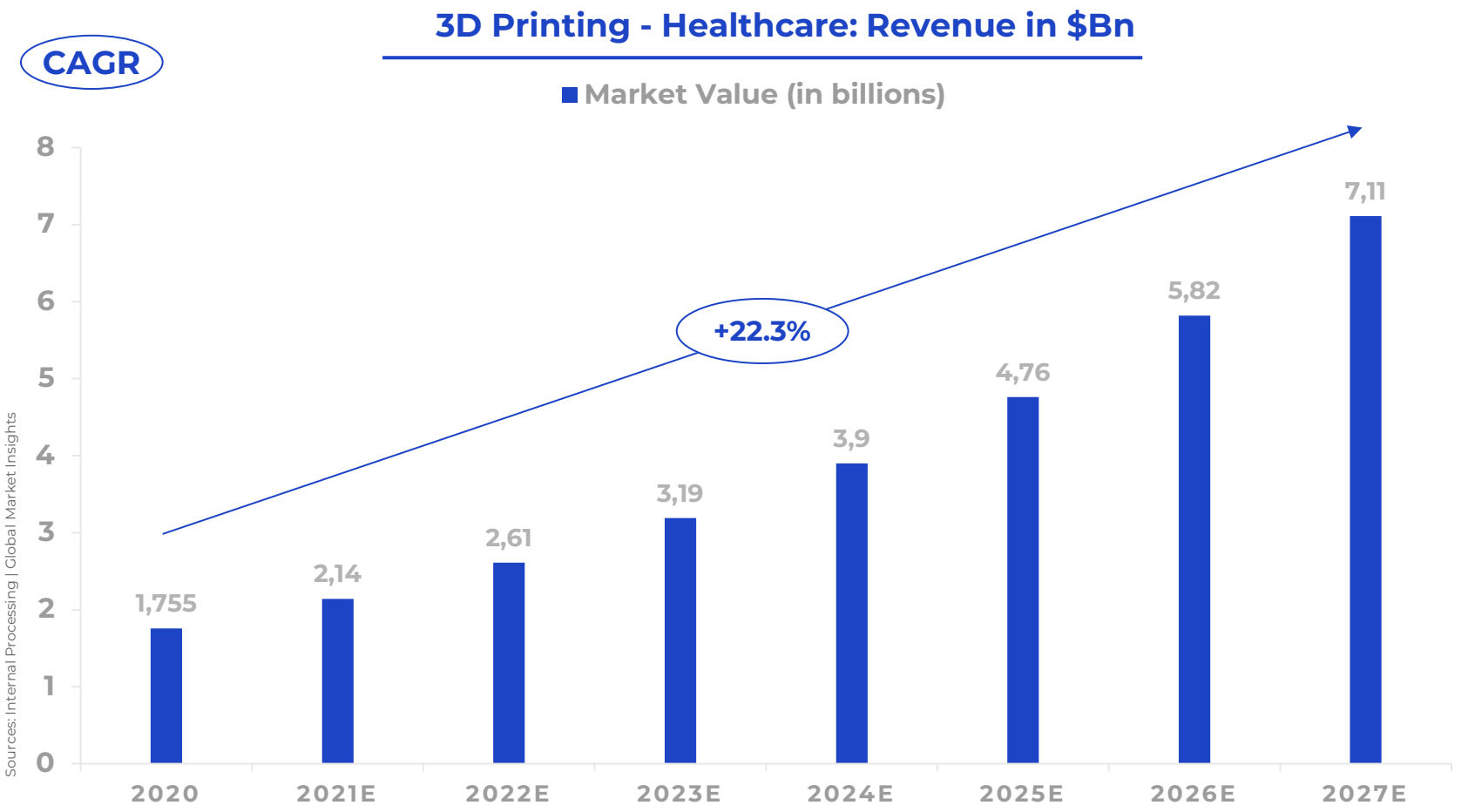
Part Two

Market Overview

2.1 Market Size

In the **2020** 3D Printing market, healthcare applications accounted for more than 12% of the total, while the market size was about **$1.8 Bn**. In **2027** this market will be worth about **$7.1 Bn**, 13.5% of the total market **(+22.3% CAGR).**



