Founder's Blog Series-Part 2

GatewayGIS: An ever-evolving social innovation intermediary

By Rosalind (Roz) Norman, DMgt

Introducing GatewayGIS

Adaptive. Encouraging a sense of belonging.

Responsive. Developing equity.

Valuing diversity. Community building.

Being inclusive.

By emphasizing community-building through formation of a comprehensive and inclusive workforce development pipeline encompassing preschoolers to high school students to dropouts and pushouts to college graduates, while also engaging parents, educators, and community advocates, GatewayGIS strives to fulfill its mission: *Bridging the digital, geographic, cultural, racial, and economic divide*.

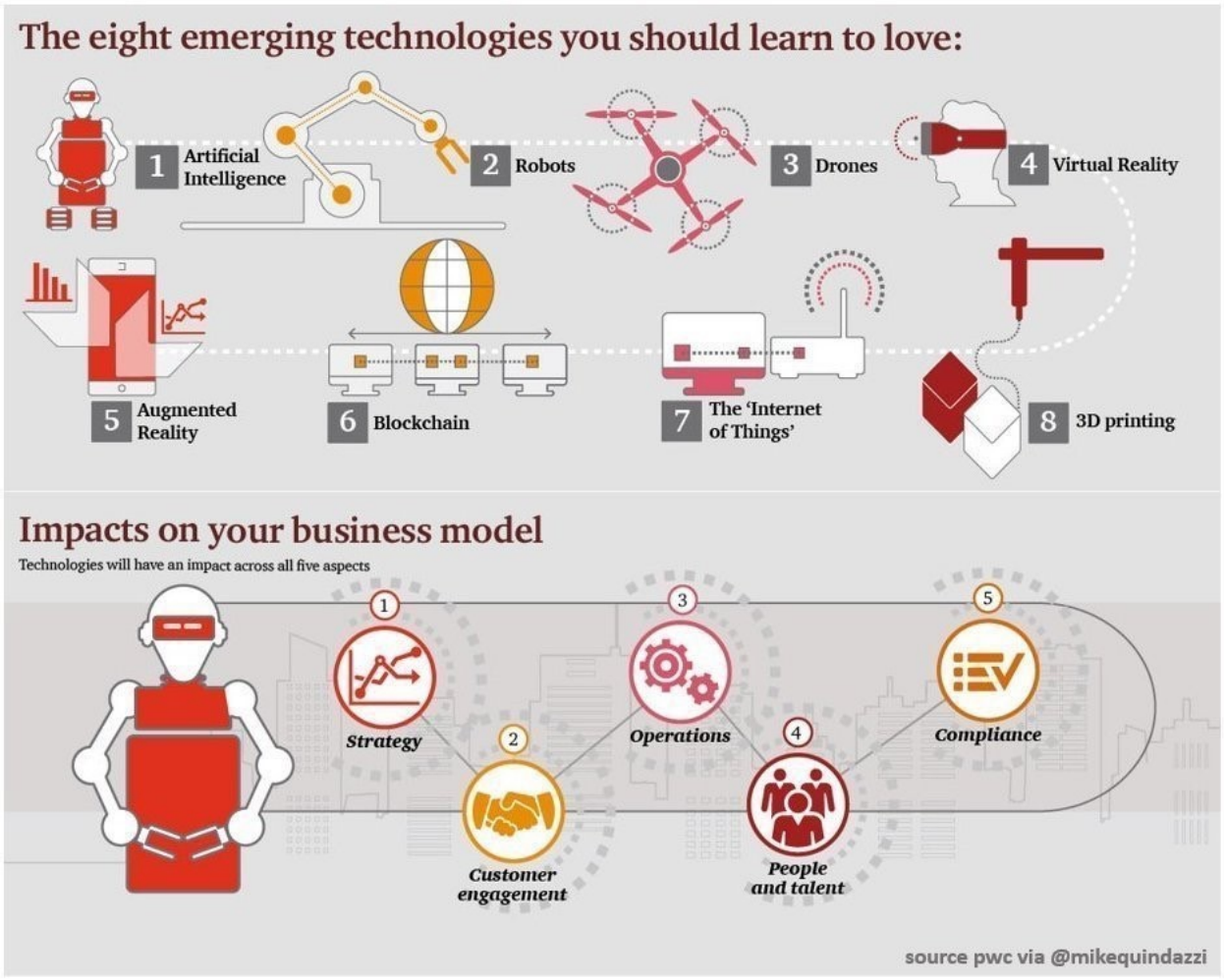
Connecting a mission to a grand purpose such as that of GatewayGIS, requires genuine collaboration and commitment to advancing young people and their communities. It's about sharing a vision to prepare now for a future that demands unique skills, talents, and resourcefulness.

