MedApp

Cut: SMART
Mode: LOCATE

MedApp
Products

Innovative solutions that revolutionize
methods of treatment and saving patients' lives

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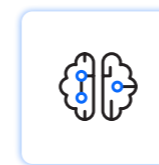
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CUT SMART: OFF
MODE: ROTATE

WE ARE A HEALTHCARE TECHNOLOGY COMPANY

Our innovative solutions are revolutionizing the treatment of patients and saving their lives

We work in innovative areas of new technology at the intersection of science, medicine and innovation. Our main focus is:

ARTIFICIAL INTELLIGENCE

Constant improvement of the quality of diagnoses and continuous development owing to the use of modern IT tools
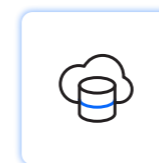
3D IMAGING

The use of mixed reality (MR) and augmented reality (AR) technologies to improve diagnosis and treatment

BIG DATA ANALYSIS

Collection and analysis of data from various sources using proprietary artificial intelligence (AI) and machine learning (ML) algorithms

HISTORY

Key moments in
our history

2022

Founding MedApp Germany GmbH to operate in German speaking countries – Germany, Austria and Switzerland (DACH)

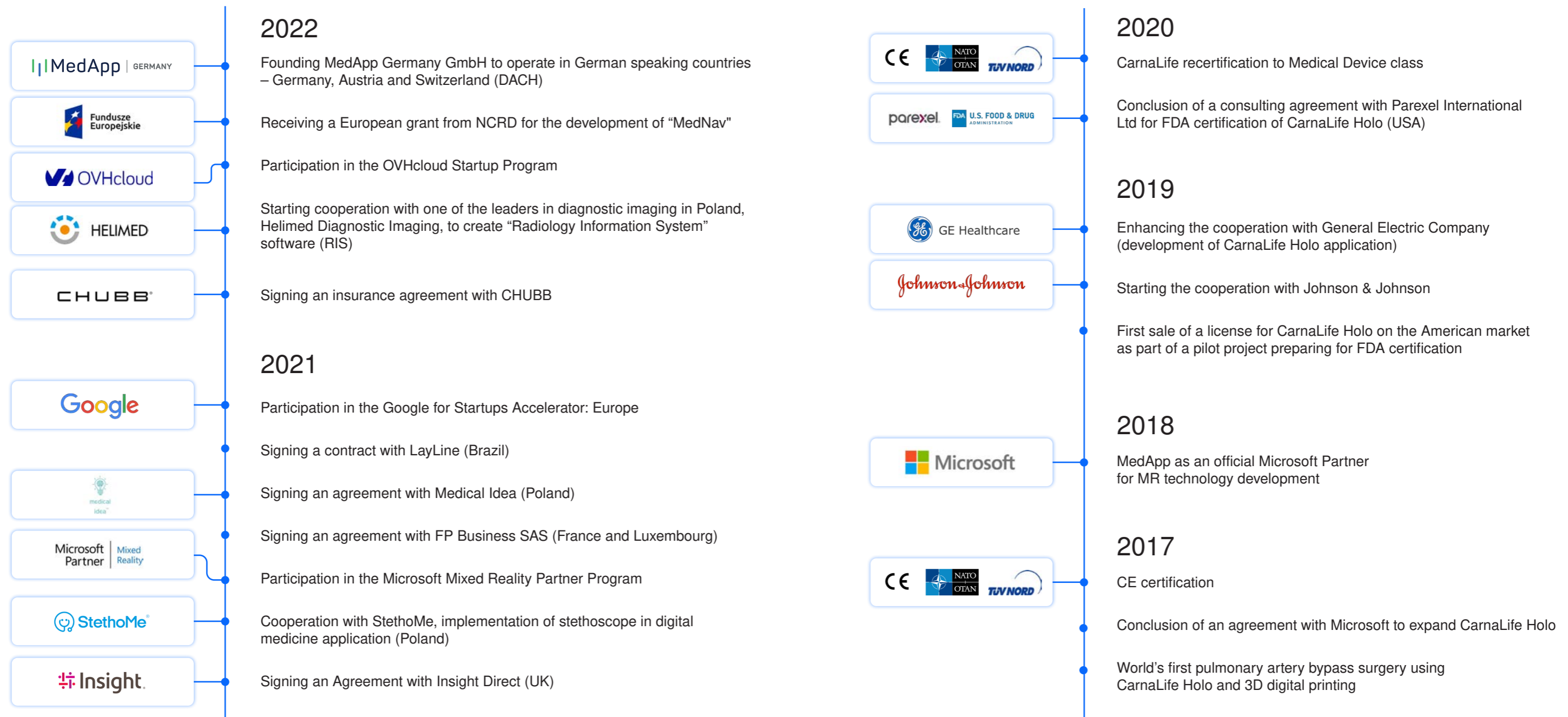Receiving a European grant from NCRD for the development of "MedNav"