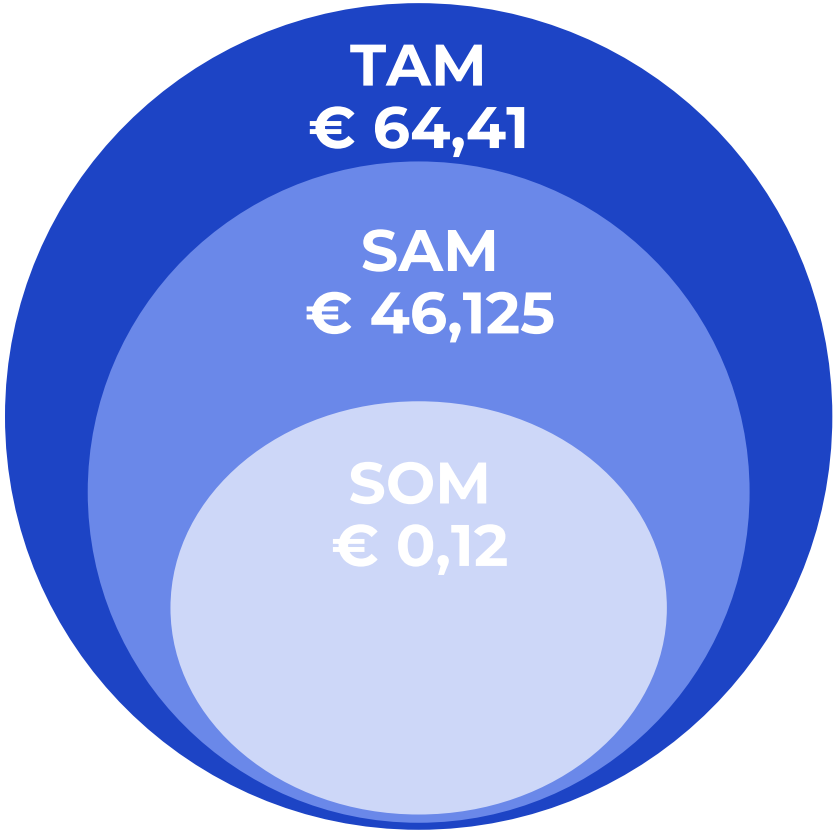
- **23% Market Growth Rate** (one of the factors driving this growth is the increasing demand for patient-specific implants in orthopedic, dental, and other surgeries)
- **$10 Billion Market Size**
- **30% Growth for 2026**

2.2 Target Market - Medical Sector

Orthopedic braces, supports and implants Market: Revenue 2027 in €Bn

LEGEND

- **TAM:** sum of the "global orthopedic brace and supports market" and the "global orthopedic implants market".
- **SAM:** sum of the orthopedic brace, supports and implants market of the geographical areas that will be commercially attacked by the company in the forecast period, i.e. EU and US.
- **SOM:** Total Serviceable and Obtainable customers (hospitals; orthopedic surgeons; manufacturers) multiplied by their associated revenues.



Vast Potential, Significant Market

- **Aging of the population caused:** The demand for orthopedic prostheses is increasing due to the increasing aging of the world's population. This intensifies the risk of degenerative bone and joint disorders such as osteoarthritis and osteoporosis.
- **Incidence of obesity caused:** The increasing incidence of obesity in Europe has also contributed to the growth of the European orthopedic braces market.
- **Global Market Size:** The global orthopedic braces, supports and implants market size was valued at € 48.02 billion in 2022 and is expected to expand at a **CAGR of 5.02% from 2022 to 2027.**
- **The US and Europe Market Size:** The EU and US orthopedic braces, supports and implants market size was valued at € 34.2 billion in 2022 and is expected to expand at a **CAGR of 5.11% from 2022 to 2027.**
- **China Market Size:** The Chinese orthopedic braces, supports, and implants market size was valued at approximately € 3.56 billion in 2023 and is expected to expand at a **CAGR of 8.2% from 2022 to 2027.**

Sources: Verified Market Research | Statista | Internal Processing | Globe News Wire