Imagine integrating geoscience and geospatial technologies, along with emerging technologies as part of STEAM (Science, Technology, Engineering, Arts, and Mathematics) career education and entrepreneurial projects directed toward future complementary requirements.

According to Vishavjeet Singh Goraya from the University of Petroleum and Energy Studies in India, he wrote about how geoscience is changing for different industries:

> *The future of geosciences will be radically different than it was 100, 50, or even 5 years ago. We are on the cusp of new discoveries, techniques and ideas. Geoscientists are becoming well respected in the science and public communities as new challenges face us…Geoscientists will be called to help find water on other planets or decipher the historical geology of a planet to see if it is habitable. These planetary geologists will also be used to set up lunar bases or develop local resources. Geoscientists will be educated in many disciplines to fully understand everything they are studying.*

Here's an infographic of some emerging technologies:



From Inception To Beyond

Due to the building of the National Geospatial-Intelligence Agency West Headquarters in north St. Louis, I had an idea for the JeffVanderLou neighborhood, one of the communities surrounding the construction site. Having witnessed firsthand how our community was purposely blighted through the lack of meaningful resources, such as long-term funding of affordable housing, cutting-edge educational practices, cultural support, and viable mental and physical health services, and tackling many obstacles and detours in my life as a female of color, I realized I wanted to intervene and assist with career readiness and entrepreneurship on a grassroots level within communities of north St. Louis.

To further develop an action plan, I conferred with some colleagues at Webster University while teaching there. Dr. Brian Remy Cross, Elvir Mandzukic, and Dr. Basyir Rodney represented different academic disciplines. Together with their input, we shaped a framework for a five-year rollout plan, initially proposed for an Urban GIS Academy. Later, the name changed to GatewayGIS.

Albert Einstein said, “Concern for man [humankind] and his fate must always form the chief interest of all technical endeavors.” GatewayGIS started its first Academic Year (2019/2020) by developing a tripartite or three-part model. Most student participants represented young people who ordinarily were not exposed and allowed access to Geographic Information System (GIS) or geospatial technologies and geoscience as part of STEM (Science, Technology, Engineering, and Mathematics) education. GatewayGIS offered daily immersive, year-round daytime, after-school, and weekend learning experiences to expose young people to GIS and STEAM—adding “arts” to the STEM acronym.

Starting with Sekhar Prabhakar, the Chief Executive Officer of CEdge Software Consultants and the K-12 Subcommittee Chair of the Saint Louis Area Working Group (SLAWG) for the United States Geospatial Intelligence Foundation (USGIF), he became an empowering champion. Sekhar worked tirelessly to enlist representatives of government and industry, while I recruited talented and committed participants from academia and nonprofit organizations. Then, on December 18th, 2018, more than 20 representatives of different organizations assembled for an UrbanGIS Partnership Meeting in the Faculty Development Center at Webster University.

After this fortuitous gathering of highly skilled participants, a framework for the proposed five-year rollout plan and volunteers needed as collaborators were set in motion. GatewayGIS was scheduled to launch on May 23rd, 2019.

A volunteer-driven schedule of monthly seminars was prepared, access provided to free GIS software from Esri, train-the-trainer sessions established, academic and paid internships identified, and a pre-and post-assessment developed and distributed to participating students of the first Academic Year 2019/2020. Project-based curriculum connected real world applications of GIS, in addition to online lessons, virtual presentations, and hands-on activities in different schools, youth-serving organizations, and various business venues throughout the city and county of St. Louis, Missouri.

Each year of the five-year rollout plan concentrated on a theme, or a keyword identifier, as follows:

Year One (2019/2020): Expose

Based on experiences of some practitioners and collaborating partners who work with young people from underserved, under-resourced and low-income environments, **exposure** to opportunities is of paramount importance. It gives them a chance to see what exists outside the limitations imposed by poverty.

Year Two (2020/2021): Explore

Without **exploration**, how will young people learn about what they do not know? **Exploration** increases critical thinking skills through investigation and analysis.

