

ZERO GRAVITY



**A Plan to Digitize Memphis:
Research, Experiments, Strategies**

Contents

- [Call to Action](#)..... 7
- [The Project Scope](#)..... 8
- [The Social Envelope](#)..... 12
- [Computer/Internet Access & Literacy](#)..... 14
 - [Recommendations](#)..... 18
 - [Budget](#)..... 19
- [Digital Education](#)..... 20
 - [Recommendations](#)..... 28
 - [Budget](#)..... 30
- [Digital Talent](#)..... 31
 - [Recommendations](#)..... 34
 - [Budget](#)..... 35
- [Startups](#)..... 36
 - [Recommendations](#)..... 46
 - [Budget](#)..... 49
- [Aggregate Budget](#)..... 50
- [Next Steps](#)..... 53
- [References](#)..... 55

Zero Gravity

The Premise

1. **Start and sustain a deliberate conversation about the severe need to close the digital divide in Memphis, TN.** The conversation must be both strategic and tactical - strategic in its ability to change how the community thinks about technology, and tactical in its ability to generate near term collaborations and actions that begin to make a difference and generate information to inform future solutions.
2. **Galvanize partners and resources to execute concurrently on strategies and tactics across four separate but related levers critical to closing the digital divide -** Infrastructure (computers and Internet access), Digital Education, Digital Talent, Startups/Entrepreneurship and New Businesses (formation and growth).
3. **Measure, learn and iterate from the tactical, near-term efforts to scale and spread these digital methods and philosophy to other areas of the Memphis community.** The impact of these efforts will depend on the ability of leaders and funders to help transform fragmented programming within each of the identified levers into collaborations across silos.

The Challenge

Information technology has become much more than a pile of hardware, a discrete discipline, a market segment or an industry. Information technology is foundational to regional economic success as well as individual attainment, both educational and career. Individuals, companies, educational systems, civic organizations and regional economies cannot survive and thrive without a deep understanding of information technology and a talent pool rich in persons with the skills to apply those technologies. Cities and regions with these competencies and talent pools have grown, thrived and positioned themselves to succeed. Cities and regions with a dearth of these competencies and talent have not, and as a result, face bleak futures unless they can close the gap.

Memphis faces a dual challenge in closing this gap. Over the last 30 years, the most successful regions and cities have experienced rapid growth in knowledge workers as percentages of their workforces. Memphis has not. Compounding the problem, 45% of households (3rd worst in the nation for large metros) with 293,850 Memphians (including 76,000 persons under age 18) do not have broadband Internet in their homes. With Memphis' persistently high levels of poverty, it therefore comes as no surprise that half of the Memphis population lacks even the basic tools necessary to acquire digital competencies and skills. This enormous gap between the small segment of the population with computers/Internet access/digital skills and the much larger segment that does not is often referred to as the "digital divide".

The low number and percentage of knowledge workers and the large digital divide are only two of the many factors contributing to Memphis's problem. A city lagging in connectivity and the productive application of information technology offers its residents substandard opportunities for educational and career attainment and substantially undermines the city's potential for economic and civic growth. Information technology today is foundational and necessary, so much so that without it a city stagnates. This stagnation is prevalent only when compared to other cities that are off the grid; however, in comparison to connected and wired cities a divide is exponentially growing.

This digital divide is very real in Memphis, TN.

Considering the fact that 45% of households do not have broadband Internet to their homes, and although Memphis has numerous workforce and talent programs that target unskilled labor in the manufacturing, consumer discretionary and consumer staples segments, Memphis has almost no public efforts focused on digital talent.

Over the last 30 years, the most successful regions of the country have dramatically increased the percentage of their workforce classified as Information Communications and Technology and High Tech High Growth. Furthermore the national average of technology knowledge based jobs is 40% higher than Memphis.

Why is this important to the Memphis economy and its residents? During the thirty-year period ending in 2011, the ***United States saw 210% more job births in Information Communications Technology (ICT) and 69% more job births in High Tech High Growth (HTHG)***, a stark contrast to the 9% decrease in the overall private sector firm birth rate. Memphis' job births in these areas fell 50%. Of the 12.3 million advanced industry jobs in the United States, Memphis employs only 31,000 translating into a ranking of 89 out of 100 large metros. For comparison purposes, Nashville ranks 55th with 69,000 jobs, and San Jose ranks 1st with 291,000 jobs. Ironically, only a small percentage of Memphis' workforce holds digital jobs, yet well over 1,000 jobs requiring digital skills currently remain unfilled.

Unfortunately, the deficiency in software developers, engineers and related knowledge workers is only part of the story. The deficiency evidences a more pervasive problem - an overall lack of digital awareness and competencies. To survive and thrive, even non-tech businesses must understand and embrace the digital world. Retailers, restaurants, grocery stores, cab companies, plumbers and electricians must thoughtfully implement and use digital technologies to market their services, enhance their customers' experiences and create efficiencies. The same is true for governmental entities and nonprofits. Increasing the density of technology-based companies and digitally skilled employees creates a ripple effect of positive economic impact that extends well beyond these companies and employees. Conversely, the lack of these companies and employees is often linked to economic stagnation and decline.

