TECHNISCHE UNIVERSITÄT DRESDEN

DRESDEN concept

WImDiH
Workshop on Implementation of Digital Health Solutions 2020

Europäische Union

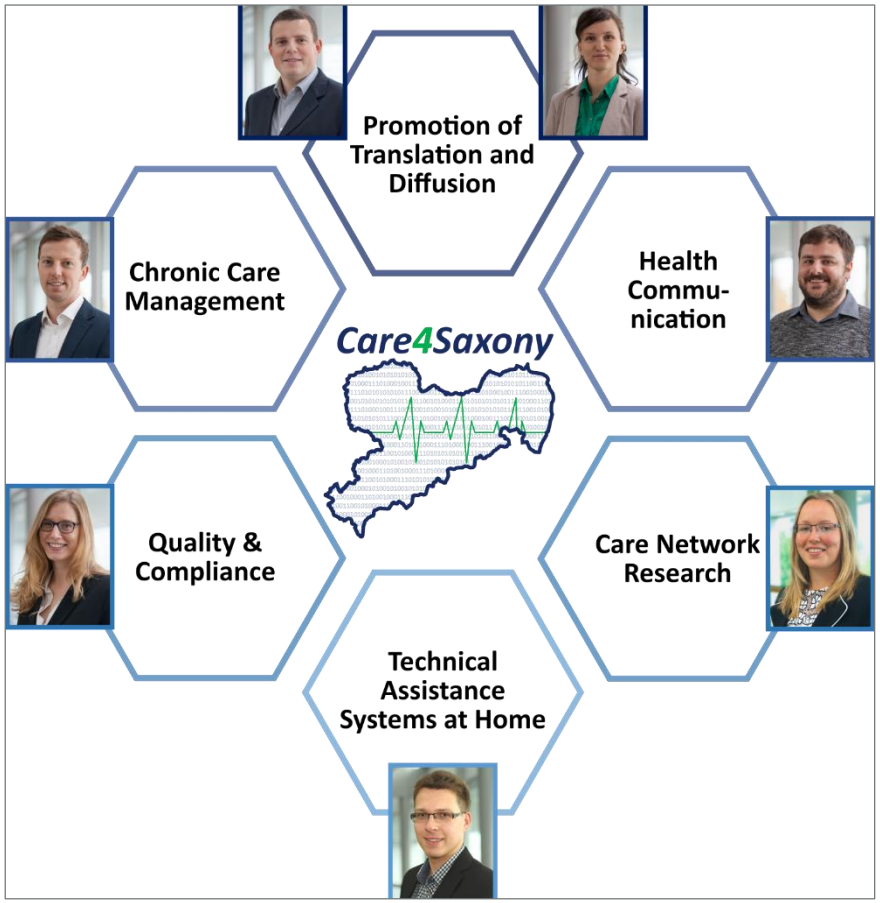
Europa fördert Sachsen.
ESF
Europäischer Sozialfonds

Carc Saxony

Welcome to WImDiH 2020!
Thank you for your contribution – have a great time!

Who we are

- ***Care4Saxony*** is an ESF-funded Junior Research group
- **Intent**: increase the use of telemedicine and related technologies in Saxony and beyond
- **Aim**: reduce the pressure on healthcare systems resulting from a continuosly aging society and a shortage of health care workers
- **Approach**: study acceptance and implementation of as well as evidence for the effectiveness of telemedicine and telemedicine-supported integrated care solutions from an interdisciplinary perspective



