

eXtreme Design for Digital Humanities

eXtreme Design (XD) for Ontological Engineering in the Digital Humanities (DH) with Viewsari, a Knowledge Graph (KG) of Giorgio Vasari's *The Lives*

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Agenda

- 1 Introduction: Motivation and Background
- 2 The Value of Vasari's Work for Today's Research
- 3 Data Foundation
- 4 Related Works
- 5 Methodology: Application of eXtreme Design in Viewsari
- 6 eXtreme Design for Digital Humanities: Best Practices as Solutions?
- 7 Future Perspectives



Semantic Technologies in the Digital Humanities – Challenges

- Digital Humanities (DH) are diverse: heterogeneous data resources, research questions, methodologies, communities – bridging diverse conceptual frameworks



Semantic Technologies in the Digital Humanities – Challenges

- Another level of **heterogeneity** in data formats, terminologies, and modeling approaches
- Many ontologies are **not interoperable or reusable** [3]
- **Top-level, recurring patterns** might be similar for the representation of data coming from different sources



The Motivation behind Viewsari

Viewsari:

A knowledge graph of Giorgio Vasari's *The Lives*

→ Visual and formal **reformulation** and collection of **Vasari's Renaissance**

→ Description of its content in an **ontology**



Quick snapshot of *Le Vite / The Lives*

- **Title:** Le vite de' piu eccellenti pittori scultori e architettori
- **Author:** Giorgio Vasari
- **Language:** Italian
- **Publication date:** 1550, expanded in 1568
- **Content:** Biographical descriptions of prominent Renaissance artists, including detailed descriptions of their lives, works, and artistic styles



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The Value of Vasari's Work for Today's Research



The Value of Vasari's Work for Today's Research

- *The* reference work for Renaissance art
- Until today: A lot has been done in the realm of Vasari's world...
- What's missing? A structural, comprehensive presentation of its content for systematic approaches to different analyses [4–6]



Data Foundation



Data Foundation

Source:

- English translation from 1912-1915 by Gaston C. Du Vere in 10 volumes
- *Lives of the Most Eminent Painters, Sculptors and Architects*
- Based on 1568 edition
- Gutenberg web version

Information extraction for:

Persons, organizations, places, artwork references, motifs, terms, and dates

Current Viewsari version:

- depicts a **social network** extracted from *The Lives* and the Index of Names
- used coreference resolution and statistical association from the co-occurrence of names in paragraphs [7]



