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Simulating Historical Flows And Connection. The Artistic Transfer During The 15th To 16th Century In The Iberian Peninsula.

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1. Introduction

The Late Gothic period (fourteenth-sixteenth century) was a phase of transition in Europe – with social, political, economic and cultural changes. Within this framework, Europe was the scene of a significant amount of mobility of artists that in some way materialised the production of architecture without borders: a "Pan-European style" (García Cuetos, 2011) capable of reproducing and adapting models in different places. This paper will present the project ArTNet "Analysing artistic transfer network. A social and spatiotemporal study of Late Gothic architectural production in the Iberian Peninsula" which was designed **to identify, record and analyse artistic transfer network transcending the building scale to better understand the process of Late Gothic architecture production in the Iberian Peninsula.** An integral view bringing together several factors is being studied by multiscale models, combining HGIS and Graph model, and analysis (such as SNA, spatial statistics, map visualisation and spatiotemporal analysis).

The Iberian Peninsula was chosen for analysing the artistic transfer due to its spatial and historical characteristics: 1) it is a sufficiently extensive area, so it provides a suitable sample of data; 2) there was considerable communication and a great number of exchanges between Spain and Portugal during the Middle Ages; 3) during the transition to the Modern Era, the so-called "Reconquest" influenced the territorial consolidation and the architectural production; 4) Spain and Portugal were at this period conquering American and African territories, which increased their capital power and a new constellation of cities emerged providing more activities related to building construction.

The five **research objectives** of the project are: **RO1.** To digitally register the artistic transfer in the Iberian Peninsula with all the available resources, creating a new and open digital model (Gonzalez-Perez, 2018); **RO2.** To analyse the movement of artists through space and time. These *track lines* changed over time, reflecting also the political, economic, social and cultural evolution of the Iberian Peninsula. The study of the artists' activities can show interesting patterns, especially when this took place between the main centres. In addition, we expect to discover the different level(s) at which these movements have occurred to also provide the analysis from the building scale; **RO3.** To evaluate, from the heritage point of view, the systems and subsystems that make up the Late Gothic in relation to landscape, cities, infrastructure and the most significant architectures; **RO4.** To formulate hypotheses through simulations to analyse transfers of artists due to incomplete or undocumented records. By doing so, the project will be able to deal with gaps in the historical data and offer new interpretations and insights; **RO5.** Diffusion of the methodology and the results, increasing open access to the historical data created and gathered. In terms of scientific research in Architectural History, this project is providing new methodological concepts that will help to better understand the process of the Late Gothic architectural production.

2. Methodology

ArTNet uses a data-driven approach backed by techniques borrowed from GIS, Graph theory and data visualisation aimed at addressing the objectives outlined above. The methodology designed for this project is based on previous projects (Ferreira Lopes and Pinto Puerto, 2018) (Ferreira Lopes, 2018). The methodology is divided into four linked phases: **M1.** Documentation of the artistic transfer *.* This is the main base of the database. All the information available (coming from a wide range of data sources, especially the most recent publications and studies) is being selected,

digitised and processed in order to convert analogue formats into digital ones. **M2.** E-database Model. While doing *M1* , a preliminary phase to structure the data as an "event-based model" was conducted and tested *.* Implicitly ArTNet therefore assumes that an "event" is the temporal entity that will interconnect artefacts, agents (artists, patrons, etc.), time, buildings, techniques, etc. **M3.** Inter-sectorial data connection *.* This project also contemplates that the data should be open and interconnected with Open Scientific Data Repositories and Institutional Databases, such as the *Instituto del Patrimonio Cultural de España* and the *Direção Geral do Patrimonio Cultural de Portugal* . **M4 .** The impact of artistic transfer in the architectural production. Two digital models will be considered: a spatiotemporal model capable of organising the information from the E-database in layers, a geographically-integrated historical GIS model; and a Graph model (represented by nodes and edges) based on an abstract model in which the main elements are the relationships, a relational-integrated historical model. In *M4* we were able to: i) create working models to simulate the movements of artists; ii) analyse the density of events and patterns (of techniques, materials, agents etc.) in space and time; iii) capture, analyse and visualise the influence of artists at the buildings where they were active; iv) run ego, centrality and clustering (SNA); v) provide models capable of testing hypotheses and also of generating new ones by simulation (to deal with historical data gaps, *RO4*). These analyses offered new perspectives for understanding the phenomenon of the Late Gothic and re-evaluated its dynamism in light of the interaction between agents.

