



Columbia's Economic Development Action Plan

Knowledge Economy Cluster Development Strategy for the Columbia Region

June 25th, 2020

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Genesis of Columbia's Economic Development Action Plan

Metro Columbia stakeholders seek to develop and execute a strategy by which to increase and then maintain higher levels of investment in knowledge-based enterprise operations

Background

The Columbia metro region has achieved consistent success for decades in attracting and growing industrial-based enterprise activities like Manufacturing and Logistics and Distribution.

There is a growing perception amongst Columbia's economic development and relevant stakeholder community that the region is not achieving success commensurate to its capabilities in **attracting knowledge-based enterprise activities** like IT, R&D, and specialized business processes in fields like FinTech, Cybersecurity, AI, Data Analytics, etc.

Call to Action







Columbia region stakeholders seek to establish an **action-oriented roadmap** for increasing investment in knowledge-based enterprise activities and executing against that plan in order to cultivate the development of knowledge-based industry clusters in the Columbia region

Action Plan Rollout

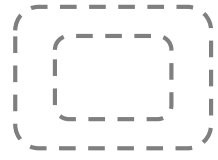
Deloitte Consulting has worked with local, county, and state-level stakeholders as well as select private enterprises to identify and evaluate Columbia's most urgent needs in terms of **targeted investment attraction tools and capabilities**. This document introduces target segments and peer community attributes and capabilities and further presents and prioritizes capability development initiatives across four key pillars to Columbia's economic development action plan: Innovation, Workforce, Incentives, and Economic Development

Prioritized Industry and Value Chain Segment Intersections

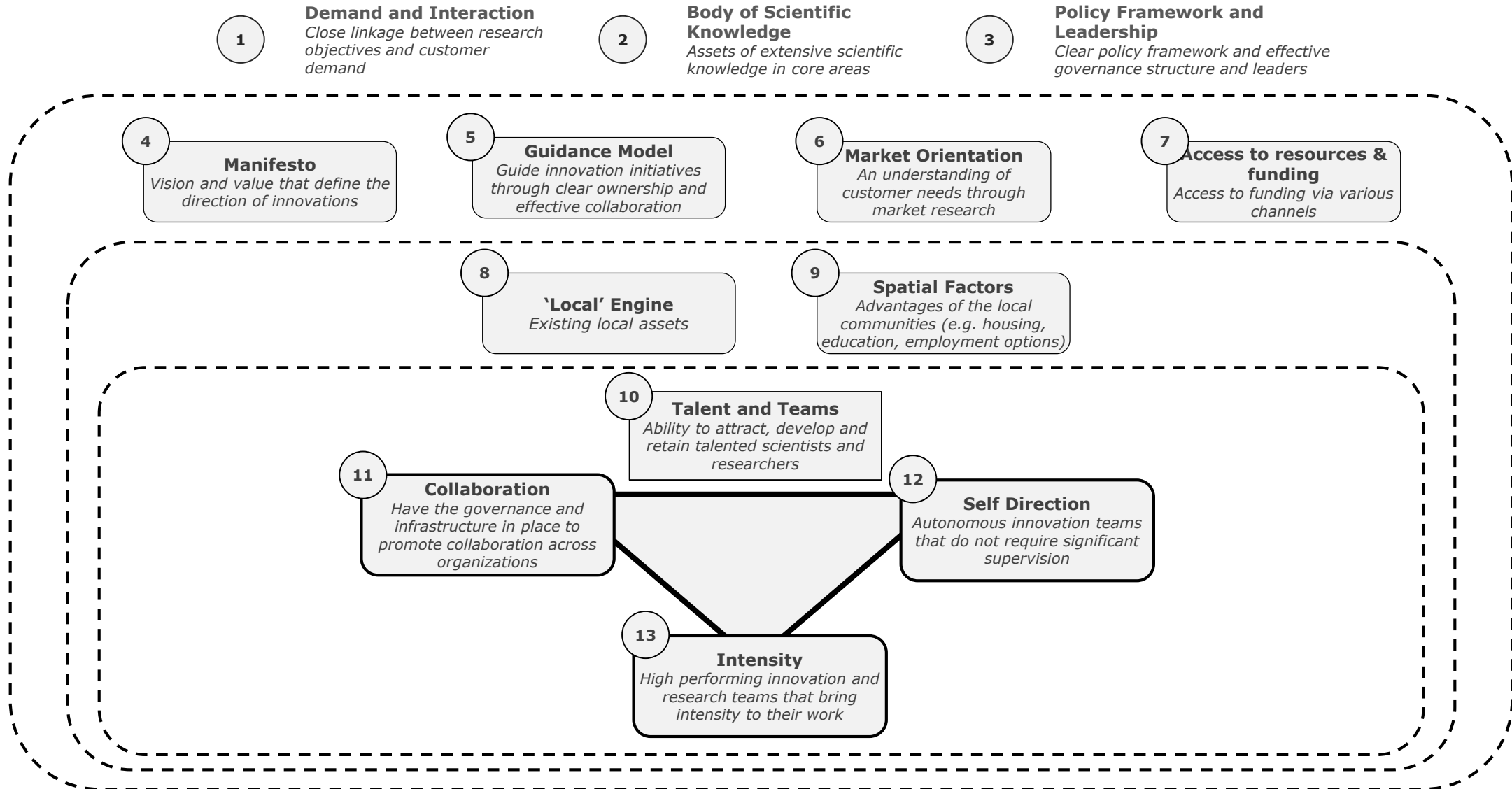
After conducting an initial visioning workshop with stakeholders, Deloitte worked with project team members to establish a priority list of segments to be targeted by the ED action plan

						
Value Chain	Financial Services	Software & IT Services	Healthcare Information Technology	Aerospace	Biotechnology	Medical Devices
Design, Development & Testing (R&D)		✓	✓			
Business Operations/Service Delivery	✓	✓	✓			
Manufacturing				✓	✓	✓
Distribution						✓
Commercial Activities	✓					
Headquarters	✓					

Research, Innovation, and Partnerships Pillar

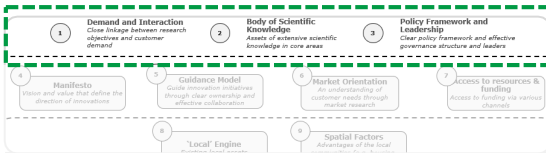


Research, Innovation, and Partnerships Cluster Framework ¹



1. For the sake of clarity we have identified 13 separate components of the Research, Innovation, and Partnership System. In reality these components frequently overlap and reinforce each other

Research, Innovation, and Partnerships (1/11)



DEMAND AND INTERACTION

1 Develop close and interactive linkages between research and customers to improve the quality and output of both research and product innovation

BODY OF SCIENTIFIC KNOWLEDGE

2 In its own right an extensive and distinctive body of scientific knowledge (insights, methodologies, tools, data and people) is a distinguishing characteristic of leading research clusters. Retaining world class knowledge is critical in order to identify and attract both talent and leading edge collaboration partners

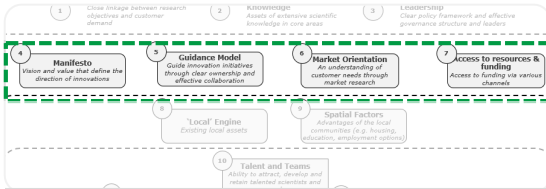
POLICY FRAMEWORK & LEADERSHIP

3 Clusters are not simply the result of organic activities but grow because of deliberate interventions. This has three important consequences:

- Need for a clear policy framework
- Development of effective governance structures, and,
- The appointment of strong collaborative leaders

Segment	Capability Development	Element	Description	Columbia or Peer Community Implementations
Segment Agnostic	Scale Research Commercialization	2	<p>UofSC Office of Economic Engagement (OEE) should continue to develop the depth and breadth of the team dedicated to Research Commercialization and Innovation</p> <ul style="list-style-type: none"> • Continue to grow and scale their capacity to guide companies and faculty throughout the process of formal licensing. Continue to develop a deep bench of capabilities with additional specialists in licensing, BD, and legal matters • IP Management: Continue to grow and scale their assistance program in IP creation and licensing process for companies, university, faculty and entrepreneurs 	<ul style="list-style-type: none"> • Ranking No. 1 in the University Technology Transfer and Commercialization Index by Milken Institute, University of Utah has a successful Technology and Venture Commercialization (TVC) office that regularly engages with university researchers in assessing the commerciality of early-stage research, applying for patents and developing strategies for commercializing IP's • NC State's Office of Research Commercialization (ORC) plays a crucial role in protecting and promoting univ. research discoveries and intellectual property. The office has specialists in licensing, business development and legal matters • More examples include U of Pittsburg's Innovation Institute; U of Oklahoma's Office of Technology Commercialization; Columbia University's Technology Ventures
Segment Agnostic	Crowdsourcing Platform	1	<p>Establish a crowdsourcing platform to address critical innovation needs in Columbia's priority sectors and value chain segments</p> <ul style="list-style-type: none"> • A new innovation council or similar kind of organization (potentially led by SCRA), selects the highest demand industry-generated needs for which to crowdsource solutions and align capital and funding from a variety of avenues: crowdfunding, Special Source Revenue Bonds, Non-profit Philanthropy Orgs., Sovereign Funds, etc. • Crowdsourcing can be realized through competitions where researchers/innovators submit proposed solutions to the committee • Funding is provided to winning team(s) to come to Columbia and further develop their innovative concepts 	<ul style="list-style-type: none"> • US Defense Advanced Research Projects Agency decided to crowdsource its next-generation amphibious fighting vehicle in 2012 after shutting down its traditional procurement, which had already cost taxpayers \$13 billion. The winning design was announced in April 2013, just six months after the competition was launched • Allstate sponsors crowdsourcing competitions, an example of which resulted in a liability prediction model that was 271% more accurate than their original one • Fresno California crowdsourced solutions to solve asthma public health issue with a \$2 million bond. They issued an RFP on their platform and granted funds to the top 3 ideas

Research, Innovation, and Partnerships (2/11)



MANIFESTO

4 Develop a manifesto to define research clusters purpose, values and behavior and create a collective mind set

GUIDANCE' MANAGEMENT MODEL

5 The complexity of advanced research requires a thoughtful approach to influencing and motivating individuals and teams. The overriding emphasis should be on guidance as opposed to management, particularly in the early stages of discovery

MARKET ORIENTATION

6 Effective innovation requires a detailed understanding of current, emerging and anticipated customer needs through market research, forums, customer relationships and infrastructure

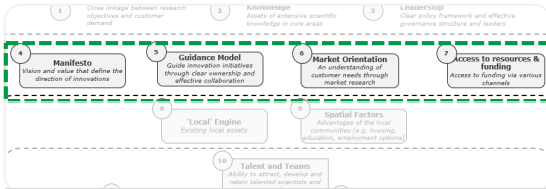
ACCESS TO RESOURCES AND FUNDING

7 Successful clusters are characterized by the ability to attract funding from multiple sources (federal, corporate, VC, etc.)

- Creating these sources of funds is the central challenge in setting up and maintaining a cluster

Segment	Capability Development	Element	Description	Columbia or Peer Community Implementations
Segment Agnostic	Strengthen Columbia's Network of Sector focused Incubators	7	<p>There is a need for incubators and incubator outreach/development programs in Cybersecurity (such as SC Cyber), FinTech/ InsurTech, and Medical Devices segments</p> <ul style="list-style-type: none"> ▪ Leverage the capabilities of SCRA's Innovation Centers, UofSC's Columbia Technology Incubator, SC Business Incubator Association, Scribble, and local entrepreneurs to develop a distinguished local incubator program that focuses directly on the needs of Columbia's priority target segments ▪ UofSC and South Carolina should proceed with existing plans for the new medical school with an attached Medical Technology Innovation Center to provide medical innovation connected assets ▪ There appear to be space constraints limiting immediate scalability of Columbia's existing incubator resources <ul style="list-style-type: none"> • SCRA should keep using renovated warehouses to provide complimentary space for teams and co-working space/incubator • UofSC could leverage existing or new facilities to provide space for teams/companies, such as USC Columbia Technology Incubator ▪ Funding: Leveraging funding from SCRA, UofSC, and the Local and State Economic Development Offices 	<ul style="list-style-type: none"> ▪ Columbus, Ohio's Rev1 Labs functions as a combination incubator-accelerator solution and has specific programs and accelerator offerings tailored to the following segments (amongst others): <ul style="list-style-type: none"> • FinTech and InsurTech • Digital Health and Healthcare IT • Life Sciences ▪ Rev1 Labs provides a variety of co-working space options, including 400 West Rich, a manufacturing warehouse turned multi-functional arts complex and co-working space ▪ Phoenix entrepreneurial ecosystem produces successful startups through its incubators, such as the Center for Entrepreneurial Innovation (for emerging tech, bioscience and renewable energy) and SEED Spot (for social entrepreneurs) ▪ Ann Arbor SPARK program provides Entrepreneurial Services to help startups attract capital, talent, customers and strategic resources, and Business Development Services for established companies, promoting growth/reinvestment ▪ The Capital Factory in Austin, an 80K SF coworking space wherein 900 tech-focused events are conducted in collaboration with 150+ tech mentors. Along with support on fundraising, recruiting, IP, etc., the center helps entrepreneurs/small businesses to collaborate with industry and investors

Research, Innovation, and Partnerships (3/11)



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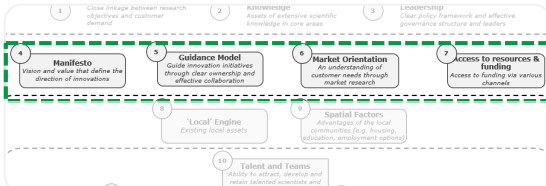
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Segment Agnostic	Accelerator Program	7	<p>Leveraging existing capabilities of SCRA, SC Launch and UofSC to create specific Accelerator Programs for the priority segments that are fixed-term, cohort-based, which provide seed funding, mentorships, industry connections, etc. to selected startups in Columbia area</p> <ul style="list-style-type: none"> ▪ The existing innovation center at UofSC and SCRA could be leveraged to establish specialized incubator-accelerator services for FinTech/InsurTech and Healthcare IT startups, focused on rapidly developing technologies and business models in these areas ▪ Likewise, UofSC and SCRA should also consider establishing a new accelerator offering for Biotechnology and Medical Devices startups as a part of an initiative to build an innovation center at its new medical school campus 	<ul style="list-style-type: none"> ▪ Charlotte's Queen City Fintech's 12-week accelerator program is designed to mature fintech startups through mentorship from banking executives, BDs, VCs and attorneys ▪ CyberLaunch invests in a select number of startups twice a year and brings them to Atlanta for 3 months and provides access to capital and mentors to help them launch ▪ Flashpoint Program at Georgia Tech, a startup accelerator, teaches entrepreneurs what they need to know to get their early-state business model off the ground ▪ Iowa's Global Insurance Accelerator, based in Des Moines, is a mentor-driven program that supports startups/entrepreneurs with VC, insurance industry mentorship and training programs ▪ Hartford's InsurTech Accelerator funded by a quasi-public entity, overseeing state's Innovation Places program, focusing on InsurTech, matching grants from insurers

Research, Innovation, and Partnerships (4/11)



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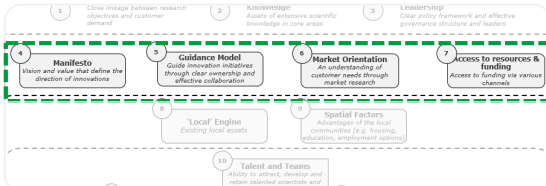
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Segment	Capability Development	Element	Description	Columbia or Peer Community Implementations
Software & IT	Cybersecurity Innovation Ecosystem	7	<ul style="list-style-type: none"> ▪ Cybersecurity Programs developed in partnership between industry and academia (UofSC, MTC), including Internships, Apprenticeship, Innovation and Consortium ▪ At K12 level, conducting Coding Bootcamp/ Hackathons, Coding Academics, Competitions ▪ Increase financial support and add additional assets/ capability to existing UofSC OEE and MTC industry outreach; enhance applied research through collaboration with local start-ups and established companies (e.g. IBM) <ul style="list-style-type: none"> • Cybersecurity Innovation Center: leveraging space at McNair Center to establish an incubator or accelerator and collaborate with applied research partners (e.g SC Cyber/ UofSC) ▪ Develop connections with the military to support their cyber projects. Initiatives with Fort Gordon Cyber Command and Savannah River Site should be encouraged (e.g. SC Cyber/ growth of top-secret research contracts and military contracts) 	<ul style="list-style-type: none"> ▪ San Antonio Chamber of Commerce created a Cybersecurity cluster, through collaboration among local start-ups and forming relationships to units operating in the San Antonio area. Initiatives included: <ul style="list-style-type: none"> • CyberTexas supported middle/high school students in their cybersecurity studies and helps connect them with industry mentors • Higher Education Engagement: colleges/universities developed courses that fills the gap of skills and talent in cyber • Cyber Bootcamp has helped provide business skills for retiring military personnel and help them develop commercial ideas ▪ Colorado is a major market for emerging cybersecurity companies, led by root9B. The sector is supported by large defense operations. The National Cybersecurity Center is in partnership with U of Colorado ▪ Phoenix Cyber Center serves as a region-hub for top-tier cyber education, public and private community resources.