Related Works

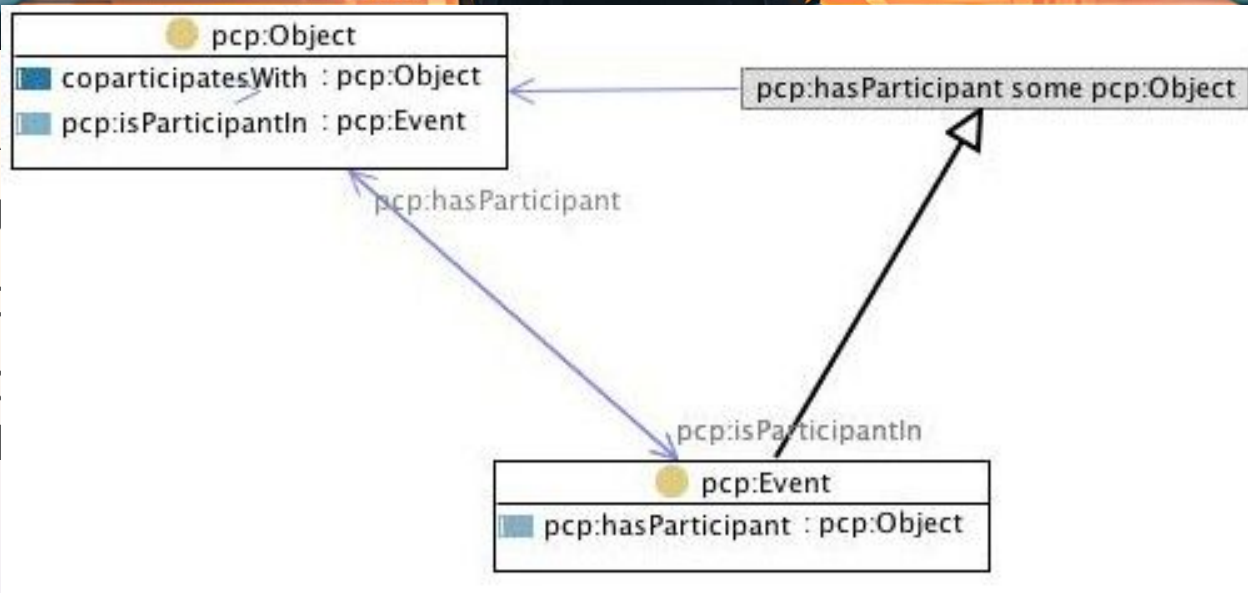


Related Works: eXtreme Design (XD)...

- ...is a **dynamic, iterative** approach to ontological engineering
- ...is user-centered
- ...has different workflow phases (in short):
 - Requirements analysis
 - Development
 - Testing
 - Release
- ...is focused on reuse / creation of ontology design patterns [8-13]

Related Works: Ontology Design Patterns

- R
- U
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- cl



Best practice modeling solutions for recurring design problems in ontologies



Related Works: eXtreme Design, Ontology Design Patterns

Projects from DH and related domains using XD [14–16]:

- ArCo knowledge graph
- Polifonia
- [DigiKar](#)
- MEETUPs ontology

Documentation
artifacts

Non-formal
requirements

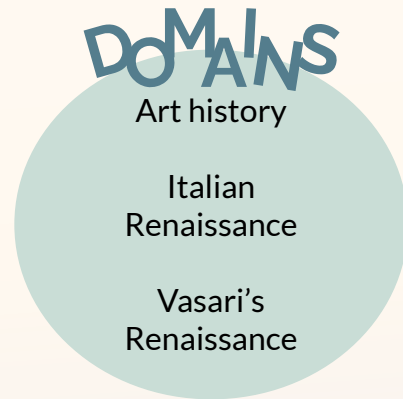
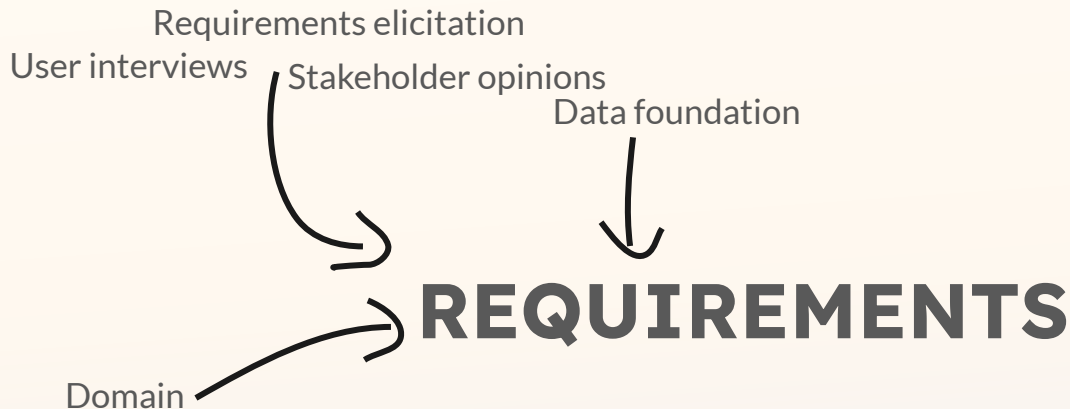
Stakeholder
consultation

ODPs



Methodology

Let's talk Viewsari: Requirements as User Stories and Personas



User stories, research scenarios, personas

As a researcher, I want to explore co-occurrences of artists mentioned in The Lives so that I can identify potential collaborations.