Year Three (2021/2022): Expand

As more people who live in under-resourced neighborhoods and those associated with amply resources needed for youth leadership and workforce development programs become engaged, **expansion** is necessary to include "best practices" for an increasing number of student participants from diverse backgrounds. Matching students who lack resources with students and organizations that have ample resources, **expansion** leads to collaboration.

Year Four (2022/2023): Enhance

Because of the growing use of "best practices" for student participants, it's time to share how these learning experiences can be applied. Through integration of geoscience, geospatial technologies, and emerging technologies such as artificial intelligence, robotics, drone technology, virtual and augmented reality, blockchain, and 3D printing in STEAM curricula, students, who were identified as under-resourced and underserved, will be engaged in learning experiences that **enhance** their chances for advancing toward higher skilled careers and entrepreneurial pursuits.

Year Five (2023/2024): Educate

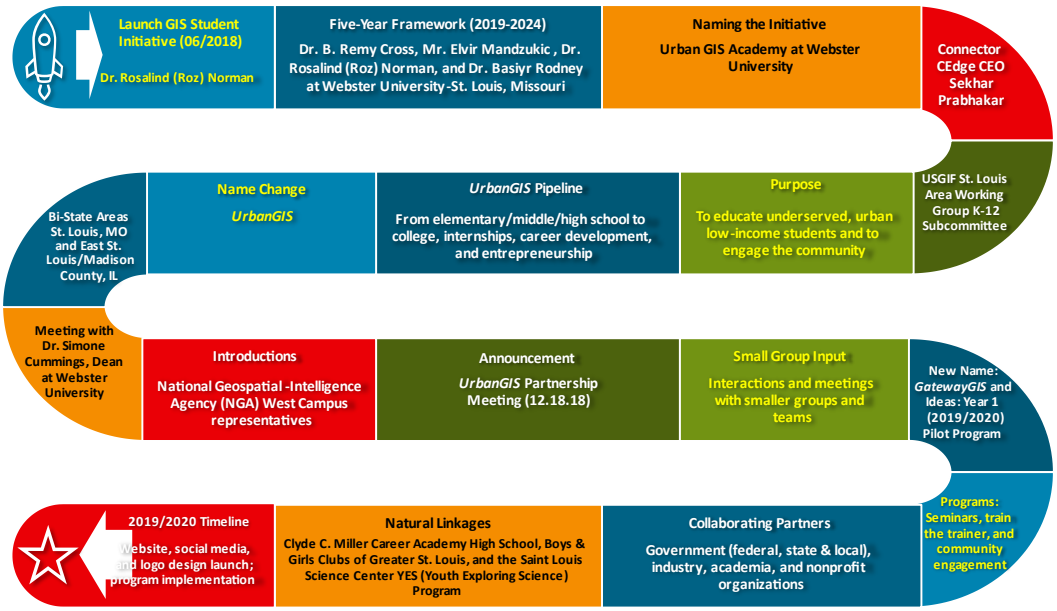
Participating students, parents, teachers, and community partners as collaborators are envisioned as peer educators—learning from one another and teaching each other about lessons needed to learn how to collaborate and pursue lasting social change. By genuinely collaborating, they **educate** their respective communities also about valuing diversity, inclusion, and equity. Collectively they will be encouraged to impact lasting social changes through innovations—evolving from integrated, multiple disciplinary education.

As teams of skilled volunteers learn from their experiences in working alongside students, educators, and community advocates, their collective focus can be expanded to be "of and for the community" with an emphasis on projects "by and for youth".

Encouraging creativity, critical thinking, empathy, leadership, problem-solutions, and social interactions, the need for a comprehensive workforce development pipeline of preschoolers to college students becomes evident. Students, who had been denied or not given necessary resources to compete for highly skilled and well-compensated work, require "the best of the best" collaborators from academia, government, industry, and nonprofit organizations collaborating to provide what they need. Because of this, the mission of GatewayGIS shifted to "bridging the digital, geographic, cultural, racial, and economic divide".

Ever evolving since its inception, the goal is to include young people throughout organizational processes and decision-making opportunities. For instance, the logo and website (www.gatewaygis.org) have been developed by young people in collaboration with some adult community partners. Young people are expected to assume leadership, initiate different community-based projects, conduct virtual presentations, and work in partnership with many diverse groups of people—locally and virtually worldwide.