Research, Innovation, and Partnerships (5/11)



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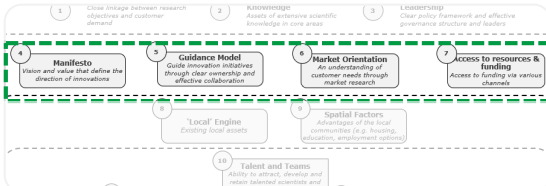
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Segment	Capability Development	Element	Description	Columbia or Peer Community Implementations
Segment Agnostic	Customized Applied Research Solution in Partnership with Industry	7	<p>Access additional grants and diversify funding sources to increase scalability of support and enablement of Applied Research in partnership with priority sectors</p> <ul style="list-style-type: none"> Increase the existing SCCC, SC Launch and UofSC OEE offices' involvement for grant and funding for applied research in collaboration with start-ups/mid-size companies on Factory of Future research initiatives and Cybersecurity related efforts Provide space at the USC/Columbia Innovation Center or other/new incubators to qualified research teams in the targeted areas – advanced manufacturing, IT/Cybersecurity, Life Sciences UofSC's OEE should be resourced to maximize their ability to have a more significant/proactive role in recruiting industrial partners for applied research projects, and continue assisting in negotiating contracts and agreements 	<ul style="list-style-type: none"> Utah Science Technology and Research Initiative (USTAR), the technology-based EDA of Utah – provides the University Technology Acceleration Grant (UTAG) <ul style="list-style-type: none"> The program is designed to advance the maturity of technology that has been developed in the university lab to catalyze it toward commercialization

Research, Innovation, and Partnerships (6/11)



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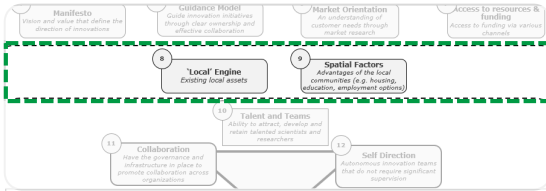
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Segment	Capability Development	Element	Description	Columbia or Peer Community Implementations
Financial Services, Software & IT	Technology Corridors	7	<p>Create the business, education and social environment to establish a brand as a Technology Corridor to attract hi-tech companies. Elements required to scale:</p> <ul style="list-style-type: none"> ▪ Develop Community initiatives including UofSC and MTC faculty programs, networking events, conferences, industry mentors, etc. ▪ Provide collaboration spaces in the form of co-working shops, incubators, accelerators or innovation centers ▪ Access to capital for companies in the corridor, supplement with tax incentives, training and recruiting incentives, etc. ▪ Companies who locate in an 'Opportunity Zone' of the Corridor can enjoy reduced property taxes, or benefit from foreign investments ▪ Increase the level of collaboration between local governments and universities/technical colleges to identify potential technology corridors across the Richland and Lexington county region. As examples, MTC's Enterprise Campus and Lexington County's Chapin Business & Technology Park could be identified as potential technology corridors for the future 	<ul style="list-style-type: none"> ▪ Jacksonville's Innovation Corridor with sizable investments and research in sensory data collection, next-generation technology, automated vehicles, etc. ▪ Charleston, SC's Digital Corridor (LINK) attracts, nurtures and promotes the region's tech economy through an array of impactful programs, products and events ▪ Savannah Logistics Technology Corridor in Georgia comprised of business, state, education, and community stakeholders through the development of tech corridor that supports logistics technology development through innovation and investment

Research, Innovation, and Partnerships (7/11)



'LOCAL' ENGINE

8 Clusters are heavily shaped by local conditions and it is critical to determine which current (or future) factors or 'local' engines will drive innovation. This requires ED leadership to:

- Determine key distinctive local assets
- Work with and engage key local stakeholders
- Investment in options based on long term benefits, e.g. multiplier effects or the ability to create sustained growth, rather than short term ROI criteria

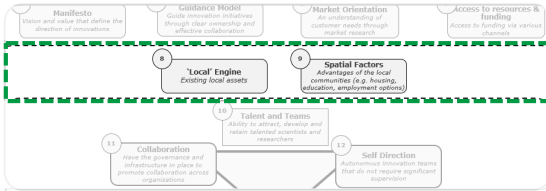
SPATIAL FACTORS

9 The importance of spatial factors like alternative employment options, housing and education reduce the risks associated with start up environments (providing fall back alternatives) while creating opportunities for two income families

- Housing and education directly determines the attractiveness of a region, particularly for families

Segment	Capability Development	Element	Description	Columbia or Peer Community Implementations
Financial Services	InsurTech Industry Association Revitalization and Annual Innovation Summit	8	<p>Columbia has an opportunity to reinvent the region's InsurTech Industry Association that has very recently not been active</p> <ul style="list-style-type: none"> ▪ Establish a refined mandate and refreshed value proposition for participating organizations ▪ Predicate success of relaunched association on extensive, consistent and sustained collaboration with UofSC and continued involvement of MTC in the space ▪ A re-established/revitalized Association should develop a talent hub or directory – a way for many ex-PMSC and InsurTech startups spun out of PMSC (such as TCube, Duckcreek, EagleEye Analytics, etc.) to collaborate socially and professionally ▪ The refreshed organization can have as one of its core mandates the creation of a new annual InsurTech Innovation Summit in collaboration with the UofSC's Office of Economic Engagement, the university's McNair Institute for Entrepreneurism and Free Enterprise, and the South Carolina Council on Competitiveness 	<ul style="list-style-type: none"> ▪ Existing employer interviews revealed that there is a genuine desire amongst Columbia's insurance industry/InsurTech players to establish a stronger degree of collaboration with UofSC and re-establish a collaborative cluster forum ▪ InsurTech represents a compelling opportunity to establish an annual national summit/conference that could enhance the prominence of Columbia as a leading innovative cluster in the field ▪ FINTECH GENERATIONS: Charlotte's conference attended by fintech entrepreneurs, professionals and investors was held virtually in June 2020
Biotech, Medical Devices	Life Science Conferences and Symposium	8	<ul style="list-style-type: none"> ▪ Increase brand recognition, size and exposure of the annual SCBIO conference, and add Columbia to list of locations for the SCBIO annual conference ▪ Consider applying to host some of the world-renowned conferences in Life Sciences such as "BIO World Congress on Industrial Biotechnology and Ag Tech" 	<ul style="list-style-type: none"> ▪ NC Biotechnology: established more than 35 years ago, has hosted many conferences in Life Sciences on various topics ranging from "Medical, Biomedical & Biodefense" to "Global Health Leadership Forum"

Research, Innovation, and Partnerships (8/11)



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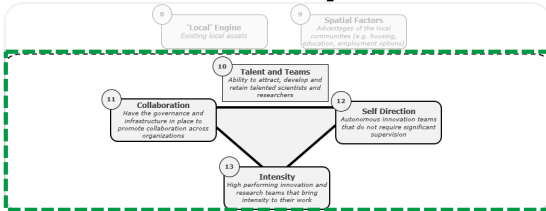
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Segment	Capability Development	Element	Description	Columbia or Peer Community Implementations
Aerospace	Develop Strategy on Next Gen Manufacturing Technology	8	<p>Leverage existing strengths already in place at UofSC in manufacturing-focused fields of engineering and supply chain as a catalyst for collaborative economic development</p> <ul style="list-style-type: none"> ▪ Strengthen collaboration between Columbia's economic development community and private enterprise leveraging high-profile assets like the McNair Center to strengthen the city's reputation as a hub for next-gen manufacturing technologies, potentially prioritizing Aerospace and then expanding the model to other priority segments ▪ Columbia should leverage its strong academia and industry assets available in AI, IIoT, Cyber Security, Supply Chain and Data Analytics to strengthen its manufacturing technology capabilities and infrastructure 	<ul style="list-style-type: none"> ▪ Singapore's Agency for Science, Technology and Research (A*STAR) encourages the development of industry-relevant manufacturing technologies which can be brought to commercialization in the coming years <ul style="list-style-type: none"> • Focus areas include AI, Industrial Internet-of-Things (IIoT), additive manufacturing, data analytics for predictive maintenance and asset optimization LINK ▪ Edison Technology Centers, Columbus (OH) provide product/process innovation and commercialization services to both established and early-stage tech businesses ▪ PolymerOhio: Networking group of polymer companies, leading academic agencies and service providers to develop Ohio's polymer industry
Financial Services/ Healthcare IT/ Segment Agnostic	Fiber Network	9	<p>A strengthened and diversified fiber network could enable the outskirts of the metro to be more competitive in attracting new data center investments</p> <ul style="list-style-type: none"> ▪ Larger-scale enterprise data centers are often deployed in relatively remote areas (suburban/rural outskirts of larger metros), especially when such areas have a robust and diverse network of fiber-based telecommunications providers ▪ The Columbia region's ease of commuting from and into the city further enhances the value proposition 	<ul style="list-style-type: none"> ▪ Madison promotes its Open Data city status, providing collaborative fiber-optic network serving education, health, government, and organizations anchor startups and established companies in Madison and its neighboring area

Research, Innovation, and Partnerships (9/11)



COLLABORATION

10 Create a clear direction, incentives and a 'boundary less' environment to enable effective collaboration across teams and organizations

SELF DIRECTION

11 Self directing teams, which combine different skills and talents without significant management supervision, are a critical element of high performing research environments

INTENSITY

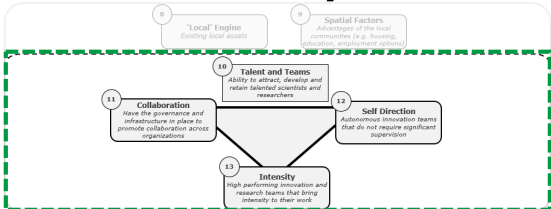
12 High performing innovation environments are characterized by a clear mission, high levels of collaboration, urgency, excitement and a sense of progress which results in intense working practices (without for top down pressure or incentive systems)

TALENT AND TEAMS

13 Talent management includes developing individual skills, behavior and motivation, and building processes to attract, develop, value and retain talented scientists across a region

Segment	Capability Development	Element	Description	Columbia or Peer Community Implementations
Segment Agnostic	Enhance collaboration among industries and the university	10	<p>Enhance the UofSC OEE's centralized function to create industry and academic collaboration by providing more resources to the OEE (personnel and funding)</p> <ul style="list-style-type: none"> Increase the awareness and collaboration between the OEE and faculties from all departments Provide more value-added services to industries such as providing real estate / lab space on or near campus, testing service and equipment Connect with highly qualified students for internships and co-ops and full-time opportunities with companies 	<ul style="list-style-type: none"> Maryland Industrial Partnerships (MIPS) promotes the development and commercialization of products and processes through industry/university research partnerships. MIPS provides matching funds to help Maryland companies pay for the university research NC State has an Office of Partnerships and Economic Development that attracts investment and help facilitate job creation by partnering with companies, faculties and innovators
	Faculty Recruitment and Performance Evaluation	13	<p>Most faculty are evaluated based on academic research, however, it is recommended to add industry collaboration as additional criteria to enhance the research objectives and market demand</p> <ul style="list-style-type: none"> Incorporate industry collaboration as a priority when recruiting and evaluating faculty Incentivize faculty by offering a bonus for the magnitude of funding they can get for research 	<ul style="list-style-type: none"> Georgia Tech: Faculty performance evaluation includes industry collaboration Wichita State: Faculties are rewarded financially with the level of funding they bring to the university

Research, Innovation, and Partnerships (10/11)



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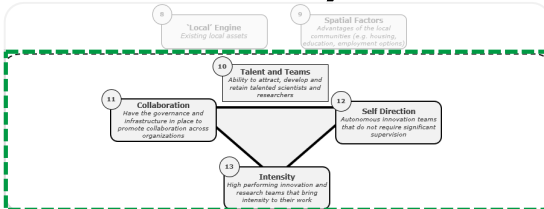
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Segment Agnostic	Directory of Regional and Statewide Startup & Entrepreneurial Resources	13	<p>Columbia’s Economic Development stakeholders should actively collaborate with robust S.C. Innovation Hub (LINK), the online tool for the state’s innovation community – supplying individuals and businesses within the tech sector a platform to access resources and connections.</p> <ul style="list-style-type: none"> Priority would be to curate an exhaustive directory of Columbia and its counties startup and entrepreneurial resources Enabling the tool to instill confidence in entrepreneurs that Columbia is a thriving and supportive environment to start a business Greater community awareness of the role of the economic development community in supporting startups and growth of small businesses, along with improved governance and coordination 	<ul style="list-style-type: none"> Start In Wisconsin (LINK): Online platform for entrepreneurs to find and access resources housed across government agencies, educational institutions and entrepreneur support organizations. It includes: <ul style="list-style-type: none"> Searchable database of regional/statewide organizations Calendar of relevant events and networking opportunities Telephone hotline for 1-on-1 help and referrals to nearby entrepreneur support organizations North Carolina’s Southeast’s website has a list of entrepreneurial resources including funding access, networks, innovation centers (LINK) New York also lists a comprehensive list of resources for entrepreneurs (LINK)
Segment Agnostic	Technology Collaboration Center and coworking spaces in the public library System	10	<p>Enhance the value of Richland Library Coworking Center in Columbia (LINK) as a Technology Collaboration space wherein tech-focused events can be hosted</p> <ul style="list-style-type: none"> Along with support on fundraising, recruiting, and IP, the centers can help entrepreneurs and small businesses to collaborate with industry leaders and investors The library-based Technology Collaboration Center could also serve as a center of excellence for virtual collaboration with participants and resources located outside Columbia 	<ul style="list-style-type: none"> Hive @ Central, Phoenix Public Library: The space is part of the Entrepreneurship Outreach Network, bringing together inventors, problem-solvers, entrepreneurs and small businesses Ohio’s Akron-Summit County Public Library Microbusiness Center is another example Columbus Ohio’s OCLC (Online Computer Library Center) <ul style="list-style-type: none"> The world’s largest library cooperative, with a mission to provide further access to the world’s information by reducing costs and improving services through shared, online cataloging A worldwide organization, OCLC membership comprises 74,000 libraries, archives and museums in 170 countries

Research, Innovation, and Partnerships (11/11)



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11 Self directing teams, which combine different skills and talents without significant management supervision, are a critical element of high performing research environments

INTENSITY

12 High performing innovation environments are characterized by a clear mission, high levels of collaboration, urgency, excitement and a sense of progress which results in intense working practices (without for top down pressure or incentive systems)

TALENT AND TEAMS

13 Talent management includes developing individual skills, behavior and motivation, and building processes to attract, develop, value and retain talented scientists across a region

Segment	Capability Development	Element	Description	Columbia or Peer Community Implementations
Aerospace	DOD/DOE Technology Spillover	10	<ul style="list-style-type: none"> Enhance collaboration between McNair Aerospace Center and Shaw Airforce Base and perhaps other military/federal establishments with the overarching objectives of augmenting local research capabilities and strengthening the supply of military talent into Columbia's private sector 	<ul style="list-style-type: none"> Huntsville became a center for rocketry since WWII and has evolved to a center for scientific innovation with institutions like Redstone Arsenal, HudsonAlpha (think tank), NASA (e.g. Marshall Spaceflight Center, Space Camp) Huntsville benefits from military technology – NASA's Saturn V rocket and the technological advances that helped put Americans on the Moon were created in Huntsville-Madison County

Workforce, Education and Training Pillar

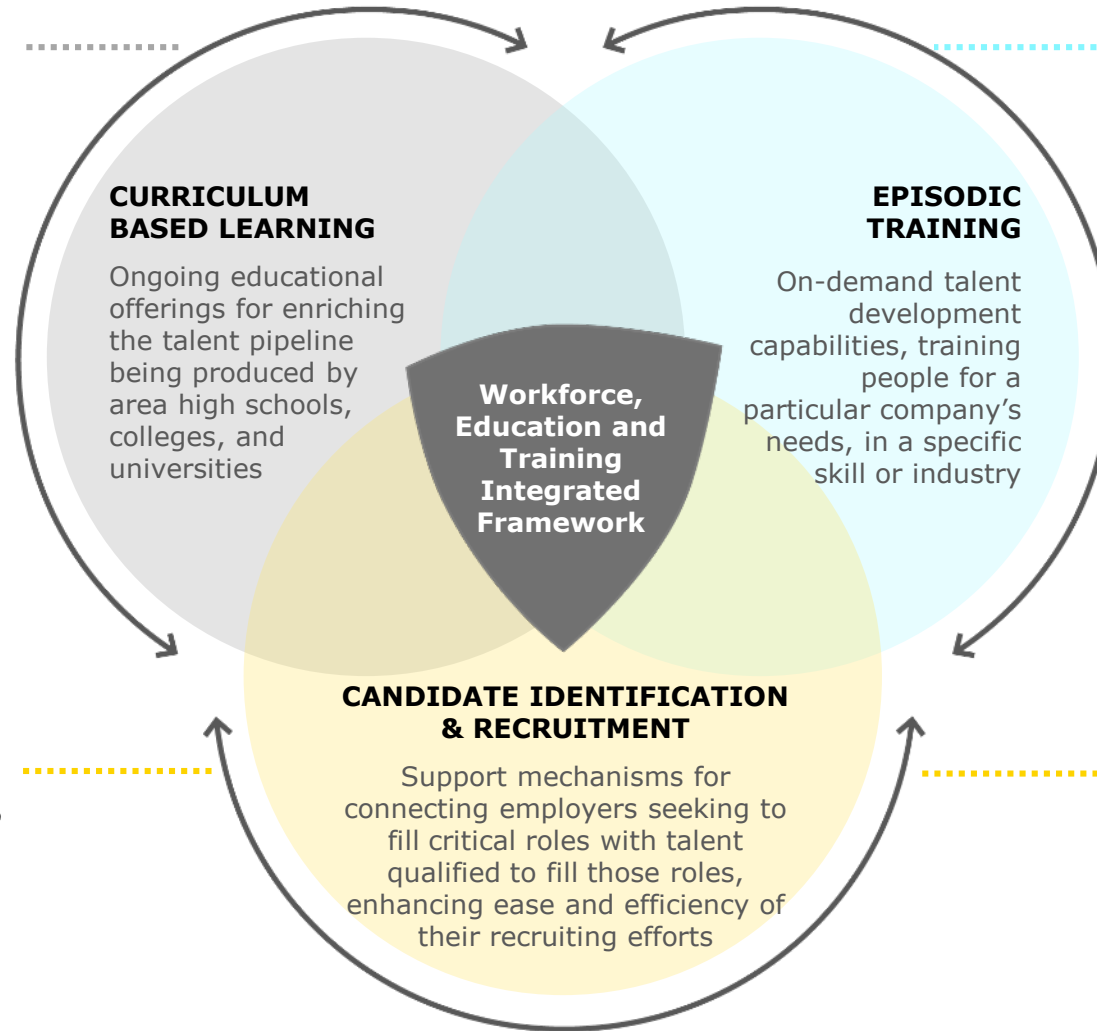
Workforce, Education and Training Framework