Let's talk Viewsari: The Art Historian Example



As a researcher, I want to explore co-occurrences of artists mentioned in The Lives so that I can identify potential collaborations.



- Who co-occurred with whom?
- Did artist XY co-occur with artist YX?
- Where in the text did artists XY and artists YX co-occur?

Let's talk Viewsari: From Competency Questions to Ontology Design Patterns

Page
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- Who co-occurred with whom?
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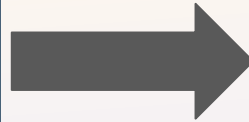
Thereupon **Raffaello da Urbino**, who was very excellent in imitation, after seeing it straightway changed his manner, and without losing any time, in order to display his ability, painted the work of the Pace; and the other had the honor of the Pope to have painted the work of the Pace. [10, pp. 83–85]

The “Local Use Case” (LUC)

Raffaello. V. Bramante, and revealed to the Pope without any reserve many faults both in his life and in his architectural works; of which last, in the building of S. Pietro, as was seen afterwards, Michelagnolo became the corrector.

Let's talk Viewsari: From Competency Questions to Ontology Design Patterns

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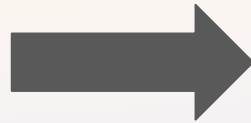
The “Generic Use Case”
(GUC) [10, pp. 83–85]

Shared appearance of
multiple resources (within
another resource)

Let's talk Viewsari: From Competency Questions to Ontology Design Patterns

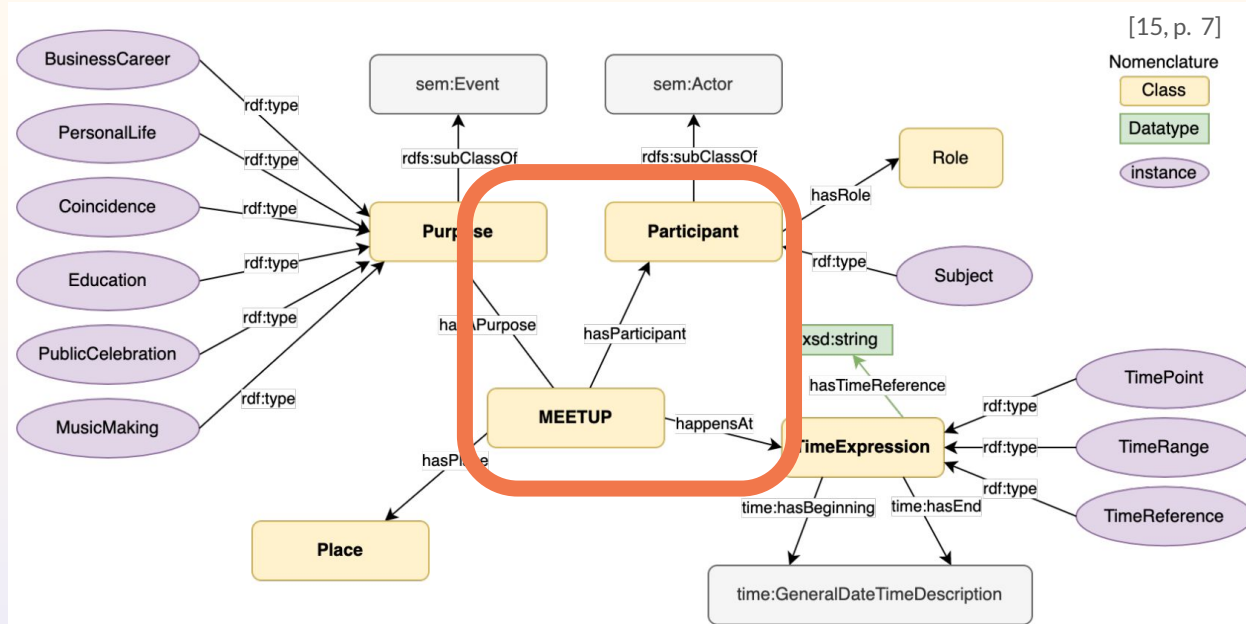
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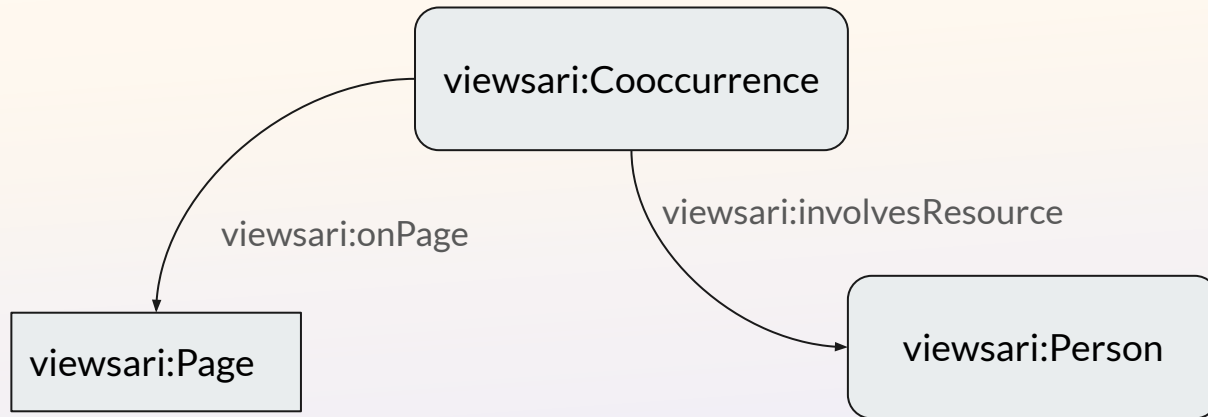