2.3 Target Market - Potential Sectors

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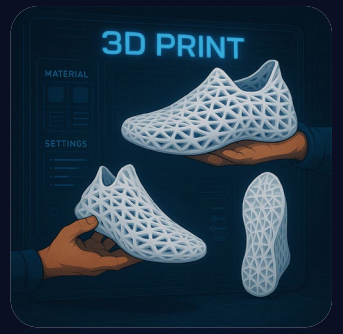
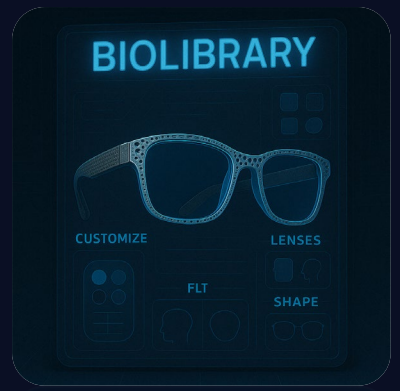


WHERE TO APPLY OUR FIRST INTERNATIONAL PCT



Our Goal is to becoming a benchmark for the 3D mass customization market trough several patents development

2.3 Target Market - Potential Sectors

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WHERE TO APPLY OUR SECOND INTERNATIONAL PCT

Bone support

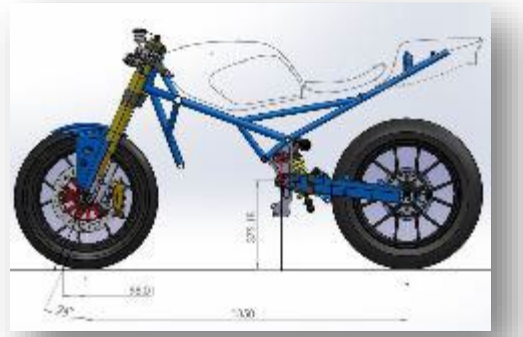
Becoming a benchmark for the 3D mass customization market
trough several patents development

Houses

Load-bearing structures of houses - bridges

Bicycle Frame

Car bodies



Motorcycle Frame

2.4 Competitive Advantages

Biolibrary aims to **disrupt** the existing manual **orthopedic cast** market and distinguishes itself from other **emerging solutions** due to its single focus in **providing a seamless 3D printed solution without tech or labor costs.**

	BIOLIBRARY	MECURIS	FITED	3D	SPENTYS
Product	Orthoses	Orthoses and Prostheses	Orthoses and Prostheses	Braces	Orthoses and Prostheses
Seamless (no human intervention required)	Yes	No	No	No	No
Patterns in the library	All parts of the body	Not present	Not present	Not present	Not present

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Part Three

Team Introduction

3.1 Founder Profile

Antonio Puce
Founder & CEO

- **Master Degree:** University of Pisa, Master of Industry 4.0 Design.
- **Bachelor Degree:** University of Camerino, Laurea breve in Informatics.

Intellectual Property:

- **PCT/EP2020/084228:** realization method of an orthopedic support.
- **0001407898:** ICSS – Safety & Security: Workplace Safety Control and Management System.
- **ITAP20110013A1:** Realization of a prevention system and Ready-to-Read against bosch fire using new infrmation Technologies.

Certified Innovation Management	Innovative Project Development & Funding	Pioneering RFID Implementation	Contribution to Educational Technology
Recognized as a MIMIT-certified Innovation Manager, providing expert consultancy on Industry 4.0, enterprise digitalization, AI applications, and lean organization to a diverse range of national clients.	Ideated, designed, and secured funding (including regional and national grants like Miur and Marche Region) for several innovative projects such as "ICSS" (workplace safety), "Educationalab" (collaborative learning), "FUC" (fire detection), and "Biolibrary".	Led one of Italy's first large-scale RFID technology implementations for library management at the Vatican Apostolic Library (PERGAMON project) and an RFID-based asset inventory project for the Presidency of the Council of Ministers.	Designed and implemented numerous projects for public administration within the National Operational Programme (PON) framework, focusing on digital learning environments, STEM education, and digital publishing for schools.

