

# Children's Health & Resource Geographic Exploration for Data-Driven Decisions (CHARGED<sup>3</sup>)

Courtney Baskin, MHIT; Rachel Passer, MA, GISP; Rebecca Wilkerson, MSPH, GISP; Ana López-De Fede, PhD  
UNIVERSITY OF SOUTH CAROLINA, INSTITUTE FOR FAMILIES IN SOCIETY



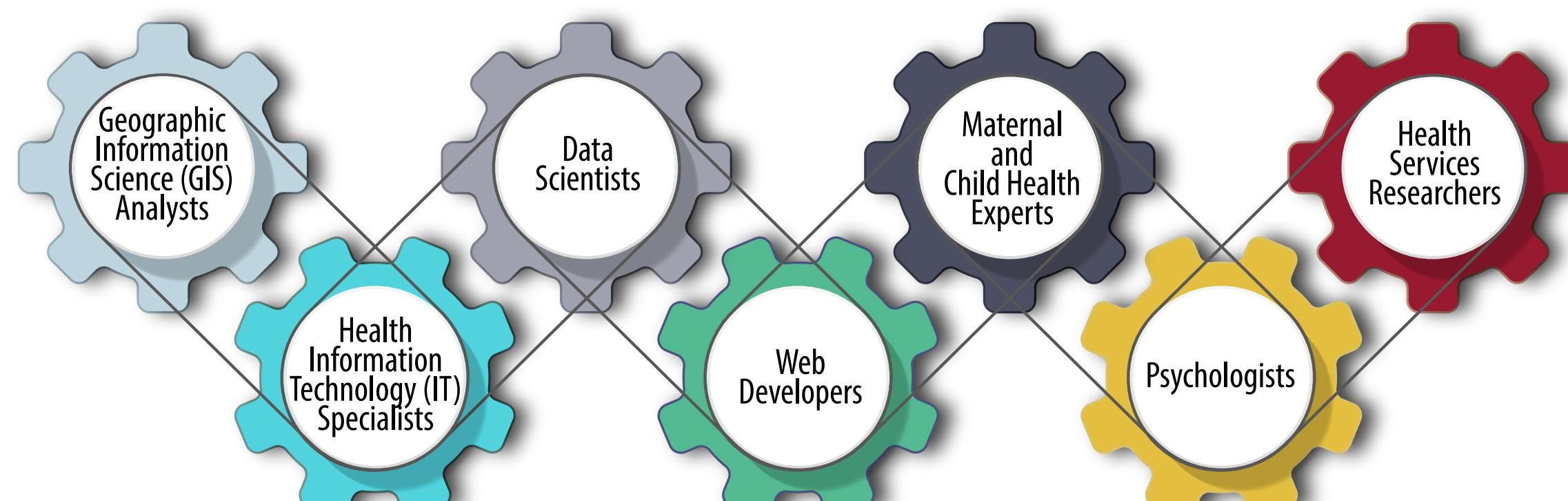
## Background

Addressing childhood developmental challenges early, when intervention matters most, starts with understanding the characteristics of children most at risk for adverse developmental outcomes. Having a comprehensive picture of resources and patterns aids in the way of making effective and impactful policy decisions.

Funded by The Duke Endowment, The University of South Carolina's Institute for Families in Society (IFS) created the Children's Health & Resource Geographic Exploration for Data-Driven Decisions (CHARGED<sup>3</sup>) initiative to identify and examine communities of opportunity around South Carolina by looking at different aspects of social determinants of health such as poverty, childcare deserts, and access to healthcare.

Through CHARGED<sup>3</sup>, IFS developed a Geospatial Environmental Scan<sup>®</sup> (GeoEScan<sup>®</sup>) that gives users the ability to identify relevant geographic patterns, at-risk areas, and community-based resources, while providing a contextual framework to strengthen needs assessments, planning, and service delivery; and a web-based tool allowing for broader exploration of data and topics centered around young children birth to 5.

The CHARGED<sup>3</sup> initiative is a collaborative project with an interdisciplinary team.



The initiative's work equips others with tools and techniques to identify clusters of health "advantage" and "disadvantaged" within South Carolina and, in turn, engage stakeholders to improve the lives of young children and their families.

## Objectives

With the needs of children in South Carolina existing across multiple dimensions, the initiative's aims are centered around providing a holistic, collaborative approach to addressing these needs and aiding in community-driven transformation.

