# ABSTRACT

Nowadays patients are able to use personal health devices to weigh their weight or measure their blood pressure for example. The results of the measurements can be used for different purposes. The measurement data is in the first place intended to provide the patient with health information. This information can also be exchanged with the patient's health provider. If this is done remotely, the health provider can give feedback remotely, which saves time for both parties. This can offer an efficient and effective way of providing health care.

The health provider can not make a diagnosis on the basis of the measurement data only that is provided by the patient remotely, because it is unknown in what circumstances and conditions the measurement is taken. Information that describes the quality of the data is lacking. The goal of this thesis is to create the possibility to estimate the data quality on the basis of quality information. Metadata is a means to describe the conditions and circumstances of the measurements. On the basis of the metadata we make a data quality estimation which is measured with qualifiers. Qualifiers handle a particular aspect of data quality.

In this thesis we propose a framework in which data quality estimation is possible. We use qualifiers that are bases on metadata to estimate the quality. This framework is applicable to the Continua Architecture. Continua[1] is a standardization body for personal telehealth. It standardizes protocols between measurement devices, gateway devices and online healthcare/wellness services. Continua does not prescribe the quality of the data but it provides the means to be able to transfer the quality and context of the data. This can be done by defining quality and context metadata in the data model that a device can populate when transmitting a measurement.

The main contributions of the thesis are the following. Metadata can be used to describe the context of measurements (on the basis of popular weight scales and blood pressure meters). This metadata is suitable to be used as input for qualifiers. After selecting and redefining the qualifier they are made suitable for calculation within the field of data quality. Every qualifier calculates a particular data quality aspect and together they can give data quality estimation. The formulas are parameterized which make them extensible and adjustable. The Continua Architecture can be extended to make data quality estimation possible.

[1] http://www.continuaalliance.org