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The impact of monument complexity and data quality on the documentation of tangible Cultural Heritage

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Definitions - Clarifications

• *The impact of monument complexity and data quality on the documentation of tangible Cultural Heritage*

Documentation of tangible CH includes:

- Geometric Documentation
- Structural Documentation
- Materials' Documentation
- Historic Documentation
- Archaeological Documentation
- Architectural Documentation
- Legal Documentation
- …

✓ Monument Information Systems
✓ Heritage BIM
✓ Decision Support Systems

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Definitions - Clarifications

• *The impact of monument complexity and data quality on the documentation of tangible Cultural Heritage*

Data quality implies their:
- Accuracy
- Reliability
- Completeness
- Relevance

✓ Acquisition methods
✓ Acquisition instrumentation
✓ Degree of interference with object (NDT/remote)
✓ Data archiving
✓ Data retrieval

Suitable processing of acquired data to produce useful information

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Definitions - Clarifications

• *The impact of monument complexity and data quality on the documentation of tangible Cultural Heritage*

Complexity is *"the state or quality of being intricate or complicated"* or *"the state of having many parts and being difficult to understand"*

Complexity of Geometry	Complexity of Properties
Variations of the surface (DSM)	Material of the surface
Complexity - quality of the DSM.	Properties of the surface/material
Surface roughness, or micro relief	Deposits on the surface (external conditions)
Surface variability or irregularity within a certain area unit (e.g. per sq.m)	Surface roughness, or micro relief (due to material erosion)
DSM metrics to measure surface roughness.	Illumination

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Monument Complexity

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Monument Complexity
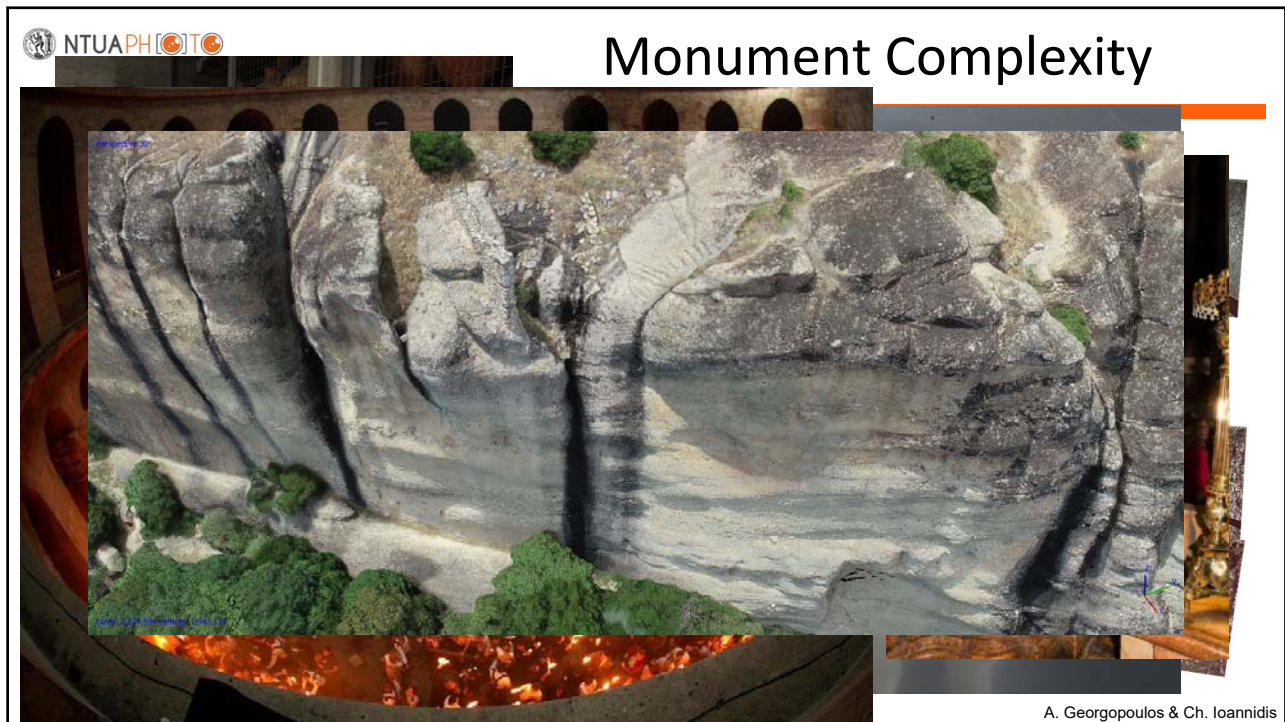
Monument Complexity depends on:

- 3D Geometry
- Surface Material
- Location
- Time

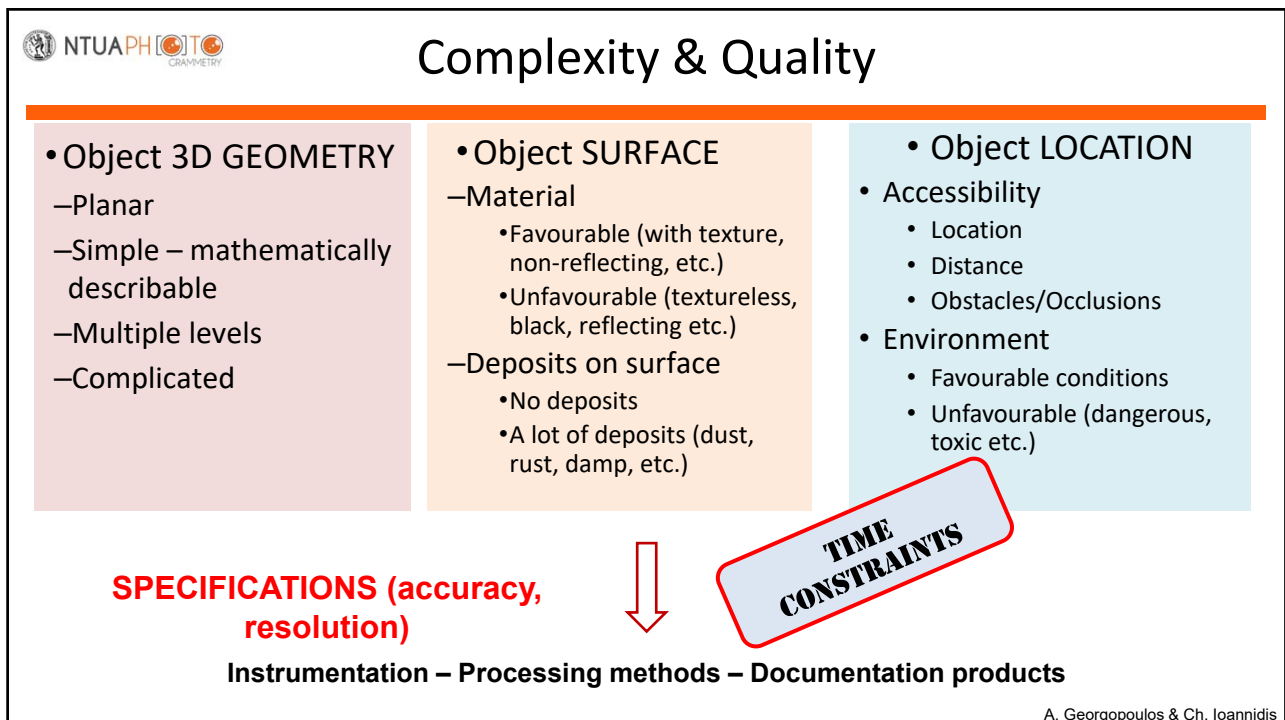Acquisition Method(s)
Processing Method(s)
Final Products