Curriculum Based Learning

- College/University Level
 - ✓ College/University courses offering on-demand skillsets
 - ✓ Scholarship and Grants
 - ✓ Community College Certification Programs
 - ✓ Apprenticeship Programs
- High School Level
 - ✓ Apprenticeship Programs
 - ✓ Coding Academics
 - ✓ Coding Bootcamp/Hackathons

Candidate Identification

- Assess industry skill needs and identify where the talent is available
- Evaluate the effectiveness of local training supports in addressing gaps in talent supply
- Manage and maintain an exhaustive database of candidate resume and talent information



Episodic Training

- Certification programs for employees (could be ongoing)
- Development of Short-term Educational Offerings and Episodic Training
- Skill and Knowledge Development for Middle-Skill, Middle-Wage or Higher Occupations
- Applied Research with Industry

Candidate Recruitment

- Robust one-stop hiring and recruitment platform for companies and job seekers
- Smart technology (AI, Robotics, Data Analytics, etc.) to strengthen job postings and identification of right candidates
- Military Employment Partnership

Executive Summary: Workforce, Education and Training

CURRICULUM BASED LEARNING

EPISODIC TRAINING

CANDIDATE IDENTIFICATION & RECRUITMENT

RECOMMENDATIONS

- USC must institutionalize agility in matching degree programs and courses to needs of the priority segments. Suggested areas of focus: programming, data analytics, cybersecurity, AI, automation etc.
- Expand on the best-in-class 'Apprenticeship Carolina' and look to add forward-looking initiatives like online portals, smart technologies, etc.
- Coding Bootcamps and Hackathons for secondary/high school students in software engineering, web or mob dev

- MTC can develop an updated collection of intermediate-level training programs (for certification or part of associate's degree program curriculum) that can be delivered to new hires/candidates of new or growing private sector employers in target segments
- Expand on UofSC's HIT robust faculty work with industry on applied research projects, and target for increased grants/funding, proactivity for recruiting partners and developing a collaboration space

Along with recruiting, assessment, training development, management, and implementation services, ReadySC could invest in opportunities like:

- Tech to strengthen postings/candidate identification
- Robust candidate database
- Database of trending on-demand skills required by local employers and potential new employers
- And, Transitioning Military Employment Partnership

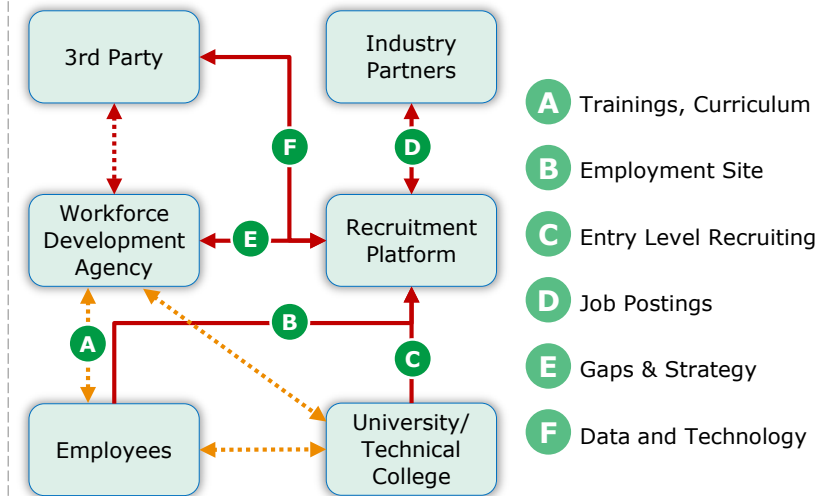
INSIGHT



The **Kentucky STEM Apprenticeship** Project realigns their businesses and education resources and using intermediaries to achieve scale. According to Washington State ED Report, for every dollar spent on apprenticeship taxpayers **save \$23**



Since 1967, **Georgia Quick Start** has been collaborating with companies start up and expand their operations by customized training programs and providing companies with a trained workforce



PEERS

- IT-focused Associate's Degree and certification programs at Tampa's Hillsborough Community College

- Mississippi Coding Academics
- NYC General Assembly Coding Bootcamp

- Georgia Quick Start and the Technical College System of Georgia's Apprenticeship Program

- NC State & BTEC
- Indiana Cybersecurity Programs

- Louisiana LED FastStart
- Seattle Military Family Friendly Employment Partnership

- Alabama AIDT
- Tennessee Workforce360°
- NC Works

ASSETS

- USC
- Tech Colleges
- High Schools
- ReadySC
- SCRA

- ReadySC
- MTC
- USC
- SCBIO
- SC CoC

- SC DEW
- ReadySC
- USC
- SCCC
- SCBIO

Workforce, Education and Training (1/7)

Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
Segment Agnostic	Apprenticeship Program	<p>ReadySC, Apprenticeship Carolina and the SC Technical College System should continue targeting: 1) Employer Involvement; 2) On-the-job Training; 3) Technical Instructions; 4) Paid Work Experience; and 5) Award of portable, nationally recognized industry credentials.</p> <p>Areas of future initiative:</p> <ul style="list-style-type: none"> ▪ Online delivery of learnings, mentorship, curriculum, etc. for youth and high school students ▪ Targeted Industry/Segment Apprenticeship Programs on areas of priority for Columbia such as Cybersecurity, AI, HIT, Biotech, Advanced Manufacturing etc. This may include programs in coding, software design, data analytics, etc. <ul style="list-style-type: none"> • Establish Software & IT Apprenticeship Program at local colleges and universities and provide scholarship/grants for select participants ▪ Use of smart technologies (such as machine operated competency data analytics, one-stop online learning platforms, etc.); and, increased promotion across schools, college system, and industry partners 	Talent	<ul style="list-style-type: none"> ▪ The Oregon Pathways to Apprenticeship performed pilot online delivery of curriculum, mentorship, and work-based learning with rural school districts ▪ The Rhode Island Youth Apprenticeship Program developed competency based Cyber-Security Analyst Apprenticeship and Data Analyst Apprenticeship Programs ▪ Technical College System of Georgia (TCSG) has teamed with the US Department of Labor Office of Apprenticeship to offer students the opportunity to work with Georgia’s manufacturing leaders as registered apprentices. TCSG Apprenticeship offers programs (e.g. Industrial Systems Technology) that ties directly to occupations (e.g. Industrial Maintenance Technician) – LINK ▪ Preparing Today’s Students for Tomorrow’s Tennessee create a pilot competency-based machine operator apprenticeship LINK <ul style="list-style-type: none"> • Lessons learned from the pilot is being used to develop an apprenticeship curriculum that aligns with existing high school STEM programs of study in advanced manufacturing, computer science, and health care
	Tailoring Local College, MTC and University Program Offerings	<p>Local colleges and universities must institutionalize agility in matching offerings to needs of priority segments</p> <ul style="list-style-type: none"> ▪ Suggested areas for program offerings by universities long-term view: 1) Programming, Data Analytics, Database and Large Data Process; 2) AI; 3) Cyber Security; 4) Automation, Robotics; 5) Biopharma Quality Assurance and Regulatory Affairs ▪ Suggested that the PhD programs at local colleges and universities adopt industry standard research and development approach that leverages the Agile Methodology in designing, prototyping and testing ▪ UofSC OEE to grow and create a University Wide capstone class database with descriptions for connecting industry stakeholders with agile student project teams in relevant focus areas, which will lead to internships and potential employment 	Talent	<ul style="list-style-type: none"> ▪ Based on feedback from company interviews ▪ Indiana Cybersecurity Programs: 30+ colleges and universities with cybersecurity/information security degrees, certificates programs, or course work; 72 schools in Indiana producing graduates with competencies related to becoming a Cyber Security Analyst

Workforce, Education and Training (2/7)

Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
Segment Agnostic	Certificate Programs and Episodic Trainings	<p>Midlands Tech can enhance its connectivity and responsiveness to the critical skill needs of enterprises in priority segments through working with industry sponsors. MTC should develop an updated collection of intermediate-level certification training programs that are tailored to the needs of employers in target segments for prospective and existing employees:</p> <ul style="list-style-type: none"> • In-demand coding/programming (Software & IT, Healthcare IT, and Financial Services) • Network Security and Cybersecurity • Med Device Quality Assurance and Regulatory Affairs • Biotech Lab Technician and relevant certifications • CAD/CNC, High-Temperature Welding (Aerospace) • IBM Skills Academy, Siemens Advanced Software, CATIA, etc. 	Talent	<ul style="list-style-type: none"> ▪ Georgia QuickStart collaborates with companies to analyze needs, design a training plan, develop modules and materials, implement training and evaluate effectiveness for continuous improvement. As part of the training program, QuickStart also offers soft skills and culture trainings for company employees ▪ North Carolina’s Biomanufacturing Training and Education Center (BTEC), was established to attract and expand biomanufacturing in NC by providing educational and training opportunities to develop skilled professionals for the biomanufacturing industry
	2-year College to 4-year University Transfer Programs in IT and Business Data Analytics	<ul style="list-style-type: none"> • Expand the current offering of programs and courses to include Software & IT, and Business Data Analytics and include them in the current transfer program (e.g. transferrable to Computer Science and Engineering major and business school at a 4-year university) 	Talent	<ul style="list-style-type: none"> ▪ Tampa’s Hillborough Community College: Multiple transfer paths from two-year to four-year programs. Comprehensive offerings across IT disciplines (especially cyber) in Certification and Associate Degrees. A commitment to Guided Pathways programs that provides a clear path from the educational programs to careers ▪ Austin Community College: Offers Bachelor of Applied Science in Software Development, Computer Information Technology Program, and transferrable 2-year programs in Computer Science, Computer Information System
	Transitioning Military Employment Partnership	<p>Columbia should establish a metro area Military Employment Partnership that would serve as primary conduit connecting military workforce supply from within and outside the region with private sector talent demand in the metro and equip them to transition into the private workforce</p> <ul style="list-style-type: none"> ▪ Support both the supply side, helping military families (including partners) to find employment opportunities, and the demand side, helping local employers tap into well-qualified workforce 	Talent	<ul style="list-style-type: none"> ▪ The Military Family Friendly Employment Partnership has been active in Snohomish county near Seattle, WA since September 2007. The partnership addresses issues both on the supply side, helping military family members find employment, and on the demand side, helping local employers tap into a well-qualified workforce pool

Workforce, Education and Training (3/7)

Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
Segment Agnostic	Connecting Employers with Qualified Workers	<p>ReadySC along with being a Southeast leader in recruiting, assessment, training development, management, and implementation services, should also look to invest in:</p> <ul style="list-style-type: none"> ▪ Conduct Workforce Performance Analysis: Work with companies to understand the training programs, skills required, gaps to resolve, etc. ▪ Improve quality of life for employees with effective collaboration between companies and workforce regional partners to remove roadblocks to getting people to work, including transportation issues and childcare issue ▪ Use Smart Technology (AI, Robotics, Data Analytics, etc.) to strengthen job postings and identification of right candidates ▪ Manage Database of Candidates’ Resumes and Skillsets, and use technology to identify the gaps in the skills to be filled ▪ Work with UofSC OEE to grow and create a University Wide capstone class database with descriptions for connecting industry stakeholders with agile student project teams in relevant focus areas, which will lead to internships and potential employment 	Talent, Operating Environment	<ul style="list-style-type: none"> ▪ Virginia Talent Accelerator is a turnkey solution for customized recruitment, screening, and training <ul style="list-style-type: none"> • Virginia Jobs Investment Program offers <u>consultative services and funding to companies</u> that create new jobs or experiencing technological change ▪ Georgia QuickStart conducts customized assessment to evaluate candidates and has trained more than a million workers, through programs tailored to the needs of the employer ▪ Louisiana LED FastStart: Offers no-cost, customized employee recruitment, screening, training development, and training delivery. The program employs <u>expertise from wide range of businesses</u> ▪ Alabama AIDT: Job-specific services for <u>pre-employment and on-the-job training</u> along with recruitment, assessment and training services, and offers training facilities ▪ Tennessee Workforce360° is a <u>systematic partnership among state agencies and the higher education system</u>, a project-based system targeting workforce gaps ▪ NCWorks has a range of free services and programs for expanding businesses – including recruiting services, job training assistance, apprenticeship programs, and special services related to the agricultural workforce LINK
	University and MTC Scholarships and Grants	<ul style="list-style-type: none"> • SC should consider expanding SC WINS scholarships to train additional workers in the prioritized segments, such as Software and IT, and a similar scholarship for Apprenticeship Programs that targeted at Software, IT, Cybersecurity at four-year institutions 	Talent, Operating Environment	<ul style="list-style-type: none"> ▪ The HOPE program in Georgia that grants students with financial assistance in degree, diploma, and certificate program at universities or technical colleges in GA

Workforce, Education and Training (4/7)

Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
Segment Agnostic	Coding Bootcamp and Hackathons	The City of Columbia should create a Coding Bootcamp and host regular Hackathons. Through these intensive training programs, students can get practical knowledge they need to land a role in software engineering, web development, or mobile development.	Talent, Operating Environment	<ul style="list-style-type: none"> ▪ Detroit: Phillips does hackathons through the Black Girls Code program, which gives African-American girls a three-day crash course in app development. But other programs provide curriculums spread out over the course of a summer or several weeks during the school year ▪ Mississippi Coding Academies provide a no-cost 11-month training program that transforms young adults into full-stack coders and software professionals. Three centers across the state are run by their Dev. Authority, Commerce, State Univ. and Industry Contribution Fund
Biotechnology	Enhance ED Collaboration with Colleges and Universities	<p>Build close collaboration between ED offices and local colleges and universities (through Office of Industry Partnerships) in the following areas:</p> <ol style="list-style-type: none"> 1) ED offices provide industry connections and help identify talent for key leadership roles with business implications at colleges and universities 2) Connect companies with researchers/faculty at local colleges and universities 3) Faculty and researchers showcase research capabilities to potential companies looking to locate and expand in Columbia 	Talent	<ul style="list-style-type: none"> ▪ NC State has a dedicated Office of Partnerships and Economic Development that has 8 full-time employees. It helps organizations save time and money by providing expert assistance and strategic connections
	Certificate Programs for Biological & Lab Technicians	<ul style="list-style-type: none"> ▪ Work with Midlands Tech College and 4-year universities in developing a certificate program for Quality Assurance and Regulatory Affairs, biological technicians, process technicians, and lab technicians for a biotechnology, pharmaceutical, or chemical manufacturing companies 	Talent	<ul style="list-style-type: none"> ▪ NC BioWork certificate program offers a 136-hour course that teaches the foundational skills needed to begin a career as a process technician for a biotechnology or pharmaceutical companies. The program is targeted for high school students or young professionals

Workforce, Education and Training (5/7)

Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
Biotechnology	Introduction Course in Gene Therapy Manufacturing	<ul style="list-style-type: none"> Leveraging the UofSC Biotechnology program (existing 4 courses and faculties in this field), develop an introduction course in gene therapy that introduces the most common application of gene therapy, regulatory environment, challenges and manufacturing process 	Talent	<ul style="list-style-type: none"> University of Massachusetts Lowell offers a course in Viral Vector for Gene Therapy – Manufacturing course - link
Medical Devices	MedTech Competition and Immersion Programs	<ul style="list-style-type: none"> Working with colleges and universities and high schools in Columbia area to cultivate students’ interest in Medical Device sector through: <ul style="list-style-type: none"> Hosting annual MedTech Innovation Competition, tailored to pandemic solutions as an example; 2) Summer Immersion Programs where freshman and sophomore college students and high school seniors can have job shadowing experiences at the local Medical Device companies 	Talent	<ul style="list-style-type: none"> The Annual Georgia BioGENEius Competition recognizes outstanding high school science students in the region, advancing winners to compete in the National and International BioGENEius Challenges Georgia BioEd Program offers Summer Bio Immersion to high school and technical school students and provides them with hands-on training in biotechnology
Aerospace	Aerospace Workforce Training Programs	<p>Update the training programs at Workforce Training Centers and Technical Colleges. Examples:</p> <ol style="list-style-type: none"> Develop a dual-credit CAD/CNC program with one or more of the high schools Incorporate laser beam welding training at Midland Tech, technical high schools or ReadySC programs Aerospace parts supplier manufacturing composite related skill training (leveraging McNair Center’s research focus on composites) Additive (advanced) manufacturing, especially in powered-bed laser printing systems 	Talent	<ul style="list-style-type: none"> Minnesota State Advanced Manufacturing Center of Excellence meets manufacturers’ need for a qualified work force by providing a core curriculum through 360 eTECH. Developed by our faculty, 360 eTECH curriculum offers students the chance to upskill and develop the technical skills needed to build a manufacturing career Huntsville, AL has a high-temperature welding program for aerospace suppliers
	Long-term University Program Offering	Update the curriculum of the Aerospace Engineering at colleges and universities to include aircraft structure design, advanced manufacturing, and offer hands-on experiences at the McNair Center and partnering companies	Talent	<ul style="list-style-type: none"> Based on feedback from stakeholder interviews

