HealthChain Call for Follower SMEs

Primorsko-Goranska(Croatia)

Assist.Prof. Teodora Zaninović Jurjević,MD PhD - **KBCRI**
Marijan Gregurić - **Bit4bytes**
Živko Krstić - **Sparky**

HEALTH**CHAIN**

Content

01	Klinički bolnički centar Rijeka (KBCRi)
02	Challenges, solutions & follower SMEs Work
03	Next steps
04	Q&A

HEALTH**CHAIN**

About us

One of five clinical centers in Croatia

3456 employees

1,069 hospital beds

Regional hospital center covering three counties

Providing medical care for approximately 600,000 inhabitants

- More than 45,000 patients are hospitalized per year

- Around 3.000.000 outpatient services are provided

- 600,000 outpatient visits

- in the day hospital around 190,000 hospital services are rendered.

CHALLENGES, SOLUTIONS & FOLLOWER SMEs WORK

02

Challenge 1

MediLink

Facilitating communication between specialists and family doctors in remote areas.

Challenge description:

KBCRI Rijeka includes remote areas such as mountain settlements and islands in the nothern Adriatic Sea. The centre aims to improve access to healthcare in these areas trough dislocated infirmaries and telemedicine.

Heart failure is a major medical issue in Croatia, and improved communication between specialists and family doctors could lead to better outcomes in remote areas.

Technical requirements

The solution shall be a platform, portal, or application.

It must provide secure communication for real-time video conferencing, secure messaging, and collaborative discussions between specialists, patient, and family doctors.

Intuitive and user-friendly interface.

The system should work as an individual solution

The solution shall be scalable to accommodate potential increases in user numbers (different video calls can be done at the same time.

Technical requirements

Language mode: the software should have a possibility to choose the Croatian language.

Digital way of patient physical examination (e.g. family doctor can use a digital stethoscope to record the heart or lungs of the patient and send it to the specialist who is not physically present).

An interface for collaboration between two or more remote locations.

Exchange of medical documentation (HIS,PACS,LIS).

Input for digital transmission of health and vital signs of the patient on the other location (remote stethoscope, remote thermometer,...).

HEALTHCHAIN

Solution proposed description

- **Comprehensive Telehealth Platform**
The solution is a secure and user-friendly platform offering real-time video conferencing, secure messaging, and collaborative discussions between specialists, patients, and family doctors.
Facilitates simultaneous consultations with family doctors and patients, providing insights into the patient's medical history, ongoing treatment, and potential improvements to optimize care.

- **Intuitive Interface**
Boasting an intuitive and user-friendly interface, the platform ensures ease of use for both specialists and family doctors, promoting seamless communication and collaboration.

- **Scalability**
The solution is scalable to accommodate a growing user base, allowing multiple concurrent video calls to take place. This ensures flexibility and adaptability to evolving healthcare needs.

- **Collaboration Interface**
A built-in interface facilitates collaboration between remote locations, enabling the exchange of medical documentation.

HEALTHCHAIN

Requirements covered by Bit4bytes (Leading SME)

- **Analysis**: Identify and document the specific requirements and objectives of the pilot project.

- **Design**: Design prototype based on the specific requirements and objectives.

- **Development**: Development based on a designed and specified prototype.

- **Delivery**: Deployment of the solution within the real environment.

- **Support**: Completion of user training sessions to ensure healthcare staff are proficient in using the solution. Support while using the solution, fixing bugs, and maintaining the solution.

HEALTHCHAIN

Work to be done by the Follower SME

1. **Functional Testing**:
   Verifies that the communication platform performs its intended functions accurately and efficiently.

2. **Usability Testing:**
   Evaluates the communication platform's user interface (UI) and user experience (UX) to ensure it is intuitive and user-friendly for healthcare professionals.
   Involves conducting tests with end-users to gather feedback on navigation, workflow efficiency, and overall satisfaction.

3. **Performance Testing:**
   Assesses the communication platform's performance under various conditions, including peak usage, to ensure it can handle the expected workload without slowdowns or crashes.
   Measures factors such as response time, throughput, and resource utilization to identify any performance bottlenecks.

4. **Security Testing:**
   Focuses on identifying vulnerabilities and ensuring the communication platform's resistance to unauthorized access, data breaches, and cyber threats.