Who your chairs are

Peggy Richter

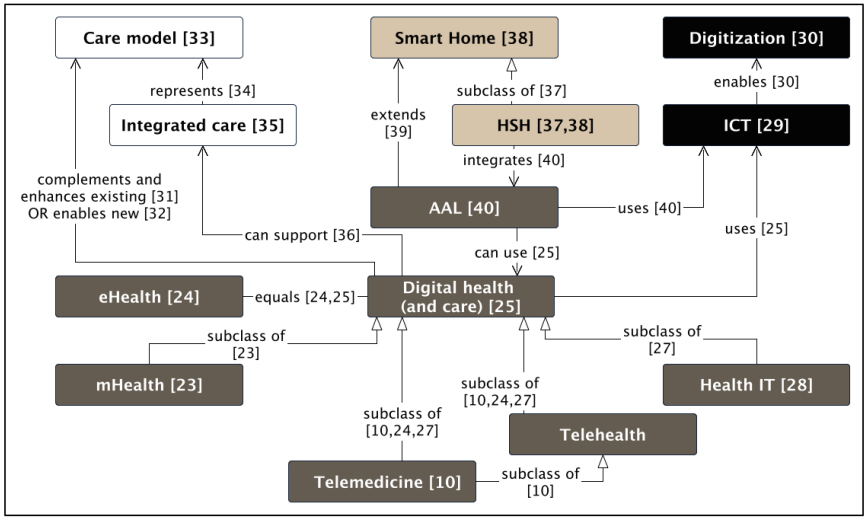
- research associate in the Digital Health group “Helict” at the Chair of **Wirtschaftsinformatik**, esp. Systems Development at TU Dresden
- working in the **European Joint Action iPAAC** (Innovative Partnership for Action Against Cancer)
- ***research interests***: application and theories on conceptual modeling, patient pathway modeling and digital solutions to support patient-centered, integrated care implementation, as well as process-based quality management.

Lorenz Harst

- research associate at the Research Association **Public Health** at the Center for Evidence-based Healthcare at the University Clinic and Medical Faculty Carl Gustav Carus
- manages the clinic’s task force for the **national network** of University Clinics **for COVID-19**
- ***research interests:*** user-centered development, implementation and evaluation of digital healthcare solutions, especially for targeted health communication strategies.

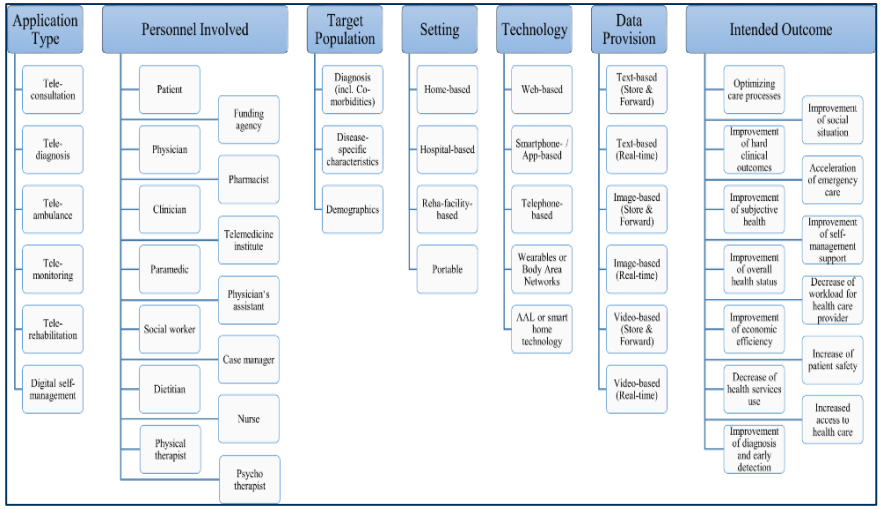
What we mean when we say „telemedicine“

Ontology for telemedicine and related terms



Otto, L., Harst, L., Timpel, P., Wollschlaeger, B., Richter, P., & Schlieter, H. (2020). Defining and delimitating telemedicine and related terms—An ontology-based classification. In A. J. Maeder, S. Champion, C. Moores, & R. Golley (Hrsg.), Information Technology Based Methods for Health Behaviours (Bd. 268, S. 113–122). IOS Press.

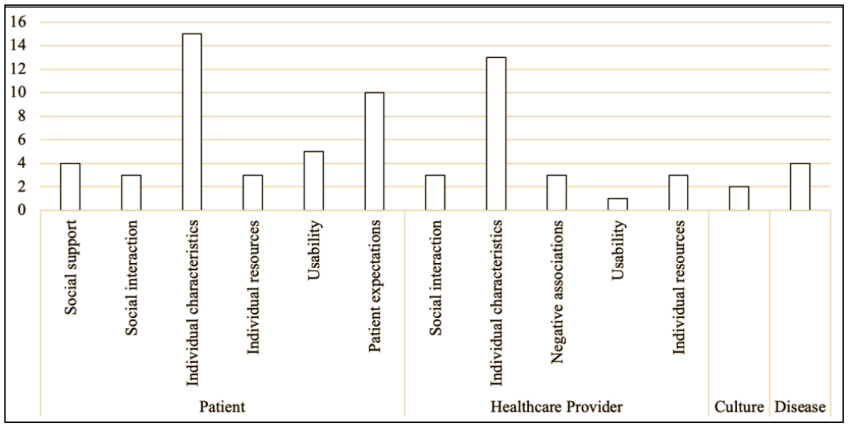
Taxonomy of telemedicine application types