### The main objectives guiding product development for CHARGED<sup>3</sup> were:

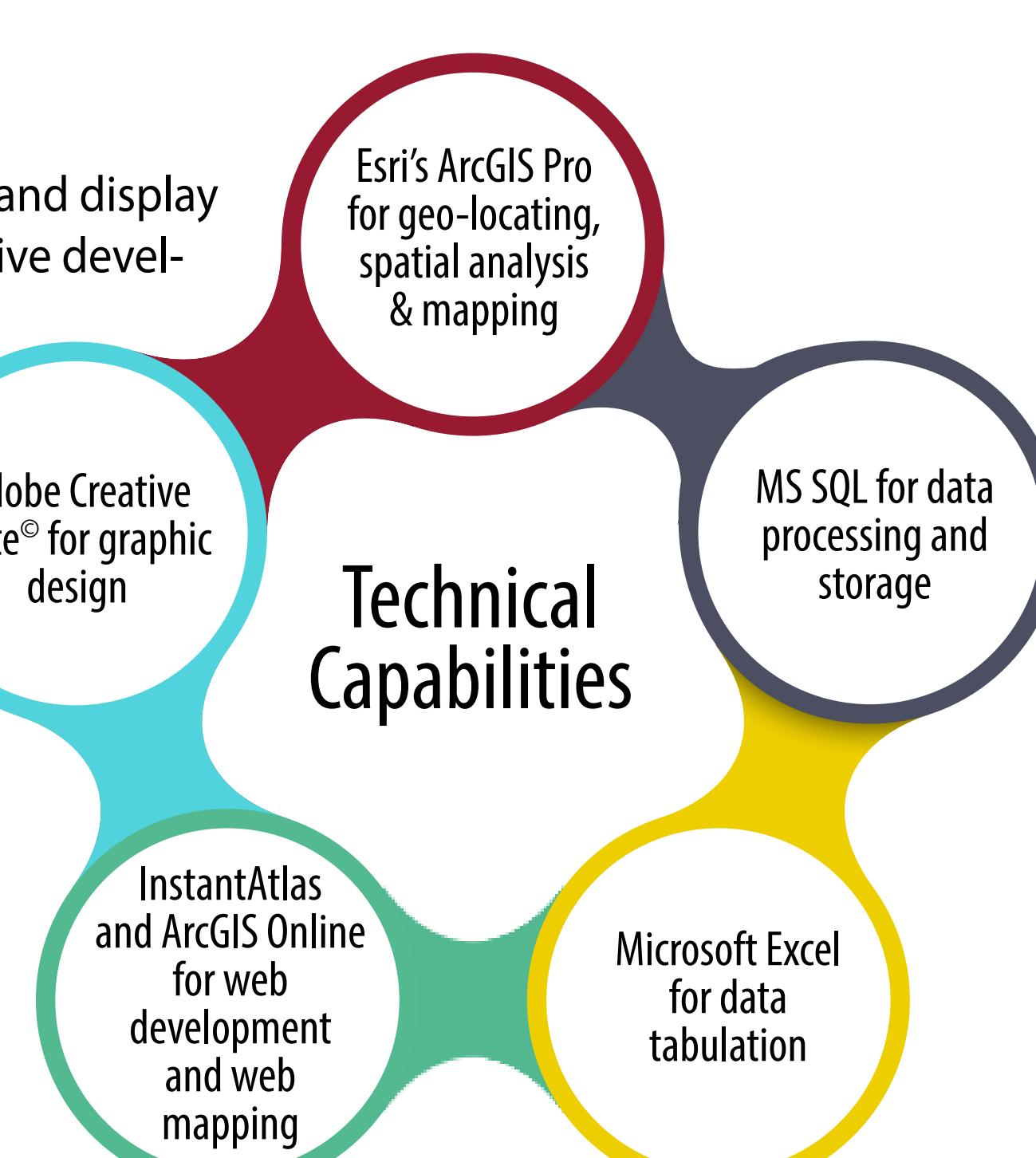
1. to allow leaders to engage with the underlying data;
2. to prompt context-relevant questions and discussions; and
3. to encourage more widespread utilization of GIS tools to support collaborative, data-driven decision-making.

With CHARGED<sup>3</sup>, leaders can make the connection between health and place, which in turn enables them to address health disparities, monitor for persistent disparities in health, and drive change within their communities.