Workforce, Education and Training (6/7)








Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
Financial Services	Management Workshops and Soft Skills Trainings	<ul style="list-style-type: none"> Columbia should build a comprehensive training programs in partnership with industry, to develop upper and middle management trainings. Examples include: <ul style="list-style-type: none"> Skills Training: Management of Personnel, Operation Monitoring, Quality Control Analysis, Soft Skills, etc. Knowledge Training: Administration and Management, Telecommunications, Design, etc. 	Talent	<ul style="list-style-type: none"> For their 2010-2020 Workforce Development Plan, the California Workforce Development Board matched the skills and knowledge requirement for Middle-Skill, Middle-Wage or Higher Occupations to develop prioritized programs at their technical colleges and university (LINK, Page 301) Heard on interview with a HealthTech company: <i>"Finding junior to senior level coders and developers has been a challenge, along with shortfall on clinicians. There is also a lack of HQ upper and mid-level management talent"</i>
Software & IT	Long-term University and MTC Program Offering	<ul style="list-style-type: none"> Local colleges, universities and Midlands Tech should consider increasing focus on programs on Cybersecurity, Information Security, Data Analytics, IoT, AI, and advanced manufacturing data analytics, as well as offering courses in development students' soft skills 	Talent	<ul style="list-style-type: none"> Indiana Cybersecurity University Programs: 30+ colleges and universities with cybersecurity/information security degrees, certificates programs, or course work; 72 schools in Indiana producing graduates with competencies related to becoming a Cyber Security Analyst Austin Community College offers Bachelor of Applied Sciences in Software Development, Computer Science and Computer Information System transfer programs
Software & IT	University Research Grants	Research grants dedicated to areas where the industry cluster needs talent. Having local colleges and universities involved would improve participation and collaboration	Talent	<ul style="list-style-type: none"> Purdue Research Park gives \$49 million in federal research and development grants for small businesses brought to Indiana since 1987 LINK
Healthcare IT	Target Training and Workforce Programs in Future Health Technology	<ul style="list-style-type: none"> With new areas of HIT becoming popular globally leveraging technologies, such as Telehealth, IoMT (Internet of Medical Things), 5G, etc. Columbia should establish strong connections between enterprises and UofSC programs <ul style="list-style-type: none"> Pharm.D./M.H.I.T. dual degree in medical informatics (in partnership with UofSC College of Pharmacy) Division of Biostatistics in the Dept. of Epidemiology and Biostatistics at Arnold School of Public Health Prioritizing <i>"Big Data and Bioinformatics"</i> as one of its primary research areas for UofSC's College of Nursing 	Talent, Operating Environment	<ul style="list-style-type: none"> Some of the programs we need to align against: <ol style="list-style-type: none"> Columbus State Community College's health information management program Ohio State University's data analytics and biomedical informatics programs

Workforce, Education and Training (7/7)

Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
<p>Segment Agnostic/ Healthcare IT</p>	<p>Customized Applied Research Solution for/with Industry</p>	<ul style="list-style-type: none"> ▪ Expand on UofSC’s Health Information Technology robust faculty work with industry on applied research projects, similar to the way they work with HP (Value added components of EHR equipment), Microsoft (piloting Microsoft tablet applications with doctors), Intel (Testing wireless router technology in a healthcare setting) ▪ Seek additional grant and funding for applied research projects – supporting and collaborating with start-ups/mid-size companies <ul style="list-style-type: none"> • <u>NOTE</u>: HIT faculty received ‘The Fraunhofer USA’ grant, funded through the SC Department of Commerce, to work on telehealth applications customized to prison systems ▪ Leveraging existing the Innovation Center for faculty, students, industry partners, ED parties, third parties, etc. targeted in Applied Research projects delivering customized support to organizations ▪ UofSC’s OEE should be resourced to maximize their ability to have a more significant and proactive role in recruiting industrial partners for applied research projects, and continue providing assistance in negotiating contracts and agreements 	<p>Talent, Operating Environment</p>	<ul style="list-style-type: none"> ▪ Utah Science Technology and Research Initiative (USTAR), the technology-based EDA of Utah – provides the University Technology Acceleration Grant (UTAG) <ul style="list-style-type: none"> • The program is designed to advance the maturity of technology that has been developed in the university lab to catalyze it toward commercialization ▪ Mohawk College (Ontario, CA) IDEAWORKS Innovation Center “fills the space between research and solutions by delivering <i>customized support to organizations</i>” LINK <ul style="list-style-type: none"> • Faculty, staff and students collaborate with industry partners to complete real-world projects, which are often funded by provincial and federal agencies • Areas of their focus include, eHealth/mHealth, Medical Technologies, Additive Manufacturing, Augmented & VR, Big Data, Cybersecurity, among others
<p>Segment Agnostic</p>	<p>Workforce Attraction and Retention Program</p>	<ul style="list-style-type: none"> ▪ Columbia should consider adopting a Workforce attraction and retention program by which to incentivize workers possessing a particular skillset or credential to locate in the Columbia region and apply that skillset or credential to their career in Columbia; such incentives might include extra tax credits, student loan forgiveness, or other forms of support ▪ Suggest that the state offers incentives in the form of extra tax credit or student loan forgiveness to college and university graduates who remain in South Carolina to work in IT or Life Sciences industries 	<p>Talent</p>	<ul style="list-style-type: none"> ▪ Summary of various types of programs being employed across the US provided as a separate reference

Supplement: Workforce Attraction and Retention Measures Overview

Strategic Considerations

Program Sponsorship	Career Periods Addressed
 State Sponsored  Local Sponsored  University Sponsored  Corporate Sponsored	 Pre-Grad  Post-Grad  Mid-Career

Broad Range of specific Program Types

Apprenticeship	Infrastructure (e.g. High-Speed Internet)	Student Loan Reimbursement	Community Enhancement / QoL Enhancement
Guidance / Mentoring / Informational Resources	Job Promotion / Posting / Fairs	Co-Op Programs / Internship Programs	Network Development
College / University Outreach	Worker Recognition	Career Transition Support	Business Investment Promotion
Education Grants / Subsidies	Attrition Prevention	Family Outreach	Start-Up Incubation / Capital Raising Support
International Talent / Immigration	Business Promotion	Family Financial Support	Talent Allocation Solutions (e.g. Sharing)
Relocation Subsidies	Training Subsidies	Home-Buying / Home-Building Assistance	Target Group Applicant Promotion / Support
Community Marketing / Promotion		Termination / Layoff Prevention	


Targeting Programs to Maximize Impact


Existing Presence	Program Outcomes	Program Sustainability	Program Competitiveness
Is such a program already well-represented within the region?	Does such a program have a proven track-record, and is it targeted toward the community's talent needs?	Can the program be sustained long enough to build momentum?	Would the program be compelling to the target workforce segments?

Supplement: Workforce Attraction and Retention Targeted to Local Priorities


Based on initial perspectives on Columbia’s talent attraction and retention objectives and priorities, and also on high-level trends observed across geographies, several types of programs emerge as potentially offering value to Columbia

 Education Grants / Subsidies
Programs targeting students before they enter college with the goal of promoting local education, apprenticeship, and employment resources

 Student Loan Support
Programs that will reimburse a portion of student loans for graduates depending on certain location / employment decisions

 Family Financial Support
Programs that offer incentives that are targeted towards workers’ families (e.g. child care, college savings, etc.)

 Relocation Subsidies
Initiatives providing financial support to people that meet specific skills requirements if they move to a certain community

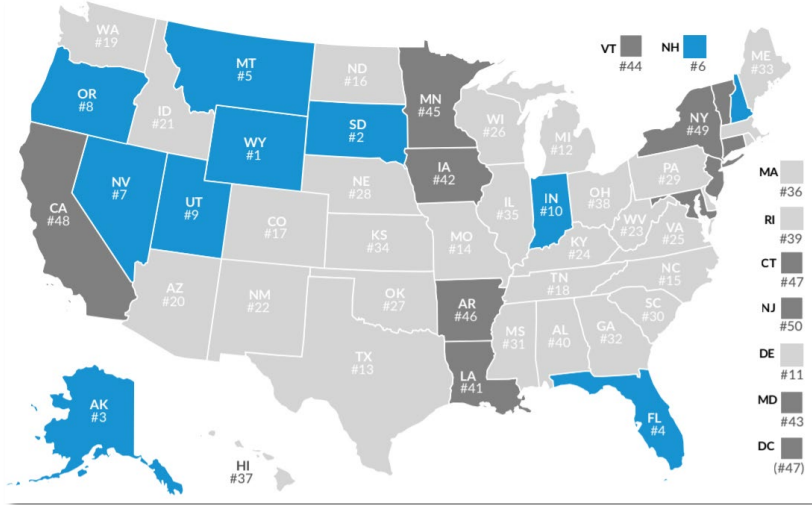
 Home-Buying / Home-Building Assistance
Programs that will utilize financial support in the purchase of a home to incentivize talent attraction or retention

Incentives Pillar

South Carolina Business Taxes Overview

SOUTH CAROLINA IN COMPARISON TO THE U.S. AND SOUTHEAST STATES

SOUTH CAROLINA HAS A COMPETITIVE STATE TAX SYSTEM BUT SHOULD IMPROVE PROPERTY TAX POLICIES TO BE MORE BUSINESS FRIENDLY ¹








Tax Foundation 2020 State Business Tax Climate Index Ranking, [LINK](#)

	Year	SC	AL	GA	KY	NC	TN
Overall Rank	2020	30	40	32	24	15	18
	2014	27	39	30	35	34	13
Corporate Income Tax Rank	2020	4	23	6	17	3	24
	2014	12	24	9	25	27	14
Individual Income Tax Rank	2020	34	30	36	18	16	8
	2014	30	25	35	34	38	8
Sales Tax Rank	2020	31	50	29	14	21	47
	2014	32	50	29	11	26	47
Property Tax Rank	2020	30	15	28	36	34	31
	2014	20	13	30	34	29	38

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High/Increasing Rank

Low/Decreasing Rank

Business Tax	Current Condition in South Carolina	Observation
Corporate Income Tax	<ul style="list-style-type: none"> Corporations are subject to a 5% corporate income tax on net taxable income Offers single-factor sales formula for apportioning income, which is advantageous for companies with a majority of sales occurring outside of SC 	<ul style="list-style-type: none"> SC has a low tax rate compared to an average of around 6.5% nationwide Adoption of single sales factor apportionment and a strong tax credits ecosystem, have substantially improved SC's competitive position 
Franchise Tax	<ul style="list-style-type: none"> The annual license fee is imposed at the rate of \$15 plus \$1 for each \$1,000 (or fraction thereof) of capital stock and paid-in capital surplus of the corporation 	<ul style="list-style-type: none"> SC is one of only 14 states that will still have this 'tax/fee' in place – once New York and Mississippi finish phasing it out 
Individual Income Tax	<ul style="list-style-type: none"> South Carolina has a marginal income tax rate of 7% and an effective tax rate of 2.99%¹ 	<ul style="list-style-type: none"> TN and FL have no income tax on wages NC has an income tax rate of 5.25% and an effective income tax rate of 4.23%¹; GA has an income tax rate of 5.75% and an effective income tax rate of 4.62%¹ 
Sales and Use Tax	<ul style="list-style-type: none"> 6% on gross receipts from retail sales or leases of tangible personal property. Some counties assess an additional 1- 2.5% local option sales tax <ul style="list-style-type: none"> The state provides a number of sales tax exemption on manufacturing equipment, property, R&D, etc. 	<ul style="list-style-type: none"> SC's sales tax rates are higher compared to neighboring states (NC has a 4.75% and Kentucky has a 5% sales tax) While exemptions do exist, non-manufacturers often do not qualify 
Property Tax	<ul style="list-style-type: none"> At the state level, SC has one of the highest property tax burdens on businesses in the Southeast, and its rank has fallen over past 5 years <ul style="list-style-type: none"> For manufacturers, real and personal property are both assessed at 10.5% The assessment ratio for all other businesses is 6% for real property and 10.5% for personal property 	<ul style="list-style-type: none"> Richland County has the third highest average property tax rate in South Carolina, as its effective rate stands at 0.79% This comprises an important challenge to address in terms of overall tax competitiveness 

¹ Source: Smartasset.com

Overview of Statutory Incentives Offered by SC vs. Competing States

	SC	NC	GA	TN	OH	FL	MD
Relevant Tax Credit							
Job Tax Credit	✓	✓ ¹	✓	✓	✓	✓	✓
Investment Tax Credit	✓		✓	✓		✓	5
Corporate HQ Tax Credit	✓		✓	✓		✓	
Research and Development Tax Credit	✓	✓	✓		✓	✓	✓
Tax Credit for Mega Projects			✓			✓ ⁴	✓
Investor Tax Credit			✓		✓		
Relevant Exemptions							
Property or Personal Property Tax Exemptions							
Sales and Use Tax Exemption		✓ ¹	✓	✓	✓ ³	✓	✓
Inventory Tax Exemption	✓	✓	✓				
Business Environment							
Single Sales Factor Apportionment	✓	✓	✓				
Foreign Trade Zone / Enterprise Zone Incentives	✓	✓	✓		✓		✓
NOL Carry Forward Period	20y*	Carryback only	Indefinitely	15y	0y for State, 5y for municipal	Indefinitely	Carryback only
Grants and Loans							
Discretionary or ED Grant	✓	✓ ¹		✓ ²	✓		✓
Entrepreneur and Small Business Loan / Financing							✓
Financing Incentives for Military Personnel and Veterans						✓	✓
Industry Specific							
Life Sciences specific incentives	✓	✓	✓		✓	✓	✓
Aerospace Industry specific incentives					✓	✓	
Cybersecurity or IT specific incentives			✓	✓	✓	✓	✓
Advanced Manufacturing specific incentives					✓		

* Corporations must add back the amount of the federal NOL deduction to their state income in SC.
 1) NC: Job Tax Credit refers to Job Development Investment Grant; no sales and use tax in manufacturing, fulfillment facilities, data centers; discretionary grant refers to One North Carolina Fund; 2) Fast Track ED Fund; 3) Ohio allows partial or full sales tax exemption for data center equipment; 4) High Impact Performance Incentive; 5) MD does not have direct Investment Tax Credit, but MD offers RISE Zone incentives that are tied to investment

Incentives Recommendations (1/5)

Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
Segment Agnostic	<p>Broaden Definitions of Concepts in the Incentive Policy</p>	<ul style="list-style-type: none"> ▪ Broaden the definition of qualified businesses in ways that would maximize coverage of various types of companies/activities in prioritized segments and leave more discretion to the local authorities in applying the definition of a qualified business to an investing company (e.g., 3M does not fit into any specific NAICS code) ▪ Broaden the definition of FTE (e.g. full time equivalent) to incentivize companies that incur outsourced labor expenses or, in the pandemic context, employees who may work remotely from a different geography in the state ▪ Broaden definition of "development" as part of Research and Development incentives - can be applied to Life Sciences, IT and Software R&D, InsurTech, and FinTech 	Operating Environment	<ul style="list-style-type: none"> ▪ Economic Development best practice used in a targeted fashion ▪ Virginia has broadened the definitions of key concepts in its incentive policies
	<p>Reduce Franchise Tax</p>	<p>South Carolina should reduce or phase out the License Fee (often also referred to as Franchise Tax) as it impacts majority of businesses in SC</p>	Operating Environment	<ul style="list-style-type: none"> ▪ New York and Mississippi are both well into the process of phasing out their Franchise Taxes
	<p>Revise Tax Credit Incentive Programs</p>	<p>Enable companies to more effectively monetize awarded Tax Credit incentives, particularly in light of the fact that SC has adopted Single Sales Factor Apportionment:</p> <ol style="list-style-type: none"> Make tax credit refundable Lengthen credit carry-forward periods for all tax credit programs to 20 years Allow transferability of tax credits and create a market on which tax credits can be bought and sold Applies to SC's Investment Tax Credit, Corporate HQ Credit, and R&D Tax Credit programs 	Operating Environment	<p>Many states allow Corporate Income Tax Credits of various kinds to be refundable or transferred (bought and sold) between companies:</p> <ul style="list-style-type: none"> ▪ Capital Investment-driven tax credits: Florida, Missouri, Idaho, and New Jersey ▪ Job creation-driven tax credits: Florida, Arkansas, Missouri, New Jersey, and New Mexico ▪ R&D-driven tax credits: Arkansas, Pennsylvania, New Jersey, and North Dakota
	<p>Incentivize High-paying Jobs</p>	<ul style="list-style-type: none"> ▪ The city or state could enhance or supplement the current Job Tax Credit by adding a performance condition to reward the number of high-paying jobs created in order to incentivize high-quality job creation 	Operating Environment	<ul style="list-style-type: none"> ▪ State of Florida (includes Jacksonville and Tampa) provides High-Impact Performance Incentive and Capital Investment Tax Credit for 'high impact' portions of key sectors (including Financial Services) ▪ Utah's Industrial Assistant Fund gives grant to companies that create high-paying jobs – at least 110% of county average

Incentives Recommendations (2/5)

Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
Segment Agnostic	<p>Broaden the allowable applications of Tax Increment Financing (TIF)</p>	<p>South Carolina could expand the allowable uses of Tax Increment Financing (TIF districts) to include development activities beyond community redevelopment, specifically allowing TIF to be utilized for development of commercial and industrial areas to which enterprise investments in priority segment activities would be guided</p> <ul style="list-style-type: none"> ▪ Columbia could strategically position TIF districts in locations where economic development is encouraged for new enterprise investments 	<p>Operating Environment</p>	<ul style="list-style-type: none"> ▪ Wisconsin is an example of a peer community state where TIF is used very effectively to stimulate industrial development of designated geographies
	<p>Local Product Purchase Reimbursement</p>	<p>To incentivize companies to locate or expand in Columbia, the city can offer local product purchase reimbursement and sales tax rebates:</p> <ul style="list-style-type: none"> ▪ Companies can present receipts for purchases that have been made locally for reimbursed ▪ Funding source: incremental sales tax 	<p>Operating Environment</p>	<ul style="list-style-type: none"> ▪ Dothan, AL city has provided reimbursement for locally purchased goods to companies
	<p>Grants and Awards for Research</p>	<ul style="list-style-type: none"> ▪ Economic Development Award providing performance-based grants linked to job creation for researchers and scientists, and retention milestones for companies that engage in Research & Development activities in Columbia 	<p>Operating Environment</p>	<ul style="list-style-type: none"> ▪ The NC Biotechnology Center ED Award grants are made in amounts of up to \$100K per project based on project job-creation estimates ▪ The Technology Management Council of Jacksonville promotes multiple incentive, grants and programs for growth of medical technology professionals and new health & wellness technology development
	<p>Hire Ex-Military Talent Tax Credit and Training Grants</p>	<ul style="list-style-type: none"> ▪ Provides a State income tax credit to small businesses for hiring qualified veterans based on wages paid to those veteran employees ▪ Offers matching grants to businesses seeking to train and hire military veterans 	<p>Talent Operating Environment</p>	<ul style="list-style-type: none"> ▪ Maryland has Hire Our Veterans Tax Credit that offers tax credit to businesses that hire qualified veterans ▪ Florida offers grants to help businesses meet workforce demands in a competitive environment by facilitating access to training and education in high-demand fields for veterans through matching training grants up to \$8,000 per veteran employee trained.