Unfortunately Memphis suffers from this deficiency. Over the last 10+ years, Memphis achieved and maintained a leadership position among large metros in the areas of poverty, unemployment, and economic segregation. Young talent graduating from Memphis' regional colleges and universities leave at an alarming rate. Memphis currently ranks 50 out of 50 (large MSA's) in the growth of 24-35 year olds with bachelor's degrees with a loss of 3,400 in 2008-2011. Compounding the challenge, Memphis' relative lack of tech-based companies, digital talent, and digital awareness (among non-tech companies and employees) has translated into an unproductive and harmful culture or set of social expectations. With its low density of digital workers, Memphis' students, young adults and mid-career workers are much less likely to encounter peers, mentors, parents, teachers or neighbors who expose them to or encourage them to pursue careers based on digital skills and education. The lack of these social expectations or examples dramatically and negatively impact the expectations of and choices made by Memphis' youth and adults. And, unfortunately, the negative impact extends to the outputs they produce -- youth outputs measured in educational choices and performance, and adult outputs measured in career choices, job performance and the economic performance of their employers. This negative, self-reinforcing cycle translates into low expectations, rationalizations, and economic and community development efforts that cater to existing businesses, industries and workforce. While some of these efforts may, in the short term, slow the decline of the targeted beneficiaries, they reinforce overall decline by failing to build a new landscape - one founded on innovation, technology-based or enabled companies, and a digitally aware and skilled workforce.

Over the last 30 years, many of the more successful metros transformed the foundations of their economies. Historically based on heavy manufacturing and large numbers of unskilled workers, their economies increasingly rely on technology-based companies, knowledge workers (digital and technology talent) and supporting cultures. These supportive environments, digitally skilled and aware, generate new businesses and enhance existing, non-technical businesses. They also provide measurable benefits to nonprofits and governmental organizations and activities. Unfortunately, Memphis missed this first wave of digitally driven economic transformation. Memphis cannot afford to miss the next wave. In order to catch the next wave we need to catch up to the first wave.

The Opportunity

This Zero Gravity Report highlights and confirms an opportunity touched on by a number of complementary projects, studies, and programs conducted during the last 5-10 years by a wide range of public, private and philanthropic institutions. Memphis can and must close the digital divide, and this plan, called Zero Gravity, lists some of the first significant steps Memphis can take to infuse its economy and workforce with digital awareness, skills and competencies. Too often cities like Memphis are held down by the shackles of the status quo, hope for a return to the "good old days", maintain risk aversion, and fear of change. Zero Gravity initiates a process to remove these shackles as they pertain to the digital divide and economy thereby enabling and encouraging adoption and growth across the entire economy and population.

At a foundational level, Memphis must immediately take steps to change and grow the social set of expectations that envelop how the city and its people view, access, and adopt technology. This “Social Envelope”, as we call it, was born out of its applicability to students and computers but is expanded to envelop all talent for purposes of this report. Currently Memphis’ social envelope is either non-existent or incomplete, meaning there is no expectation of what Memphis or Memphis talent is to do with technology.

Zero Gravity’s First Approach: Internet Infrastructure will be the most pivotal for the future of Memphis’ success. This plan will focus on dramatically increasing the number of households with broadband internet access and improving the quality of service provided to all Memphians. Without this infrastructure, the social envelope does not exist for the 45% of households with no Internet to the home. Zero Gravity encourages a focus on programs to secure and refurbish computers, negotiate free and discounted internet service, provide basic computer skills, and intertwine with other previous approaches listed below. Onboarding of significant national resources will be a big portion of this effort as well as local public private partnership to facilitate logistics and financing.

Zero Gravity’s Second Approach: Digital Education outlines a specific approach to create a robust social envelope that will maximize chances for success. It involves how parents, schools, mentorship, digital skills, and entrepreneurship work together to improve self-learning, peer learning, and the environment for learning digitally both in the home, at school, and in digital labs and classes. All of these areas must envelop the student and the technology he uses in order for it to become foundational for improved personal, educational, and career pursuits and attainment.

Zero Gravity’s Third Approach: Digital Talent will focus on growing the density of persons in the Memphis area with digital skills. This will range from adolescents to adults and will emphasize, but not be limited to software development, front-end design, back-end design, graphic design, digital media, digital storytelling, etc. The Digital Talent Approach will produce coding schools as needed, with a minimum of an adult coding school and a youth coding organization. Other efforts include leveraging institutional assets such as art institutions for creating better bridges between creative students and creative professionals. Leveraging corporations and businesses will be vital in terms of providing technical mentors to the community and their participation in apprenticeship programs to onboard new hires with digital skills. Local technology user groups, universities, technical organizations will work together for a better exchange of talent, skills, and opportunities to begin filling open positions both in schools and companies. Better social engagement and an improved digital culture must be focal points of this process to prevent silo digital talent existence.

Startups will be Zero Gravity’s Fourth Approach as startups produced almost all net new jobs in the last 30 years and with their focus on information technology this area is fitting for closing the digital divide. Zero Gravity will improve the skillsets of startups and their developers through increased programming. This will leverage accelerator programs that grow startups in the

Memphis area. Digital evangelists will be leveraged to interface with the Digital Talent Approach and the areas it is serving such as the coding schools. The improvement and availability of more digital talent for startups will increase startups success rates and net job creation in advanced industries. Another vital area of this approach is to begin lobbying for the public and private sector to begin leveraging home grown technical talent as solutions to their businesses and organizations rather than outsourcing. This is a great balance of top down and bottom up approaches to grow and leverage technology in our community.

Zero Gravity's four approaches described above lay the foundation for scaling and entrenching the digital economy into the lives of Memphians socially, educationally, and professionally.