Challenge 2

FallPredict

Real-time patient monitoring during independent movements in the Hospital.

Challenge description:

- The Clinic for Cardiovascular Diseases relies heavily on manual supervision by healthcare staff due to insufficient nursing resources.
- Wearable sensor will track changes in posture and movement, specifically focusing on detecting loss of balance and falls during the hospital stay.
- AI model built for recognition of fall detection incidents.
- Nurses/caregivers receive real-time alerts and notifications from the fall detection system so they can quickly react.
- Allowing patients to have more mobility and independence within the hospital.
- The use of wearable sensors for fall detection will be optional.

Technical requirements

The solution shall support and include patient held devices, for example, wearable sensors on the patient or their clothing (e.g. wrist, leg, slippers) to accurately detect changes in posture and movement.

To ensure optimal usability, effectiveness, and user comfort.

An immediate alerting when a potential fall is detected in real-time

It must show the exact location of the patient at the time of alert.

User-friendly interface for healthcare providers to view real-time data, alerts, and patient information related to fall detection.

The system should be able to monitor several patients at the same time.

Technical requirements

Following requirements must be achieved:

- Compact design and lightweight
- Comfort and Skin-Friendly Materials
- Water Resistance.
- Sensor should be able to work normally without re-charging or changing batteries for 30 days.

Wireless connectivity (e.g., Bluetooth) with monitoring system that will be placed in the room for nurses or smartphones of nurses.

Language mode: the software should have a possibility to choose the Croatian language.

HEALTH**CHAIN**

Solution proposed description

- **Wearable sensors:** Wearable sensors will continuously monitor patients' posture and movements to identify any signs of imbalance or falls. These sensors will be strategically placed on the patient's body to ensure accurate detection and data collection.

- **AI model:** An advanced AI model will be developed to analyze sensor data and accurately detect fall incidents. The model will leverage machine learning algorithms to differentiate between normal movements and potential falls, ensuring high precision in fall detection.

- **Real-time alerts and notifications:** The system will provide immediate alerts to medical staff through a user-friendly interface on their devices. These real-time notifications will enable prompt intervention, minimizing the risk of injury and ensuring timely assistance to patients.

HEALTH**CHAIN**

Requirements covered by Sparky (Leading SME)

- **Project coordination and risk management:** Established strategies will be implemented to ensure smooth execution and oversight. This includes regular progress reviews, risk assessments, and mitigation plans to support informed decision-making and continuous monitoring.

- **Technological development:** This will focus on creating an fall detection system that meets all specified requirements described before (designing, developing, and integrating hardware and software components to ensure functionality and reliability).

- **Testing and evaluation:** Will be conducted to validate the effectiveness and accuracy of the fall detection system. This includes functional testing, user acceptance testing, and iterative improvements based on feedback.

