

METROLAB

NETWORK

UofSC City Advocacy Commission

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Abstract

A city and university collaborative for civic innovation which will drive the partnership between local governments and universities, poised to help the public sector adapt to rapid technology change through the innovation and talent found at universities.

Behind the Report

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Reimagining cities and communities to create impact

-MetroLab Network

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Section 1 - Introduction

The University of South Carolina (UofSC) in Columbia is the largest educational institution not only in the greater Columbia area, but the state of South Carolina as well boasting over 25,000 students on its flagship Columbia campus. Thousands of students travel in from all regions of the nation and world every year and with this huge influx of young people comes a diverse mindset and mounds of untapped knowledge and potential. With UofSC being the largest research university in the state and being designated as a top tier research university in the R1 classification for very-high research activity as stated by The Carnegie Foundation¹, there are many opportunities for research to flourish and be more interconnected with the City of Columbia. While UofSC already boasts impressive research statistics, implementing a formal innovation and research partnership between both entities will poise our city to become truly world class by leveraging and tapping into the talent pool that UofSC attracts. Our solution to induce more research on city issues and property is to implement a partnership called MetroLab Network. This company will help open opportunities for UofSC students to test their research and it allows for the City of Columbia to benefit directly from this research. In a nutshell, UofSC will act as the research and development side and the City of Columbia will act as a test bed for these ideas. Both parties benefit from this partnership as UofSC will be able to have a close, well populated test bed for these ideas, and the City of Columbia will be able to receive new research and innovation at a lower cost.

Section 1.2 - Objective and Goals

The goal of the MetroLab Network Research Innovation Partnership report is to help explore ways to assist the City of Columbia in research and development needs they may have while also giving students and researchers at the University of South Carolina an avenue to test their ideas at the local level and to have the ability to make meaningful change in their community. Additionally, the partnership will allow faculty to showcase their work and gain information and support from sister cities/universities in the network.

Section 2 - Define MetroLab

MetroLab Network is defined as a city and university collaborative for civic innovation which will drive the partnership between local governments and universities, poised to help the public sector adapt to rapid technology change through the innovation and talent found at universities. While Columbia is growing fast and is stepping into the era of “smart things”, there is still much work to be done and this collaborative is poised to help accelerate this change. To implement this project, a point-of-contact (POC) would be assigned at UofSC and the City of Columbia. The university POC(s) should be those who can meet regularly with the City of Columbia with experience in research and community relations. The city POC(s) should be those who are in need of university research assistance such as that of the information technology department or the planning department. The leadership with the university should either be the Office of the President or the Office of the Provost and the leader with the City of Columbia should be the Mayor. The point-of-contact will be responsible for managing the innovation partnership as mentioned in the memorandum of understanding (MOU). MetroLab works on four different aspects with the partnership. Building Partnerships, multidisciplinary research, expanding the “smart” city, and curation and communication. To build partnerships, MetroLab Network’s city-university partnerships forge mutually beneficial relationships in which the university is the city’s R&D department and the city is the testbed. Faculty and students get access to real-life laboratories to test approaches that are aimed to address city priorities and challenges. Cities, and their residents, benefit from the university’s technical expertise and creativity in addressing those challenges. Aiding in multidisciplinary research, community-focused science doesn’t sit in a single academic discipline or city function. MetroLab has convened an emerging, cross-disciplinary practice of academics and local government policymakers who seek to