## Methods

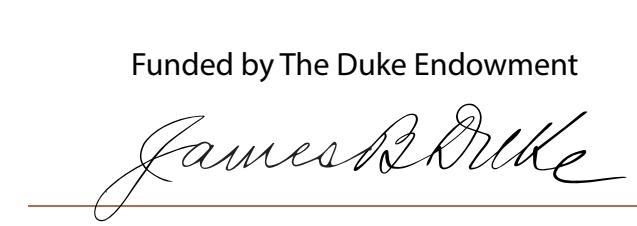
By using GIS to capture, integrate, analyze, and display data across multiple dimensions, the initiative developed products with the goal in mind of allowing users to quickly grasp a comprehensive picture of vulnerable children and their caregivers in South Carolina. IFS built upon previous work and partnerships to develop multi-platform tools that integrated several technical capabilities.

The initiative's efforts took place over the course of three years, with research and products being conducted and delivered in two phases.



"Creation of the GeoEScan<sup>®</sup> was the result of us considering how best to put interactive maps, connected to data tables, into the hands of non-GIS users."

Ana López-De Fede, PhD, Associate Director, Institute for Families in Society



## Development of a Web-Based GeoEScan<sup>®</sup>

The CHARGED<sup>3</sup> GeoEScan<sup>®</sup> features a data-rich interactive map, tabular data at multiple levels of geography, a statewide summary table, and extensive metadata all in a single PDF document.

The CHARGED<sup>3</sup> interactive map features data across several key domains, including:

- family, social, and economic status;
- educational attainment;
- health and healthcare; and
- community and social determinants.

### Learn more about GeoEScans<sup>®</sup>!

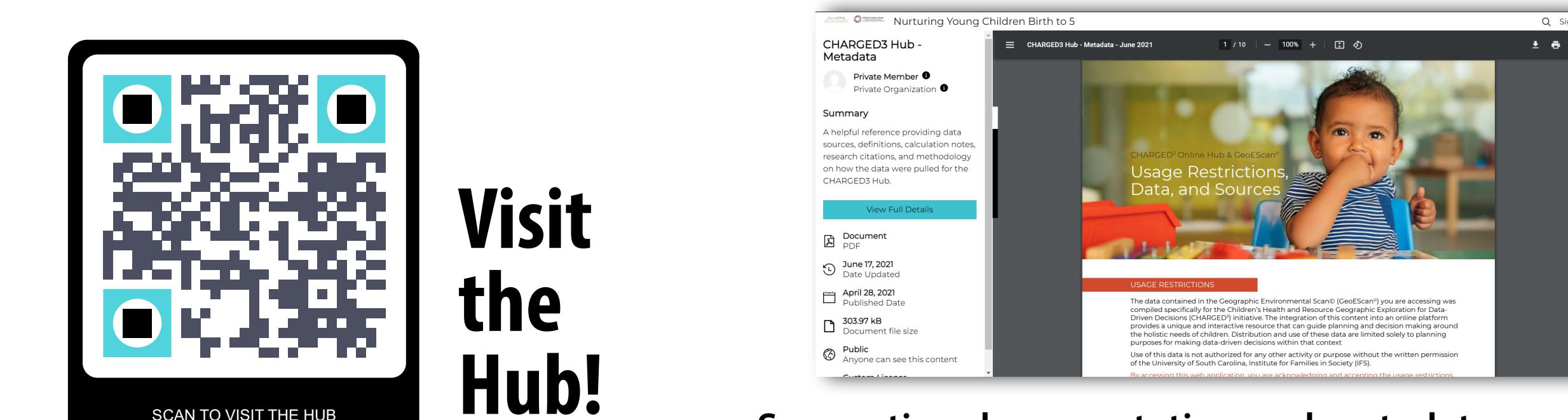
Expanding on the proven innovation of the PDF product, the new web-based tool featured expanded interactivity, dynamic and inter-related mapping and charting, interactive identification of communities and resources, no download requirements, and highlighting additional web applications for greater community and data context.

The new CHARGED<sup>3</sup> Hub leverages web GIS and web technologies to provide a comprehensive and branded web tool featuring a built-in content library, allowing for users to interact with the underlying data and documents, and a new interactive mapping experience.

