

# Data Driven Office Dynamics

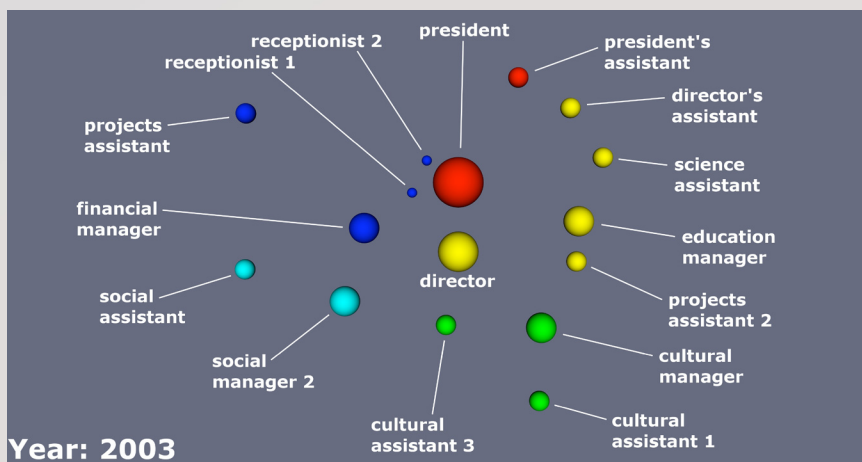
*Emerging field of Information Visualization helps archivists shed light on organizational dynamics*

Once the keepers of paper documents, professional archivists are now faced with massive digital proliferation and questions of how to manage vast amounts of data. This new era offers both challenges and opportunities for archivists, also known as information scientists.

As a Ph.D. candidate at The University of Texas at Austin School of Information, Maria Esteva's dissertation analyzed a challenging data archive for her research subject: 17,000 documents, in Spanish, accumulated over ten years, charting the tenure of an important Argentine philanthropic organization where she once worked. Her goal was to infer the changing relationship dynamics among its staff members from its records.

She used data mining techniques to calculate the similarity between the company's records, and averaged the similarities between records of each staff member within yearly frameworks. This would establish the strength of the employees' working relationship. She validated her results through statistical distributions and interviews with the actual staff members.

However, Esteva felt that it was difficult to interpret her results and display them in a meaningful way. She looked the scientific visualization experts at TACC to help her understand and communicate her data. Before she approached TACC, Esteva was producing static graphs and drawings. But, working with TACC's expert staff she was able to create an animation that spanned nine years of relationships between staff members, and could see the evolution of the organization. "We found better solutions," Esteva said.



*The above visualization plots the relationship of the director to other employees based on the strength of their working relationship given the records that they produced over the years.*

**"Now that we can store large amounts of electronic records, the role of the archivist has evolved into finding computing methods to extract knowledge from these records. We want to answer the question: What can these records tell us about the people and the organizations that created them?"**

*Maria Esteva, Ph.D., The University of Texas at Austin*

Esteva's final analysis converts the relationships between documents into relationships among people, and illustrates the interactions among co-workers and departments.

Esteva's work in digital archival analysis has broad implications for understanding textual archives and organizations both past and present. For example, the Enron email archive, a massive repository of more than 600,000 Enron emails from approximately 150 individuals spanning 1999-2002, could provide valuable insight on a known organizational problem, and would inform analysis for current organizations.

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