¹ <https://bit.ly/3110DOO>

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advance policy and community priorities. MetroLab membership includes those at the leading edge of this new practice and MetroLab helps promote and scale their work. To expand the smart city, in 2017 MetroLab launched its Data Science and Human Services Lab, an effort to bring together academics, city and county practitioners, and non-profit leaders to consider the issues at the intersection of technology, analytics, and human services deployment. The team at MetroLab has cultivated this community and have developed a series of reports designed to frame new, complex data science topics for a public sector and practitioner audience. Finally, to improve curation and communication, MetroLab leverages its platform to highlight impactful tech, data, and innovation projects underway between local governments and universities. The Innovation of the Month partnership with GovTech Magazine has helped gain visibility for emerging projects looking for additional funding and deployment partners. While MetroLab Network is a fairly new company, being formed in 2015 under the White House Smart Cities initiative, it already has partnerships in place with over forty-five cities, six counties, and sixty-one universities across the country. A few such partnerships close to Columbia include, the City of Charlotte at the University of North Carolina at Charlotte, the City of Atlanta at the Georgia Institute of Technology as well as at Georgia State University, and the City of Orlando at the University of Central Florida. If UofSC and the City of Columbia formalize a partnership and join with the MetroLab Network, it would be the first such partnership in the state of South Carolina. MetroLab Network is primarily based around collaboration for innovation and research (especially with smart cities and devices), but it also opens the door for more diverse and frequent conversations between the university and city officials. With UofSC occupying a large portion of the tax rolls in Columbia, having more discussions between both entities would be largely beneficial to both the future of the university but also the city and region as well.

Section 2.2 - Define the need for the partnership

Partnerships between local governments and universities are compelling mechanisms to quickly target and deploy research on high-need priorities that manifest at a local level. Faculty and students research and deploy “living lab” approaches to societal priorities, enabling rich exploration of social and technical sciences while bringing capacity and creativity to local government and helping to enable digital and technological transformation and evidence-based, research-informed policy. A recent report by EngenuitySC discussing regional competitiveness in the Columbia Metropolitan Statistical Area (MSA) states that Columbia is ranked in 10th place among nine other cities measured for talent and in 7th place among ten other cities measured for innovative capacity. Talent is defined as “A region’s ability to attract, develop and maintain a vibrant and skilled workforce. Metrics include GDP per worker, STEM degrees awarded, STEM salaries, percentage of knowledge workers, educational attainment and percentage of global talent.”²

Innovative capacity is defined as “A region’s capacity to support the creation of new ideas, products and processes. Metrics included in this index are number of innovation awards, research and development, academic degree achievement and R&D funding”. While the city has made great strides in recent years, especially in the areas of livability and the business and entrepreneurial environment, the data shows that

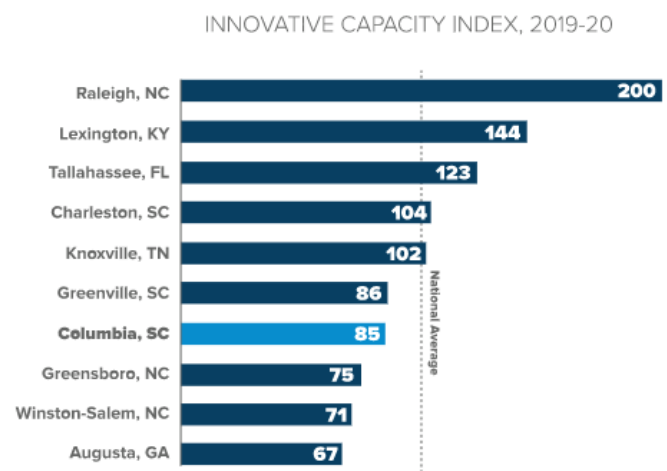


Figure 1 Innovative Capacity Index 2019-20 from EngenuitySC

² https://www.engenuitysc.com/competitiveness-report/?utm_source=COLAtoday+MASTER&utm_campaign=f94084fd9e-01.28.2020+COLA&utm_medium=email&utm_term=0_ad036b3ff1-f94084fd9e-37337989

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the Columbia MSA is lagging behind other comparable cities in the Southeast in regard to talent and innovation. While UofSC and the City of Columbia currently have a technology incubator in place which provides a variety of facilities for use by entrepreneurs, researchers, small businesses and larger industry partners, the MetroLab Network can elevate the work being done and have more physical innovative elements be visible throughout our city. The Incubator mostly spurs the growth of businesses in the Columbia area whereas MetroLab can help allow researchers aid city needs and develop technologies which can be implemented on city property to help solve issues. In addition to having more physical and urban innovation, joining the MetroLab network allows our city and university to collaborate with other partnerships and gain insight into their projects as well as having our own projects be featured to other partnerships across the nation.

