Medieval geometries identified through digital analysis and capacity building for cultural values and technical maintenance - The case of the 13th cent. S. Francis Church in Assisi (Italy)

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Abstract: (250 to 500 words: for each heading use the bullet points or narrative - the submission including graphics should not exceed one page)

Problems - Issues / Challenges-Needs
- understanding architectural and construction design criteria in medieval church buildings
- full collection of measured documentation to ensure best practice in repair and maintenance
- * detection of historic construction systems based on graphic and numerical procedures regarding reciprocal building assets; ancient theories for dimensioning structural components.

Solutions - Methods / Results - Findings
Methods:
- CASE STUDY of the 13th cent. S. Francis church in Assisi, Italy
- identification (by confrontation) of applied (anthropomorphically) metric standards and previous buildings of reference which may have influenced the design process.
- digital analysis of photogrammetric measured drawings
- comparative study with similar buildings from same period and region within their cultural context
- technical and archeological analysis of used materials & definition of reciprocal chronology

Findings:
- presence of simple geometric design patterns (square, circle, polygons) based on arithmetic proportions and numeric symbology.
- partly imitation of the biblical temple of Salomon and parallel geometries with S. Peter’s- Rome
- hierarchical sequences and arithmetic series

Novelty - Value / Relevance to ...
Value - Relevance to:
- Historic and artistic valuation of the architectural and structural monument
- Potential base for best practice model in repair and maintenance of historic buildings with respect to authenticity and cultural values - Maintenance capacity building
- Creation of a scientific catalogue on historic building typologies based on their design and structural characteristics.

Keywords: (up to 5 keywords)
medieval geometries, digital analysis, Italy, architecture, maintenance capacity

Graphics: (please use the gray area bellow for representative graphics or graphical summary: select the gray area bellow and paste your graphics)