- Participation CP
- Meetup in MEETUPs ontology

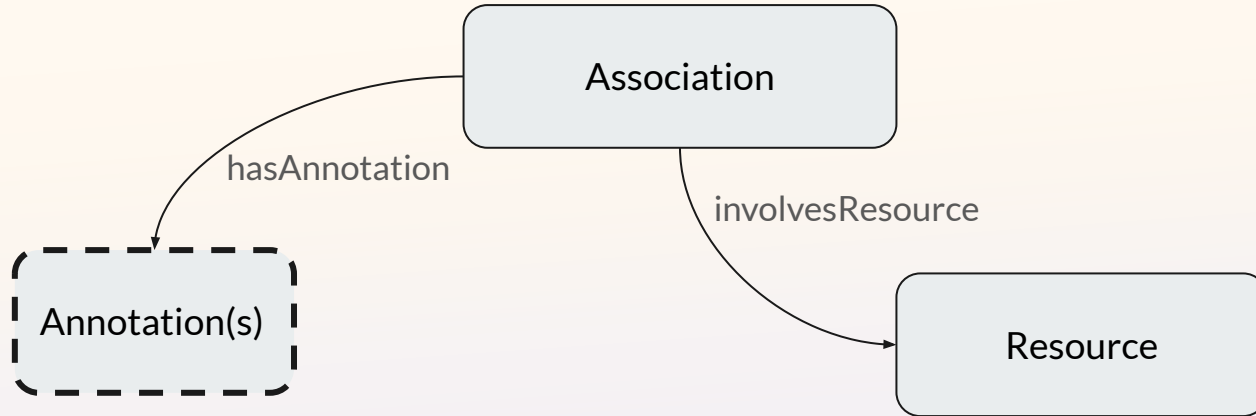
Let's talk Viewsari: From Competency Questions to Ontology Design Patterns