Following is a flowchart of an initial action plan for launching GatewayGIS:



***GatewayGIS* Flowchart (03.29.19)**

Moving Ahead

Plans to move ahead despite the COVID-19 pandemic eruption in March 2020, GatewayGIS pivoted and adapted to more virtual interactions and projects.

As Ja-Mes Watson III, former Project Connect Manager for St. Louis Development Corporation, pointed out in his article STEAM Education increases opportunities for African American children:

> *However, we cannot forget that life continues. And we must, as a people, position ourselves and our children to prepare for forthcoming career and educational opportunities. At the forefront of current news is the "Race for the Vaccine", researchers, scientists, pharmaceutical companies, educational institutions, and public health organizations around the world are racing to create a cure for this global crisis…. And we are in dire need of researchers, doctors, engineers, chemists, physicists, software programmers, and inventors to add diverse problem-solving perspectives to our global challenges.*

For young people from under-resourced, underserved communities to catch up with their peers in other communities that possess ample resources, innovative approaches become instrumental to jumpstart career preparation and entrepreneurship necessary for today's demands. Crucial to learning experiences, according to Leonardo da Vinci, a history-making scientist and artist, young people should "develop a complete mind…[and] realize that everything connects to everything else".

While adapting to challenges instigated by COVID-19, GatewayGIS community collaborators demonstrated an unusual collective capacity to be responsive to students in Year 2 (2020/2021). Revised plans and reaffirming efforts to increase collaboration with individuals educated in different disciplines, students abroad, and some local community-focused political leaders provided untapped opportunities.

For example, on August 11th, 2021, GatewayGIS received encouraging news from newly elected City of St. Louis Ward 5 Alderman James A. Page, Jr. He offered to share his ideas for how to extend STEM (Science, Technology, Engineering, and Mathematics) and geospatial awareness to parents and young people in St. Louis neighborhoods. And that's the kind of commitment to aid in moving forward in Year 3 (2021/2022) for GatewayGIS as a social innovation intermediary.

Becoming A Social Innovation Intermediary

For me, GatewayGIS is a "labor of love project". I know the crises faced by my childhood community and others, surrounding the new National Geospatial-Intelligence (NGA) West Headquarters, remain unresolved. Therefore, where are the solutions?

It's bigger than me.

It's bigger than NGA.

Why?

It's about the lifetime of children, teens, young adults, families, and their communities—communities that have been decimated by decades of neglect. And now they again must be faced with disruption that could have devastating effects on their already diminishing chances of a productive lifestyle and limited earning capacity. Having to experience less available and affordable housing and inadequate job skills for working at a place such as NGA and ancillary businesses relocating to north St. Louis, what chance do current residents and other under-resourced, underserved individuals have?

GatewayGIS steps in to intervene, though on a small grassroots scale and through a tripartite or three-part model for immersive STEAM career preparation and entrepreneurship inclusive of geoscience and geospatial technologies, to serve in a managerial role. GatewayGIS collaborators aim to form effective social networks, starting within the affected communities then reaching outward "to engage people" who want to help people learn how to become self-sufficient.

As skilled volunteers donate their time, talents, and resources to be of service to people who ordinarily have been left behind and denied adequate resources to be sustainable, these humane interactions bridge what often divides individuals from various backgrounds.

In a blog titled “How Can Intermediaries Accelerate Social Change” (February 15, 2018) by Stephanie Dodson Cornell, intermediary organizations often serve as the “marketplace” or “central square” of the social sector.

She continues to describe how this happens:

> *The social venture marketplace created by intermediaries is a gathering point for stakeholders interested in solutions: investors, funders, activists, nonprofit, leaders, and university leaders can all participate in collectively building momentum for social ventures that are solving sticky community issues.*

When addressing the needs on a grassroots level, what can be as sticky a situation of any as what faces a demoralized, under-resourced community. Building support within such a community for career preparation and business ownership in emerging technologies is challenging. In fact, some people would rather have an easier chance for success than get involved in communities that have been marginalized and left for ruination. Realizing this, GatewayGIS brings together skilled volunteers, who represent different universities, government agencies, small and large businesses, and youth-serving, social service nonprofit organizations, to cooperate in working alongside young people and the community. Eventually with input virtually worldwide, others can share in generating solutions.

By concentrating the collective attention of collaborators from different perspectives and who possess ample resources, solutions to garnering support of much needed skill sets for employment and/or ownership in emerging technologies, including geoscience and geospatial technologies, can be an example of impactful social innovation.

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