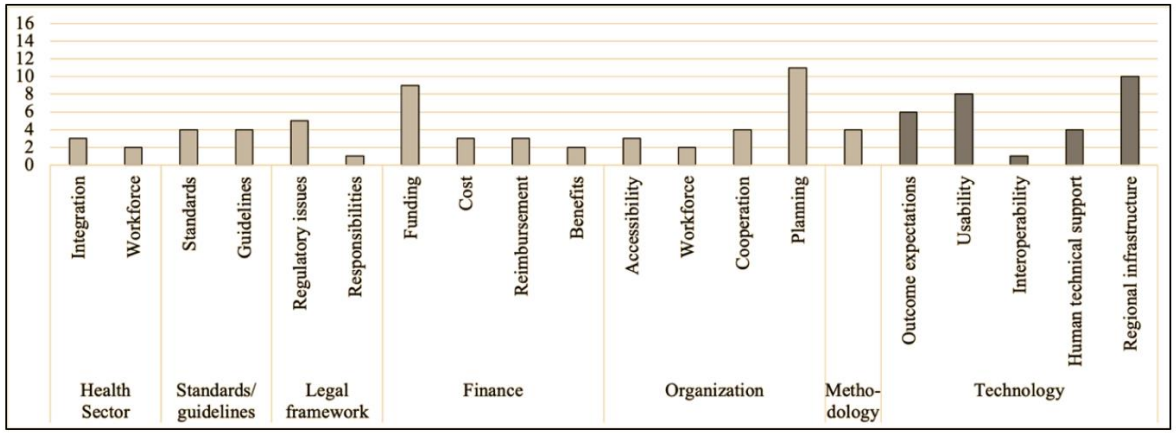
Harst, L., Timpel, P., Otto, L., Richter, P., Wollschlaeger, B., Lantzsch, H., Winkler, K., & Schlieter, H. (2019). An empirically derived taxonomy of telemedicine – development of a standardized codebook. Doc19dkvf024. https://doi.org/10.3205/19dkvf024

What barriers are faced when implementing telemedicine

*Number of barriers per category and subcategory for **people-related barriers***