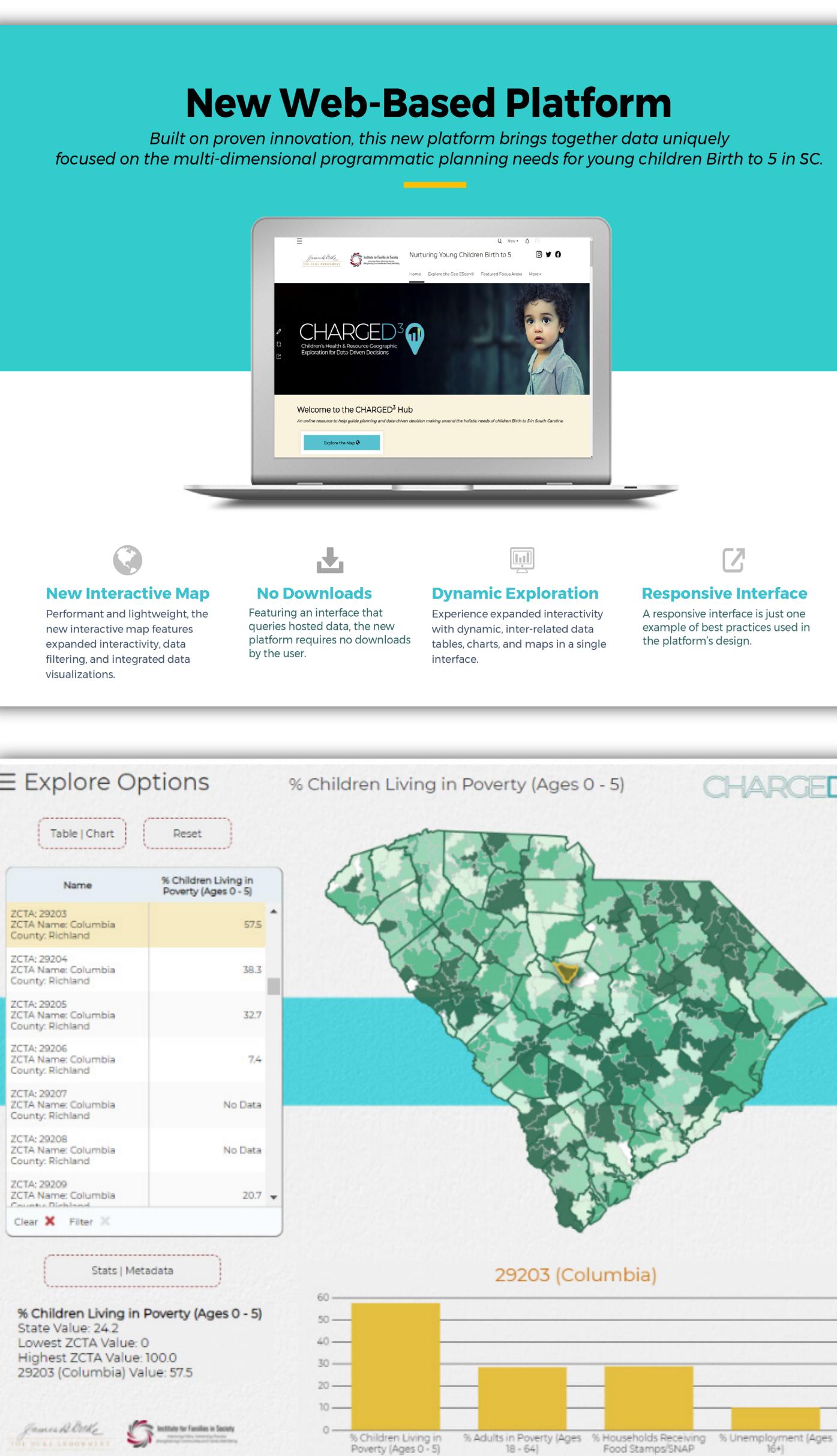
The Hub was designed as an engagement platform for the initiative and a way to organize and deliver the new web-based GeoEScan<sup>®</sup> and the underlying framework of the initiative, as well as contextual factors, data, and topics around children birth to 5.

The interactive map from the PDF product underwent a thorough redesign, with a complete transformation from a map with pre-defined user-interactivity to an expanded experience. Performance-driven and lightweight, the new interactive web map featured expanded interactivity, data filtering, and integrated data visualizations.

The new map was built using the InstantAtlas™ Desktop (IA Desktop) suite of tools and custom scripting. Custom coding logic was added to implement and expand interactive data exploration and communication.



Visit the Hub!



