Geographic Information Systems (GIS) are computer based information systems used to digitally represent and analyze the geographic features present on the Earth’s surface. The importance of recognizing “context” (setting or environment) in practice, policy, and research activities related to electoral processes throughout the Americas is emphasized by the 12 country maps on the Mapping the Media in the Americas website (www.mediamap.info).

The first step in examining context is to link people to places and to identify the “where” that is critical to a behaviour, event or process. “Every object present on the Earth can be geo-referenced,” is the fundamental key of associating any database to GIS. The term “database” is a collection of information about features (media, demographic and electoral information) and their relationship to each other. The term ‘geo-referenced’ means to define these features in physical space.

The Mapping the Media in the Americas databases have been geo-referenced by administrative regions, electoral districts, census tracts, or latitude and longitude locations. Geography therefore provides the context for allowing these disparate datasets to be associated. Furthermore, in the web-based environment with basic GIS functionalities, the maps become dynamic, interactive and accessible to a wide selection of users as a visual communication tool.

The importance of visualization is clear upon visiting the website: the Mapping the Media databases contain a considerable amount of information which is integrated into the interactive GIS maps on the web-site. On a map, vital spatial patterns and relationships are apparent amongst disparate data. In a database, they may be hidden in a sea of tables and text and may be difficult to distinguish.

The layers of data are not meant to be displayed all at once; to do so would be a confusing and ineffective use of the powerful functionality of the web-based maps. Instead, the media layers should be activated against either the census or political data to visualize the connections between media publicity, electorate/demographic profile and voting patterns.

Who should use this manual?
This manual is intended to provide useful information for people interested in exploring possible associations between media, demographic and electoral information in 12 countries in the Americas. The manual proves a simple step-by-step guide to help to increase the understanding of users with selecting and overlaying information for data display, comparisons and visual analysis.

Importantly, this manual explores the GIS functionality of the Mapping the Media in the Americas website while also providing a context for the analysis. Users are encouraged to explore not only the “how to use the maps,” but also the “why use the maps.”

Visual Analysis

The interactive web-based tool developed for the Mapping the Media in the Americas project allows users to explore digital maps, think spatially and express opinions about the selection of various criteria related to the media, demographic and electoral information mounted on the web-site.
Context
Today in the Western Hemisphere, the media play an increasingly important role in transmitting information that citizens in a democratic society require to make informed decisions. Citizens receive information about candidates and election logistics, are informed of public services and government policy, and learn about current events in their communities, countries and the world, all from the media. Ultimately, the media serve a public function that is indispensable for democracy. While this poses challenges to developed democracies, it is particularly significant in countries where weak governance structures and limited resources make it difficult to support and protect a fair, balanced and diverse media sector.

The Mapping the Media in the Americas project aims to foster transparency around the role and connection of media and democracy. The project also provides the basic information necessary to further investigate these important issues.

Never before has anyone tried to locate media broadcast towers and distribution centers on maps and show the reach of those media into electoral districts. Media electronic lists have been generated for some countries but do not contain visual representations, nor do they have a geographic component. Moreover, the maps juxtapose media information against socio-economic and demographic information, as well as electoral information, which helps citizens to see the correlations between media distribution, wealth, electoral participation and voting outcomes.

Step 1: Refine Your Research Question
One of the functions of the Mapping the Media in the Americas website is the ability to see what types of media reach particular voting demographics. To do this, one must choose a country, a media variable and a demographic variable. For this example, the country map of Peru is chosen to explore radio station broadcasts in ethnic regions – what associations may be found?

Research Question: Is there an association between radio station broadcasts and ethnicity in regions of Peru?

Step 2: Select Data
Background
The Peruvian population, estimated at 28 million, is made up of a number of different indigenous groups. Peru’s official languages are Spanish and Quechua, although a significant number of Peruvians also speak other indigenous languages. There have been vigorous efforts for the incorporation of indigenous languages and cultural practices into Peru’s national policies. “Interculturalization” in Peru assists in establishing relationships between government bodies and indigenous groups that are based on equality, recognizing the identity and rights of indigenous peoples. This also contributes to the democratic development of civil society in the country. Because of the strong presence of Quechua peoples in Peru, the layer containing demographic information on mother tongue (in this case, the Quechua language) has been selected for this exercise.

Secondly, state-run radio station broadcasts will be examined as a possible medium to facilitate “interculturalization.” Radio programming during prime time generally includes transmitting soap operas, international top 40 music and advertisements. Indigenous music programs, for example, are broadcast at the least popular times. Furthermore, educational programs focusing on improving agricultural production or providing information about public services are broadcast intermittently. The Mapping the Media in the Americas website contains data on Instituto Nacional De Radio Y Television Del Peru - IRTP - a station with a national broadcast whose programming contains music, news and regular programming devoted to the preservation of traditional Peruvian cultures. The station was founded in 1958 with the aid of UNESCO in a joint venture production with the Peruvian Government.

Selecting Data
Access the web-site Mapping the Media in the Americas at www.mediamap.info. Ensure your browser will accept pop-ups for this website: please turn off pop-up blocker. Select the language, click the tab “interactive maps” and click Peru. Take some time to familiarize yourself with the folder layout, tools and short explanations available on the web-site.

