

N!CA.

Digitalisation of Innovative Care Processes to Unburden and Empower Nurses

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Competence Centers for Excellent Technologies

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DIGITAL TRANSFORMATION IN NURSING CARE

FIRST STEPS TOWARD DIGITAL SUPPORT IN CHRONIC PAIN MANAGEMENT

As part of **N!CA Project 3**, an initial semi-functional prototype of a digital decision-support system for chronic pain is being developed. The aim is to support healthcare professionals in structured pain assessment within everyday clinical practice.

Through the collaboration of nursing (science), medicine, occupational therapy, health informatics, and technology, a semi-functional prototype was developed. It illustrates how pain-related patient data can be integrated and how clinically relevant information on the pain situation can be systematically captured, structured, and translated into actionable insights for decision-making. This represents an important first step toward future digital solutions in the field of pain management.

As part of N!CA Project 3, a concept for a digital support system was developed, specifically aimed at improving clinical decision-making in the management of chronic pain. In several workshops, experts from nursing (science), medicine, occupational therapy, technology, and health informatics collaborated closely. The initial technical implementation was carried out within two master's projects, resulting in a semi-functional prototype.

In the second master's project, the primary focus was on developing the decision logic. For this purpose, a

previously developed analogue decision tree was translated into a digital format, aiming to identify the structure (entity) causing the pain. This information forms an important basis for further therapy planning. The system processes various inputs, such as pain intensity, pain characteristics, and potential warning signs.

The digital decision tree was tested using various examples, such as migraine and knee osteoarthritis. This made it possible to evaluate whether the processes within the system function appropriately. Initial usability tests have already been conducted.

SUCCESS STORY

Impacts and Effects

The project demonstrates how digital solutions can help to clearly capture decision-relevant information on chronic pain and support decision-making regarding the underlying pain-generating structure. A key foundation of the project lies in the collaboration of multiple disciplines.

The project also had a positive impact on student education: within the framework of the master's projects, students were able to gain practical experience at the interface between healthcare and digital technology.

Our conclusion: The developed prototype provides an important foundation for future digital applications in pain management.

Project Coordination

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Figure 1: Members of the interdisciplinary pain project team

N!CA COMET-Project

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Project partners:

- decide Clinical Software GmbH, Österreich
- Althea Gemeinnützige Pflegebetriebs GmbH, Österreich
- LOIDL Consulting & IT Services GmbH, Österreich
- CAATS, Österreich
- Predicting Health GmbH, Österreich
- Treetop Medical GmbH, Österreich
- Steiermärkische Krankenanstaltengesellschaft mbH, Österreich
- Medizinische Universität Graz, Österreich
- Joanneum Research Forschungsgesellschaft mbH, Österreich
- FH Oberösterreich Forschungs & Entwicklungs GmbH; Österreich
- Umit Tirol – Private Universität für Gesundheitswissenschaften und –technologie mbH, Österreich
- Universität Wien, Österreich
- Vetterli, Roth & Partners, Schweiz

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