

Community Learning Data Driven Discovery
Investing in Science to Transform Lives
Comments Submitted to NIFA by
Virginia Tech and Iowa State University

As the issues that confront communities of all sizes become increasingly complex, new approaches are needed for communities to develop well-reasoned decisions based on the vast array of data available to them. To implement this vision, communities need assistance in building their capacity to access their data and leverage the sciences required to manage, analyze and interpret data. In response to NIFA's request to provide comments about investing in science to transform lives, we are submitting these thoughts about one of the most promising scientific opportunities for community advancement in the digital age.

Existing local level data including public and administrative records, geospatial data, social media, surveys as well as other federal, state, and local databases, are ubiquitous in our everyday life. These data, when integrated, can tell the story of a community and help it evaluate existing programs, propose new solutions and address emerging issues. However, there is a need for developing processes that liberate, integrate and make these data available to government leaders and collaborating researchers to build an equitable and sustainable social transformation within and across communities that addresses their most pressing needs. We call this integration process Community Learning through Data Driven Discovery (CLD3).

Combining unprecedented amounts of data makes possible unexpected discoveries, innovations and advancements in quality of life. To date, differences in the ability to harness these capabilities have created an asymmetry of power between the commercial and the public sectors. The commercial sector regularly uses "big data" to understand customers and develop new products and services, but the use of this newfound power to advance the public good lags. The need to address issues on access to healthcare, education, economic, and criminal justice across America require a new approach to making policy decisions, deciding on interventions and evaluating their consequences, driven by data.

Virginia Tech and Iowa State University are partnering to develop an approach for massive deployment of the CLD3 process to their county and

municipal government leaders, providing them with the tools to tackle issues confronting their communities. Just like the transition from learning to read to reading to learn, CLD3 will help a community learn repurpose and use its data while driving data learning to improve quality of life. Projects are determined by the community's questions and "what works, for whom, and in what context."

Cooperative Extension and its Regional Rural Development Centers play key roles in CLD3. The CLD3 process starts with asking local leaders what questions they need to address but cannot currently answer; identifying data sources that can provide insights; wrangling the data (profiling, cleaning, transforming, linking); using statistical and geospatial learning along with the communities' collective knowledge to inform policy decisions; and developing, deploying, and evaluating intervention strategies based on scientifically based principles. CLD3 is a continuous, sustainable and controlled feedback loop. CLD3 has been demonstrated in Virginia for multiple locations on a range of issues. Some highlights include characterizing housing stock and creating economic vulnerability indices at the neighborhood level to evaluate housing affordability and eligibility for public program subsidies to target outreach; development of statistical models based on local data coupled with federal sources to predict access to smoke detectors at the household level and to guide home visits by firefighters that could save lives; and the integration of annual school surveys and with local human services information to understand mental health among our youth and barriers to service to guide future education and program development.

As NIFA considers where to place future investments in science to transform lives, Community Learning through Data Drive Discovery should be among its highest priorities.

Sincerely,



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