Section 3 - Implementation

To implement this partnership and to join the MetroLab Network, several items must be completed. First, a point-of-contact (POC) must be assigned both at UofSC and with the City of Columbia. The university POC(s) should be those who can meet regularly with the City of Columbia with experience in research and community relations. The city POC(s) should be those who are in need of university research assistance such as that of the information technology department or the planning department. The leadership with the university should either be the Office of the President or the Office of the Provost and the leader with the City of Columbia should be the Mayor. Second, formalize the partnership between the city and university with a memorandum of understanding that includes a commitment to jointly undertake “research, development, and deployment” (RD&D) projects. Third, attain funding. The cost to join the MetroLab Network is just under ten-thousand dollars per year coming in at \$9,975. The cost of the subscription to the network is often shelled out by solely the university but it is possible to leverage funding from the city or third-party donations. The cost of membership can also be reduced if other universities or colleges join the network. The initial conversations with this partnership are mentioned to be just UofSC and the City of Columbia but there is opportunity for others such as Allen University, Benedict College, or Midlands Technical College to join the partnership as well. The membership fee is broken down into five categories. 60% of the cost will support research funding for urban and community focused science which includes a research action competition for smart and connected cities. 15% of the cost is put forth towards student engagement for career development and job placement which will create internship and fellowship programs that place students in public sector tech, data, and innovation roles. The student engagement element also organizes treks for students to connect with counterparts in other city governments, nonprofits, and urban tech-focused companies. Another 15% of the cost is towards knowledge and resources which develops a resource library that includes data sharing templates,

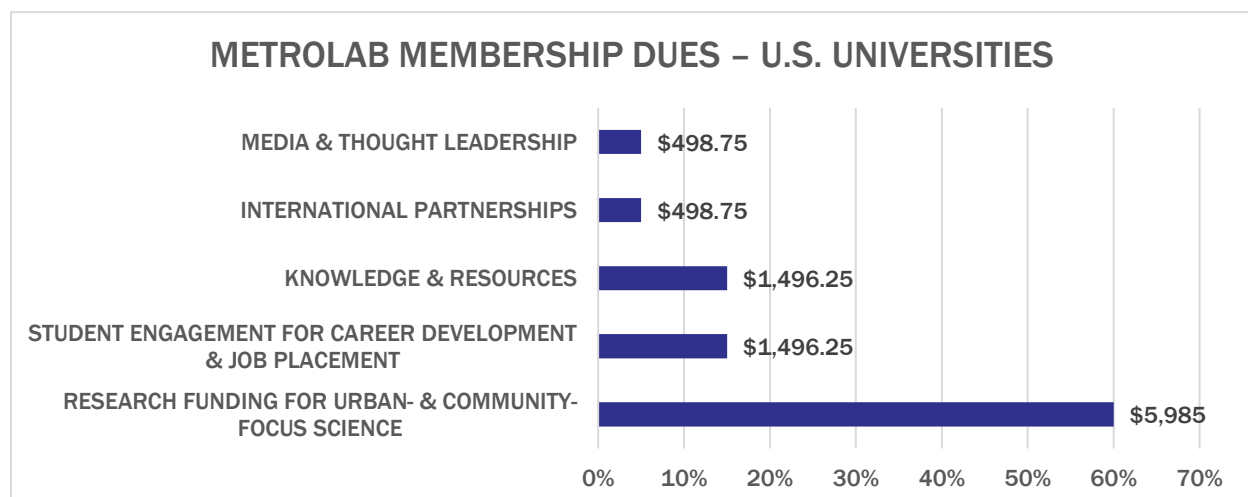


Figure 2 Breakdown of dues

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sample memoranda of understanding, and other materials that help enable partnerships between cities and universities. MetroLab will develop a curriculum exchange that aggregates resources for the emerging, cross-disciplinary field of urban science / urban informatics / smart cities and establish a service and partnership platform that connects researchers with specific interests and capabilities to collaborators in cities, non-profit, and industry. 5% is put forth towards international partnerships which will organize inbound and outbound international treks for faculty, students, and local government officials to learn and share their work across the globe. Lastly, another 5% is put forth towards media and thought leadership to publish its Innovation of the Month partnership with GovTech magazine, highlighting leading city-university collaborations as well as leveraging the expertise from its network and outside partners to develop reports and white papers on emerging topics, like its report on the Ethical Use of Predictive Analytics in Human Services and Technology for Civic Data Integration.