Additionally Zero Gravity makes a strong case to the rest of the country that Memphis is digitally relevant and worthy of major material investment that includes, but is not limited to Google Fiber, Google STEM, and other digital resource providers. There has been considerable progress to date from compelling research, measured experiments, on-boarded partners, secured resources, and business modeling confirming the direction and need for Zero Gravity.

Call to Action

Persistent poverty, economic decline, income decline, economic segregation, opportunity disparities, educational attainment disparities and a host of related factors can no longer be ignored. And, unfortunately, the expensive and wide ranging investments and programs designed to address these issues have been insufficient in scale and scope to make a difference in Memphis' overall economic stagnation, decline and disparities. To make a difference, Memphis has to take a new approach - one that establishes a firm foundation for opportunity, growth and success for all Memphians and the Memphis economy. While closing the digital divide is not a solution for all of Memphis' social and economic ills, it represents a powerful and foundational step. Yet the solution cannot rest on any single organization. Zero Gravity has therefore formalized a call to action that involves unprecedented levels of collaboration and communication among a large number of existing as well as new organizations and programs.

Corporate Involvement must be instrumental in Zero Gravity's effort in several areas including participating in the funding, grooming, and hiring of technical talent in the Memphis community. The business community will be the foundation for getting volunteers and donors off the sidelines as anchor institutions that Memphians carry trust in.

Government on all levels will need to be engaged from city and county to state and federal to quasi-government groups. There are state and federal funds that must be leveraged and the city and county systems must work together to see that digital skills are adopted as priorities in educational and workforce development. The government agenda must be aligned with school system agenda for increased trust and adoption by citizens as taxpayers and as parents.

Furthermore the government entities themselves should leverage technology better for improvement and efficiency.

Colleges and University bridges must be built to create a better exchange of digital and creative students with digital and creative professionals. Furthermore higher education is a necessary partner and collaborator in Zero Gravity's digital bridge initiatives providing better continuum from high school to the university level and including vocational programming. For Zero Gravity to succeed, it will be essential to link traditional digital educational programming with experiential learning.

Dollars will need to be raised to execute on short term and long term strategies to implement and scale Zero Gravity's Four Approaches. This effort will require both public and private funding depending on efforts to start and sustain Zero Gravity's mission.

Nonprofits & Community Organizations must incorporate the digital agenda into their day-to-day missions as it is a major catalyst for those organizations that touch family commodity provision, education, skills attainment, and job creation.

Marketing & Communications Channels will be instrumental in both top down and participatory approaches for engaging and driving action in the community. There must be considerable effort to shed light on technology while eliminating the city's fear of it. There is stigma against technology in the City of Memphis, and there must be deliberate effort to break down protectionist barriers that reinforce the status quo.

School Systems must be on-boarded from charter schools to private schools to public schools in order for the Social Envelope to be complete and effective. This digital agenda must be adopted, encouraged, and taught to students, parents, and partner organizations. Furthermore as stated in government, the school systems themselves should leverage technology better for improvement and efficiency.

Key Influencers must be leveraged to exercise social and political capital as well as publicly endorse and regularly support Zero Gravity until the digital agenda becomes the social norm.

II. This Project (Scope of Work)

Start Co. was engaged by the private sector to survey Memphis' current digital landscape and come back with recommendations that could start the city down a path to begin closing the digital divide; this effort has taken on the name Zero Gravity. The term "digital divide" informally refers to the gap between people (communities) with computers & internet access and people (communities) without computers & internet access. Not surprisingly, the divide often tracks economic disparities with the most acute division between people & families living in poverty and people & families who can afford computers and broadband Internet access. As expected, however, the causes of the digital divide extend beyond simple economics. The causes become embedded in a culture, or more

specifically, the expectations and support that form the “social envelope” around the people & families. For these reasons, a more complete definition of the “digital divide” is:

“The socioeconomic and other disparities between those people who have opportunities and skills enabling them to benefit from digital resources, especially the Internet, and those who do not have these opportunities or skills.”

This definition hints at the complex array of factors contributing to the creation of the digital divide.

In Memphis, extraordinarily high and persistent levels of poverty (27.5% of overall population, 33.5% of the African American population, and 45.7% of children) certainly explain why large segments of the population do not own computers or benefit from home broadband Internet access. Yet the digital divide is more than simply an issue of technology access. Numerous studies have established that providing computers and Internet access to students living in poverty does not close the digital divide. In some cases, the computers and Internet access actually had a negative impact on academic performance. Although computers and Internet access are important, the solution depends on a complementary combination of skill building, education, digital awareness, mentoring, family support, and ultimately, jobs.

With these factors in mind, this project initially focused on the levers of education, technical talent, technology-based startups, and Fiber infrastructure. These factors represent a strong foundation of actions that together offer near-term and long-term opportunities to generate measurable impacts. These levers were not, however, meant to represent the full range of programming and interactions.

