

## An information system architecture model for decision support and data analysis in tele homecare

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**Abstract.** The demographic change leads to a growing focus of research activities on tele homecare technologies. One important service is health monitoring in combination with individualized decision support that is based on the analysis of *all* data from a person. The implementation of this service with regard to high-level analyses is impeded by the lack of connectivity between current systems. *Objectives:* The aims of the work presented here are to identify relevant physical domains that have to be considered for home telecare decision support, to identify current architectural archetypes, and to propose an architectural model that allows for high-level data analysis. *Methods:* We employ the Three-layer Graph-based meta model (3LGM<sup>2</sup>) approach for static modeling of health care information systems, focusing on the enterprise function *data analysis*. *Results:* Two basic architectures can be identified – the *home server* and the *store-and-forward* approach. We propose a comprehensive model on the logical tool layer that strengthens the role of professional service providers resp. telemedical centers as mediators between the home domain and other professional medical service providers. This model provides a common access point to all data, facilitates updates of both the rule base and the personal health record, and therefore allows for high-level decision support in homecare. *Conclusion:* Personalized home decision support should be founded on *all* data available for an individual. Our model can be regarded as a contribution to the homogenization of home telecare information system architectures.

**Keywords.** Medical Informatics, telecare, decision support, architecture

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