Incentives Recommendations (3/5)

Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
Segment Agnostic	Discretionary Grants	<ul style="list-style-type: none"> Suggest that the city set aside a discretionary grant to incentivize companies to bring new technologies, create high-paying jobs, and make capital investment in the prioritized segments 	Operating Environment	<ul style="list-style-type: none"> Maryland: More Jobs for Marylanders Incentive Program provide refundable tax credits for job creation, equipment investment for new and existing businesses in Maryland North Carolina: One North Carolina Fund is a discretionary cash-grant program that awards businesses based on number of jobs created, investment level, project location and economic impact of the project
	Promote Foreign Trade Zone Status	Attracting companies that do businesses globally through FTZs – providing tax benefits related to management of raw materials and finished products	Operating Environment, Regulatory Environment	<ul style="list-style-type: none"> Raleigh is one of four Foreign Trade Zones (FTZ) in North Carolina offering several economic advantages for companies with HQs involved in international trade Georgia is home to multiple FTZ sites. Importing and exporting are central to many businesses’ success. The FTZ program allows qualified companies to defer, decrease, or eliminate duties on materials imported from overseas that are used in products assembled in Georgia.
	Low-rate Equipment Leasing	<p>City/State purchases equipment and leases the equipment to companies at a low rate:</p> <ol style="list-style-type: none"> Incentivize companies invest in talent and explore the frontier of technologies Direct control and access to equipment for educational purpose. The company-owned equipment could be sensitive trade information 	RE & Infrastructure, Operating Environment	<ul style="list-style-type: none"> Georgia and North Carolina offer low-rate equipment leasing to qualified businesses
	Paid Training Period for New Recruits	For new entrants to the market or significant expansion projects, the area can consider incentivizing companies to train the local labor force by sponsoring compensation for the local labor for the training period. Companies are not obligated to hire these “trainees”	Talent	<ul style="list-style-type: none"> Florida incentivized Scripps Research to train local talent pool by putting the trainees on the state’s payroll until they are trained and hired by Scripps even though not obligated to hire the trainees Georgia’s QuickStart Program also trains local talent and provide employment opportunities

Incentives Recommendations (4/5)

Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
Software & IT Biotechnology, Medical Devices, Aerospace	Lower personal property tax burden	<ul style="list-style-type: none"> If SC cannot remove the personal property tax, SC should consider an accelerated depreciation schedule. 	Operating Environment Regulatory Environment	<ul style="list-style-type: none"> Massachusetts exempts all personal property taxes for properties used in manufacturing Minnesota exempts property taxes for all personal properties. Only real properties are taxable
Biotechnology, Medical Devices	Delay Property Taxation for Life Sciences Companies	<ul style="list-style-type: none"> Life Science manufacturing facilities should not be put on property tax rolls until licensure due to the lengthy regulatory approval process 	Operating Environment Regulatory Environment	<ul style="list-style-type: none"> Georgia, North Carolina and Rhode Island offer to initiate property tax for life sciences companies after licensure
Financial Services, Biotechnology, Medical Devices, Aerospace	Tax benefits for companies that locate in targeted zones	<ul style="list-style-type: none"> Special Economic Zone (Tech Park or Hub) with companies designated as Certified Tech Park tenants eligible for state and local tax breaks (including property tax breaks) South Carolina can evaluate granting incentives, ranging from tax relief to financing assistance, to companies that locate in targeted zones LINK 	Operating Environment, Regulatory Environment	<ul style="list-style-type: none"> Designation as a Indiana Certified Tech Park company allows for the local recapture of certain state and local tax revenue which can be invested in the park's development NY's START-UP program allows universities to designate space (building/land) for new and expanding businesses <ul style="list-style-type: none"> Companies that locate in a START-UP area receive tax benefits, including income tax abatements for employees Virginia's Defense Production Zone: Eligible companies receive real property abatements as well as abatement of business, professional, and occupational license taxes

Incentives Recommendations (5/5)

Segment	Capability Development	Description	Relevant CLF Impacted	Columbia or Peer Community Implementations
Biotechnology, Medical Device	NOL Carry-Forward Period Extension	<ul style="list-style-type: none"> Extend the net operating loss carry-forward period from 20 years to 25 years specifically for newly commercialized pharma companies to fully realize the benefit as it is customary to have net operating for decades 	Operating Environment Regulatory Environment	<ul style="list-style-type: none"> Deloitte Experience
	Personal Property Tax Exemptions on Biotech Equipment	<ul style="list-style-type: none"> It is recommended that the state and city increase the personal property tax exemption on manufacturing and R&D equipment in biotechnology operations 	Operating Environment Regulatory Environment	<ul style="list-style-type: none"> Massachusetts exempts all personal property taxes for Life Sciences businesses Minnesota does not tax personal property
	Property Taxation Trigger Event	<ul style="list-style-type: none"> For Life Science manufacturing companies, the trigger for property taxation can be FDA approval of the production operation rather than the full completion of a facility due to the often lengthy approval process 	Operating Environment Regulatory Environment	<ul style="list-style-type: none"> Deloitte Experience

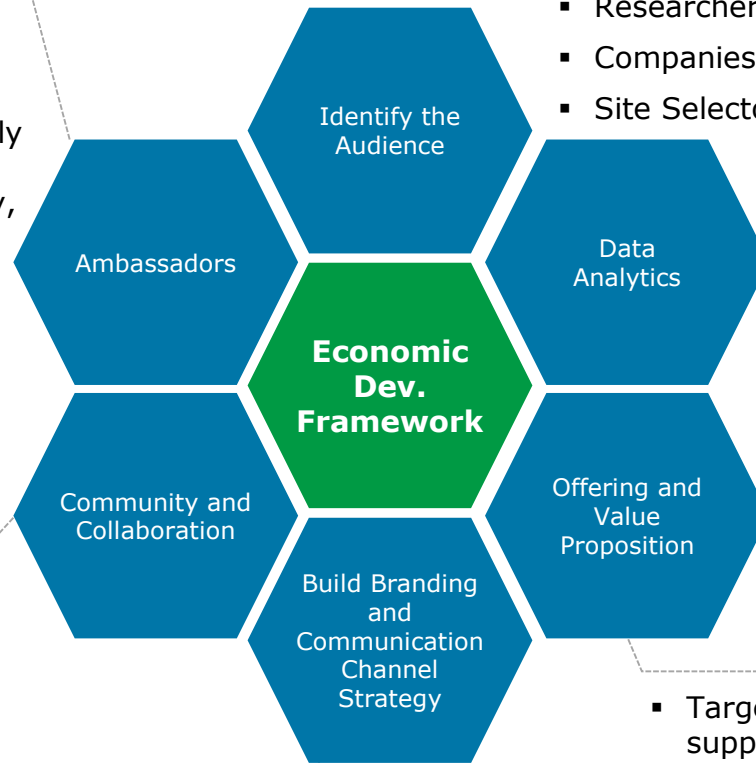
Economic Development Pillar

Columbia Action Plan Economic Development Framework



- Identify brand ambassadors that focus on advancing and promoting specific elements of the community's brand identity (could be a locally based institution, tech hub, executive, company, industry, academia program, etc.)
- Coordinate Social Media campaigns of Ambassadors

- Tight-knit collaboration of all participating organizations across jurisdictions and capability areas, with strong coordination



- Columbia-resident and Out-of-State Talent
- Entrepreneurs and Start-Ups
- Researchers & Developers
- Companies and Industry Partners
- Site Selectors

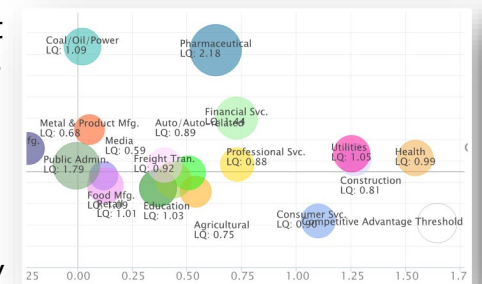


- Website visits and content access tracking
- Analysis of local economic activity, trends and forecasts
- Tracking and analysis of announcements



- Develop a cohesive external-facing image
- Strategically engage professional marketing consultants
- Print and Digital Media strategy
- Tradeshow, Conferences and Symposiums

- Target industries and relevant supporting assets, capabilities
- Establishing a recognizable identity and "brand" for the community (business and character of life)
- Investments made proactively in support of target clusters



Economic Development Recommendations (1/5)

Segment	Framework Element	Capability Development	Description	Columbia or Peer Community Implementations
Segment Agnostic	Offering and Value Proposition	Deepen ED collaboration with Experience SC	<p>Increasingly engage Experience Columbia in elements of brand-building that are impactful to economic development initiatives</p> <ul style="list-style-type: none"> ▪ Increase interface opportunities with Columbia’s economic development community, especially on topics such as industry conferences, business symposia, talent attraction to the region, etc. ▪ Increase traffic to Columbia through targeted business tourism by hosting conferences and symposia focused on priority segments ▪ Oversee the process of creating an enhanced new identity that reflects Columbia’s character of life and can be articulated in refreshed branding initiatives ▪ Design and plan for signature events that draw global attention to Columbia ▪ Exert sustained influence on ongoing revitalization of downtown and key areas of Columbia, upgrading of city infrastructure, and introduction of art and cultural element to the city 	<ul style="list-style-type: none"> ▪ This requires a change of image to showcase diversity and character of the city – prime examples are Atlanta, Austin, and Charleston. These cities have their own identities that are distinct from anywhere else
	Offering and Value Proposition	Develop a Signature National Event	<ul style="list-style-type: none"> ▪ Determine if there currently exists (or should be a new) national-level signature event to draw tourists to Columbia, combining elements in business, entrepreneurship and culture. The goal is to establish a new identity and brand for Columbia ▪ Restarting the Three River Festival in Columbia (discontinued since mid-2000s) can be explored 	<ul style="list-style-type: none"> ▪ Austin’s South by Southwest Festival (since the 1980s) brought national attention to Austin and changed the perception of Austin from a city in Texas to a hip, diverse and techy city in the south
	Build Branding and Communication Channel Strategy	Earned Media – Public Relations	<ul style="list-style-type: none"> ▪ Initiate a public relations effort with the goal to establish and maintain a steady stream of positive coverage in top-tier national trade, industry, site selection news media 	<p>Communities are able to influence their image portrayed in relevant media by proactively shaping and publishing storylines that articulate the community’s progress</p> <ul style="list-style-type: none"> ▪ Columbus, Ohio’s ED email and newsletter campaign is a strong example of successful proactive storytelling

Economic Development Recommendations (2/5)

Segment	Framework Element	Capability Development	Description	Columbia or Peer Community Implementations
Segment Agnostic	Build Branding and Communication Channel Strategy	Targeted Conferences and Symposiums	<ul style="list-style-type: none"> Host conferences to attract industry experts and build brand recognition in prioritized segments (Cybersecurity Conference, Genomics Conference, Digital Health & Informatics, etc.) Collaboration within A) Counties (provide/book convention centers), B) Experience SC (marketing and planning) and, C) ED community (speakers, connections) required for future success 	<ul style="list-style-type: none"> NC Biotechnology: established more than 35 years ago, has hosted many conferences in Life Sciences on various topics ranging from “Medical, Biomedical & Biodefense” to “Global Health Leadership Forum”
	Build Branding and Communication Channel Strategy	Effective Marketing Campaign	<p>Through an RFP process, select a marketing agency to develop an economic development marketing plan specific to Columbia to help attract businesses and residents to the city. The marketing plan should outline:</p> <ul style="list-style-type: none"> Tactics to reach growing businesses and entrepreneurs in the priority segments of focus Website providing a hub for content that inspires people to live, work and start or grow a business in Columbia Additional tools to consider: Digital Media Strategy, Paid Media Advertising, Virtual Tour, Trade Shows & Events, Higher Education Outreach and Alumni Marketing, Social Responsibility and Sustainability Policy, etc. 	<p>Vermont ED Marketing Plan (2016-19) ideas LINK:</p> <ul style="list-style-type: none"> Targeting national, trade and niche media outlets with finely honed pitches about Vermont businesses Digital outreach campaigns to tout their quality of life, incl. great schools and outdoor recreation opportunities Expanded partnerships with colleges and universities to help connect employers and employees
	Data Analytics	Enhanced content for core ED messaging and analytics on tool/platform performance	<p>Enhancing the insights that can be derived from Economic Development tools such as websites, marketing campaigns and ED conferences</p> <ul style="list-style-type: none"> Enriching the depth and quality of content accessible on the city’s economic development website and through other channels of interaction (e.g., detailed information about announcements, segment-focused workforce stats and up-to-date real estate availability) Consider voluntary registration for deeper-dive content as a way to know who is accessing Columbia’s ED website and what they are looking for (name, organization, email etc.) 	<ul style="list-style-type: none"> Madison, Wisconsin’s ED website [Link] presents highly valuable content with numerous layers of drill-down

Economic Development Recommendations (3/5)

Segment	Framework Element	Capability Development	Description	Columbia or Peer Community Implementations
Segment Agnostic	Ambassador	Digital Ambassador Campaign	<ul style="list-style-type: none"> Identify influential executives and entrepreneurs in the Columbia area and invite them to be informal Digital Ambassadors for Columbia in sharing articles or posts about the advantages such as business friendly environment, high quality of life, and latest business-related policy changes in Columbia and South Carolina that either impact or benefit the existing businesses and prospective companies Existing assets: SCBIO has been actively publishing posts on LinkedIn 	<ul style="list-style-type: none"> Vermont had a digital ambassador campaign as part of its 3-year marketing plan. The campaign uses business and community leaders, entrepreneurs, and other local influencers to share business announcements, national media placements, and other information that reflects well on Vermont as a great place to live, work, start and grow a business and raise a family. The content has more credibility than if it came directly from the state.
	Community and Collaboration	Enhance collaboration among university, ED offices, and SCBIO	<ul style="list-style-type: none"> Align the Economic Development Offices' strategies in investment recruiting and retention with the research and innovation priorities of UofSC and other relevant local players in areas such as Gene Therapy, Cell and Tissue, and Regenerative Medicine ED offices, UofSC, SCBio, and other relevant local players (e.g., the Greenwood Genetics Center) must work together to ensure the most relevant subject matter experts are involved in discussions with perspective investors (in areas such as FDA Navigation, Reimbursement Strategies, etc.) 	<ul style="list-style-type: none"> Based on interviews with various stakeholders
	Community and Collaboration	Airline Hub	<ul style="list-style-type: none"> As a long term plan, Columbia can consider setting aside a budget to improve Columbia Metropolitan Airport infrastructure (e.g. runway expansion, aircraft maintenance stops) and attract more airlines to land planes in Columbia or set up more direct or indirect flights to or via Columbia The benefit of increased air connectivity can potentially establish Columbia as a transportation hub in the Southeast, which will attract more businesses to relocate and/or expand in the Columbia area, especially logistics and distribution-related businesses 	<ul style="list-style-type: none"> One of Atlanta's advantage is in its air connectivity thanks to being Delta's HQ and major hub William B. Hartsfield, previous mayor of Atlanta in 1937, made improvement to the airport including an extensive runway expansion and building a new control tower

Economic Development Recommendations (4/5)