After initiating the research and pilot planning, however, the Zero Gravity effort showed that these four levers did not adequately address two categories of foundational challenges; and that these challenges, left unaddressed, could undermine the effectiveness of investments and programming within the first four levers. Zero Gravity refers to these two challenges as “foundational” since they often do not stand-alone and is necessary for true effectiveness. These foundational challenges fit into two general categories: (i) Digital Infrastructure; and (ii) the Social Envelope. For purposes of this project, “Digital Infrastructure” means computers and broadband Internet access in the home. While Zero Gravity anticipated this need to some extent (see the definitions of “digital divide” above), participants did not truly understand the magnitude of the problem until the research began (e.g. 45% of Memphis households lacking fixed broadband access, poverty levels of 30-40% in Memphis’ African American and Hispanic populations, etc.). In addition, until national organizations were interviewed with missions that focused on bringing computers and broadband Internet access to underserved populations, Zero Gravity underestimated the complexity of these tasks. Based on these and related factors and information, the **Zero Gravity team felt it best to change Fiber Infrastructure to Computer/Internet Access & Literacy (which is inclusive of fiber, but not leaving out those who do not even have broadband)**. As noted, access to computers and broadband Internet will not by itself close the digital divide. Closing the digital divide requires access in context of education, talent, startups and/or the Social Envelope.

The “Social Envelope “refers to the technical and social support, expectations and guidance, and the environments and people that envelop talent, shaping their use and outputs of computers and the Internet.

Informed Scope of Work and Roadmap Herein

Achieving the overall goal - closing the digital divide - depends on addressing these two foundational challenges. With 45% of Memphis households lacking fixed broadband access, 27.7% living in poverty (33.5% of African American households), the Informed Scope takes into account the following levers:

- a) The Social Envelope (i) a well-defined set of programming and assistance, and (ii) a required component of each of the levers.
- b) Computer and Internet Access and Literacy
- c) Digital Education (Education Advancement)
- d) Digital Talent (Talent Advancement)
- e) Digital/Technology Startups (Economic Advancement)

Specific Actions and Deliverables

This is a first step, and not a comprehensive analysis and plan. These first steps will inform our future actions.

1. Phase I
 - (1) Primary Actions
 - a) Secondary Research
 - Identify relevant data establishing a clearer picture of the current situation
 - Identify potential partners within the region and nationally who may have programs or expertise we could productively deploy in Memphis
 - Identify existing programming related to each of the identified levers
 - Develop a strong foundation of information to successfully secure a partnership with fiber providers and other digital resources
 - b) Primary Research
 - Customer Discovery & Community and Partner Engagement
 - Talking directly to local and national funders, educators, program leaders and representatives of various beneficiaries

(e.g. corporate leadership, program leaders, funders, libraries, etc.)

c) Pilots / Measured Tests

- Measured tests with the potential to engage partners and provide current, market-based information on interest, demand and opportunity;

d) Develop Roadmap

- Primary Deliverable- Roadmap: 3-5 Year plan of action for investments and initiatives to be undertaken to digitally advance Memphis

2. Phase 2

(2) The Roadmap

- a) Detailed Introduction
- b) Goal
- c) Current Situation
- d) Challenge / Opportunity

(3) The Research: short summary of the research teeing up the Recommendations

(4) The Recommendations

Zero Gravity: Research, Experiments, and Strategies

The Social Envelope: The Foundation and Bigger Picture

The Social Envelope is a term derived from the book [Beyond Technology's Promise](#) where it describes the social set of expectations that surround a child and a computer. The book spends an in depth amount of time discussing the lack of social expectations or the incorrect set of social expectations surrounding our youth and technology; however, it does provide tremendous solutions in terms of an approach to changing these expectations to better enable youth to foundationally use technology to socially, educationally, and professionally build their lives.

Zero Gravity has rooted the premise of the Social Envelope to the core of its plan to begin closing the digital divide here in Memphis because Memphis too has a lack or improper set of social expectations around how we as a community surround ourselves around technology. Technology, specifically information technology is not a common fabric in how we create jobs and provide education (Innovative Economy); in how we create great places to live and work (Livable Community); in how we build trust and relationships (Social Inclusiveness); and in how we publicly and privately work together for results (Collaborative Governance). It is where these four areas overlap that a community has true regional innovation and it is the goal of Zero Gravity to make sure that digital advancement is the nexus.

After extensive research and customer discovery, it became quite clear that the social envelope was lacking in all four areas that the Zero Gravity plan is addressing: computers and internet access, digital education, digital talent, and startups. All four areas had the following in common:

- Silo efforts diminishing returns; island effect
- Hardware but lack of effective programming
- Lack of organization (s) driving the agenda
- Lack of belief system or understanding of its importance; culture

The Island Effect

With Memphis winning the honor of the most economically segregated city in America in 2014, it is not surprising that when surveying the digital divide landscape we see islands all over the city both from an abstract and concrete perspective. The good news is that there ARE islands or pockets of digital efforts or resources. The bad news is that Memphis lacks the boats necessary to begin bridging the gaps.

The boats needed are social and civic entrepreneurs and organizations to begin driving the agenda and culture; enhanced digital programming to begin maximizing the hardware and labs that have been distributed and created; and new technologies that facilitate the transfer of knowledge and best practices.

Let's consider the four areas described above: Innovative Economy, Livable Community, Social Inclusiveness, and Collaborative Governance

Memphis is not materially investing in terms of job creation how information technology solutions can be a solution to the jobs of tomorrow or to existing businesses that are becoming outdated. From an education standpoint, we are tackling education reform without understanding that any student without a computer, internet, and literacy in the home is crippled from the start in terms of competing for their educational and professional future. A community with 45% lacking broadband internet in the homes is not a community where talent wants to play or work; also understanding, that having computers and internet is not enough but how we gain and use our digital skills as a community is what talent seeks in communities. Memphis has not figured out that a digital economy can bring people together of all shapes and sizes, and technology is the new form of breaking down social barriers. Finally Memphis in its civic efforts are not maximizing efficiency with the use of technology to bridge gaps, accelerate the exchange of ideas and best practices, and building publics of community support.