- **Workshops and training:** Stakeholders will be actively engaged through workshops and training sessions to ensure successful implementation and adoption of the system. These sessions will provide essential knowledge and skills to healthcare providers, to use the new technology.
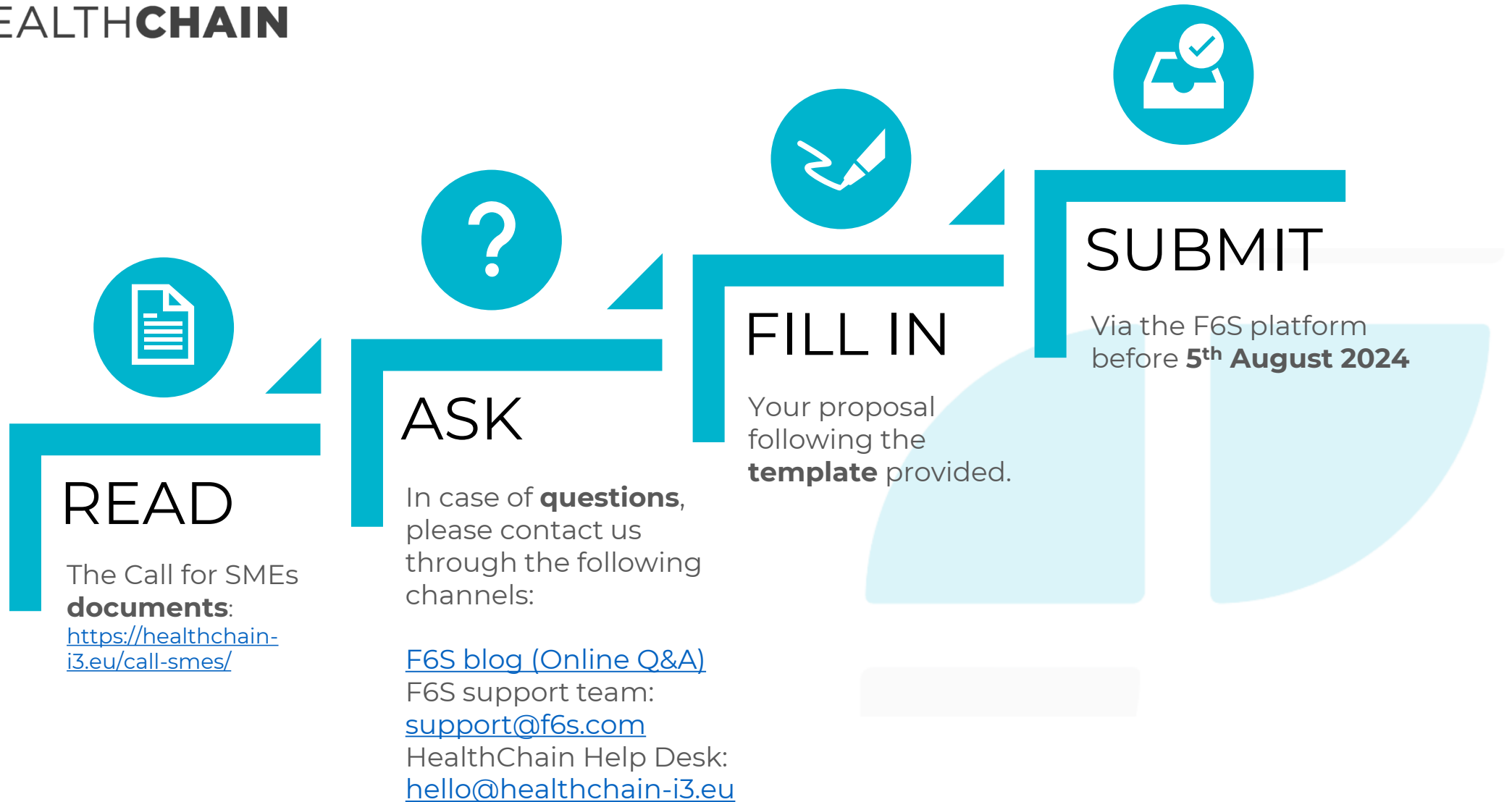
HEALTH**CHAIN**

Work to be done by the Follower SME

1. **Data security and integration:** The solution will be designed to comply with all relevant healthcare regulations, emphasizing data security and seamless integration. This includes implementing review of secure data handling protocols, and compliance audits to protect patient information.

2. **Quality assurance:** A thorough quality assurance process will be employed to ensure the system meets all specified requirements. This includes testing, validation, and documentation to confirm the system's performance, reliability, and user satisfaction.

3. **Engage stakeholders (workshops/training):** Stakeholders will be engaged through interactive workshops and comprehensive training sessions to facilitate effective implementation and user adoption. These initiatives will equip healthcare providers with the necessary skills and knowledge to utilize the fall detection system.

HEALTHCHAIN

READ

The Call for SMEs **documents**: https://healthchain-i3.eu/call-smes/

ASK

In case of **questions**, please contact us through the following channels:

F6S blog (Online Q&A)
F6S support team: support@f6s.com
HealthChain Help Desk: hello@healthchain-i3.eu

FILL IN

Your proposal following the **template** provided.

SUBMIT

Via the F6S platform before **5th August 2024**

I3 Interregional Innovation Investment Instrument

Co-funded by the European Union

Thank you!

KBCRI
Sandro.Krizman@kbc-rijeka.hr
Jelena.JaksicMihovic@kbc-rijeka.hr

Bit4Bytes
marijan.greguric@bit4bytes.com

SPARKY
zivko@sparky.science

Visit HealthChain I3 on:
www.healthchain-i3.eu