KT Roadmap for Healthcare Applications

KT Forum MA, 3rd October 2023
Medical Applications are part of CERN’s heritage

This list is not exhaustive! It lists a few relevant examples.

- Charpak’s MWPC
- Townsend Jeavons
- Streit-Bianchi PET images
- Medipix
- ClearPET
- EyeLens
- FLUKA
- MammoGrid
- Geant4
- BioDynamo
- MARCHESE
- CAFEIN
The recent history of Medical Applications (MA)

2014
• MA Section

2014
• MA Budget – seed funding for medical projects

2016
• MA Section

2016
• MA Strategy v1 approved by Council

2017
• MA Funnel to identify new project partners

2019
• MA Funnel to identify new project partners

2021
• Split MA activities into BD Healthcare and MA Strategy Support

2023
• MA Strategy v2 approved by Council
Motivation for a BD strategy for Healthcare

**Objective:** Maximize the impact of CERN technologies and know-how in healthcare

**Practically:** Create flagship stories about CERN technologies that help answering unmet healthcare needs
Key considerations when strategizing

The big wins need time
→ Establish interest, nurture partnership, identify common long-term goals
→ Focus on implementing ongoing activities with flagship potential
Big wins need time

And now the consortium won TRUSToke
→ Total worth 6MEUR, incl 1MEUR for CERN
→ Federated learning platform for stroke management, using CAFEIN
→ Project start: May 2023

First contact: early 2021
→ Many online meetings
→ Online discovery day
→ Two-stage H2020 project proposal

And many others...
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→ Implement ongoing activities with flagship potential

Strong collaboration across teams
→ KT-BD & MA Strategy Support
→ The better the contact with the experts, the better the outcome
Creating a strong link between BD and Medical Applications Strategy Support

CERN Medical Applications Steering Committee (CMASC)
Chair: Director for Accelerators and Technology or Director for Research and Computing

KT Medical Applications Strategy Support team

Medical Applications Projects Forum (MAPF)
Chair: KT Medical Applications Advisor

Medical Applications Experts

CERN-MS Knowledge Transfer Thematic Forum (KTF) on Medical Applications
Chair: KT Group Leader and CMASC chair

KT-BD Healthcare Focus
Creating a strong link between BD and Medical Applications Strategy Support

**KT-BD Healthcare**

BD activities carried out by KTOs* under same rules as other BD projects, incl.
→ Technology identification and assessment
→ IP management
→ Contracts and follow-up

**MA Budget**
→ Project evaluation and follow-up (including financial)
→ Attend MAPF if relevant

**Topical support of MA-StratSup**

*including those in the MA Strategy Support team

**MA Strategy Support**

Political liaison with CERN management
→ Definition and update of CERN strategy for MA
→ CMASC, CMAAC, KT Forum MA, MAPF

**MA Budget**
→ Organisation (committees, presentations, follow-up reminders)
→ Overall financial management
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Identify new application areas beyond radiotherapy and imaging
→ Open up to healthcare in general
→ Look beyond our usual borders, and venture into global health
There’s more to healthcare than just medicine

Medicine: *Medicine is the science and practice of caring for a patient.* [Wikipedia]

Healthcare: medicine + allied domains such as healthcare data management, healthcare infrastructure, public health.

CERN has a lot to offer in allied domains!

→ CAiMIRA tool used by WHO for COVID risk assessment
→ NMR developments with applications in chemistry and biology
→ We are a partner of the Geneva Health Forum: which impact can we make in global health topics?
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Evaluate new projects for CERN’s added value and their alignment with our goals, reject if needed
2023: initiate a new round of success with 2025 time horizon, without losing awareness of ongoing projects
Today: Continue the core and select (new) high profile areas

- radiotherapy and radioisotopes
- medical imaging and dosimetry
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Maintain solid position in core application areas

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- medical imaging and dosimetry

Expand CERN healthcare technology portfolio

- Scale up activities in digital technologies, specifically those related to the use of Machine Learning
- Explore global healthcare / humanitarian applications
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Initiate and evaluate new concrete partnership opportunities

- Ensure early involvement of existing and new healthcare partners in industry, hospitals or institutes
- Strong links with CERN experts