Section 3.2 - Membership Benefits

MetroLab will allow us to tap into the value of an international network of peers working on civic research and innovation projects. We are able to Leverage MetroLab’s platform to learn from best practices that have emerged from city-university partnerships across the country, like data-sharing templates, civic research agendas, and urban science curricula as well as connecting with collaborators from across the network to test and scale technologies and approaches that have emerged locally between the city and university. MetroLab also serves as a bridge to the civic ecosystem, consisting of philanthropies, federal agencies, non-profits, and local government associations. Opportunity to benefit from new programs that MetroLab helps design and scale, like the Civic Innovation Challenge, a forthcoming “research and action” competition led by NSF in partnership with MetroLab and attain Opportunities for faculty and students to share projects, speak on panels, and participate in capacity building and career development opportunities in the civic research and innovation domain.

Membership Model

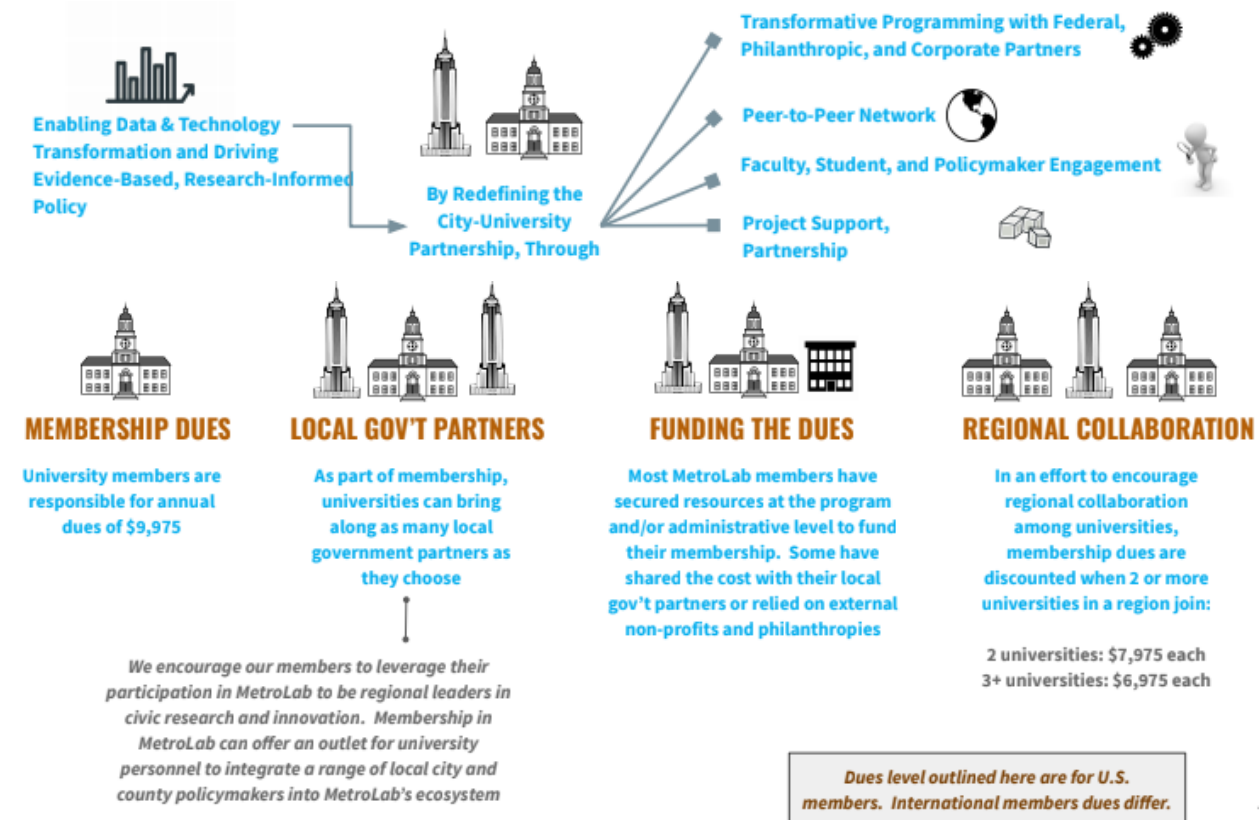


Figure 3 MetroLab Membership Infographics

Section 3.3: Other Implementations

As stated earlier, if the City of Columbia and UofSC formalize a partnership and join on with the MetroLab Network, it would be the first such partnership in the state of South Carolina and would set the precedent for other research universities in the state and region to formalize research partnerships between their universities and municipalities. The closest cities to implement this partnership and attain a subscription to the network are the City of Charlotte – University of North Carolina at Charlotte, City of Atlanta – Georgia Institute of Technology, Georgia State University, and the City of Orlando – University of Central Florida. The City of Charlotte in conjunction with the University of North Carolina at Charlotte designed an energy-efficiency initiative that develops programs in energy, water, waste, and air to conserve resources and reduce operating costs. The City of Atlanta in conjunction with Georgia Institute of Technology and Georgia State University developed the Cycle Atlanta app which allows individuals to track their bike routes in Atlanta and allows City and Georgia Tech staff to use the collected data for research, transportation planning, implementation and evaluation. Finally, the City of Orlando with help from the University of Central Florida implemented an initiative to research and pilot solar photo-voltaic technology for the production of clean electricity to power vehicles. The City of Orlando uses solar electricity to offset fossil fuels for transportation and electric consumption. Solar energy will be stored and redirected to the grid.