3.2 Team Member Profile

DR. Guglielmo Torre, MD
Scientific Director

Background: Orthopaedic Surgeon, Villa Stuart Sport Clinic - **FIFA Medical Centre** of Excellence, Italy.
Role: Scientific validation and Engineering of custom Orthopaedic templates.

Akio Fujiwara, MD
Regulatory

Background: Doctor of Medicine (MD), University of Queensland. Entrepreneur. Academia and industry collaborations.
Role: Clinical & Regulatory compliance in the U.S.

Stefano Cesare Roncoroni
CFO

Background: +25years CFO experience at international level, e.g. **KPMG Italy, Savills Investment Management**, Consulcesi Group.
Role: Finance Leader

Rodrigo Segnini
Operations Management

Background: Stanford P.h.D, **Siemens Healthtech Management.**
Role: Manage the company's activity aimed at innovation and market fitness.

Roberto Colonnello
Software Engineering, CTO

Background: Degree in Computer Science at University of Udine.
Role: Tech stack development.

Andrew Paolillo
Business Development

Background: +25 years experience of Strategic Consulting in Digital Health, e.g. **Anthem, Amwell**.
Role: Customer acquisition and fund raising

Nicolò Venturi
Financial Advisor

Background: Fintech analysis experience at **Deloitte**, Venturi Corporate Finance.
Role: financial advice.

Rosanna Tripi
Product Management

Background: Master Degree in Biomedical Engineering.
Role: Advanced Biomechanical Modelling.

Part Four

Operations & Financing

4.1 Current Status

Technological

Drafting of Merge3D Platform procedures

Evaluation and validation of the software procedures

Development and validation of experimental models to be included in the software library

PoC Software Development

Technology Readiness Level 6

Economic: Biolibrary has garnered **entrepreneurial awards** and captured strong interest from **investment institutions**

Italian Patent achieved

International Patent achieved Eu-CN-USA

2023

Capitalization of the Patents as company assets

2025

Start of the fundraising campaign and submission tenders

Won tenders

next appennino
Fondo complementare aree sisma 2009-2016

bi-rex

REGIONE MARCHE
BANDO 2022

Raised funds

Startup Program
OVHcloud
100,000€

Startupbootcamp

Investment

CHINABASE 中拓加速

Chinabase will provide various forms of support, including funds and office space.

4.2 Business Model - Target Customer Base

Biolibrary's go-to-market strategy varies depending on the type of customer to be reached:

- Hospitals will be contracted after participating in a **tender process** or **direct negotiation.**
- Surgeons and orthopaedic manufacturers, will be reached through **part-time agents/vendors**.

1

HOSPITALS (Public & Private)

Distribution channel
Direct - Distributors

Hospitals will be reached through our own staff or through distributors. Sales will take place through a tender process or direct negotiation.

2

ORTHOPEDIC SURGEONS

Distribution channel
Distributors - Sales Agents

Biolibrary will use part-time agents/vendors to find new orthopaedic surgeons interested in its services.

3

MANUFACTURERS of orthopedic prosthesis and braces

Distribution channel
Direct

Prosthesis manufacturers will be reached through our own staff. Sales will take place through direct negotiation.

Online Marketing / Offline Marketing / Fairs and Events / Networking

4.3 Profit Model & Pricing Strategy

Revenues Streams

1 HOSPITALS (Public & Private)

- **White Label Installations:**
  €150k one-off
- **Library Update:**
  €10k per update

2 ORTHOPEDIC SURGEONS

- **Recurring fee:**
  €100 per month
- **3D Orthopaedic products:**
  €85 each on average

3 MANUFACTURERS of orthopedic prosthesis and braces

- **White Label Installations:**
  €82k one-off
- **Library Update:**
  €10k per update

The model is projected to achieve a turnover of €15 million and an EBITDA margin exceeding 35% by 2030, based on reaching **46 hospitals, 230 surgeons, and 64 manufacturers**.