Participation in the OVHcloud Startup Program

Starting cooperation with one of the leaders in diagnostic imaging in Poland, Helimed Diagnostic Imaging, to create "Radiology Information System" software (RIS)

Signing an insurance agreement with CHUBB

2021

Participation in the Google for Startups Accelerator: Europe

Signing a contract with LayLine (Brazil)

Signing an agreement with Medical Idea (Poland)

Signing an agreement with FP Business SAS (France and Luxembourg)

Participation in the Microsoft Mixed Reality Partner Program

Cooperation with StethoMe, implementation of stethoscope in digital medicine application (Poland)

Signing an Agreement with Insight Direct (UK)

2020

CarnaLife recertification to Medical Device class

Conclusion of a consulting agreement with Parexel International Ltd for FDA certification of CarnaLife Holo (USA)

2019

Enhancing the cooperation with General Electric Company (development of CarnaLife Holo application)

Starting the cooperation with Johnson & Johnson

First sale of a license for CarnaLife Holo on the American market as part of a pilot project preparing for FDA certification

2018

MedApp as an official Microsoft Partner for MR technology development

2017

CE certification

Conclusion of an agreement with Microsoft to expand CarnaLife Holo

World's first pulmonary artery bypass surgery using CarnaLife Holo and 3D digital printing

PARTNERS

Our business partners

We cooperate with **leaders in the area of technology and medicine**

Microsoft

- Sales support through a network of business contacts
- Using the secure Azure cloud to store medical data
- Using Microsoft Teams as a secure video calling module in CarnaLife System
- Distributing Microsoft HoloLens 2

Google

- Participation in an accelerator for European startups
- Using Google's know-how in the area of machine learning (ML) and artificial intelligence (AI)
- Using Google Cloud Paltform

GE Healthcare
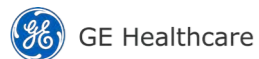
- Streaming of data from Vivid E95 Echocardiograph
- Joint marketing efforts to promote CarnaLife Holo

OVHcloud

- Participation in the OVHcloud program for startups
- Access to cloud resources
- Mentoring and support for international expansion

Johnson&Johnson

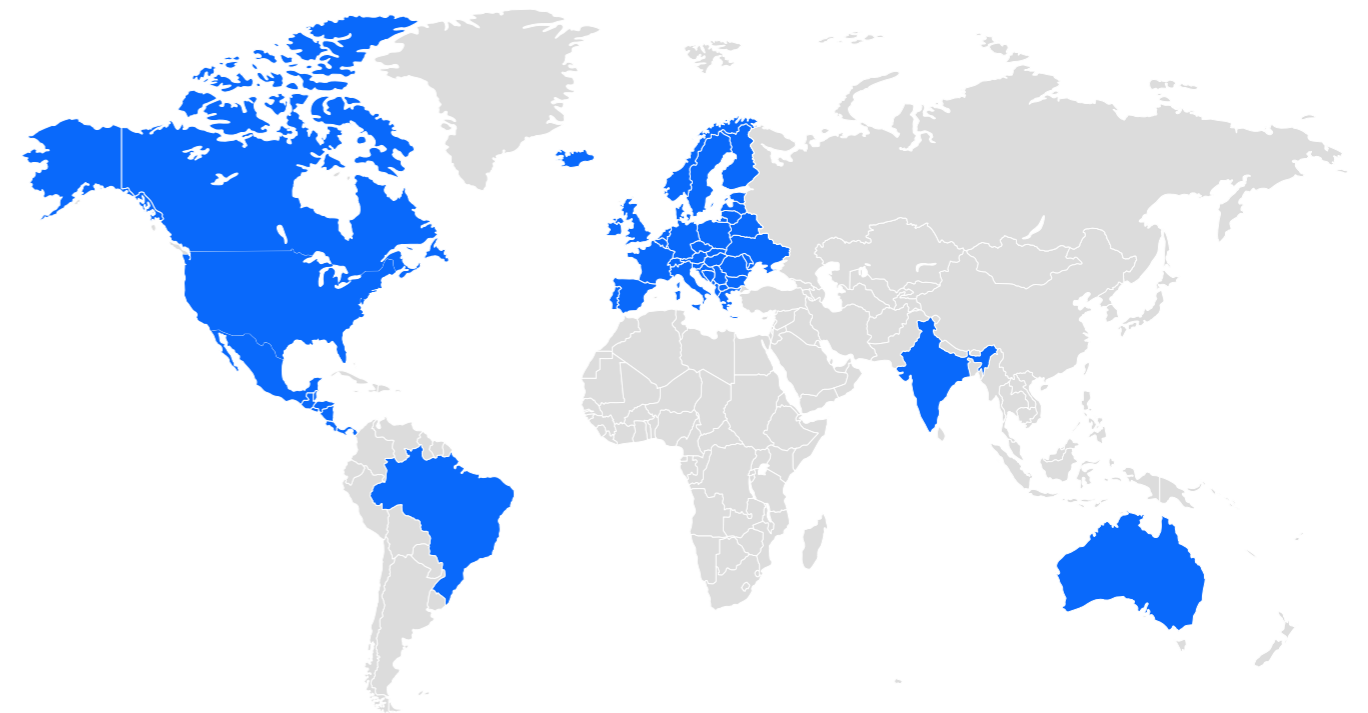- A collaborative screening project for arrhythmia in cardiac patients

