



FP7 2013 – PEOPLE - IEF 628818

Marie Skłodowska Curie Actions

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## Connected Pasts and People: Identities and Complex Polities in Middle Tyrrhenian Italy

Francesca Fulminante,

[francesca.fulminante@uniroma3.it](mailto:francesca.fulminante@uniroma3.it)

University Roma Tre, Piazza della Repubblica, 10 00187, Roma

### Project Objectives

Between the Late Bronze Age and the end of the Archaic Period (11th/10th-5th century BC) central Italy was characterized by the formation of the first cities in Europe, grouped into wider regional entities and ethnic groups, such as the Latins, the Etruscans and others. This process of urbanization has long been investigated and WHAT happened (nucleation and centralization of settlements, formation of social hierarchy, craft specialization etc.) and WHEN (during the Early Iron Age) are well established acquired knowledge<sup>1</sup>. However HOW and WHY, and WHY Rome in the end prevail are question which still await an answer. For the first time this project has considered the Etruscan and the Latin systems together to try to answer these questions and the network science has provided a novel approach to address them properly.

### Work Performed

The project has studied the commercial, social and cultural interactions between the Latins and the Etruscans by performing two main types of analyses. Firstly geographical connections have been considered and fluvial and terrestrial routes network of the Etruscan and Latin system have been analysed in the form of undirected, unvalued, georeferenced networks by performing centrality measures, efficiency measures and modelling (the latter two in collaboration with colleagues from Spanish universities<sup>2</sup>). Secondly commercial interactions have been considered in the form of bimodal networks of central Italian sites (mainly Etruria and Latium, and partially Faliscan area) and artefacts (ceramic, metal objects and architectural features); these networks have been reduced to unimodal networks, georeferenced and have been analysed by performing centrality measures. Finally social networks have also been considered as bimodal network of Etruscan sites and metopal decoration of Villanovan pottery for the Early Iron Age<sup>3</sup>, and of sites and family names from inscriptions for the Archaic and Republican Age, reduced again to unimodal networks to be analysed with centrality measures.

### Results

The analysis of fluvial and terrestrial routes networks in Etruria and Latium vetus from the Final Bronze Age to the Archaic Period showed the similarity but also the differences between the two regions and provided the most interesting results by contributing to explain HOW the two different system worked and WHY probably Rome and

<sup>1</sup> see FULMINANTE 2014 with reference to previous studies.

<sup>2</sup> Sergi Lozano, IPHES, Catalan Institute of Human Paleoeology and Social Evolution, Spain, [slozano@iphes.cat](mailto:slozano@iphes.cat); Luce Prignano, University of Barcellona, Spain, [luceprignano@ub.edu](mailto:luceprignano@ub.edu); Ignacio Morer, University of Barcellona, Spain, [ignacio.morer@gmail.com](mailto:ignacio.morer@gmail.com)

<sup>3</sup> According to Guidi's hypothesis these types of decoration are very likely to indicate family groups (GUIDI 1980) and their distribution among Etruscan sites (the same type mainly in one site and then in a number of others) seem to confirm this idea.

Latium vetus in the end prevailed over the rival Etruria. In general the Latin communication system (especially with reference to the terrestrial routes) showed a better efficiency and resilience (especially for the older ages)<sup>4</sup>. In addition innovative modelling techniques have revealed clearly how Etruria adopted an apparently co-operative model in which no single city was able to dominate the others; in contrast, Latium vetus was characterised by a harsh competitive behaviour that can be explained by the dominant political and military policies of Rome<sup>5</sup>. These outputs might contribute to explain why a smaller but more compacted, connected and hierarchical region such as Latium vetus in the end prevailed over a larger but less efficient Etruria.

The analysis of commercial and cultural interactions based on the commonality of types of ceramic, metal artefacts and architectural features showed some clear and interesting trends. In particular the calculation of a number of indexes and characteristics of the networks (betweenness centrality, degree centralization and, average degree and network density) for networks derived from different types of objects over a long period of time (from the Bronze Age to the Orientalizing to the Archaic Age) produced exactly opposite trends for ceramics and architectural features on one side and metal objects on the other side. This seem to confirm different modes of circulations of the different types of objects that still need to be evaluated. The comparison of the characteristics of the network of sites derived from the commonality of metopal decoration for the Early Iron Age and the commonality of family names for the Archaic and Republican Period which hopefully will illuminate the different social dynamics of family interaction among settlements respectively during the proto-urban and the urban phase still need to be fully evaluated.

#### Impact and Use (Including the Socio-Economic Impact and the Wider Societal Implications).

Cities are fast developing into extensive webs of interaction, supported by fast transport and real-time communication-structure networks. Therefore urban networks and networked cities are becoming an increasingly dominant theme of research and international political planning. For example J.P. Taylor has adopted an interlocking network structure model to evaluate the importance of leading world cities within contemporary globalisation.

Adopting a similar structural network perspective, this project has studied structural relationships among settlements in central Italy during the Early Iron Age to better understand the formation of the first cities in Europe. While the contribution of Network Science in Archaeology to the wider debate of Network science in general is still emerging, the input of this subject is also important for cross-discipline comparisons and fertilization.

Finally this work conceptually relates to structuralist and constructivist perspectives in that it is not only the attributes of agents that are important for understanding their social actions but also their relationships and their reciprocal position within wider structures (Bourdieu's 'reality is relational' or Latour's Actor-network theory<sup>6</sup>). This seems to be a particularly important and thought provoking view especially with reference to increasingly complex international relations.

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<sup>4</sup> GUIDI et al. forthcoming.

<sup>5</sup> FULMINANTE et al. forthcoming.

<sup>6</sup> BOURDIEU 1994 and LATOUR 2005.