4.4 Application & Revenue forecast

Milestone

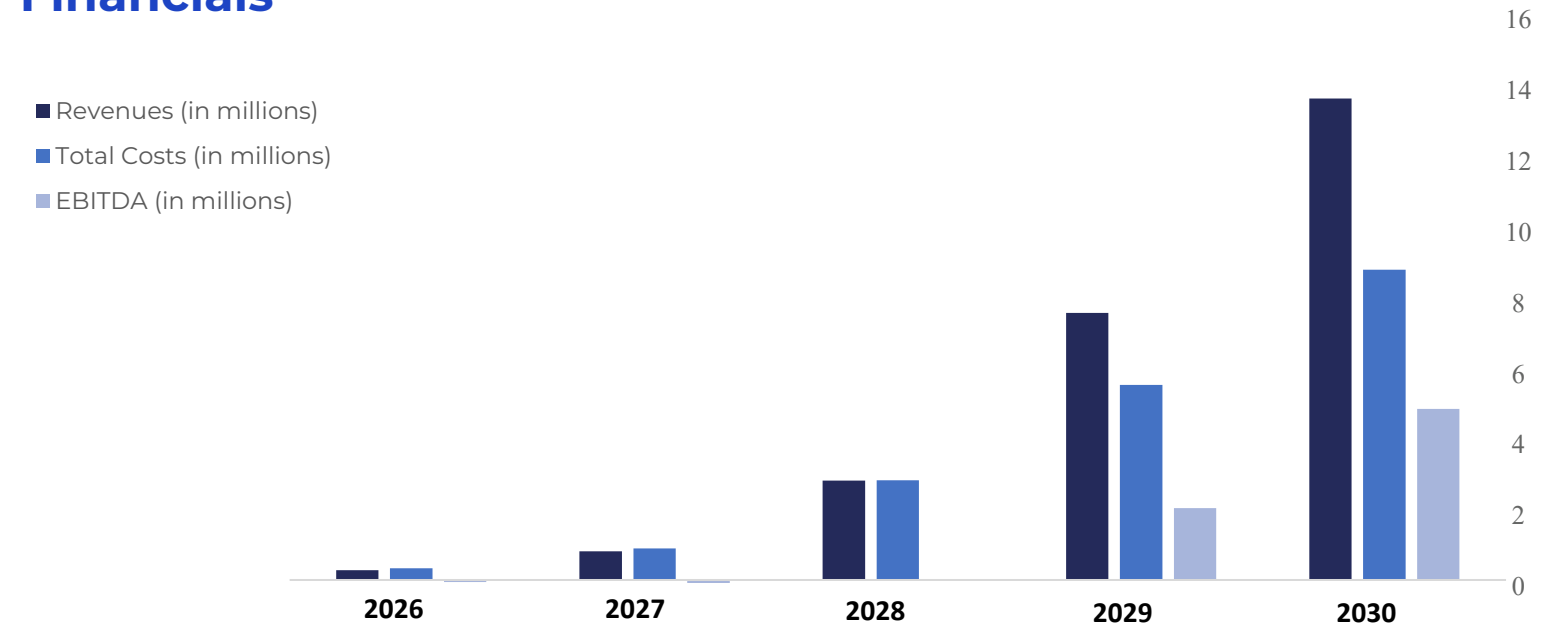
Biolibrary has partnered with Prof. Davide Maria Donati to successfully **validate 3D-printing applications in orthopedic therapeutics.**

Notes: Donati is head of the Orthopedic Pathology Laboratory and Osteoarticular Tissue Regeneration Laboratoryat the Rizzoli Orthopedic Institute (ranked#5 globally).

PoC
Proof of Concept

Biolibrary has already created a PoC for the platform and will soon be available for testing!

Financials



	2026	2027	2028	2029	2030
Hospitals reached	2	3	15	26	46
Orthopedists reached	0	39	110	205	230
Manufacturers reached	0	4	15	36	64

4.5 Roadmap

	2025	2026	2027	2028	2029
Technical Dev.	~~• POC - MVP~~ • Software Creation • Software Certification • Library Creation	Conclusion of test and certification	Developmet and updating	Development on other markets like glasses, automotive and mask	Expansion of R&D team
Go-to-market	Conduct an in-depth study of the **International market** to lay the groundwork for a successful market entry and initiate partnerships	**GO-TO-MARKET** (selected countries)	**Expansion** to other countries	Geographical and product **scale-up**	
Financing	**1° round – € 500k**	**2° round – €1.5 million**			

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https://www.biolibrary.it/