Mapping the Digital Renaissance: The DECIMA Map of Ducal Florence

DECIMA is the Digitally Encoded Census Information and Mapping Archive, a Historical GIS project

run in Toronto. It maps bureaucratic and administrative data produced by the Medici regime of

Florence in the sixteenth century with a geo-referenced, high-resolution version of the 1584

Buonsignori Map of Florence. The purpose of today's exercise is to learn how to analyze and annotate

digital historical maps using industry-standard GIS software.

1. Open your Web Browser and enter the following URL: http://www.uoft.me/decima. This is a

    short-cut URL to the DECIMA Web App (for more information on DECIMA please visit the

    full website at www.decima-map.net). The Web App will open and display a welcome

    message; click OK to see the great Cathedral of Santa Maria del Fiore (Saint Mary of Flowers),

    Florence's famous *Duomo*, as depicted by Buonsignori's accurate surveying techniques.

2. You'll notice that the map is currently unpopulated. At the bottom of the screen, there is a

    Toolbar with seven buttons to click. The second-from-left, which looks like a stack of papers,

    is the "Layer List". Click this button to open the Layer List, and position it somewhere on the

    screen where you like it and it is out of the way for now. You'll notice that there are several

    layers with unchecked boxes, meaning they are currently inactive.

3. When you opened the Layer List, it probably covered up the Zoom In and Zoom Out buttons.

    Make sure that these are visible, and click the Zoom Out button twice to see the full extent of

    the Buonsignori map. It looks pretty ugly at this resolution, no? This is the effect of *tiling*, a

    quick and efficient way to re-generate spatialized image data with minimum bandwidth

    needs. Don't worry, the closer you are the better it gets, and we can improve resolution when

we export our PDF maps. Click the Zoom In button; you'll still have most of the city in your visible extent and be able to distinguish buildings and streets. Let's do some analysis!

4. Let's use some of the basic annotation tools available for Web GIS mapping. On the right end of the Toolbar, there is a Ruler and a Colour Palette, the measuring and drawing tools. Click the ruler and the Measurement tool will pop up. You can measure Area, Distance or change in Latitude/Longitude. Select the Distance tool.

5. Just about in the middle of your map is a long, straight street that heads EASTWARD from the middle of the Old Roman quarter to the city's Eastern wall. Click once at one end of this "Corso dei Cavalli" (Horses' Street), once where it turns South-East, and once where it meets the walls. Double-clicking where it meets the wall will finish your line. How long is the city's ancient horseracing street? (about 1570m)

6. Let's measure some Area. Can you identify the Old Roman part of the city? Hint: it is on a NS axis and is the only clean grid in the city. Got it? Good – select the Area measurement tool. Click once on each corner of the Roman city to outline the whole area – what is the area in Sq. Km. of the old roman city centre? About .2 sq km

7. Great – close the measurement tool by clicking the X in the upper right corner. Let's draw what we've learned. Select the Drawing menu from the Toolbox. Using the "Polyline" tool, draw the Corso dei Cavalli. Draw a polygon around the Roman centre using the Polygon tool. Label both the Corso and the Roman centre using the Text tool (Hint: Type your text in large, colourful font, and then click once where you want the text to go.

8. Click the Print button in the upper right of your browser window. Select appropriate settings and export your Annotated map. What does this map show about early modern Florence?

9. Clear your drawings and close the Drawing tool. On the Layer List, click the boxes next to "Decima 1561 Data" and "Streets". Two layers – one made of red dots, the other of black lines – will appear. The red dots each represent an entry in a 1561 property tax census, and each black line a street in early modern Florence. Click on a few dots and lines. What sort of information shows up in the pop-up data fields?

10. Let's Query some data and find out a little more about early modern Florentines. Click the big red D in the middle of the toolbar. The Data Query window will open, showing a selection of pre-programmed queries that you can fill in.

11. Select the "DECIMA Occupations" Query. The example shown will collect all of the instances in the census where an owner, tenant or renter identifies themselves as a "tessitore," a weaver. The search is broad and will identify results when ANY of the five fields CONTAINS the input parameters. If you wish to analyze only one field, say Owner occupations, simply enter the number 0 as a placeholder in the others. Do this now, and query the Owner occupation field for "tessitor".

12. How many results did you get? These are weavers who own their own homes. What spatial patterns do you notice in the important Florentine textile industry?

13. Export your map of property-owning weavers in Florence. Congratulations, you've begun GIS cartography!