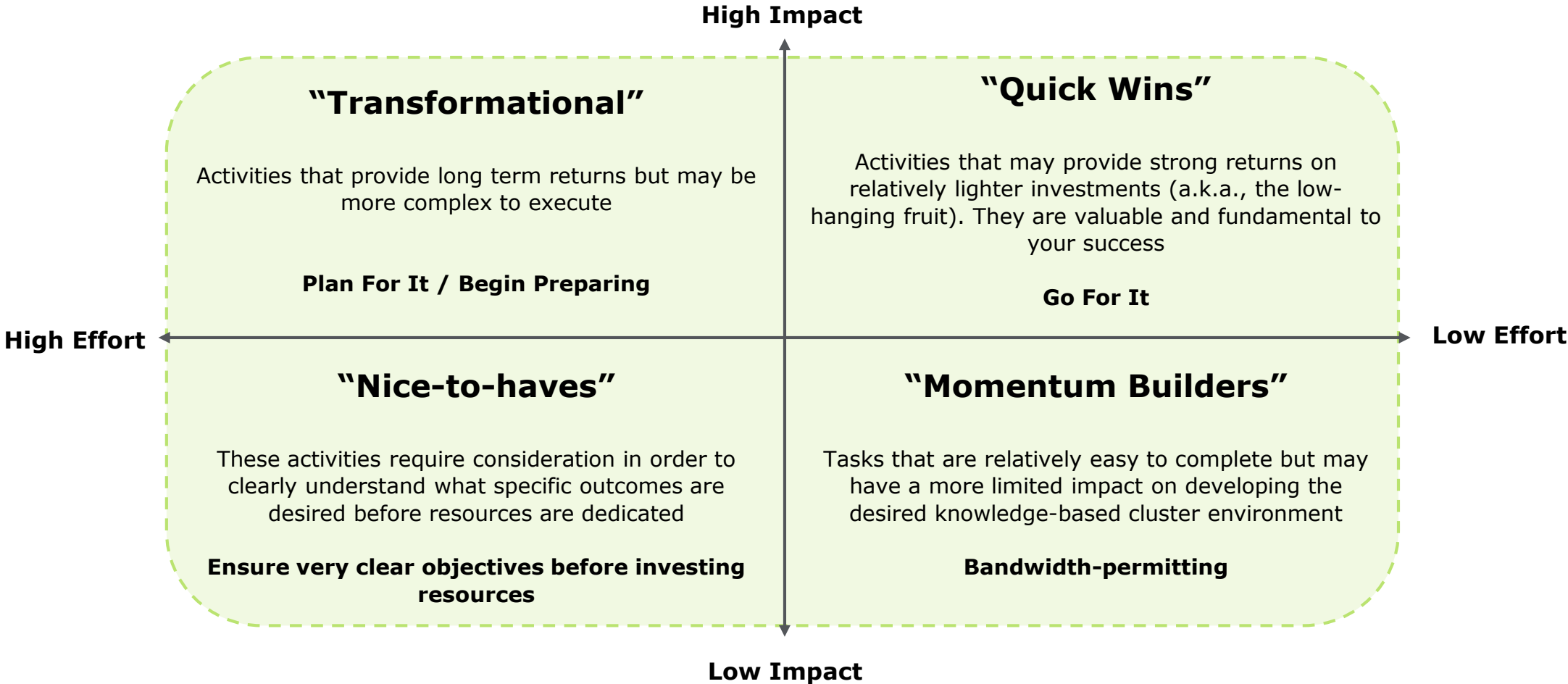
Segment	Framework Element	Capability Development	Description	Columbia or Peer Community Implementations
Medical Devices	Offering and Value Proposition	Build a Medical Device Technology Corridor	<ul style="list-style-type: none"> Leveraging a Medical Device crowdsourcing competition to attract small to medium size firms and entrepreneurs to Columbia area meanwhile establishing an awareness and association of Medical Device with Columbia 	<ul style="list-style-type: none"> Salt Lake City's investment plan includes building a corridor from Research Park (early stage) to the Northwest Quadrant (manufacturing stage)
Biotechnology / Medical Devices	Build Branding and Communication Channel Strategy	Life Science Conferences and Symposium	<ul style="list-style-type: none"> Increase the brand recognition, size and exposure of the annual SCBIO conference Consider applying to host some of the world renowned conferences in Life Sciences such as "BIO World Congress on Industrial Biotechnology and Ag Tech" Encourage SCBIO to add Columbia into its rotation of locations for the annual conference (increasing its rotation from Greenville and Charleston) 	<ul style="list-style-type: none"> NC Biotechnology: established more than 35 years ago, has hosted many conferences in Life Sciences on various topics ranging from "Medical, Biomedical & Biodefense" to "Global Health Leadership Forum"
	Offering and Value Proposition	Sponsor establishment of wet lab and cold storage spaces	<ul style="list-style-type: none"> The City and Counties should collaboratively invest in the creation of new wet lab spaces inside or very nearby incubators, innovation centers, etc. Additionally investment on increasing the number of Cold Storage Facilities and Logistics should be targeted 	<ul style="list-style-type: none"> Interviews with Columbia region existing businesses and from discussion during Economic Development Working Group meetings
Financial Services – Service Delivery	Identify the Audience	Focus on In-House Captive Operations or BPO Services in FinTech and InsurTech	<ul style="list-style-type: none"> A collaborative effort across the ED Community should look to increase their focus on prioritizing the In-House Captive Operations or BPO providers, by marketing its low real estate cost/house value/cost of living and university talent pipeline 	<ul style="list-style-type: none"> Tampa is focusing on Shared Services Operations; Columbia on Call Center & BPO; Phoenix on services related to Insurance Arizona became the first state to create Regulatory Sandbox Program (RSP) where companies can test innovative products and technology in market for up to 24 months without obtaining a license or other authorizations that might otherwise be required
Financial Services - HQ	Identify the Audience	Targeting Small to Medium Size Corporate Offices/R&D Offices	<ul style="list-style-type: none"> Target for global FS companies to start their second offices, or specialized tech offices (including shared services, BPOs, Call Centers, R&D Offices) Startups with offices in Columbia could be members of incubator/accelerator programs at USC and MTC; large organizations can be incentivized with HQ tax breaks and applied research with relevant collaborators in the region 	<ul style="list-style-type: none"> Deloitte experience – Columbia's cost advantages offer an especially attractive value proposition for such investments

Economic Development Recommendations (5/5)

Segment	Framework Element	Capability Development	Description	Columbia or Peer Community Implementations
<p>Healthcare IT</p>	<p>Identify the Audience</p>	<p>Focus on Managed Tech Services for Healthcare</p>	<p>Areas of focus for service delivery in the Healthcare Information Technology, would include:</p> <ul style="list-style-type: none"> ▪ Managed services for health informatics and storage/access of secured personal medical records on behalf of doctors/ physicians in the Columbia and South Carolina region ▪ Managed Services for the collection of public health information for research ▪ Platform for individuals to share their EHRs (adoption patterns at peer counties to be analyzed) and access/share information on cloud 	<ul style="list-style-type: none"> ▪ Jacksonville Healthcare IT innovation companies focused in areas of photonics/optics and 'modeling, simulation & training', nanotechnology and material science ▪ Indianapolis is focusing on "Digital Health", prioritizing niche areas like mHealth, Wireless, Big Data, Wearables, Health IoT, etc. Targeted growth areas is on "Managing I.T. Services for Healthcare" ▪ Madison (WI) focusses on health management software, medical informatics, health insurance and medical data processing

Consolidated Economic Development Action Plan

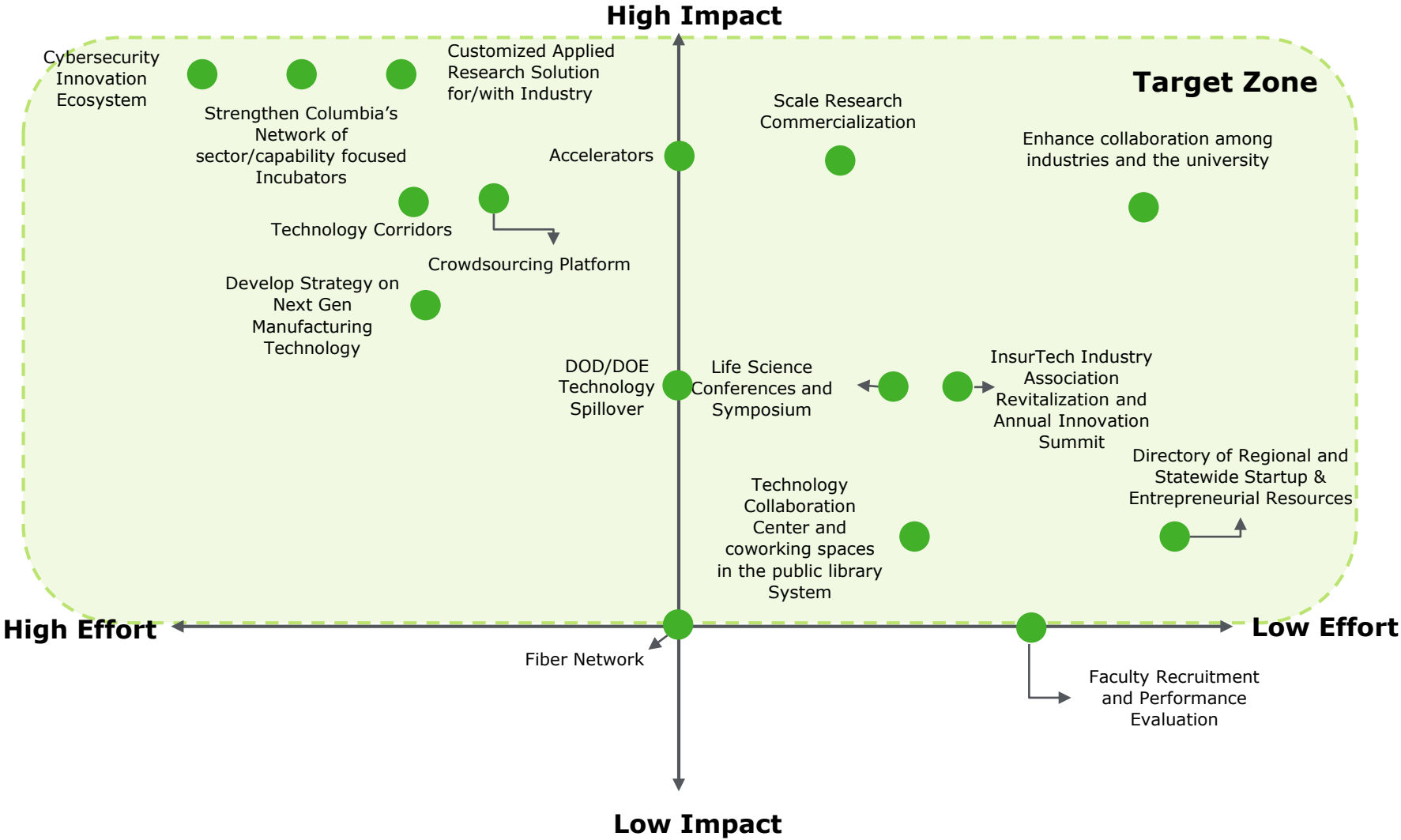
Initiative Prioritization Framework



Effort: time and resources it takes to implement the initiative

Impact: level of impact on developing the desired knowledge-based cluster environment

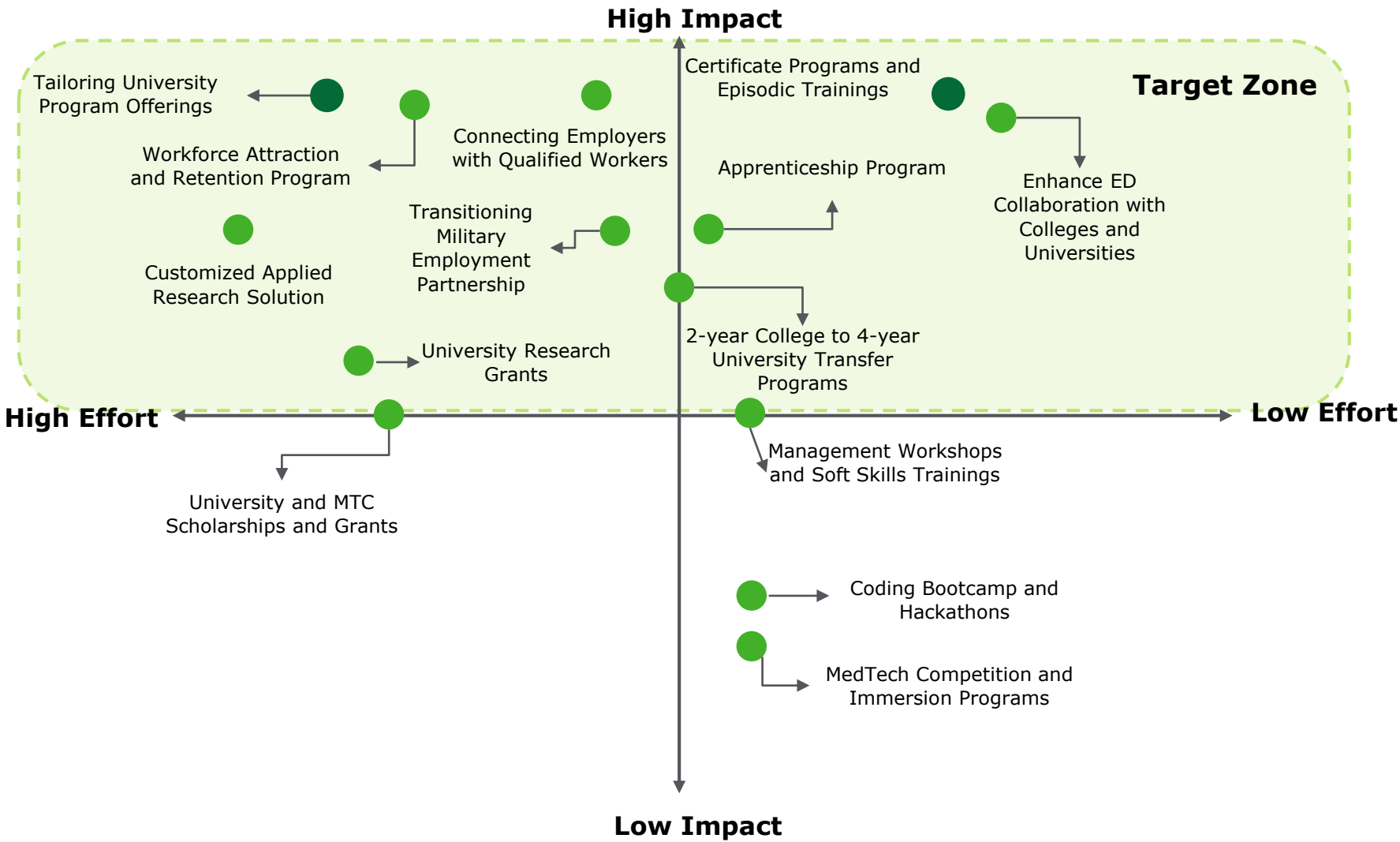
Innovation Initiatives Prioritization



Effort: time and resources it takes to implement the initiative

Impact: level of impact on developing a knowledge-based economy

Workforce Initiatives Prioritization



Tailoring University Program Offerings

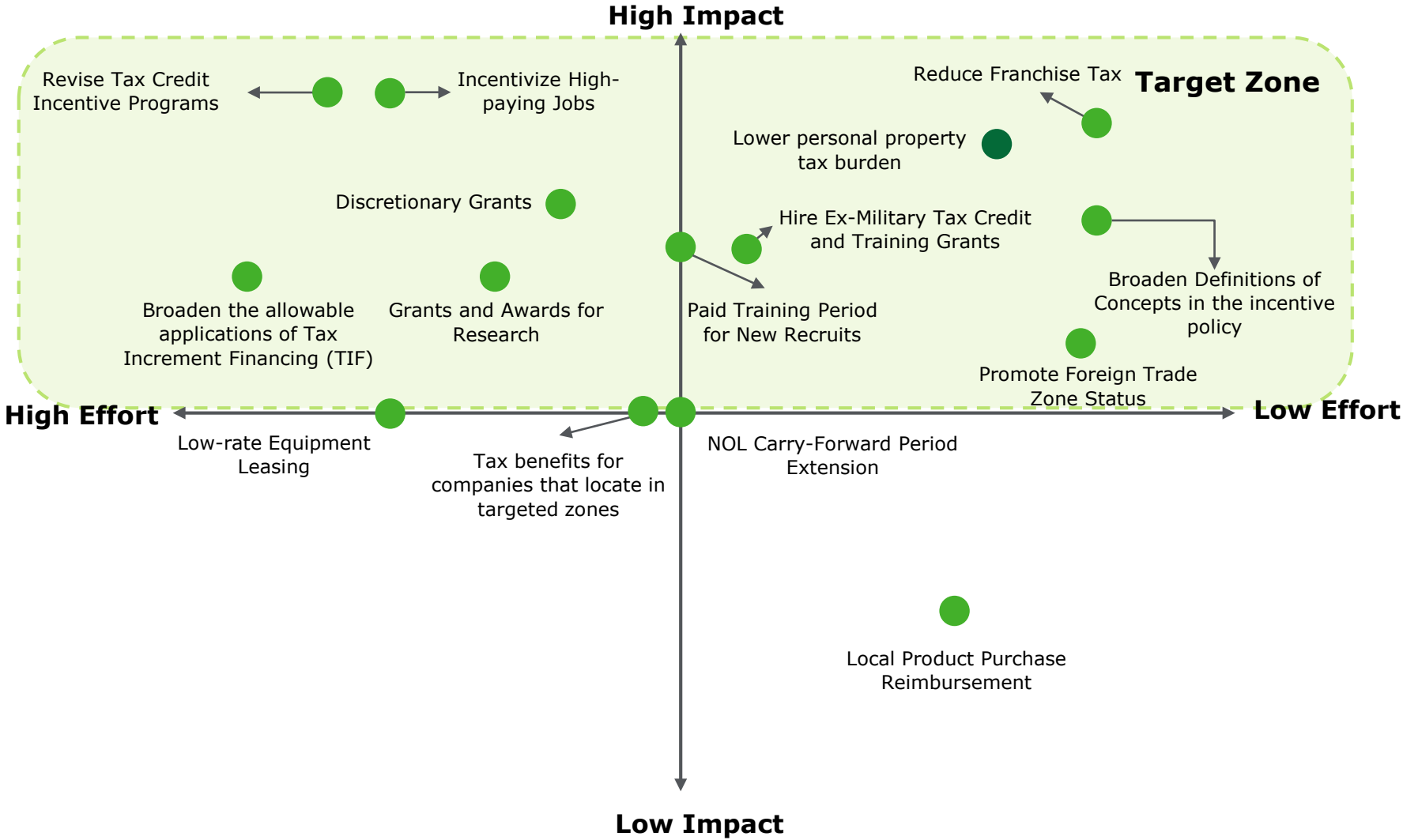
- Long-term University and MTC Program Offerings in Software & IT
- Long-term University Program Offering in Aerospace
- University and MTC Program Offerings in Future Health Technology
- Introduction Course in Gene Therapy Manufacturing