3. Discussion

Although in early stages, ArTNet has already provided new ways to research the artistic transfer by the simulation of new hypothesis and visualizations. The inputted data is still limited by the sources consulted and treated so far, making it difficult to achieve a more wide-ranging model. While ArTNet, as a project, is focused specifically on the artistic transfer in the Iberian Peninsula, collaborators have already identified cases that connects with other European countries (particularly France, Italy and Germany). One of our goals moving forward is to test and design a semantic web in order to adjust and expand the data structure for the research community.
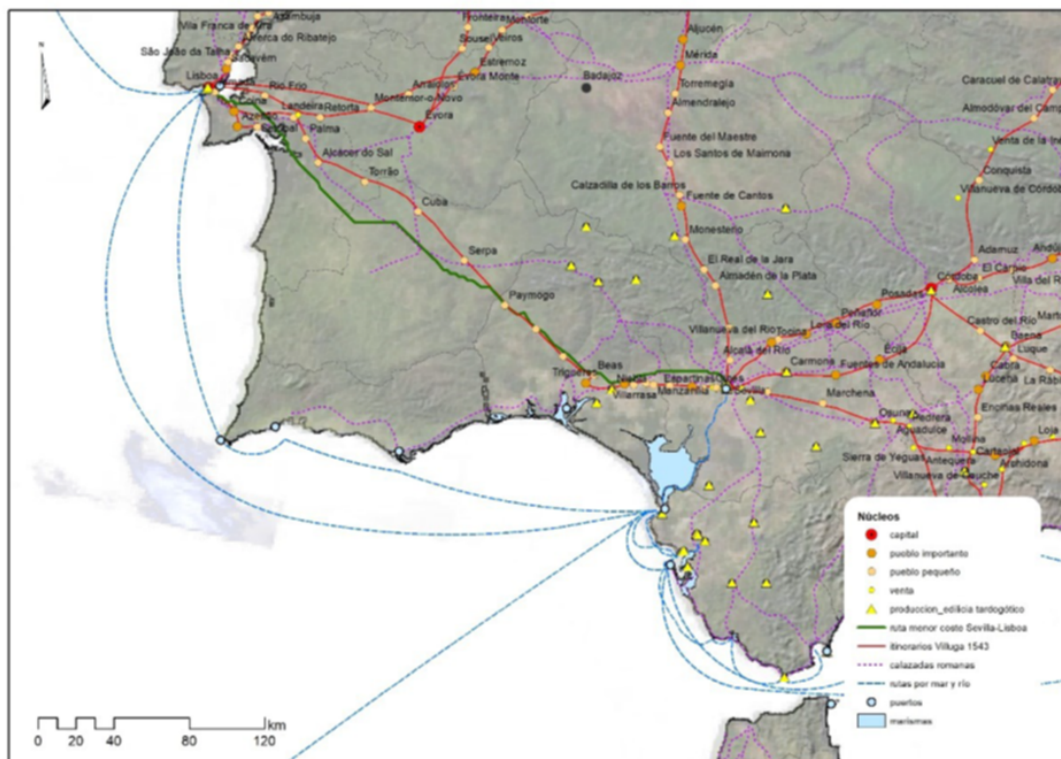
Fig.1 Simulation of a flow hypothesis. Studying the route made by Juan del Castillo (master builder) between Seville and Lisbon in 1508.
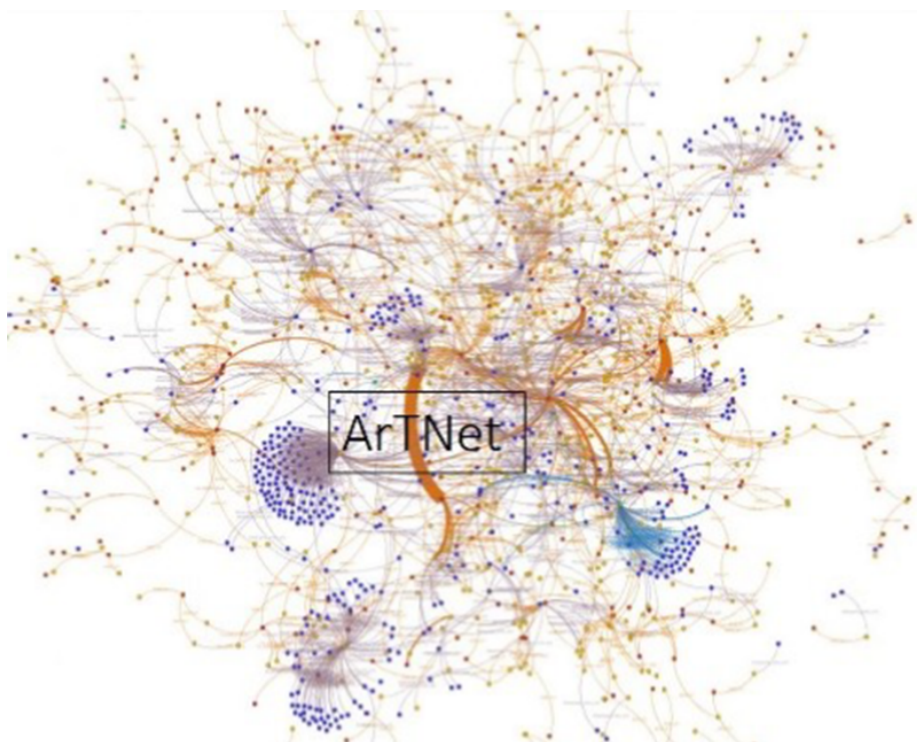

Fig. 2 General of the Graph model.

Appendix A

Bibliography

1. **García Cuetos, M. P.** (2011). Raíces del tardogótico castellano. La arquitectura europea en el context del ultimo gótico: ¿una arquitectura paneuropea? In *La arquitectura tardogótica castellana entre Europa y América* . Madrid: Sílex
2. **Gonzalez-Perez, C.** (2018). *Information Modelling for Archaeology and Anthropology: Software Engineering Principles for Cultural Heritage* . Springer.
3. **Ferreira Lopes, P. and Pinto Puerto, F** . (2018). GIS and Graph Models for Social, Temporal and Spatial Digital Analysis in Heritage: The case-study of Ancient Kingdom of Seville Late Gothic Production. *Digital Application in Archaeology and Cultural Heritage* , 9:1-14.
4. **Ferreira Lopes, P.** (forthcoming, 2018). Modelos Digitales de Información – SIG y Grafos – aplicados en el patrimonio. La fábrica edilicia en el antiguo reino de Sevilla en el tránsito a la Edad Moderna. [PhD Thesis]. Universidad de Sevilla.