Existing Programs and Efforts

After extensive research, experiments, and interviews it has been determined that the concept of the social envelope does not exist in Memphis. The area that comes closest is the startup community because of the emphasis of it "taking a village" to startup. We have observed that there is a set of social expectations that surround a startup in Memphis digitally speaking. This includes an emphasis on creating IT startups from organizations such as Start Co., EPICenter, and EmergeMemphis. There is a budding culture that is creating density around technology startups, technical talent, and creative professionals. There are locations for co-working and collaborating. And there are some solid partnerships in support of IT startups. However the digital element is lacking here with the gaps that exists around the density of technical talent, technical programming, and their connection to startups.

In all other areas Zero Gravity has found that only one component of the social envelope exists. For example in terms of Computer and Internet Access, there is only Comcast that has a program to provide discounted computers and internet. However this resource is sitting on an island alone not being activated through other areas of the social envelope including but not limited to access to students, households who will receive the resources, financial support, digital programming to leverage the resources, schools, and much more.

The impact of Memphis not having a true Social Envelope in our approach to growing our community has had detrimental effects in terms of educational attainment, net job creation, loss of talent, urban density, inclusion, and civic efforts. This has been clearly seen in our lag in terms of recovery from the Great Recession.

The opportunity that is presented by Zero Gravity is the use of the Social Envelope as an approach to how we begin closing the digital divide. The Social envelope must be comprehensive and foundational for Memphis and shortcuts will only ensure failure. The application of this concept in how create new jobs and support existing jobs, in how we provide digital education, in how we cultivate and advance digital talent, and how we connect more Memphians with computers and internet will change the trajectory of our city by better enabling existing efforts and new efforts to come. Zero Gravity will then set the stage for scale and carrying the Social Envelope to areas of need throughout the Memphis community.

The Four Levers of Zero Gravity

1. *Computer and Internet Access and Literacy*

What Is It?

This component of the Zero Gravity report is one that increases the number of households with at minimum broadband internet in the home with functional use that drives action for the betterment of the users lives. With only 55% of households having internet, many of those without also do not have computers. The availability, adoption, and implementation of computers in the households will be a strong focus in conjunction with the availability, adoption, and implementation of using the Internet.

There are seven areas of this phase and they include surveying and analysis, recruitment of households, development and implementation of a computer hardware plan, development and implementation of an internet adoption plan, a financial model for sustainability, logistics and administration, and a communications strategy. Collectively these seven areas must fit seamlessly into the new social envelope around Memphis' digital economy.

The Current Situation

Currently the Memphis community does not encourage in a meaningful way computer and internet adoption, and it is not seen as a priority educationally, professionally, and in the community at large. The 45% without broadband internet in the home and the local organizations and businesses who are not functional users of the Internet, are further falling behind in terms of development of themselves and their organizations creating greater obstacles to success. This is very evident in Memphis' educational attainment numbers at 23.7% of the population having a bachelor's degree or higher and the high technology job count coming in at half the national average at 2.4%.

The lack of computers and Internet handicaps local talent young and old in understanding the opportunities available to them and the ability to pursue these opportunities allowing for better attainment of education, jobs, and solutions for the community. Memphis is a blue collar city that has heavily relied on consumer discretionary and consumer staples industries; the lack of diversifying into the information age has pushed our talent and workforce development assistance almost exclusively into unskilled development pathways.

These pathways do not include solutions for talent that materially leverage computers and the Internet as a vehicle for success. Because of this local talent does not have the tools needed to compete locally, nationally, and internationally. Furthermore they are not supported by a culture that heavily emphasizes the need. A great example of this is the usage of the Memphis Public Library which has 18 branches throughout the city with 830 computers available during business hours. Most all of these computers are used by adults looking for jobs or trying to print resumes. Librarians are the first line of support, and are often frustrated because 70% of the questions they receive are for instructions on how to use the computer or printer, and not for the enrichment of the user or to leverage library enrichment resources. Furthermore the library offers computer classes, but these classes are limited in instruction because of the audience that walks in the door, senior citizens. From youth to middle aged talent, they are not showing up to gain technical and digital skills because of the lack of understanding the need and uses.

There are silo efforts in Memphis in terms of both computer and internet adoption. However penetration rates are extremely low at less than 5% for underserved communities. There are households in need and there are discounted computers and internet service options. However there is not an organization connecting the two. For example, Comcast has an Internet Essentials program that provides refurbished computers for \$150 and Internet to the home for \$10 per month for those who qualify. Comcast is not staffed to recruit, manage, and logistically coordinate this service provision, so it is left solely to the individual user. The community lacks an organization that is charged with this mission, although it does happen in small pockets for organizations' and their immediate target audience.

Other solutions presented in the community involve school only solutions. The logic here was by providing computers to every student, and requiring their use for assignments and tests, this would close the technical gap for users. A good example of this is the Power Center Academy where 100% of their students check-out a laptop at the beginning of the day and check it back in at the end. This has created good results from efficiency in getting assignments done, the better leveraging of online resources, and overall increase in curiosity around digital pursuits.

Challenges were also presented with most of the students not having computers in the home creating inconsistent or incomplete delivery of their work. Furthermore the time for creating and polishing skills happens typically outside of the classroom, and this is the time they do not have access to continue learning. After speaking with principals and teachers, it became very clear that a big issue was lighting a spark within students through this computer check out system during school hours, but not being able to come through in terms of meeting the demand by students and their curiosity and wants for more programming and learning whether that is at home, school, or other outlets.