Figure 4 Example of member projects in the MetroLab Network

Implementation Timeline and Process

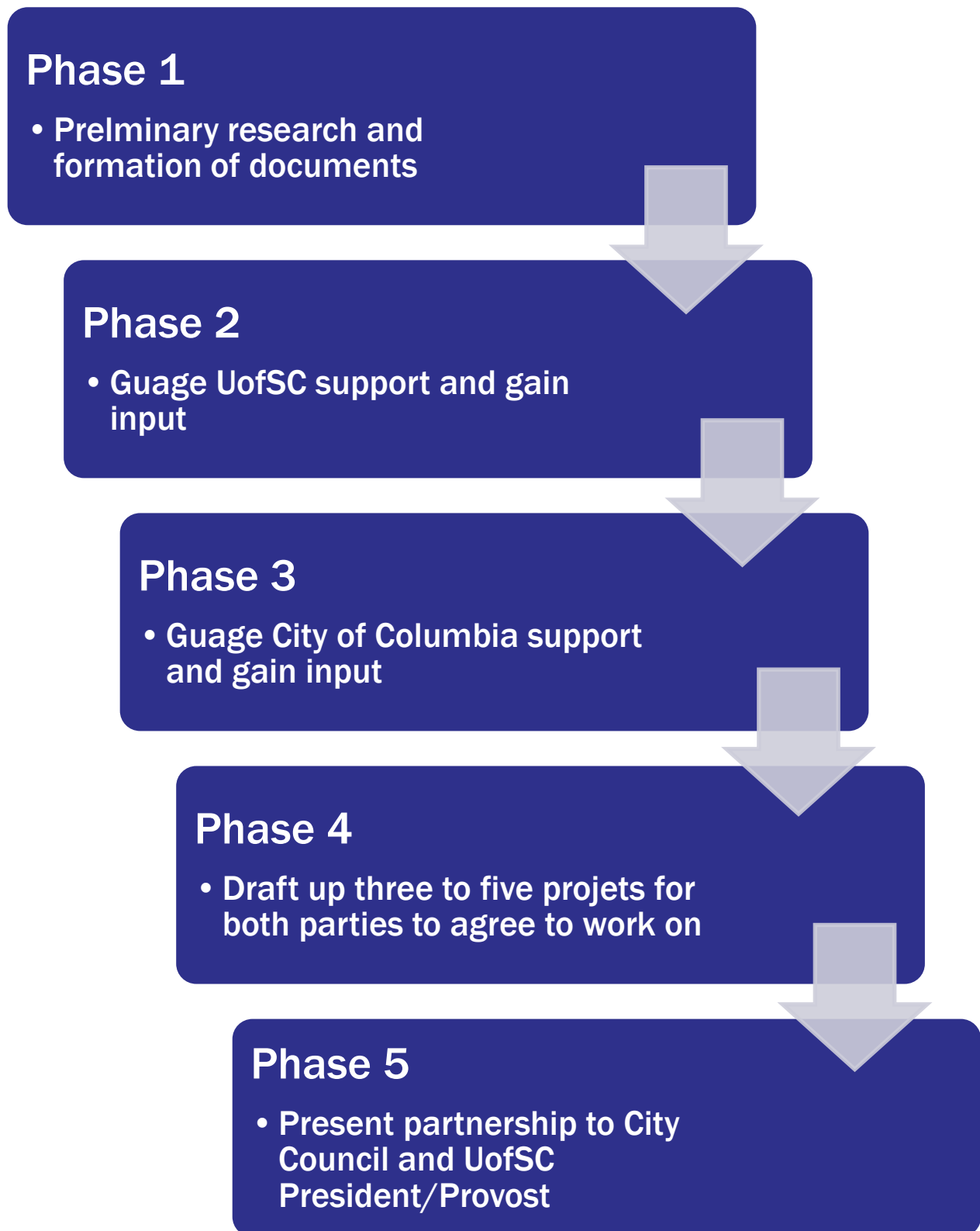


Figure 5 Timeline of report

Section 4: One Page Summary

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Other Cities with Similar Policies:

City of Charlotte – University of North Carolina at Charlotte
City of Atlanta – Georgia Institute of Technology, Georgia State University
City of Orlando – University of Central Florida

Our Policy Proposal

- Define MetroLab Network as:
 - A City and University collaborative for civic innovation which will drive partnerships between local governments and universities, poised to help the public sector adapt to rapid technology change by using innovation and talent found at the Universities.
- How would it be implemented?
 - Assign a lead point-of-contact and leadership role at UofSC through administration and interested departments as well as the City of Columbia through the mayor and interested departments. The point-of-contact is responsible for managing the innovation partnership.
 - Formalize a partnership between the city and university with a memorandum of understanding that includes a commitment to jointly undertake “research, development, and deployment” (RD&D) projects.
 - MetroLab Network costs just under ten-thousand dollars per year with the cost potentially being split between UofSC and the City of Columbia. This project could be implemented in as little as three to six months.

Why Implement This Policy?

- The City of Columbia can leverage the talent pool and research potential of UofSC. This is important, as UofSC is one of the largest educational institutions in South Carolina and is a top tier research university in the R1 classification for very-high research activity as stated by The Carnegie Foundation.
- Data and technology are poised to transform cities, and partnerships between local governments and universities are critical to transform cities to be competitive in the Digital Era.

Current Implementations of the MetroLab Network:

- *City of Charlotte – University of North Carolina at Charlotte: Envision Charlotte*
 - An energy-efficiency initiative that develops programs in energy, water, waste, and air to conserve resources and reduce operating costs.
- *City of Atlanta – Georgia Institute of Technology, Georgia State University: Cycle Atlanta*
 - The Cycle Atlanta app allows individuals to track their bike routes in Atlanta and allows City and Georgia Tech staff to use the collected data for research, transportation planning, implementation and evaluation.
- *City of Orlando – University of Central Florida: Solar Power Harnessing*
 - An initiative to research and pilot solar photo-voltaic technology for the production of clean electricity to power vehicles. The City of Orlando uses solar electricity to offset fossil fuels for transportation and electric consumption. Solar energy will be stored and redirected to the grid.

Section 5: Testimonials



Pete Buttigieg
Mayor of South Bend, IN

“What you have with MetroLab is a network of city-university pairs that really navigate their relationship not in terms of what are you doing to my housing market and do we have to bust your parties, but how to apply the substance of the work that is going on at your institution and use it to make the lives of our community better and in so doing also make the people at your institution better off.”



Lilian Coral
Knight Foundation Director of National Strategy & Technology Innovation

“There is great opportunity for cities to leverage real-time data to create more engaged, equitable communities. By partnering cities with universities, MetroLab is building a model that can give communities the capacity and expertise to make this a reality.”



Martin O'Malley
61st Governor of Maryland | 47th Mayor of Baltimore Chair | MetroLab Advisory Council

“I have led data transformations at the state and local level. MetroLab introduces a model that brings data science, analytics, and creativity to critical priorities facing our cities and communities.”