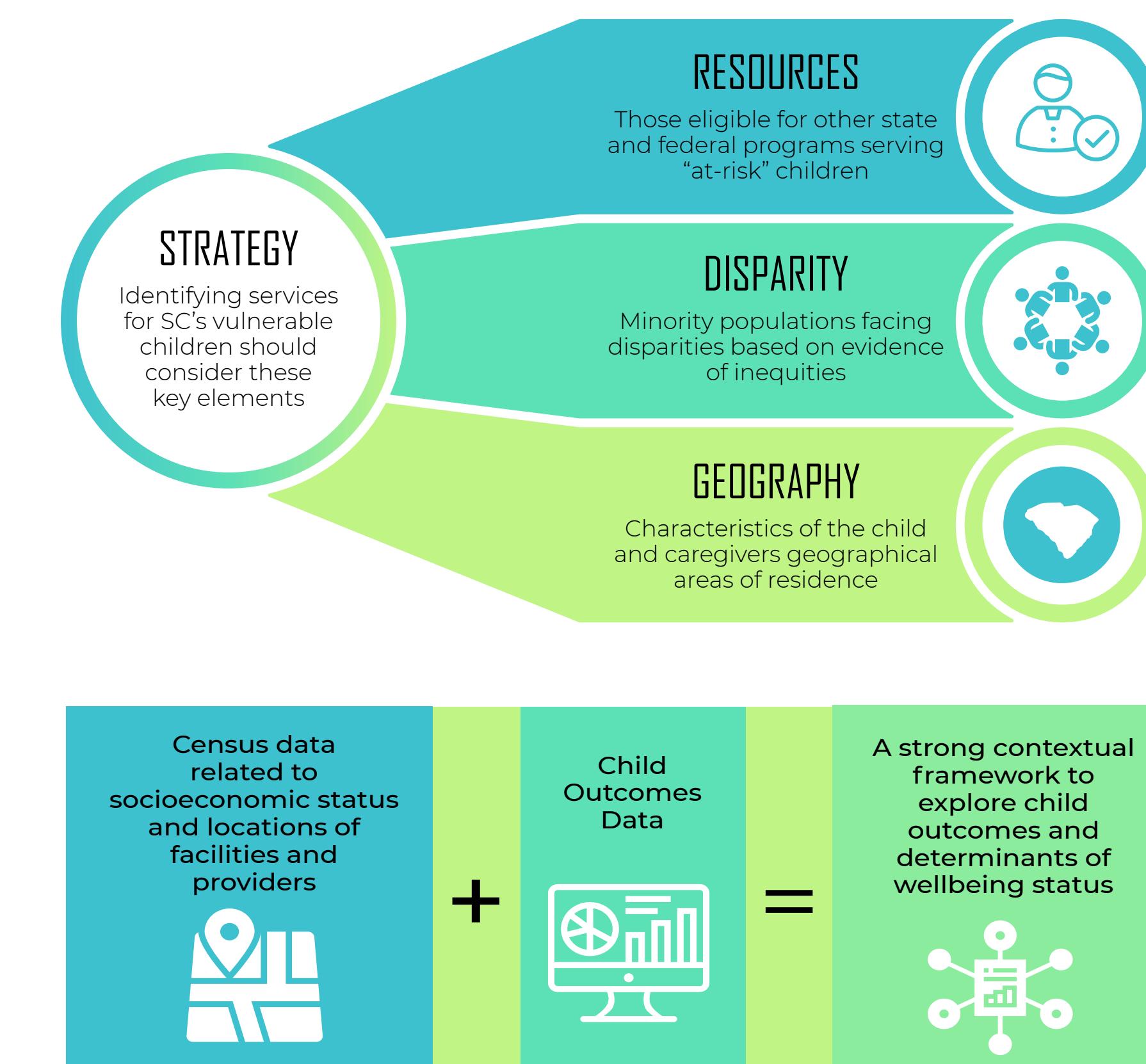
Supporting documentation and metadata was now hosted in the Hub's built-in content library.

