U-SPATIAL
Support for Spatial Research

U-Spatial and IonE partnerships | 2015-16

Steven Manson (manson@umn.edu)
Len Kne (lenkne@umn.edu)

November 11, 2015

Background

U-Spatial has been recognized on the national stage as the leading model for how universities can successfully integrate GIS and remote sensing into collaborative projects that support research, teaching, and outreach campus-wide.[1] This infrastructure eliminates duplication and fragmentation of resources by providing a framework of spatial data, equipment, and expertise. In its first four years of operation, U-Spatial has supported over 1,500 researchers across 150 departments and centers at the university. U-Spatial has been integral to making the U of M one of the world's first "Spatial Universities" at a time public and private sector interest in spatial thinking and approaches is increasing exponentially.

IonE is a core partner of U-Spatial. The Institute on the Environment was instrumental in U-Spatial's founding and will likely be an even more important partner in its future. In 2011, Jon Foley pledged up to $250,000 in support over five years, but we were able to scale back that amount by cultivating collaborations on campus and successfully seeking alternative funding sources in conjunction with IonE researchers. At this point, however, U-Spatial could use a fraction of the original amount -- $50,000 -- as it moves into the final year of its original OVPR-funding and makes the transition into the next five years and beyond. As detailed below, U-Spatial has aided IonE in meeting its many missions, and IonE support will ensure that U-Spatial can continue to advance spatial scholarship with IonE and other partners on campus.

Importantly, we consider IonE involvement crucial to U-Spatial's transition from an OVPR-funded project to OVPR-sponsored core infrastructure. We see working closely with key campus-wide entities (IonE, MPC/ICSR, UMII, PGC, OIT, University Services, Libraries) to ensure a coordinated approach to service and resource provision will, on the one hand, minimize duplication and fragmentation, while on the other, spur collaboration and synergy. In

[1] U-Spatial has been highlighted in several nationwide assessment of spatial science infrastructure, including headlining the forthcoming volume "STEM and GIS in Higher Education" from ESRI Press.

particular, we see IonE/U-Spatial linkages as critical to the U of M's push to better leverage its (arguably underappreciated!) global leadership in tackling environmental grand challenges, most of which cannot be be fully investigated without a spatial component. This push includes helping researchers better respond to federal funding calls (e.g., NSF FEW, NASA LCLUC), engage foundation programs around health and the environment (e.g., Gates, Moore, Sloan), and address many governmental mandates (e.g.,U-Spatial's project on mapping solar energy attracted governmental funding and is a prime example of spatial work that fits with IonE's energy and business portfolios, such as the NorthStar initiative).

U-Spatial and IonE have been integral to making the U of M one of the world's first "Spatial Universities" at a time when we seeing exponentially-increasing public and private sector interest in spatial thinking and approaches. Billions of people use technologies such as Global Positioning Systems (GPS), Google Maps, Yelp, and Uber. Governments use mapping to identify crime hot-spots, plan social interventions, and identify routes to evacuate vulnerable populations from harm. Companies use spatial analysis to site stores, evaluate supply chains, and determine how much to charge for goods and services. Thousands of scholars employ spatial approaches that recognize the spatiotemporal nature of people, places, and processes through concepts such as location, space, scale, and distance. This vast and growing engagement with spatial technologies reflects the simple fact that they, alongside nanotechnology and biotechnology, are forecast to be one of this century's three biggest and transformative industries.

Statement of work

To support the growth of spatial data storage for UMN researchers, we will fund the Data Locker project with $50,000. Data Locker fills a currently unmet need within the community of UMN researchers working with spatial data. This need can be addressed through several levels of service. The first is access to file storage data; the second is an easy form of accessing and working within that storage while facilitating collaboration and sharing; and the third is providing access to common yet often expensive GIS services. In short, the Data Locker at U-Spatial acts as a researcher-centered spatial data repository, guiding users through the process of securing storage, serving, and services for their data. This expands the ongoing U-Spatial project involvement of Libraries, University Services, IonE, OIT, MPC, MSI, and CLA. Data Locker will follow recommended practices from the UMII task force currently defining campus-wide policies. The funds will be used to fund RAs and technical staff in U-Spatial and the Libraries to implement and maintain the infrastructure during the 2015-16 fiscal year.

Budget Justification

Spatial Data Curator ($26,616) - this is a staff position funded by U-Spatial and housed in the Borchert Map Library. This person is primarily responsible for implementing the Data Locker. Funding will be used for 75% of this position from January 1 - June 30, 2016.

Graduate Research Assistants ($23,384) - this will go towards the effort of multiple RAs who are working on the Data Locker. RA's in the LIbraries will work on the creation a robust data

discovery and access portal. Another position is more technical in nature and will be helping to build the Esri ArcGIS server environment to support the Data Locker.