The lack of a social envelope is crystal clear in terms of Computer Access, Internet and Literacy. There is hardware and internet without any supporting mechanisms to create awareness, adoption, and utility. Furthermore Comcast does not have enough resources to supply the entire community and other resources are needed. Areas lacking in the current social envelope around this phase of Computer and Internet Access and Literacy-

- Variety of internet service providers
- Discounted or free refurbished computer channels
- Schools driving the agenda at school and to the parents at home
- 3rd party organizations for support (training/mentorship, access to students, and execution)
- Digital support programming and locations and the frequency of use
- Community outreach to conveying need and availability of resources
- An organization or organizations driving and executing this agenda

Although extensive interviews and research have been quite compelling and enough to get started on a process for moving the community forward, there are still questions to be answered and proof of concepts to be executed on in this phase of Zero Gravity.

Embarking on a task that involves the seven phases described above (*surveying and analysis, recruitment of households, development and implementation of a computer hardware plan,*

development and implementation of an internet adoption plan, a financial model for sustainability, logistics and administration, and a communications strategy), will need to explore the following

- Scaling the following the recommendations listed below
- How this effort will be received on at a greater level from those in need, service providers, and funders
- Creating goodwill and donor pipelines
- Financial literacy awareness and education
- Payment solutions
- Ensuring conducive environments in the home for computer usage
- The exchange between schools, students, and parents around computers in the home

Required Capabilities

The opportunity that has been presented to the Memphis community is creating a broker or middleman for growing, connecting, and managing resources between households in need of computers, internet, and literacy and resources providing computers, internet, and literacy. Action items include but are not limited to:

- Leverage Everyone On (<http://everyoneon.org/>) to educate, lead, and gain access to local and national resources
- Comcast Internet Essential Program
- Make Memphis a Sprint Spark Market
- Need indigent digital communities with schools, support organizations, digital resources already in play
- Dedicate 1-2 full time employees (either through Everyone On or through hiring)
- Tactical messaging and communications plan
- Public and private funding
- Software for managing this platform

What We Have Learned (Progress)

Binghampton Neighborhood

The Binghampton neighborhood was identified as an ideal area to run a pilot in. Elements of the social envelope were already in play setting the stage for providing computers, internet, and literacy which included the following-

- Lester Elementary & Middle School student access
- A digital lab in the community center next door to the schools
- An anchor institution of support in the Memphis Grizzlies Foundation
- Foundation funding already in play
- Qualify for Comcast Internet Essentials program

What was Missing or Needing to be Done?

- Determine what social envelope elements were missing
- Determine programming and delivery that would satisfy these missing elements
- Identify student candidates
- Communicate to the parents that computers and internet are important, and need to be adopted in the homes
- Permission from the parents in form of signed contracts
- Include this effort into other phases of Zero Gravity creating a more enhanced social envelope
- Gain access to free computers or funding for discounted computers
- Qualify the households for admission into the Comcast Internet Essentials program

Twenty-six 6th graders were identified by the Principal of Lester Elementary School as being leveraged for assessing their need for computers, internet, and digital skills. They went through a 9 week digital program for learning computer, digital, and entrepreneurship skills. They were surveyed for their need for computers and internet and the willingness to accept resources. The Comcast Internet Essentials program was presented which offers refurbished computers at \$150 and internet service at \$10 per month; and the payment solution would be corporate and foundation partners preloading Comcast gift cards that the parents would use. The goals of this experiment:

- Generate interest from schools
- Generate interest from students
- Generate interest from parents
- Sustain interest from all the above through experiential learning around computers, internet, and literacy
- Assess the potential to secure resources such as computers and cost effective internet service providers
- Explore what monitor use, adoption, and sustainability would look like
- Analyze short term personal and educational performance for indication of long term affect
- Analyze parental involvement and use of the computer and internet as well
- Generate proof points for scaling opportunities

This pilot began on March 29th and ended May 16th

This experiment taught Zero Gravity, that even the most underserved students in Memphis have the desire to have a computer in the home or the desire to improve how they use the computer. 100% of the students testified to this, the Internet, and the better use of the Internet. With 80% not having computers in the home, there was no technology to be surrounded by a social envelope with the exception of a smartphone. As a result the social envelope is made up of the wrong set of social expectations for these students. Their social envelope is made up of gaming, social media/video sharing, and profiling.

What is missing for these students were most all of the ingredients needed for a successful social envelope resulting in an unequal playing field. These ingredients are and must work together or in the same direction:

- Schools & Teachers
- Parents
- Youth Partner Organizations
- Technical Mentors
- Digital Skills i.e. (app development, graphic design, digital literacy)
- Entrepreneurial Programming (problem solving, critical thinking, life skills)
- One on One Mentorship (from technical mentorship)
- Other Creative Programming (curiosity around technology and innovation)
- The Home Environment for Learning
- The School Environment for Learning
- Digital Labs for Learning (built but not activated)
- Online Tools for Learning

Memphis needs to first take the method of the social envelope as it pertains to Computers & Internet Access and Literacy seriously. The provision of computers and Internet alone will be unsuccessful, and a majority (if not all) of the above ingredients must be deployed to help students. This must be done to begin leveling the playing field for our youth in the City of Memphis. This is one playing field that can be leveled, unlike others which include poverty versus generational wealth, transportation, crime, and other socioeconomic factors.

