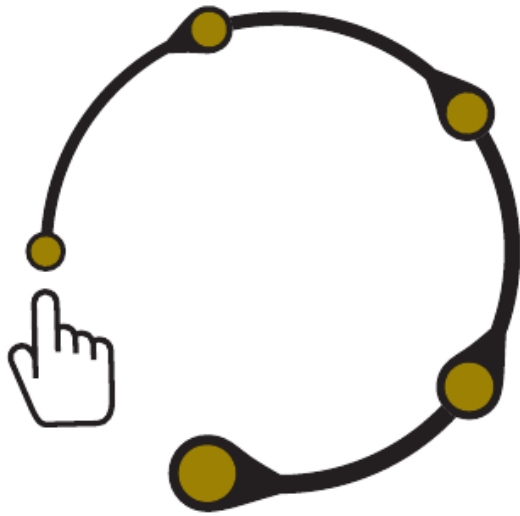




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**EXPERIENCE
THE FUTURE
OF THE PAST**

Design factors and Maintenance Strategies for Virtual Museums

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V-MusT Goal

- Design Virtual Museums that are
 - Fit for use
 - Robust
 - Easy to maintain
 - Easy to re-use and exchange
 - Easy to update and improve
- Create an implementation framework
= V-MusT Competence Centre



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Design factors

- Design of an application or installation requires
 - Optimal workflow to create
 - Fitness for use
 - Optimal re-usability
 - Maximising future upgrade and use



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Optimal workflow

- Optimal creation process
 - Time/budget
 - Resources (equipment, software, people, ...)
 - Documentation
- Make it future proof
 - Analyse which technologies have best stability towards future
 - Stay away from certain things
 - Make your intermediate files as versatile and structured as possible



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Fitness for use

- Make the best interface/storytelling based upon
 - Target users
 - Cognitive aspects
 - Behaviour aspects
 - Visitor flow
 - Influence of the technology
- Think about maintenance and updating



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Example: Etruscanning



National Museum of Antiquities, Leiden, Netherlands



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Example: Etruscanning



Etruscanning setup at the Allard Pierson Museum, Amsterdam



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Optimal re-usability

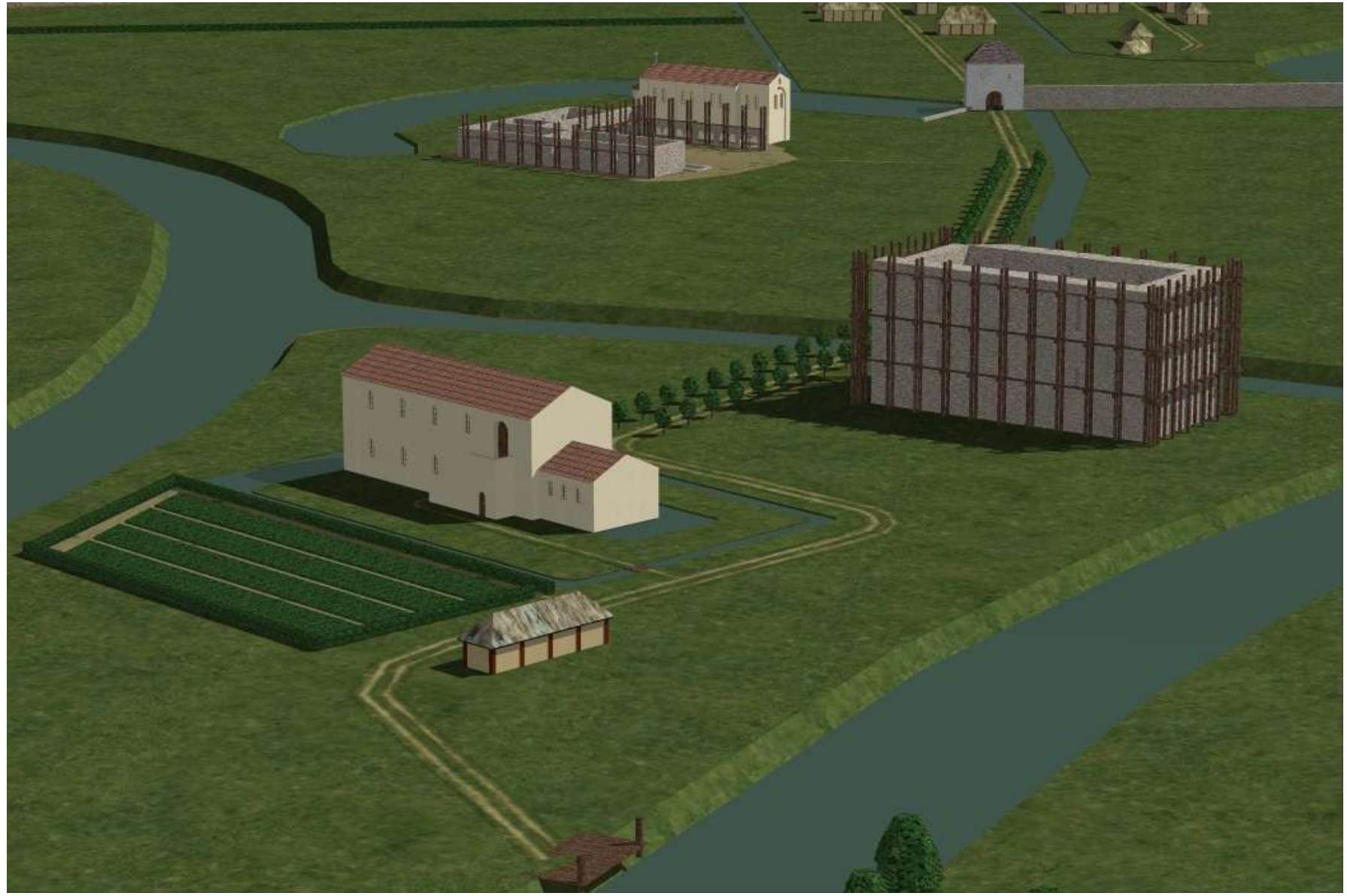
- Re-usability = standardisation & documentation
 - Digital provenance needed for museum use
 - Content documentation needed for update
 - Technical documentation needed for maintenance