### Map Data Elements

BASEMAPS	Social & Community Context	Economic Stability	Health & Healthcare	Educational Attainment	Neighborhood & Built Environment
	Public Health Regions	Childcare Deserts	Social Vulnerability	Healthy Start	Disadvantaged Child Index
OVERLAYS/REGIONS	Rurality	Palmetto SADI	Nurse Family Partnerships	WIC Households	SNAP Households
	BabyNet	DHEC Clinics	FirstSteps County Partnerships	FQHC	DSS
FACILITIES	DDSN	DMH	Childcare Facilities	RHC	FMC

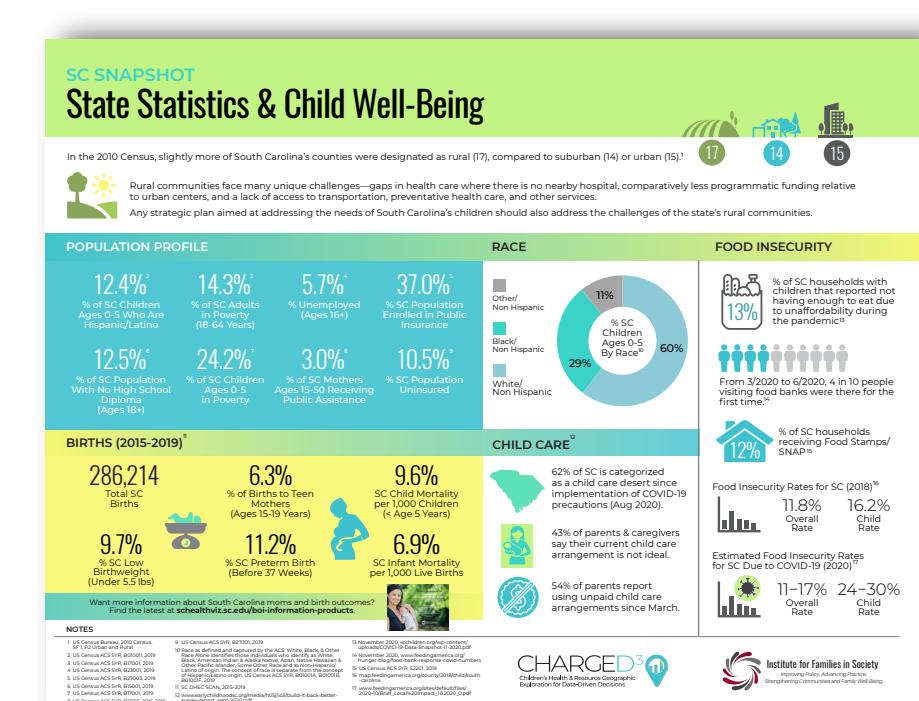
### Suggested Citation:

Institute for Families in Society University of South Carolina. (June 2021). CHARGED<sup>3</sup> Hub | Children's Health & Resource Geographic Exploration for Data-Driven Decisions. (Developed through a grant provided by the Duke Endowment). [Available from <https://charged3-hub-ifsf.mprhub.arcgis.com/>]



The statewide summary table was reimaged into a downloadable infographic of key child well-being statistics.

Users could now access and review quick start guides, citations, and additional data maps all from within the same platform.



## Conclusion

Since the release of the PDF GeoEScan<sup>®</sup> and launch of the Hub, a broad range of users have made use of these tools, including researchers and post-docs from local universities and institutes, early childhood experts, healthcare providers, and community leaders.

Users across a variety of sectors have viewed and utilized CHARGED<sup>3</sup> products. When asked what they thought of these tools and why they accessed them, users responded with:

"Our office is working on early childhood grants with both the SC Dept. of Social Services and the SC Dept. of Education and wanted to see what additional data is available."

- Project Manager, SC Revenue and Fiscal Affairs Office

"We are working on a systems approach to address school readiness concerns focused on pre-natal to age 3 population. The overlay maps will be very helpful in looking at factors and honing in on focus geographical areas based on several data points."

- Executive Director, Pickens County FirstSteps

"I am the evaluation partner and data consultant for Help Me Grow South Carolina, as well as the evaluator for an AUCD/CDC COVID grant on developmental monitoring, screening, referral, and intervention. I was made aware of this tool by someone who attended SCIMHA's third Thursday webinar series and heard Dr. Cheri Shapiro present on it. I expect this tool to be invaluable in informing HMG SC's future statewide expansion and helping us understand the landscape of the early childhood system."

- Director of Nonprofit Strategic Learning  
The Riley Institute at Furman University

After public launch in August 2021, the Hub and web-based GeoEScan<sup>®</sup> saw users visiting and exploring all the content offered by the new platform, including the provided Metadata and User documentation. Since its social media announcement, the Hub has seen regular traffic from new and returning users.

## TAKEAWAY:

The interactive tools developed through CHARGED<sup>3</sup> equip stakeholders with critical information that enables them to identify inequities and supports the data-driven decision making required to advance health equity and address the underlying social determinants of health driving the inequities faced by South Carolina's youngest.