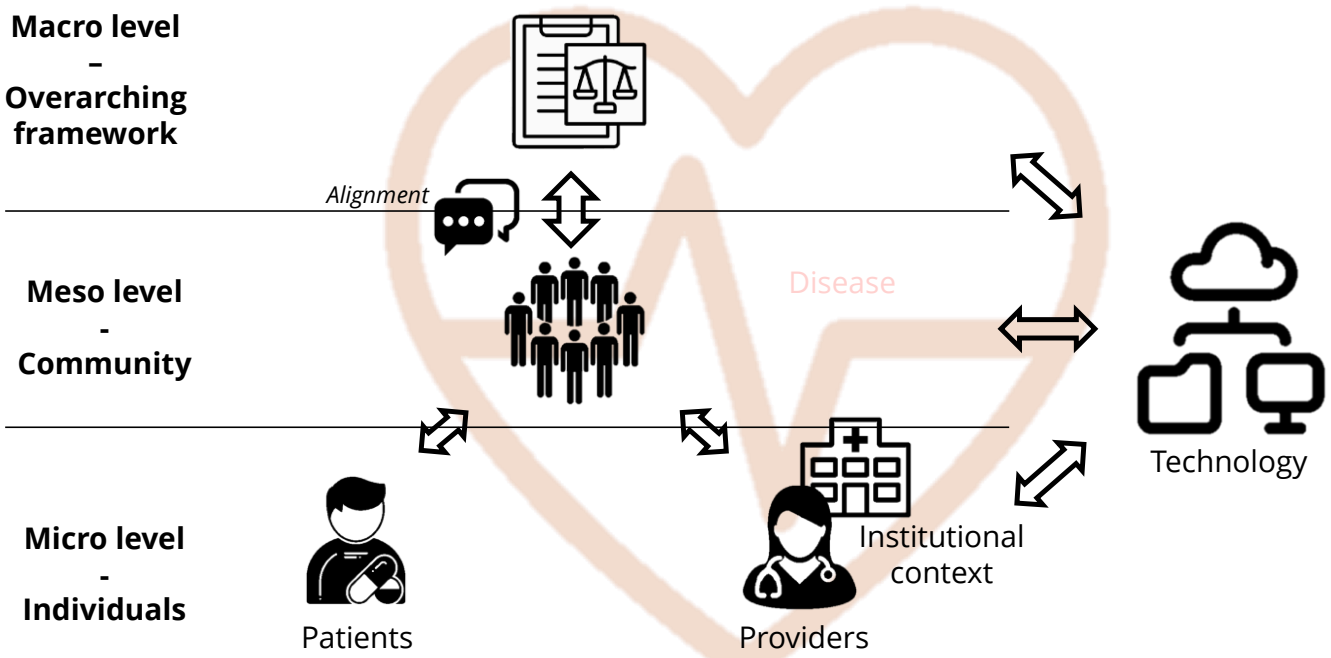


*Barriers per category and subcategory for **process-** (light grey) and **object-related** (dark grey) barriers*



Otto, L., & Harst, L. (2019). Investigating Barriers for the Implementation of Telemedicine Initiatives: A Systematic Review of Reviews. Proceedings of the Twenty-fifth Americas Conference of Information Systems. AMCIS 2019.

How a region achieves telemedicine maturity



© icons: Priyanka (patient), Wilson Joseph (provider), iconsphere (hospital), Kevin Kellar (community), Markus VIN (alignment), Made (macro layer), Timofey Rostilov (technology), LAFS (heart) from thenounproject.com

What drives individuals‘ telemedicine acceptance

Patients

- Telemedicine applications need to
  - Match individual outcome and effort **expectancy** (tailoring)
  - Be accepted by the **social network** of the patient as well, as these provide support in using the application
  - Enable social networking
  - Be **easy to use**

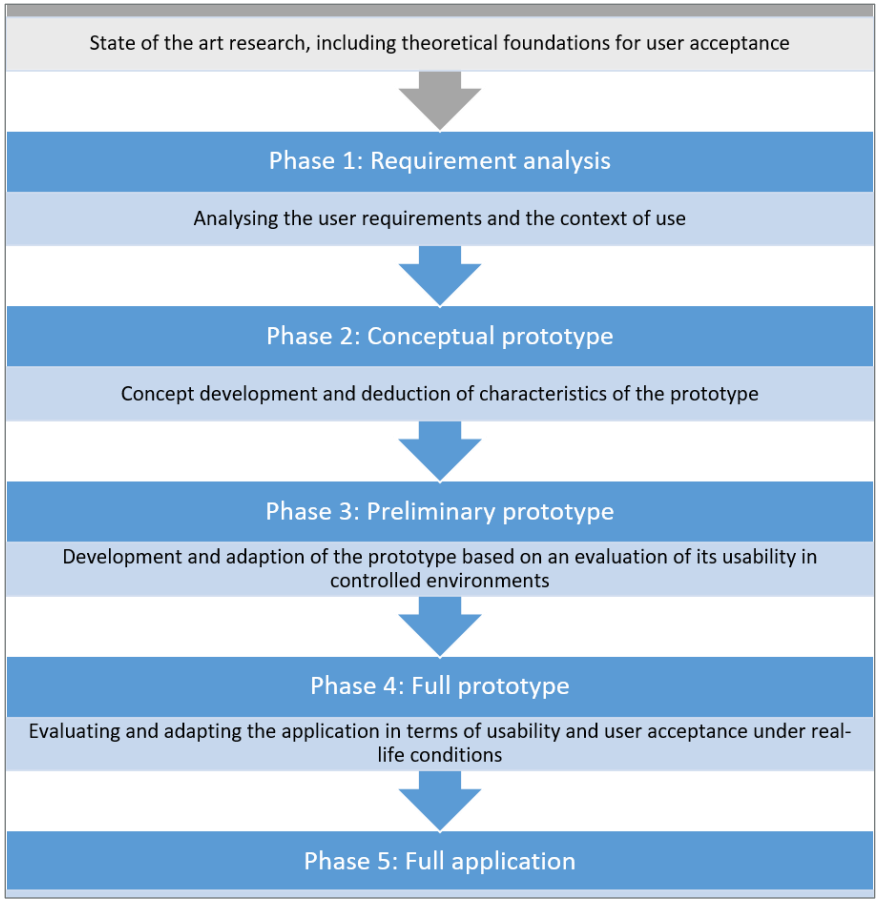
Health care providers

- Telemedicine applications need to
  - **Proof useful** in the daily line of work
  - Be **easy to use**
  - **Fit** the organizational **structures** the providers work in

→ Acceptance depends on **properties of the technology** as well as on **characteristics of the end user**.