=> Collaboration platform
- Standardisation
 - File formats
 - Project management: Prince2?



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Example: landscape reconstruction





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Example: landscape reconstruction





Example: landscape reconstruction

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Example: digital restoration



Patera from Regolini-Galassi tomb, Museo Gregoriano Etrusco, Vatican



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Example: digital restoration



Patera from Regolini-Galassi tomb, Grifi, 1841



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Example: digital restoration



Patera from Regolini-Galassi tomb, L. Di Blasi, 1999



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Example: digital restoration

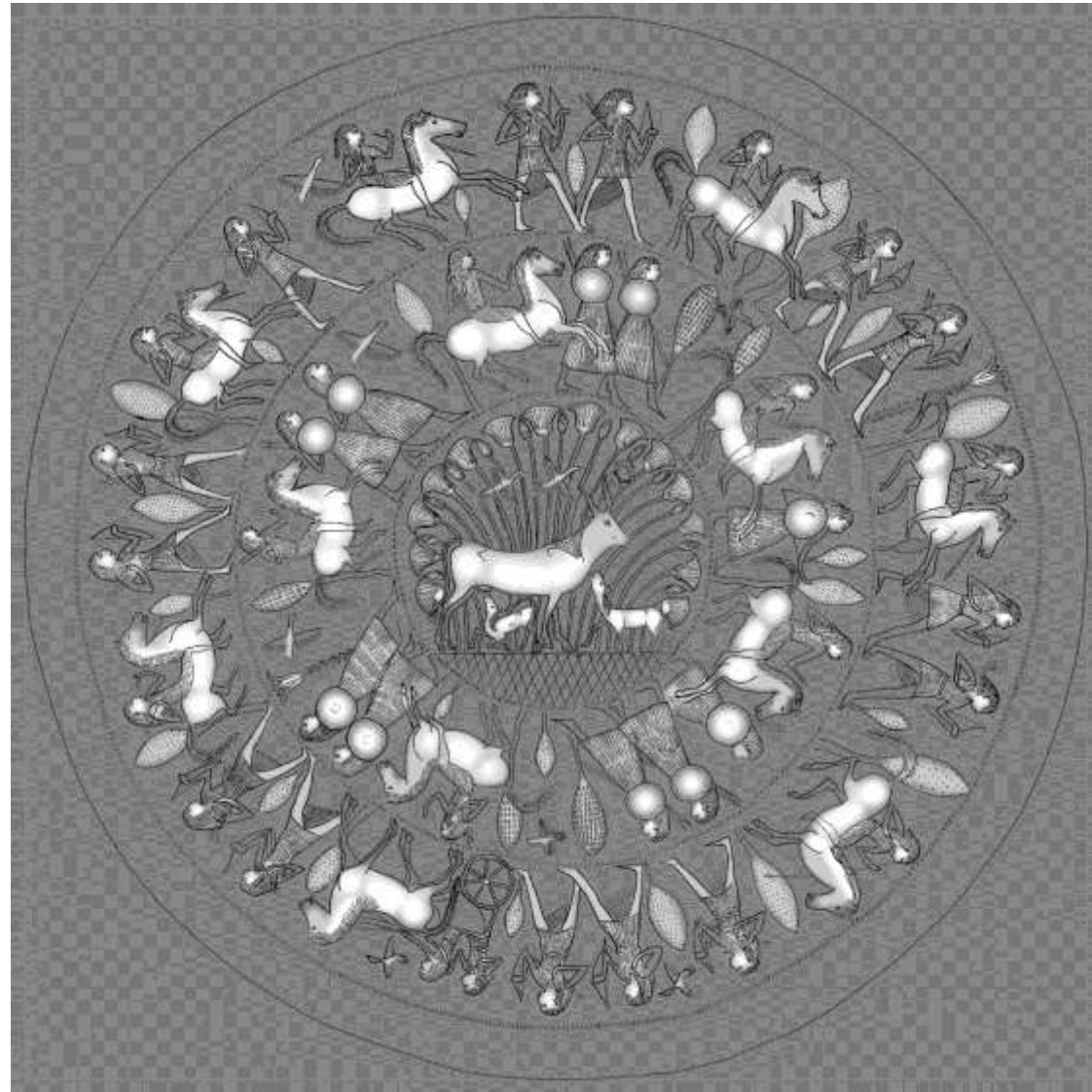


Patera from Regolini-Galassi tomb, digital restoration, 2011



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Example: digital restoration



Patera from Regolini-Galassi tomb, digital restoration, depth map, 2011



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Example: digital restoration



Patera from Regolini-Galassi tomb, digital restoration, render test with normal maps, 2011



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Maximising future use

- Anticipate improvement of technology
 - Use the “casting principle”
 - Store all assets at the highest resolution, reduce resolution at latest stage
- Anticipate new technologies
 - Look for universal principles
 - Use standards



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Example: depth & vegetation maps

- Depth maps
 - Can be transformed into bump maps (simple rendering)
 - Can be transformed into normal maps (applied on low poly models for real time systems)
 - Can be used for displacement (high resolution model) which can produce physical copies
- Vegetation maps
 - Define the density of certain vegetations in Vue
 - Can be used by botanici and publications