Open the folders on the left of the screen (by mouse click) which contain the variables of interest as map layers; look for radio station antenna and mother tongue language in the media and demographic folders.

(see figure 1.1 on the following page)
Figure 1.1

Step 3: Display Data as a Map

Navigate to the layers of interest from Step 2, mouse click in the square on each layer to make it visible on the map of Peru; then “activate” the radio layer by mouse click in the circle – this means the database that drives the map may be accessed.

Figure 1.2
The concentration of people with Quechua as their mother tongue is readily apparent in Figure 1.2 (previous page): the darker the shading, the higher the concentration. Zoom in on this area: activate the magnify tool and draw the yellow square around the region of interest.

With both layers visible (see Figure 1.3), the map now displays all the radio stations broadcasting in the Quechuan region of Peru. You will need to extract the Instituto Nacional De Radio Y Television Del Peru - IRTP station antennae. The interactive GIS maps then allow you to execute a query as the radio database is “Active.”

**Step 4: Query Data to Map**

The Query tool allows you to query the active layer for specific attributes and highlight these features on the map. Click on the Query button to enable the Query tool for the “Active” layer.

A pop-up box appears on your screen.

Next choose an attribute Field from the Field drop-down list (Company), and select an Operator from the drop-down list (= as you need to find radio companies that “equal” this name). Click Get Samples and choose a value from the sample Value drop-down list (Instituto Nacional De Radio Y Television Del Peru - IRTP). Sample Values provides a list of the values in that field to provide the user with some guidance on how the query should be formed. Click the Add to Query String button and then the Execute button.

On the map, features of the Active layer “radio antennae” that match the query string are highlighted on the Peru map by bright yellow points. A table containing the attributes of those features is also displayed in a pop-up window. Attribute values for the first 25 features selected will be displayed in the table. Use the navigation bar at the bottom of the table to view more records.
Tips for using the Query Function

- Try to be specific with your query search
- It is best to review the samples from the “Get Samples” menu to see if the information you might need is actually in the database
- Clear a query by clicking the ‘Clear Selection’ icon
- If the search is taking a long time (often because the database is very large) sometimes it is best just to start again

Step 5: Look for patterns, generate hypotheses

Radio communication has become the most powerful mechanism to reach the rural populations. Its impact is especially felt in isolated communities without roads, electricity, television, postal service or telephones.

The Mapping the Media in the Americas interactive map displays the area in question as the Cusco region, where there is a predominately Quechua speaking indigenous population. The database has been queried to provide information on the Instituto Nacional De Radio Y Televisión Del Peru - IRTP antenna located in this region and the exact percentage of Quechua speakers. The maps indicate that there is a paucity of antenna broadcasting this station in this indigenous region. This suggests further effort needs to be undertaken to encourage “interculturalization” and provide indigenous communities with information which will help facilitate social and economic development. This information is useful for research, policy and practice in the fields of socio-cultural contexts, democratic processes and public finance explorations.

Frequently Asked Questions

Q. This is my first experience with interactive GIS and I don’t know where to start.
A. A good starting point is to read the “How to use the maps” explanation:
Q. Why can’t I see more than one layer of demographic or electoral information on the map?
A. As the map consists of layers stacked on top of each other, you will only see the topmost layer. If you would like to get an overview of what each layer looks like, open each folder, start to tick the square at the very base of the folder menu to the left of your screen and work your way up. As each layer is placed on top of the layer below in the folder bar, this information can now be seen.

Q. My Query Selection isn’t working, and I get a “Response from previous request not received”…
A. You are working faster than the server can keep up with your requests. Click refresh and start again, selecting your options a little more slowly.

Q. I have generated a few maps and would like to include them in my own reports – what is the best way to do this?
A. Take a screen shot (Print Screen button on keyboard), paste and clip them in Paint, and copy/paste into your own PowerPoint or Word document.

Led by the Latin American Research Centre, the University of Calgary is responsible for all technological components of the project, from design and digitalization of the map to training on how to update and maintain it. Using flexible, state-of-the-art web-based Geographic Information Systems (GIS) software programs to analyze spatially the pivotal role of the media in political finance, various datasets (including media, election, demographic and census) from each country will be organized geographically in an interactive map, and geo-statistical analyses will be performed to understand better the associations and patterns within these disparate datasets. In addition, the University has dedicated its top faculty in the area of media and political finance to consult on this project.

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The Instituto Prensa y Sociedad (IPYS), based in Lima, Peru, fosters debate around the role of the media, monitors press freedom and access to information in Latin America and supports investigative journalism. IPYS has regional links and expertise in the area of media and journalism which currently manages extensive information on media in Latin America. They will act as a central node in the Mapping the Media network (linked to national maps in Guatemala, Argentina, Mexico, Peru and Canada).

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FOCAL is an independent, nongovernmental organization dedicated to deepening and strengthening Canada’s relations in Latin America through policy discussion and analysis. FOCAL has an extensive network of contacts in the region and serves as the lead agency coordinating the development of the Media Maps. FOCAL, in conjunction with regional civil society organizations, also is responsible for organizing local and regional public education seminars that use the maps to foster public discussion about the role of media in elections.

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Project Partners

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