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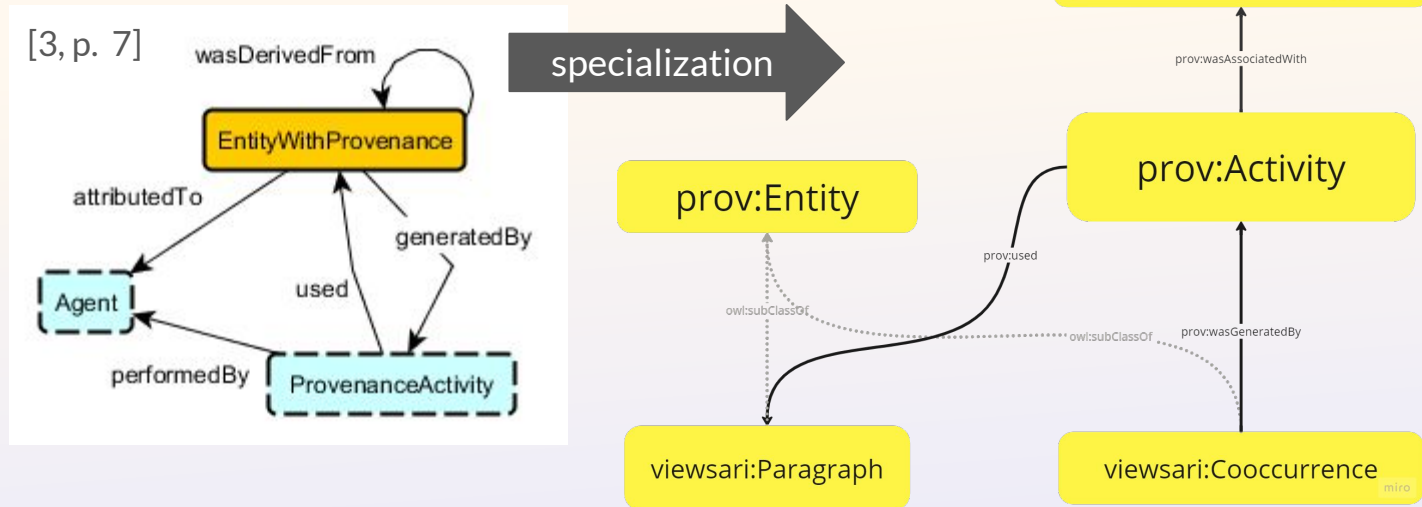


Let's talk Viewsari: From Competency Questions to Ontology Design Patterns



- Purpose
- Provenance
- Place
- Time

Let's talk Viewsari: Extracting Ontology Design Patterns from Ontologies





Best Practices as Solutions?

Challenges in the Digital Humanities: Best Practices as Solutions?

- Different modeling approaches for the same situations
- Comparative research requires transferability
- ODPs can meet immediate needs *and* function as common language [12, 14]

MICHELAGNOLO BUONARROTI

LIFE OF MICHELAGNOLO BUONARROTI PAINTER, SCULPTOR, AND ARCHITECT OF FLORENCE

...e light of the famous Giotto and of his followers, to give to the world a proof of the ability that the benign infls the excellence of their art the grandeur of Nature in order to approach as near as possible to that supreme kn His clemency turned His eyes to the earth, and, having perceived the infinite vanity of all those labours, the than is darkness from light, and desiring to deliver us from such great errors, became minded to send down w what manner of thing is the perfection of the art of design in executing the lines, contours, shadows, and high cure it is possible to render labours secure and commodious, healthy and cheerful, well-proportioned, an nt of sweet poesy, to the end that the world might choose him and admire him as its highest exemplar in the li r divine than human. And since He saw that in the practice of these rare exercises and arts—namely, in painting being diligent in the labours and studies of every faculty beyond no matter what other people of Italy, He cho tion in her, as was her due, in the person of one of her citizens.



MICHELAGNOLO BUONARROTI: THE HOLY FAMILY
(Florence: Uffizi, 1239. Panel)

Challenges in the Digital Humanities: Best Practices as Solutions?



IV.