FUTURE

Our plans for the upcoming years

CONDUCTING THE FDA CERTIFICATION PROCESS

- Obtaining certification and launching sales in the first half of 2023
- Offering products in the USA to distributors and current partners

GEOGRAPHIC EXPANSION – MAIN MARKETS

- Europe – UK, DACH (Germany, Switzerland, Austria), France, Spain, Italy, Central Europe and Scandinavia
- Brazil, USA, Canada and Mexico
- India and Australia

Key
MedApp
Technologies

The key technologies offered by our company are: CarnaLife Holo, CarnaLife System, Holo Comm based on artificial intelligence (AI) solutions, big data analysis, mixed reality (MR) and 3D imaging.

CarnaLifeHolo

3D imaging system

supporting precision, comfort and safety of medical procedures

Find out more

CarnaLifeSystem

Advanced tool

that allows physicians to assess and monitor health of their patients

Find out more

HoloComm

Mixed Reality

a perfect solution for remote product demonstration in 3D

Find out more

1.1

A 3D imaging system to support precision, **comfort and safety of medical procedures**

CarnaLife Holo is a globally groundbreaking 3D imaging technology. With the software developed by MedApp S.A. and the help of Microsoft HoloLens 2 goggles, physicians are able to use three-dimensional visualization of imaging data that allows the evaluation of complex anatomical relationships both during the planning and execution of the procedure. Users can interact with the projected hologram, including rotating, scaling, moving, or going inside anatomical structures using gestures and voice commands, without loss of sterility or the necessity to work with an additional technician. The goggles provide an interactive screen available during surgery planning and anywhere in the operating room, but most importantly, they increase physician productivity and precision of the procedure. Ultimately, using CarnaLife Holo reduces health care costs.

ǀ CarnaLife Holo

CarnaLife Holo
is a globally
groundbreaking
3D imaging technology

1.2.
Support of
treatment teams

The **CarnaLife Holo System** supports the
work of treatment teams by enabling:

**BETTER PREPARATION OF
SURGEONS FOR PROCEDURES**

- increased efficiency of planning
  and preparing for a medical procedure

- better assessment of the size and
  location of tumor lesions[1]

- more accurate planning of
  optimal access to pathology

**REDUCING COSTS OF
SURGICAL PROCEDURES:**

- reduction of duration of the treatment
  by 1/3[2], and therefore increasing
  the efficiency of medical teams

- potential reduction of the length of
  patient hospitalization and the number
  of side effects after procedures

**TRAINING AND OPPORTUNITY
FOR ASSISTANT PHYSICIANS
TO PARTICIPATE IN THE MOST
COMPLEX PROCEDURES**

1.3.
Direct
benefits for patients

**CarnaLife Holo technology also
brings direct benefits for patients:**

Enables visualization and fosters understanding
of the specifics of the procedure

Makes it possible **to plan procedures more
accurately**, leading to potentially less invasive
treatment as a result of better medical diagnosis

**Reduces the duration of treatment by an average of
1/3[3]** which may result in a reduction of the anaesthetic
burden on the patient's body during the surgery

Potentially **reduces the time of recovery**

[1] Wierzbicki, Ryszard, et al. "3D mixed-reality visualization of medical imaging data as a supporting tool for innovative, minimally invasive surgery for gastrointestinal tumors and systemic treatment as a new path in personalized treatment of advanced cancer diseases." Journal of Cancer Research and Clinical Oncology (2021): 1-7.
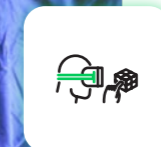
[2] Ibid.

[3] Ibid.