Recommendations

Phase I of the recommendation for the Computer & Internet Access and Literacy phase of Zero Gravity is to first execute on a proof of concept for greater results and scaling direction. The proof of concept will be to target 5th through 8th graders at Lester Elementary and Middle School (or similar institution) in having 100% of their students to have computers in the home. This will approximately come to 200 households getting new computers and although the go-to-market is students, this is also solving the problem for parents as well.

Everyone On is a nonprofit organization leading the nation in terms of raising the number of households with computers, internet, and the literacy to accompany this distribution of resources. Zero Gravity recommends engaging Everyone On to make available the Sprint Spark program, and other service providers to Memphis to diversify local computer and internet service options. There will now be at minimum two options that can be deployed to those in need.

Comcast Internet Essentials: \$150 for refurbished computers and \$10/ month for Internet

Sprint Spark Program: \$153 for a USB Router or \$94 for a hotspot and free internet for 4 years; computers would need to be bought or donated

100% of the students will be receiving technical and digital programming through the classroom and/or the digital lab at the Lester Community Center. Teachers will drive and emphasis this computer and internet agenda to the parents so that everyone is on the same page in terms of the digital development of the student.

Once Phase I is up and running with meaningful results Zero Gravity recommends expanding to other schools supported in similar capacities as Lester Schools in Phase II of this effort. Phase II should move out of the proof of concept arena and seek to expand to at minimum 8 schools identified that fit similar criteria as Lester Schools.

Budget Estimates

Computer & Internet Access & Literacy	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>
<u>Phase 1 Proof of Concept</u>				
<i><u>Computers (\$150)</u></i>	<u>\$30,000.00</u>			
<i><u>Hot Spots (\$94)</u></i>	<u>\$18,800.00</u>			
<u>Training</u>	<u>\$5,000.00</u>			
<u>Marketing & Communications</u>	<u>\$5,000.00</u>			
<u>Management & Administration</u>	<u>\$15,000.00</u>			
<u>Phase 1 Total</u>	<u>\$73,800.00</u>			
<u>Phase 2 Scale</u>				
<u>Hardware</u>				
<i><u>Computers (\$150)</u></i>	<u>\$825,000.00</u>	<u>\$825,000.00</u>	<u>\$825,000.00</u>	<u>\$825,000.00</u>
<i><u>Hot Spots (\$94)</u></i>	<u>\$517,000.00</u>	<u>\$517,000.00</u>	<u>\$517,000.00</u>	<u>\$517,000.00</u>
<u>Training & Tech Support</u>	<u>\$110,000.00</u>	<u>\$110,000.00</u>	<u>\$110,000.00</u>	<u>\$110,000.00</u>
<u>Marketing & Communications</u>	<u>\$50,000.00</u>	<u>\$50,000.00</u>	<u>\$50,000.00</u>	<u>\$50,000.00</u>
<u>Management & Administration</u>	<u>\$60,000.00</u>	<u>\$60,000.00</u>	<u>\$60,000.00</u>	<u>\$60,000.00</u>
<u>Phase 2 Total</u>	<u>\$1,562,000.00</u>	<u>\$1,562,000.00</u>	<u>\$1,562,000.00</u>	<u>\$1,562,000.00</u>

The expected impact will be tremendously valuable for understanding the capabilities of our schools, students, parents, and resource providers in terms of enabling our youth with the needed digital tools to compete in educational attainment.

2. *Digital Education (Education Advancement)*

What Is It?

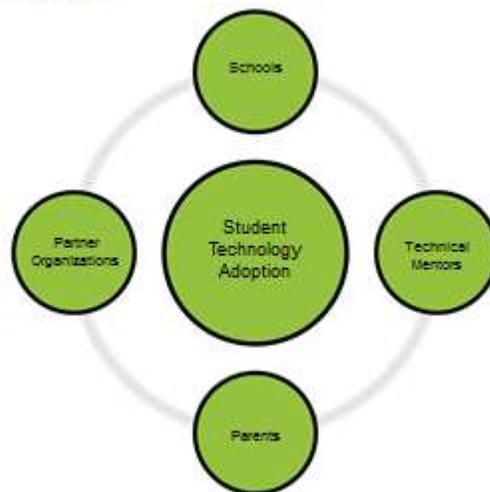
This phase of Zero Gravity is about improving educational attainment by better preparing K-12 students for higher education and career pursuits. In this phase Zero Gravity emphasizes constructing a robust Social Envelope that will close the digital divide, grow digital skills, and instill problem solving, critical, thinking, and curiosity about technology and innovation. The premise is that if students are introduced to digital programming early and often, so much so that it becomes foundational to their lives, they will improve in terms of educational performance, seek out and take advantage of opportunities available to them, have exposure to more educational and career opportunities and pursuits, and have a mindset that is entrepreneurial and capable of changing with the constantly evolving innovation economy we currently are in.

The Social Envelope for digital education is quite extensive and has several layers that must be addressed in order for this digital agenda to be adopted and utilized for success.

Social Envelope: Layer One (Who's Involved)

- Schools & Teachers
- Parents
- Youth Partner Organizations
- Technical Mentors

Zero Gravity's Social Envelope: Who Is Involved?