Certificate Programs and Episodic Trainings

- Aerospace Workforce Training Programs
- Certificate Programs for Biological & Lab Technicians

Effort: time and resources it takes to implement the initiative
Impact: level of impact on developing a knowledge-based economy

Incentives Initiatives Prioritization

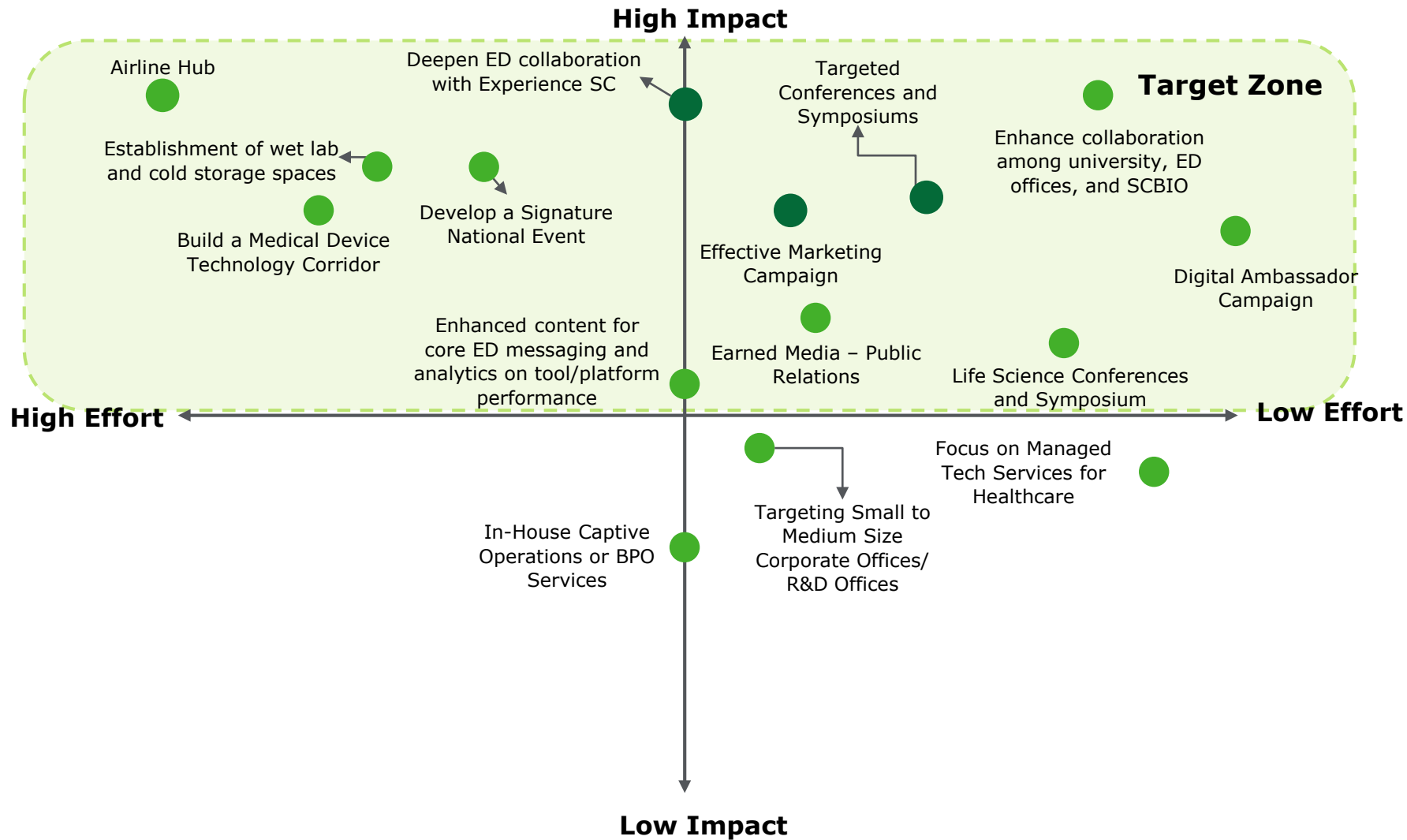


Lower personal property tax burden

- Delay Property Taxation for Life Sciences Companies
- Personal Property Tax Exemptions on Biotech Equipment
- Property Taxation Trigger Event

Effort: time and resources it takes to implement the initiative
Impact: level of impact on developing a knowledge-based economy

Economic Development Initiatives Prioritization



Effective Marketing Campaign

- Earned Media – Public Relations
- Digital Ambassador Campaign

Targeted Conferences and Symposiums

- Life Science Conferences and Symposium

Columbia Tourism Board

- Develop a Signature National Event

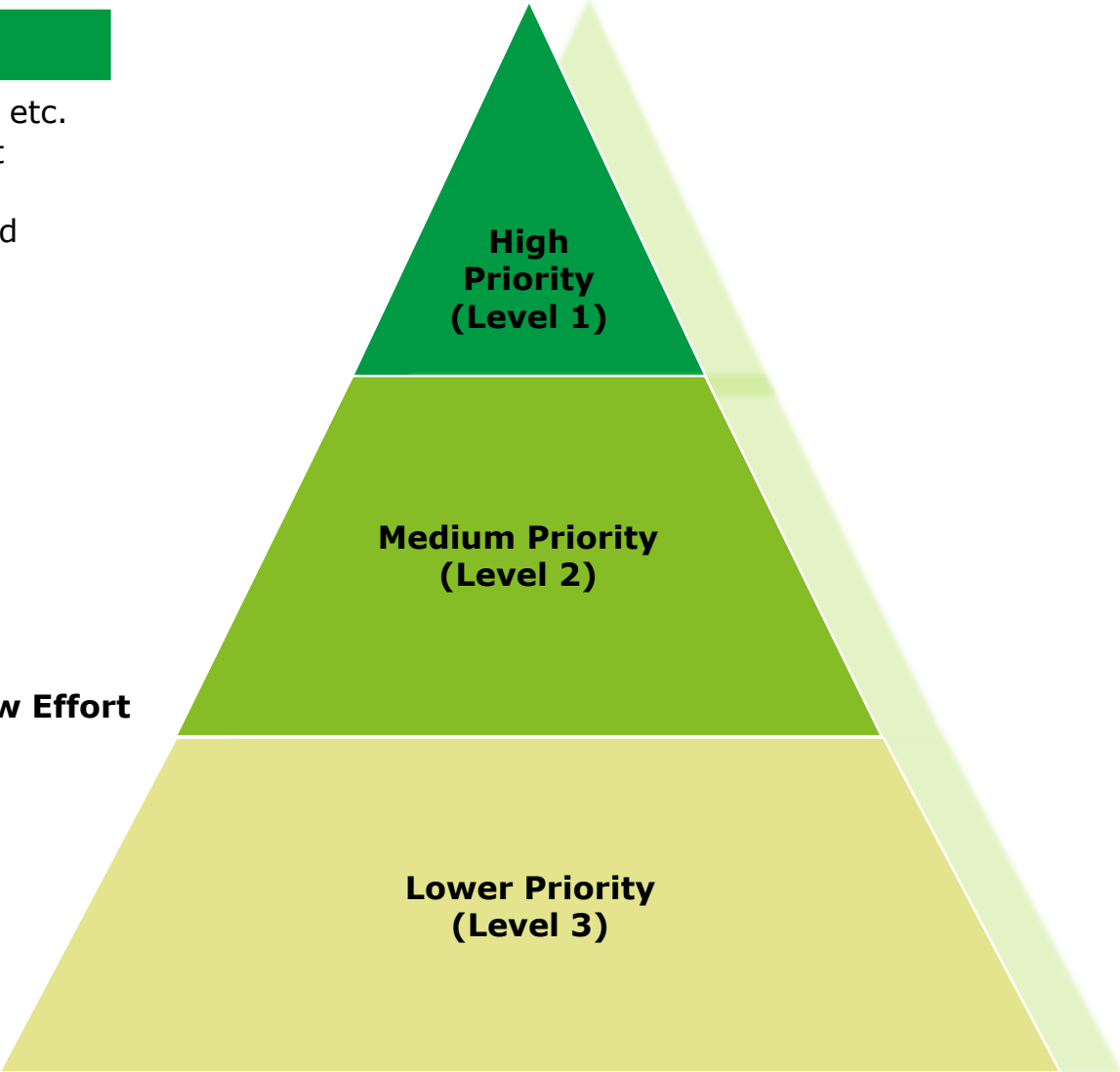
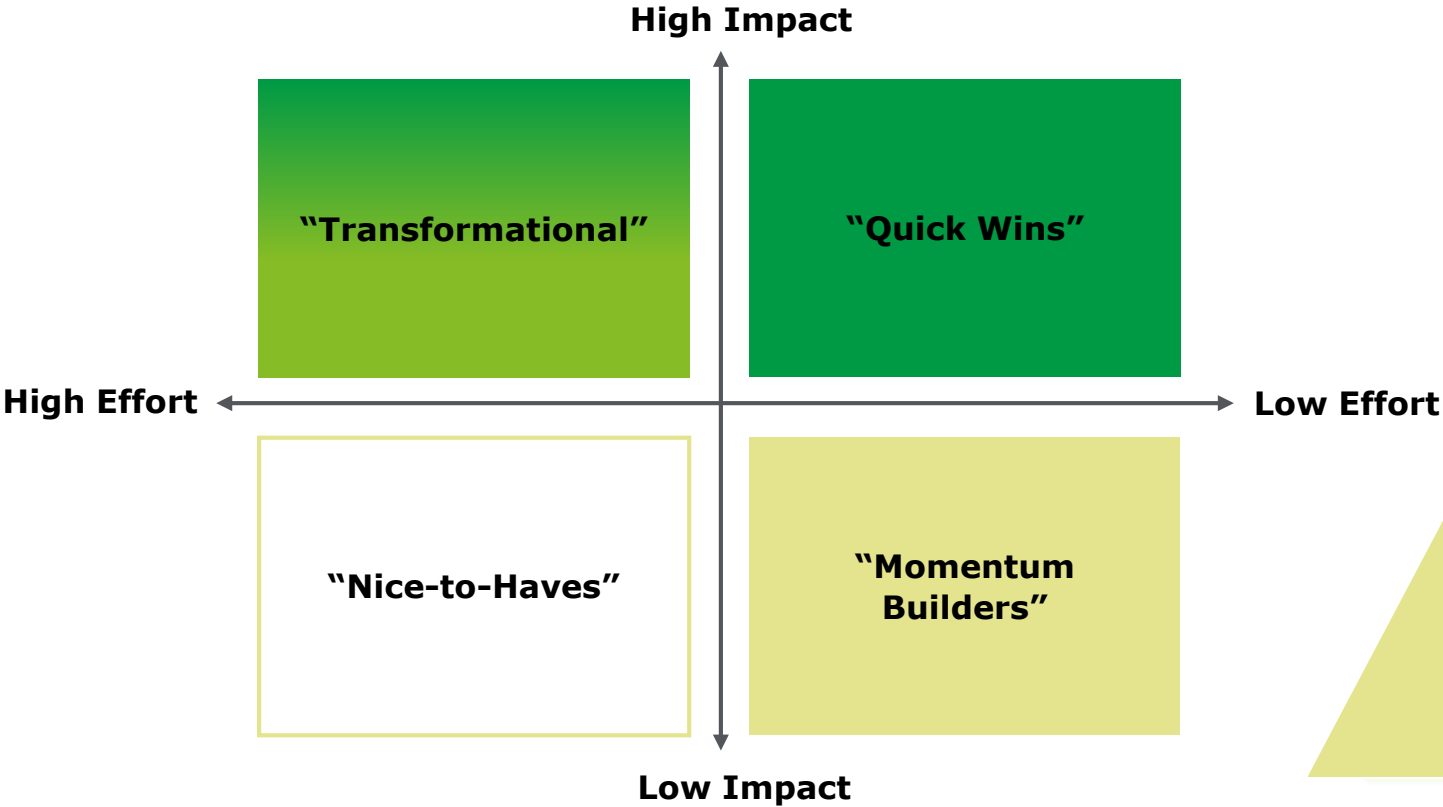
Effort: time and resources it takes to implement the initiative

Impact: level of impact on developing a knowledge-based economy

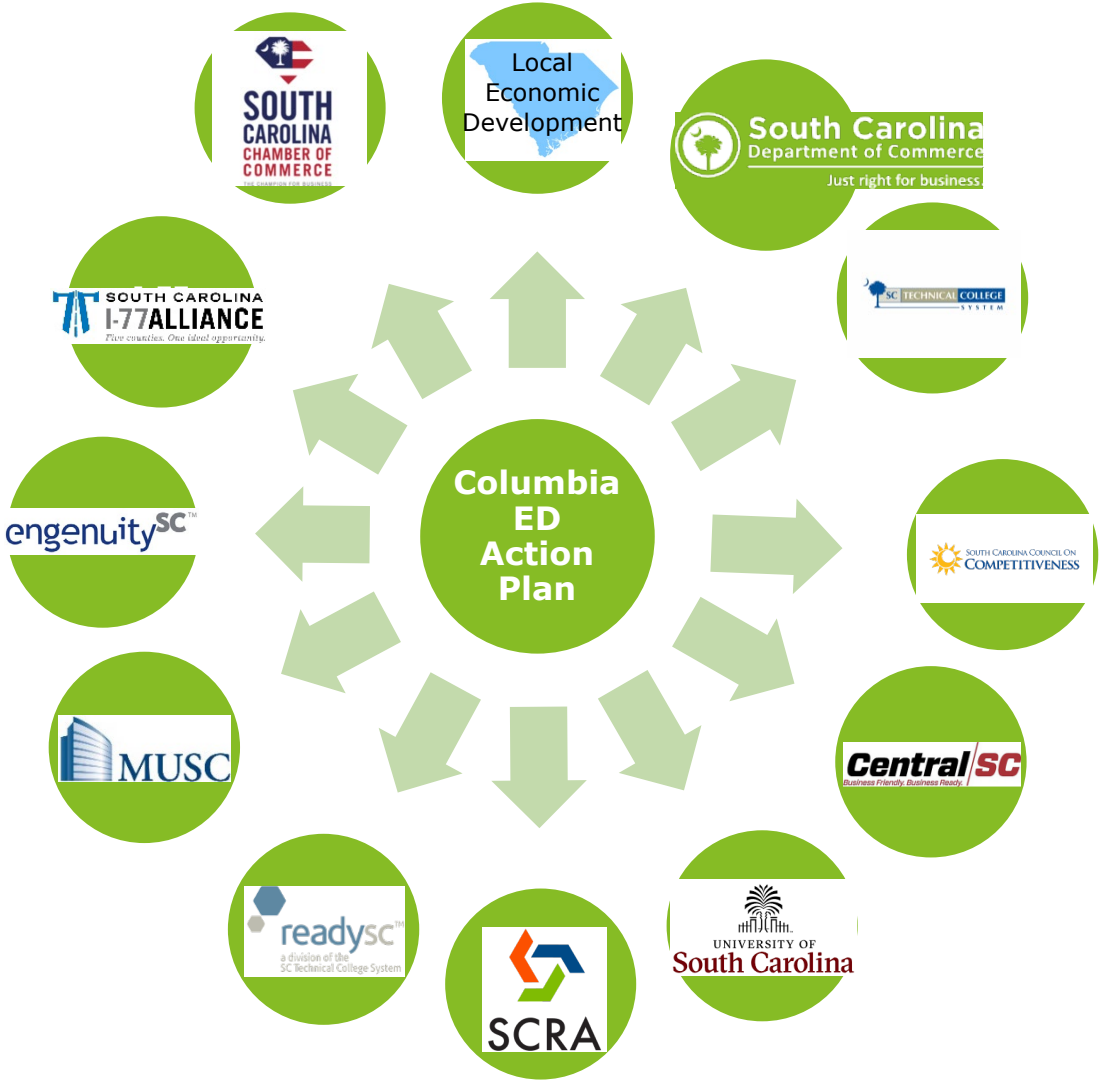
Implementation Prioritization Methodology

Implementation Prioritization Method

- Priority is determined by impact and effort, ownership, existing assets etc.
- Highest priorities are a blend of quick wins and major projects (impact carries more weight than effort)
- Most initiatives are on-going activities and competencies to sustain and refine over time



Implementation Stakeholders and the Critical Importance of Collaboration



Collaboration Imperative

Execution of Columbia’s Economic Development Action Plan requires deep cross-organizational engagement and collaboration between local, county, regional, and state stakeholders