Harst, L., Lantzsch, H., & Scheibe, M. (2019). Theories Predicting End-User Acceptance of Telemedicine Use: Systematic Review. Journal of Medical Internet Research, 21(5), e13117. https://doi.org/10.2196/13117

How to achieve usability



Desk research

Focus groups, semi-structured interviews, field studies, observations…

Use cases, paper prototyping, personas…

Cognitive walktroughs, think alouds, quantitative usabiliy surveys…

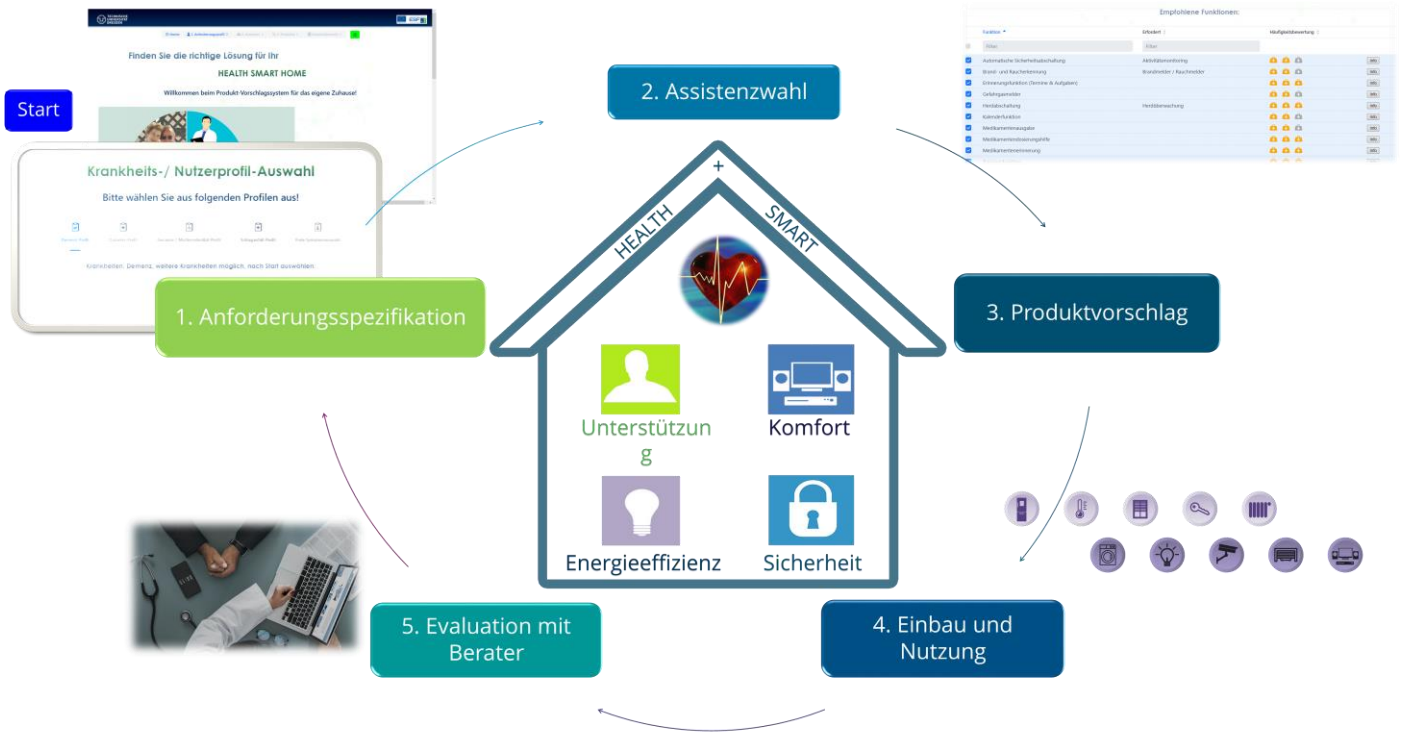
Focus groups, quantitative usabiliy surveys…

Semi-structured interviews…

Harst, L., Wollschlaeger, B., Birnstein, J., Fuchs, T., & Timpel, P. (2020). User-centred design procedures throughout the lifecycle of healthcare IT – a stepwise methodological perspective to incorporate appropriate evaluation measures (under revision). International Journal of Integrated Care.

