

D2.2 Gold Standard solutions for technical validation [confidential]

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Summary

This document details the development of the gold standard solutions for the technical validation study in the Mobilise-D project. The primary objective of the technical validation is to assess the validity of the single device-algorithm pair for the estimation of primary and secondary digital outcomes in laboratory and real-world settings. To this purpose, two distinct gold standard solutions have been designed and developed to respond to the specific technical requirements. During the In-Lab sessions, reference data will be collected and analyzed using a multi-camera optoelectronic stereo-photogrammetric system (SP) and relevant algorithms. During the Out-of-Lab sessions, a custom multi-sensor system (INDIP) integrating pressure insoles, multiple magneto-inertial measurement units and time-of-flight infrared distance sensors and relevant algorithms will be used as reference. To allow for inter- system comparison, an integrated measurement framework was implemented for acquiring fully synchronized and structured data from different devices (DynaPort MM⁺, McRoberts; GS systems: SP and INDIP). A preliminary validation campaign has been conducted on healthy participants in order to assess protocol feasibility, optimize experimental protocol and data processing and to assess gold standard methods validity. Finally, standard procedures for the characterization of the metrological performance of each of the sensors used during the data collection has been devised and implemented.