- Key Collaborative Issues**
- Agreement on roles and responsibilities for Columbia stakeholders in both governance and detailed execution
 - Identify project budget, partners, and organizational structure for implementation by pillar: Economic Development, Incentives, Innovation and Workforce

Capability Development Initiatives Responsibility and Timeline (1/4)

#	Capability Development Initiative	Pillar	Provisional Responsible Parties	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	2022 onwards
1	Scale Research Commercialization	Innovation	UofSC OEE, SCRA, SCBIO	▲						
2	Strengthen Columbia's Network of sector/capability focused Incubators	Innovation	Local and County ED Offices, UofSC, SCRA, Midlands Tech	▲						
3	Accelerator Program	Innovation	SCRA, UofSC, SCCC, Midlands Tech	▲						
4	Customized Applied Research Solution for/with Industry	Innovation	SCCC, SCDOC, SCRA, OEE, McNair Institute for Entrepreneurism and Free Enterprise	▲						
5	Enhance collaboration among industries and the university	Innovation	UofSC, Local and County ED Offices, Central SC Alliance, I-77 Alliance, SCRA	▲						
6	Certificate Programs and Episodic Trainings	Workforce	Midlands Tech, SCCC, ReadySC	▲						
7	Aerospace Workforce Training Programs	Workforce	Midlands Tech, SCCC, SCCC, ReadySC, UofSC	▲						
8	Certificate Programs for Biological & Lab Technicians	Workforce	Midlands Tech, SCCC, UofSC, SCBIO	▲						
9	ED Collaboration with Colleges and Universities	Workforce	Local and County ED Offices, Central SC Alliance, I-77 Alliance, Midlands Tech, UofSC, Local Colleges	▲						
10	Broaden Definitions of Concepts in the incentive policy	Incentives	SCBIO, SCRA, SCDOC, SCDOR, SC Economic Developers Association, SC Chamber of Commerce	▲						
11	Reduce Franchise Tax	Incentives	SCBIO, SCRA, SCDOC, SCDOR, SC Economic Developers Association, SC Chamber of Commerce	▲						
12	Lower personal property tax burden	Incentives	County Economic Development Organizations	▲						
13	Delay Property Taxation for Life Sciences Companies	Incentives	County Economic Development Organizations	▲						
14	Personal Property Tax Exemptions on Biotech Equipment	Incentives	County Economic Development Organizations	▲						
15	Property Taxation Trigger Event	Incentives	County Economic Development Organizations	▲						
16	Deepen ED collaboration with Experience SC	Econ Dev	Local and County ED Offices, Experience SC, Central SC Alliance, I-77 Alliance	▲						
17	Enhance collaboration among university, ED offices, and SCBIO	Econ Dev	Local and County ED Offices, Central SC Alliance, SCBIO, UofSC	▲						
18	Effective Marketing Campaign	Econ Dev	Local and County ED Offices, Central SC Alliance, I-77 Alliance		▲					

Capability Development Initiatives Responsibility and Timeline (2/4)

#	Capability Development Initiative	Pillar	Provisional Responsible Parties	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	2022 onwards
19	Earned Media – Public Relations	Econ Dev	Local and County ED Offices, Central SC Alliance, SCBIO, I-77 Alliance, UofSC		▲					
20	Digital Ambassador Campaign	Econ Dev	City of Columbia ED Office, County ED Offices		▲					
21	Directory of Regional and Statewide Startup & Entrepreneurial Resources	Innovation	SCRA, S.C. Innovation Hub, SCDOC		▲					
22	Apprenticeship Program	Workforce	Apprenticeship Carolina (primary), ReadySC, SCCC, Midlands Technical College		▲					
23	Tailoring University Program Offerings	Workforce	UofSC, Clemson University		▲					
24	Workforce Attraction & Retention Program	Workforce	ReadySC, Central SC Alliance, I-77 Alliance, SC Coordinating Council for Workforce Development, SCCC		▲					
25	Long-term University and MTC Program Offerings in Software & IT	Workforce	UofSC, Midlands Tech, local colleges		▲					
26	2-year College to 4-year University Transfer Programs	Workforce	SCCC, Midlands Tech, local colleges, UofSC		▲					
27	Connecting Employers with Qualified Workers	Workforce	ReadySC		▲					
28	Revise Tax Credit Incentive Programs	Incentives	SCDOC (primary), SCRA, Local and County ED Offices, SCDOR, SC Economic Developers Association, SC Chamber of Commerce		▲					
29	Incentivize High-paying Jobs	Incentives	SCDOC (primary), SCRA, Local and County ED Offices, SCDOR, SC Economic Developers Association, SC Chamber of Commerce		▲					
20	Targeted Conferences and Symposiums	Econ Dev	Local and County ED Offices, Central SC Alliance, I-77 Alliance, SCBIO, UofSC		▲					
31	Cybersecurity Innovation Ecosystem	Innovation	UofSC, SC Launch, SCCC, Local and County ED Offices, SC Cyber			▲				
32	InsurTech Industry Association Revitalization and Annual Innovation Summit	Innovation	iT SC Cluster Organization, UofSC, Midlands Tech, SCCC, McNair Institute for Entrepreneurism and Free Enterprise, ED Offices, Central SC Alliance			▲				
33	Life Science Conferences and Symposium	Innovation	SCBio, UofSC			▲				
34	Faculty Recruitment and Performance Evaluation	Innovation	UofSC, SCCC			▲				
35	Technology Collaboration Center and coworking spaces in the public library System	Innovation	Richland Library Coworking Center			▲				

Capability Development Initiatives Responsibility and Timeline (3/4)

#	Capability Development Initiative	Pillar	Provisional Responsible Parties	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	2022 onwards
36	DOD/DOE Technology Spillover	Innovation	McNair Aerospace Center, SCCC			▲				
37	Transitioning Military Employment Partnership	Workforce	SC Coordinating Council for Workforce Development, SCCC, SC Department of Veterans Affairs, SCCC, Ready SC			▲				
38	Grants and Awards for Research	Incentives	UofSC, SCRA, SCDOC, SC Economic Developers Association			▲				
39	Discretionary Grants	Incentives	Local and County ED Offices, SCDOC, SC Economic Developers Association			▲				
40	Promote Foreign Trade Zone Status	Incentives	SCDOC, Local and County ED Offices, Central SC Alliance, SC Economic Developers Association			▲				
41	Develop a Signature National Event	Econ Dev	Local and County ED Offices, Experience SC, Central SC Alliance, I-77 Alliance			▲				
42	Life Science Conferences and Symposium	Econ Dev	SCBIO, ED Offices, Central SC Alliance			▲				
43	Build a Medical Device Technology Corridor	Econ Dev	SCBIO, ED Offices, UofSC, Midlands Tech, SCRA			▲				
44	Sponsor establishment of wet lab and cold storage spaces	Econ Dev	SCBIO, ED Offices, SCRA, UofSC			▲				
45	Long-term University Program Offering in Aerospace	Workforce	UofSC Aerospace Engineering Department UofSC Office of Economic Engagement				▲			
46	Introduction Course in Gene Therapy Manufacturing	Workforce	UofSC Medical School or Biotechnology Program				▲			
47	University and MTC Program Offerings in Future Health Technology	Workforce	UofSC, Midlands Tech				▲			
48	Management Workshops and Soft Skills Trainings	Workforce	ReadySC, Midlands Tech				▲			
49	Tax benefits for companies that locate in targeted zones	Incentives	Local and County ED Offices, SCDOC, SCDOR, SCRA, SC Economic Developers Association, SC Chamber of Commerce				▲			
50	Targeting Small to Medium Size Corporate Offices/R&D Offices	Econ Dev	Local and County ED Offices, Central SC Alliance, I-77 Alliance				▲			
51	Hire Ex-Military Tax Credit and Training Grants	Incentives	Local and County ED Offices, SCDOC, SCDOR, SC Department of Veterans Affairs, SC Economic Developers Association					▲		

Capability Development Initiatives Responsibility and Timeline (4/4)

#	Capability Development Initiative	Pillar	Provisional Responsible Parties	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	2022 onwards
52	Crowdsourcing Platform	Innovation	SCRA					▲		
53	Technology Corridors	Innovation	UofSC, Midlands Tech, SCRA, SCCC					▲		
54	Develop Strategy on Next Gen Manufacturing Technology	Innovation	UofSC, SCCC, SCRA, Midlands Tech					▲		
55	University and MTC Scholarships and Grants	Workforce	Midlands Tech, UofSC, local ED Offices, Central SC Alliance					▲		
56	University Research Grants	Workforce	UofSC					▲		
57	Broaden the allowable applications of Tax Increment Financing (TIF)	Incentives	Local and County ED Offices, SCDOC, SCDOR, SC Economic Developers Association					▲		
58	Local Product Purchase Reimbursement	Incentives	Local and County ED Offices, SCDOC					▲		
59	Enhanced content for core ED messaging and analytics on tool/platform performance	Econ Dev	Local and County ED Offices, Central SC Alliance, I-77 Alliance					▲		
60	Paid Training Period for New Recruits	Incentives	SCDOC (primary), SCRA, Richland County ED Office, SCDOR						▲	
61	NOL Carry-Forward Period Extension	Incentives	SCDOC, SCDOR, SC Economic Developers Association						▲	
62	Coding Bootcamp and Hackathons	Workforce	UofSC, Midlands Tech, or ED office to incentivize to create a new business						▲	
63	MedTech Competition and Immersion Programs	Workforce	SCRA, SCBIO, UofSC						▲	
64	Low-rate Equipment Leasing	Incentives	Midlands Tech, UofSC, Local and County ED Offices, SCDOC, SCRA, SC Economic Developers						▲	
65	In-House Captive Operations or BPO Services in FinTech and InsurTech	Econ Dev	Local and County ED Offices, Central SC Alliance, I-77 Alliance, SCDOC						▲	
66	Focus on Managed Tech Services for Healthcare	Econ Dev	Local and County ED Offices, Central SC Alliance, I-77 Alliance, SCDOC						▲	
67	Fiber Network	Innovation	Local and County ED Offices, Central SC Alliance							▲

Governance Framework Considerations

Governance Principles

	Definitions	Key Considerations
R – Responsible	<ul style="list-style-type: none"> Responsible for executing task(s) Responsible implies you are also consulted 	<ul style="list-style-type: none"> Too many “Rs” slow the coordination of the work
A – Accountable	<ul style="list-style-type: none"> Accountable for ensuring a decision is made Approval and veto rights for the recommended decision In some cases, the Accountable party is also Responsible 	<ul style="list-style-type: none"> Having a single Accountable / Approver leads to more effective and efficient decision-making
C – Consulted	<ul style="list-style-type: none"> Consulted by the stakeholders to provide input to the process, but not directly involved in the decision-making activity 	<ul style="list-style-type: none"> Too many “Cs” slow down the decision-making process
I – Informed	<ul style="list-style-type: none"> Informed about the decision after the decision has been made, these stakeholders are not involved in the decision-making process 	<ul style="list-style-type: none"> Growing organizations should shift to informing parties rather than unnecessarily consulting them

RACI is a tool used to outline roles and required activities for the various parties involved in an organization’s decision-making process

Illustrative RACI Matrix: Innovations

#	Capability Development Initiative	Start Schedule	RESPONSIBLE	ACCOUNTABLE	CONSULTED	INFORMED
1	Scale Research Commercialization	Q3 2020	UofSC OOE Office	UofSC OOE Office	Local and County ED Offices	SCRA
2	Crowdsourcing Platform	Q3 2021	SCRA	UofSC		
3	Strengthen Columbia's Network of sector/capability focused Incubators	Q3 2020	UofSC	SC Launch, SCCC		
4	Accelerator Program	Q3 2020	SCRA	SC Launch, SCCC		
5	Cybersecurity Innovation Ecosystem	Q1 2021	UofSC, SC Launch Innovation Center	SCCC	Local and County ED Offices	
6	Customized Applied Research Solution for/with Industry	Q3 2020	SCRA	SCCC, SCDOC, OOE	McNair's Institute for Entrepreneurism and Free Enterprise	
7	Columbia Technology Corridor	Q3 2021	UofSC, SCRA	SCCC		
8	InsurTech Industry Association Revitalization and Annual Innovation Summit	Q1 2021	SC Insurance Association			
9	Life Science Conferences and Symposium	Q1 2021	SCBio	SCBIO	Local and County ED Offices	
10	Develop Strategy on Next Gen Manufacturing Technology	Q3 2021	UofSC	UofSC		
11	Fiber Network	2022 onward			Local and County ED Offices	
12	Enhance collaboration among industries and the university	Q3 2020			Local and County ED Offices	
13	Faculty Recruitment and Performance Evaluation	Q1 2021	SCDOE	UofSC, SCCC		
14	Directory of Regional and Statewide Startup & Entrepreneurial Resources	Q4 2020	EngenuitySC	SCDOC		
15	Technology Collaboration Center and coworking spaces in the public library System	Q1 2021	Richland Library Coworking Center	SCRA		
16	DOD/DOE Technology Spillover	Q1 2021	McNair Aerospace Center		Shaw Airforce Base	

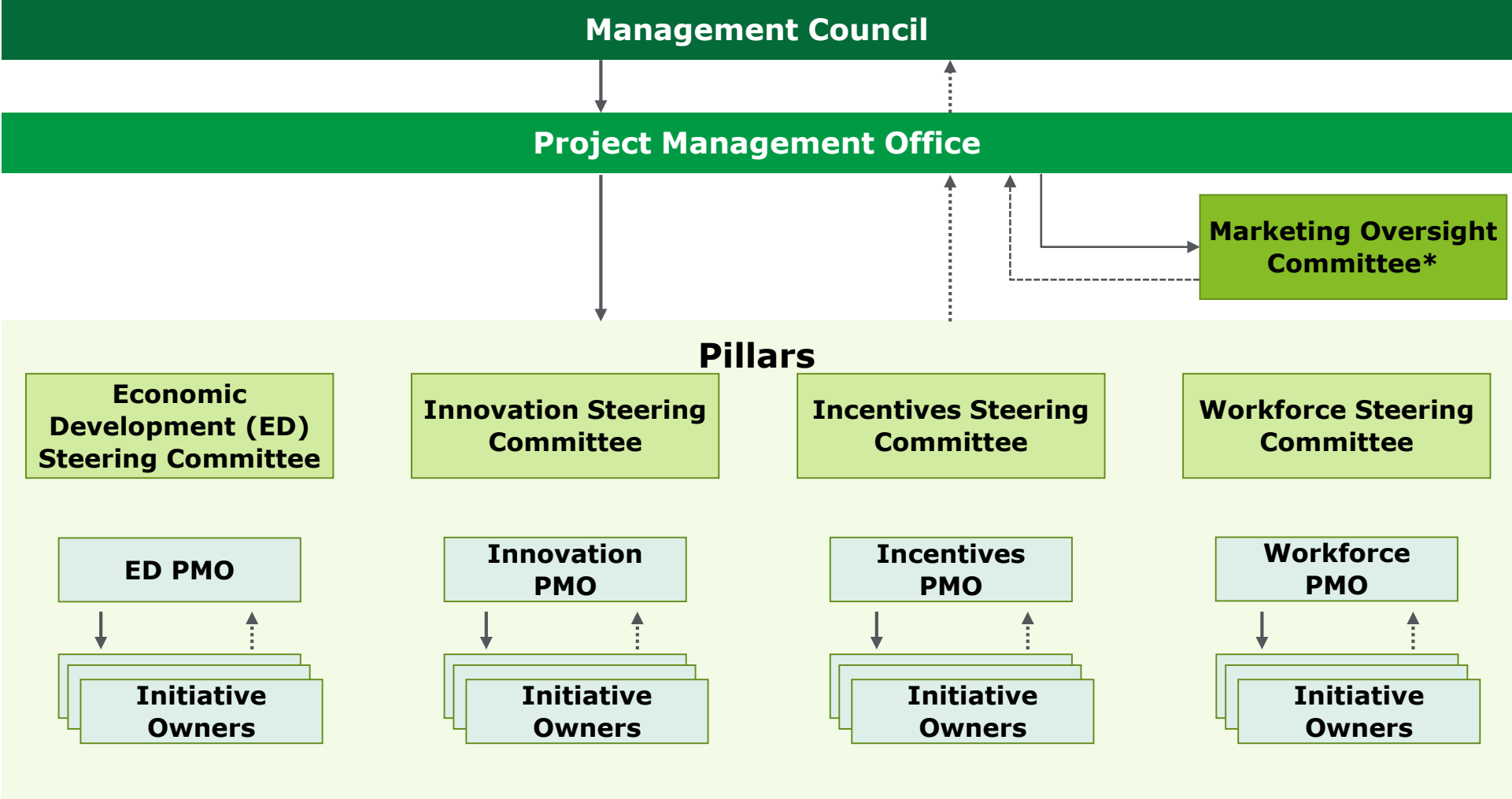
ILLUSTRATIVE

Legend

- Initiative is **lacking and needs to be implemented**
- Initiative is **occurring but with opportunities to improve**
- Initiative can be **de-prioritized for the future**

- R = Responsible** for completing (can be multiple groups for one activity)
- A = Accountable** for the results and holds ultimate decision / approval authority (only one group per task / step)
- C = Consulted** for critical inputs and/or decisions
- I = Informed** of the results / decisions

Potential Governance Structure for Columbia ED Action Plan



Management Council should consist of executive representatives from the key stakeholder organizations

Project Management Office should be the executive-minus-one role, ideally rotating among organizations

Marketing is a collaborative competency involving many stakeholders and roles that all report to the Marketing Oversight Committee

Pillar-focused Steering Committees consist of decision-makers in stakeholder organizations

Each pillar has a PMO that oversees the progress of all the initiatives and it could be overlapping with or different from the initiative owners