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Maintenance Strategies

- **Goals**
 - Maximum uptime
 - Reducing maintenance cost
 - Avoiding unplanned costs
- **Three levels of maintenance**
 - Problem solving
 - Normal and updated replacement
 - Migrating to new platforms
- **Maintenance plan**
 - On all three levels
 - Part of the design



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Problem Solving

- Risk analysis
 - What could go wrong?
 - What could be the possible causes?
 - Phased trouble shooting (ordered by probability)
 - What to do? What not to do? Who to contact?
 - What to keep in stock?
 - Optimise your suppliers!
 - Preventive maintenance where needed (software/hardware)
- Action plan as readily available document
- Training of involved people
- Motivation of involved people
(pater familias principle, make them owner)



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Replacement

- Define beforehand replacement strategy
 - Preventive replacement or not (computer = 3 years)
 - Plan the required budget
 - Define the requirements for the next generation
 - Define when to design possible update/migration scenario
- Software
 - Analyse possible software updates yearly
 - Analyse software updates linked to replacement
 - Don't forget the data (migration to new versions, ...)
- Hardware
 - Analyse availability and cost of operations
 - Decide possible switches to new types of hardware



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Migrating to new platforms

- Migration due to
 - Unavailability of hardware/software
 - Change of product/commercial offering
 - Important advantages of new hardware/software with implications on cost of operation, capacity, crucial functionality
- Migration strategy
 - Cannot be defined beforehand
 - Acting in time can save a lot of money (keep an eye on your suppliers)
 - Needs in depth analysis of issues, opportunities, costs
 - Involves hardware, software, data, maintenance plan



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Thank you!

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