Ein Verzeichniß der Mitglieder,
welche in den Jahren 1776—77—78
und 1779 aufgenommen worden.

	D. et. A. Rec.
776 Spartacus A. (Areopagita.)	1. May 1776.
777 Ajax A.	— — —
778 Tiberius A.	— — —
779 Cato A.	22. Febr. 1778.
780 Marius A.	12. Mart. —
781 Alcibiades A.	May —
782 Solon A.	May —
783 Scipio A.	28. Jul. —
784 Celfus A.	13. Dec. —
785 Hannibal A.	— — —
786 Tamerlan. II. (Illuminat.)	16. Dec. 1776.
	M 2 787

Registry of members of one Order of the Illuminati,
as documented in FactGrid item [Q9152](#)

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Challenges in the Digital Humanities: Best Practices as Solutions?



Device 453 from Philippus Bonus in Leiden in 1673, from a collection of Dutch Printers Devices

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Challenges in the Digital Humanities: Best Practices as Solutions?

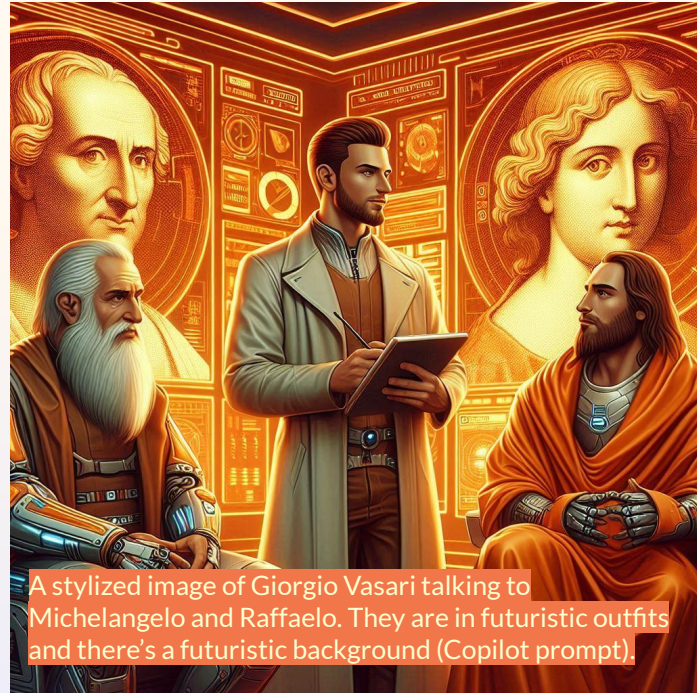
- **Modular design reduces risks of redundancy and inconsistency:**
 - complex and diverse concepts can be modeled with existing ODPs or new patterns
- XD fosters **continuous refinement** and adaptation of ontological concepts, as well as their **rigorous documentation** [12, 14]
 - adheres to the challenge of incompleteness and endlessness of research data (“Unabschließbarkeit”) in the DH [2, 3, 17]



A Toast to the Future

A Toast to the Future

- XD could be a standard practice in DH ontological engineering
- DH research requires understanding connections and correlations, ODPs offer adaptable solutions for data models
- XD ensures traceable design decisions



A stylized image of Giorgio Vasari talking to Michelangelo and Raffaello. They are in futuristic outfits and there's a futuristic background (Copilot prompt).

A Toast to the Future

- Test how the application of XD influences DH projects that intend to construct ontologies
- Promote the use of ODPs in the DH, e.g. via workshops
- Propose further patterns





Thank you!

A first glimpse into Viewsari's realm
is available on here:



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ODPs and Mappings

Patterns we re-used from ODP.org:

- Persons
- Locations
- Provenance

Suggestions for:

- PublishedWorks pattern
- Association pattern

Mappings:

- FaBiO / FRBR
- DoCo and DEO
- PRISM
- Dublin Core
- FOAF
- PROV-O/DM
- Pattern Ontology (PO)
- Web Annotation Vocabulary

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