Digital survey and 3D Modelling pipelines on structural shape for instability monitoring in historical buildings. A strategy of versatile mesh models for ruined and Endangered Heritage.

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**MAJOR POINTS OF EXTENSION**

Considering the previous version presented during the IMEKO Metroarchaeo conference in Florence (2019), the paper has changed the title and it has been extended for more of the 30% in the following parts:

* In section 2 an extended study on the state of art in computing models for structural analysis on historical heritage has been added, assessing the potential role of reality-based survey in defining a more reliable documentation.
* In section 3, a more complete description of the case study context and site has been added, also considering the analysis developed during the on-site inspection of the ruins and the objective and targets of the documentation process.
* In section 4, a more defined description on the type of data, instruments and on the structuring of the acquisition campaign has been added, supporting the issues of post-processing of data and products for the modelling phase.
* In section 5, specifics on the modelling pipeline and models parameters have been added, also clarifying the deviation analysis procedure and results.
* Conclusions have been extended, considering the Cultural Heritage framework of project and protection where the tested procedure can find a field of application.
* Images have been added on the survey pilot case, on survey acquisition phases and on the processing phases of the mesh models. All images are new except for…..