How to compose systems of systems?
Automated planning of Health Smart Homes

Web-based suggestion system



Wollschlaeger, B., Kabitzsch, K. (2020). Automated Engineering for Health Smart Homes: Find a Way in the Jungle of Assistance Systems

What we know about telemedicine effectiveness

Telemedicine effectiveness in patients with diabtes and hypertension

- Clinically relevant **improvements of HbA1c** in diabetes patients
- Little to no clinically relevant effects on SBP/DBP in hypertensive patients
- Relevant intervention properties:
  - **Continuous** health care provider (HCP) **feedback** on submitted vital signs
  - Patient – HCP **interaction** via telemedicine
  - **Shorter** intervention **duration** (≤ 6 months)
- Relevant patient characteristics
  - More **recent** diagnosis (< 7 years ago)
  - **Younger** age (< 55 years)
  - Relatively **high baseline** HbA1c (> 8 % mmol/l)

Timpel, P., Oswald, S., Schwarz, P. E. H., & Harst, L. (2020). Mapping the Evidence on the Effectiveness of Telemedicine Interventions in Diabetes, Dyslipidemia, and Hypertension: An Umbrella Review of Systematic Reviews and Meta-Analyses. Journal of Medical Internet Research, 22(3), e16791. https://doi.org/10.2196/16791

Timeline for the presentations

10:00 – 10:15	**Kick-off**	
10:15 – 10:20	Split in two sessions: Head Session I: Peggy Richter / Head Session II: Lorenz Harst	
	SESSION I	**SESSION II**
10:20 – 10:40	Mastella et al.	Balagna et al.
10:40 – 11:00	Wohlbrandt et al.	Müller et al.
11:00 – 11:20	Karschuk & Huber	Pohl et al.
11:20 – 11:40	Reifegerste et al.	Orre et al.
11:40 – 12:00	Gleiß et al.	Steinmeyer & Wiese
12:00 – 12:20	Jusob et al.	Burkhard et al.
12:20 – 12:40	Greve et al.	Fürstenau et al.
12:40 – 13:00	Brauner & Ziefle	Stegemann & Gersch
13:00 – 13:20	Barakat et al.	
13:20 – 13:50	**Wrap-Up** “Barriers in telemedicine implementation – and strategies to overcome them”	

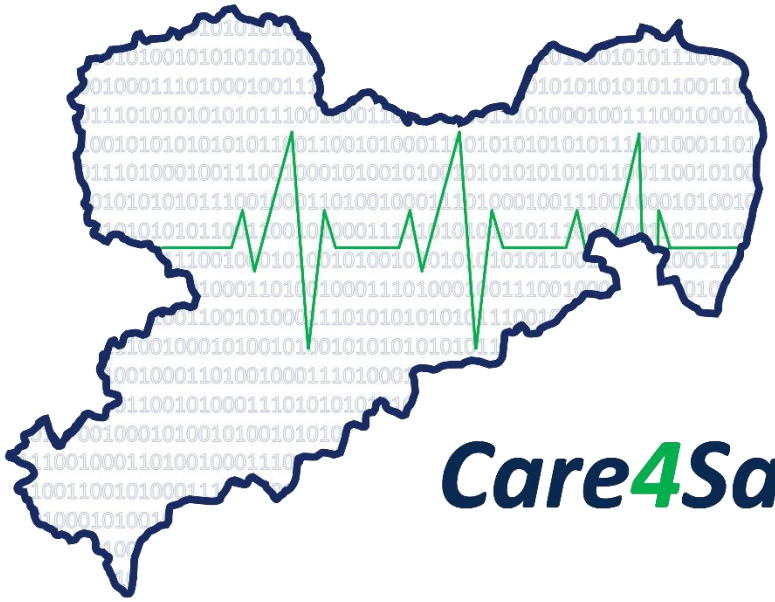
Alright then –

let‘s get this party started!

Special issue

Information for submission:

- *Submission Deadline:* September 12th 2020
- *Formal requirements:* https://www.springer.com/journal/10389/submission-guidelines
- Please use the JoPH submission system!
- Please also send a short notice of submission to *lorenz.harst@tu-dresden.de !*
- Thereby, we can make sure the paper is considered for a special issue.



Vielen Dank!