Monument Complexity affects all stages of
data processing and usage of
documentation products!!
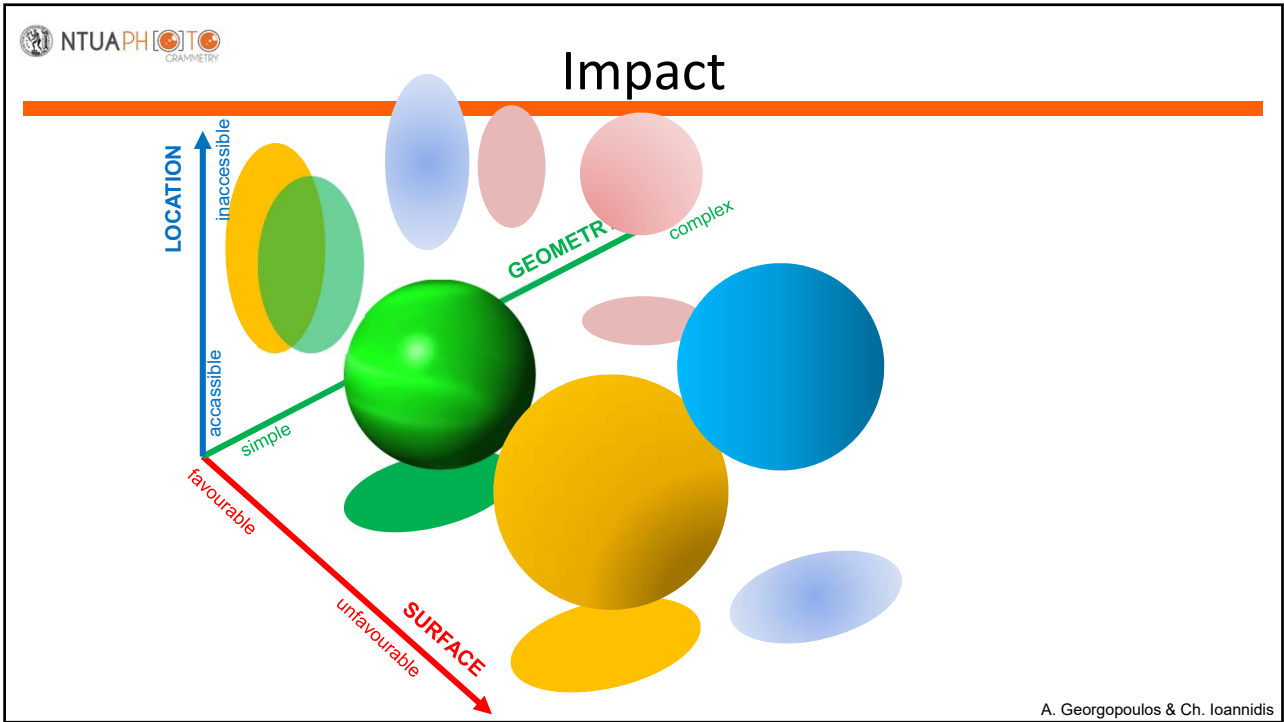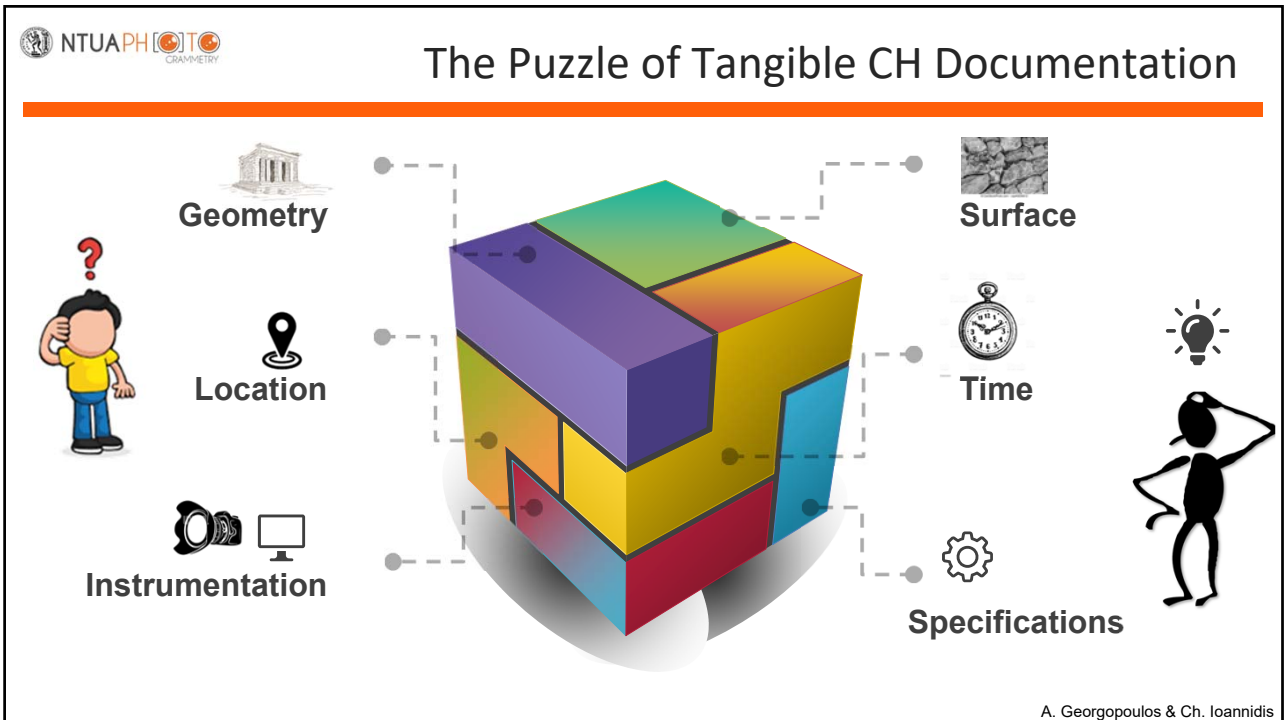
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Monument Complexity

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Complexity & Quality

- Object 3D GEOMETRY
  - Planar
  - Simple – mathematically describable
  - Multiple levels
  - Complicated

- Object SURFACE
  - Material
    - Favourable (with texture, non-reflecting, etc.)
    - Unfavourable (textureless, black, reflecting etc.)
  - Deposits on surface
    - No deposits
    - A lot of deposits (dust, rust, damp, etc.)

- Object LOCATION
- Accessibility
  - Location
  - Distance
  - Obstacles/Occlusions
- Environment
  - Favourable conditions
  - Unfavourable (dangerous, toxic etc.)

SPECIFICATIONS (accuracy, resolution)

TIME CONSTRAINTS

Instrumentation – Processing methods – Documentation products

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Impact

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The Puzzle of Tangible CH Documentation

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Thank you

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