1.4.

The process of
holographic visualization

STAGE 1

Imaging data acquisition from diagnostic imaging devices in hospitals, for example computed tomography (CT), magnetic resonance (MR), PET, echocardiography, and rotational angiography.

STAGE 3

Creating 3D visualization and projection in the goggles.

STAGE 2

Sending data from a secure information system for archiving and instant transmission of images from diagnostic equipment (PACS) that supports DICOM protocols to the CarnaLife Holo application.

STAGE 4

By using mixed reality (MR) technology, the operator is able to see a three-dimensional visualization combining the real setting (e.g. patient, operating table) and virtual elements (the inside of the patient).
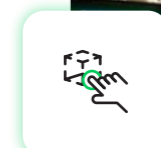
MORE ABOUT THE PRODUCT

Real-time connection

CarnaLife Holo makes it possible to record the procedure and connect with other facilities in real time to support remote surgery with expert knowledge and commentary. For example, in June 2021, a team of physicians from the Department of Vascular Surgery and Angiology of the IPUH1 in Lublin, using a system created by MedApp S.A., remotely assisted a team performing surgery in the capital city of Bulgaria, Sofia.

MORE ABOUT THE PRODUCT

Fixed equipment in the operating room

CarnaLife Holo can be used as fixed equipment in the operating room regardless of the specialty. The safety of the system is confirmed by a CE certificate.

Certified medical device

CarnaLife Holo is the analytical module of the CarnaLife telemedicine system, which is certified as Class CE IIb diagnostic support medical device.

CE 2274

Cut: SMART
Mode: LOCATE

Technology for cardiology, interventional cardiology, orthopedics, otolaryngology, oncological and vascular surgery

Hundreds of treatments worldwide

in different specialties

1.5.

Main
benefits of the solution

Physicians specializing in cardiology, interventional cardiology, orthopedics, otolaryngology, oncology and vascular surgery appreciate the benefits of our technology **that enhance the quality of the procedures.**

Key aspects
of the solution are:

- Accelerated planning procedure

- Potential reduction of the duration of treatment

- Possibility of reducing the number of mistakes through natural depth perception of the visualized image

- Faster localization of oncological lesions

- Possibility of remote medical consultation

- Possibility of moving and placing the hologram anywhere in the operating room

- Interaction with the hologram through gestures and voice commands, no loss of sterility when interacting with the hologram

- Real-time transmission and visualization of echocardiography data

- Independent verification of medical data, minimizing the possibility of errors

CarnaLifeSystem

Innovative solution for in-depth, remote diagnostics and patient monitoring

2.1. ## Support for traditional **healthcare**

Our innovative platform (software) is used in the area of digital medicine for **remote patient diagnosis and monitoring**. The solution enables provision of long-term, in-depth, value-based healthcare. The platform created by MedApp S.A. is a part of the **global trend of** digital medicine development.

CarnaLife System supports the traditional medical care in most significant aspects, allowing physicians to:

Remotely control patients' health

Limitlessly cooperate with many types of diagnostic equipment

Adjust the treatment plan and quickly respond to changes in patients' parameters by automating and assisting physicians with diagnostic algorithms

Save time and increase competences by easy and remote analysis of large data sets using artificial intelligence (AI)
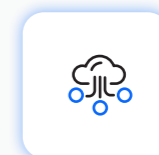
Ensure secure data storage based on cloud solutions (Microsoft Azure, Google Cloud Platform, Amazon Web Services or OVHcloud)

2.2. | Scalable **solution**
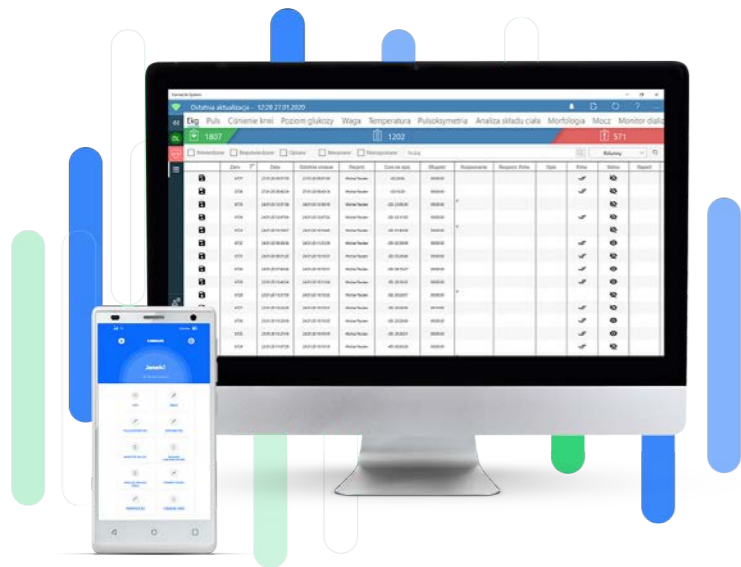
CarnaLife System is a scalable solution which can be customized to meet the individual needs of both medical staff and patients:

No limits
the number of registered patients and the amount (size) of data processed

Open API protocol for communication with HIS systems and medical clinic software

Connection to P1 (e-prescriptions, e-leaves) and **possibility of integration with an e-consultations platform**

Integration with **devices supporting remote diagnostics**

2.3. | Broad **possibilities of use**

The application is widely applicable in:

Hospitals

Nursing homes (including for seniors)
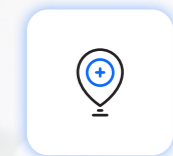
Outpatient medical facilities

Pediatrician, internist practices (family medicine, primary healthcare)

Teleradiology labs

Rehabilitation clinics

Specialist outpatient clinics

Telemedicine centers

2.4.

Benefits for
physicians
and patients

Physicians

Increasing the patient database for one-person and small Primary Healthcare practices

Medical data security with Microsoft Azure

Easy method of data analysis, less time spent on paperwork and more time for patients

Improved quality of provided care, positive impact on image

Possibility to customize schedule and provision of services

User-friendly interface facilitating the work

Patients

Consultation even on the same day

Medical data security – Microsoft Azure. No concerns about sensitive data leakage

Saving time, reducing the frequency of in-person visits

Convenient storage of medical records

High quality of healthcare – not just a phone call, but also support with tests and measurements

Access to 24/7 care, including holidays

| Holo Comm

Augmented
reality (AR)
application

3.1 | Augmented reality (AR) application to support **education, training and presentation**

HoloComm tis an augmented reality (AR) application that works with Microsoft HoloLens2 goggles. The software is used to share work in a virtual 3D space using holograms visualizing different types of files:

- 3D models in GLB, FBX or STL format
- Image files (photos / images) in JPG or PNG formats
- Video files in MP4 format
- PDF files
- DICOM files to a limited extent (due to hardware capabilities)

This tool can be used for medical education, conducting meetings, presentations by medical representatives, or clinical research.

3.2.

Sessions shared by multiple users

HoloComm, using network communication, makes it possible to create sessions shared by many users (their number is limited only by network capacity). Users can interact collectively, in real time, with multimedia content in the formats mentioned above (display, delete, move, rotate, scale) in mixed reality (MR).

Collaboration from different locations, chat and file transfer

It is possible for users to cooperate when they are in the same location (room) as well as for users from any place in the world via the Internet. The software also provides voice chat and the possibility to exchange photos between users taken from their respective perspectives (captured from the HoloLens 2 camera).

Pins for convenience of use

Users can also mark holograms with "pins" containing text descriptions or outline items of interest using their own hands.

Vision for the
Company's development

Our technologies are constantly evolving and developed by a team of medical, scientific and technological experts.

We are aware that in the era of digital revolution, the development of CarnaLife Holo, CarnaLife System and HoloComm is crucial, so we invest in our resources with great passion and dedication to advancing life-saving technologies.

We enhance their usability and satisfaction of users by creating fully global products that can be successfully used by medical centers around the world.

We consistently pursue our strategy in the field of digital medicine, of which part is our cooperation with Helimed Diagnostic Imaging (the largest diagnostic network in Poland) confirms the high technological competence of our team. We are planning to soon launch a new product, the "Radiology Information System" (RIS) dedicated to diagnostic imaging facilities.

We guarantee
to our partners

Access to **technology using global trends in digital medicine**, artificial intelligence (AI), big data analytics, 3D modeling and visualization

Know-how related to the preparation and execution of procedures using CarnaLife Holo technology in the areas of oncological surgery, cardiology and interventional cardiology, orthopedics, otolaryngology, and urology. In the case of HoloComm, the possibility for our business partners (Distributors) to use it in support

The expanding range of applications for our technology and the associated opportunities to improve digital competencies and capabilities of educational processes and remote presentations

Training and technical support related to the application of our solutions

Marketing support in planning and executing promotional campaigns and preparing local versions of marketing materials corresponding to the specifics of particular markets

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**Empowering people for
better health**

**More information about the company and the
innovations we are developing**, is available at:

www.medapp.pl or our social media:

LinkedIn   Facebook   YouTube

More on
www

More on
Linkedin

More on
Facebook

More on
YouTube

||| MedApp

Empowering people
for better health

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A guide to the world
of digital medicine