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Social Envelope: Layer Two (Skills & Guidance Needed)

- Digital Skills i.e. (app development, graphic design, digital literacy)
- Entrepreneurial Programming (problem solving, critical thinking, life skills)
- One on One Mentorship (from technical mentorship)

- Other Creative Programming (curiosity around technology and innovation)

Zero Gravity's Social Envelope: Skills & Guidance Needed:



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Social Envelope: Layer Three (Conducive Environments for Self Learning & Peer to Peer Learning)

- The Home Environment for Learning
- The School Environment for Learning
- Digital Labs for Learning
- Online Tools for Learning

Zero Gravity's Social Envelope: Environments for Learning:



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The digital education phase also extensively overlaps with the Computer & Internet Access/Literacy phase because having a computer and internet access to the home is crucial for continued learning and application.

The Current Situation

From an educational standpoint Memphis lags the nation in terms of high school graduation rates at 70.2% as of 2012 with the national average being 81%. What is troubling is the number of students graduating with no real means of competing for higher education opportunities. Memphis' ACT average composite score is 16.2 where the state average is 19.8 and the national average is 21. It is advised in the ACT State Profile Report that there must be an emphasis on college and work readiness skills in order to improve ACT scores. Memphis' educational attainment numbers in terms of bachelor's degrees comes in at 23.1% compared to the national average of 28%.

According to a Society of Human Resource Management Report 58% of hiring managers claim that the top three deficiencies in new hires are problem solving & critical thinking, leadership, and information technology.

Memphis currently has a few pockets of digital programming for youth so the Island Effect described above is slowing the community's progress. However there is a bigger issue holding down the city, and that is the "Hardware as the Solution" problem. Many efforts are handing out computers or building computer labs, however they are lacking the programming needed to instill digital skills into students. Furthermore technology hardware is being purchased to outfit the labs, without any real planning on the hardware's relevancy to acquiring real digital skills that students can carry forward in life. The Soulsville area of Memphis has even installed a 10-block radius of mesh Wi-Fi network with the support of a \$250,000 grant by the Tennessee Regular Authority.

However this area too has fallen victim to the “Hardware as the Solution” problem with a lack of awareness, use, and programming needed to activate this valuable resource to the community.

There currently seems to be some enthusiasm around digital programming, but the only solid structured programs are in the private schools. Outside of this, only the public library is providing sustained computer literacy classes that are mostly attended by senior citizens and not youth. There are programs being built from the Cloud901 teenage learning lab to the Grizzlies Blended Lab to the Computer lab at the Stax Academy and Boys & Girls Club Technical Institute powered by Juice Plus.

In general digital education is not a current priority for the Memphis community, however there are material resources at the table ready to support; foundations, schools, nonprofits, corporate community, government, technical talent, etc. The overall sentiment is that most are waiting for an organization or effort to follow.

Memphis Grizzlies Digital Labs

The Memphis Grizzlies have taken a leadership role in the digital space by creating a digital lab in the Lester Community Center in Binghampton neighborhood. This is part of the continued revitalization of Lester Elementary and Middle Schools and the surrounding area. The digital lab consists of 6 computer stations, 3 smart boards, AV equipment, and it is a very interactive environment for student peer to peer learning. A partnership with CodeCrew is allowing for youth coding at this point. The goal is to open multiple labs in a similar capacity throughout the city.

Cloud901

Cloud901 is an 8,000 square foot multi level digital teenager learning lab created by and housed at the Benjamin L. Hooks Library. It opened fall of 2015 and is seeking to match dynamic programming with the hardware within the space. The lab will provide the following to teenagers in the community

- Coding & Graphic Design Space
- Video Lab
- Music & Film Production
- Art Studio
- Gaming Space
- Makerspace
- Collaboration Space
- Etc.

The Library is currently, per the instruction of Zero Gravity, in a programming launching phase where the lab is going through a process of developing the programming, business model, and operational components of the lab. More of this is described in the below in the PILOT Phase.

The ultimate goal of Cloud901 is to have a presence in all 18 branches throughout the city. Cloud901 has access to all the branches and its resources including but not limited to 850 computers, computer science classes, library staff, and the online branch.

Memphis Public Library Teen Tech Week

This is a summer camp for teenagers that have been going on for years in conjunction with the Society of Information Management Memphis Chapter where coding skills are learned. This will be housed at Cloud 901 going forward. Currently this event has a limited number of spots ranging from 30-60, and is always oversubscribed by over 100 student signups.

Shelby County Schools

SCS funded the provision of laptops to 10 schools in the public school system. The idea was by subsidizing this resource for students, their ability to perform would increase. This is a current pilot that has hit incredible barriers to entry due to the lack of Internet provision and the costs and restrictions to getting this done. The computers outside of Wi-Fi hotspots in the city have become administration tools and not educational or digital tools.

Black Girls Code

Memphis currently has a chapter of Black Girls Code which teaches African American teenage girls how to code through beginner level app and website development. These sessions come in the form of Saturday or Weekend workshops. 10 workshops have been hosted to date with an average attendance of 45 children.

Teacher or School Isolated Efforts

There are “one off” examples of digital education efforts that involve a teacher who is passionate about bringing this form of enrichment to the classroom. There are also several schools who are instituting digital programming such as app development, etc. Some examples include Power Center Academy, Hutchison, and St. Mary’s. The schools leveraging these types of methods are typically private and charter school in nature.

These existing programs are leaving too much to chance in terms of digital education becoming a foundational part of students’ lives. The social envelope is far from complete and the haphazard nature of the current service delivery is not strong enough to fight against Memphis’ current and limited social envelope of using technology for social media, gaming, reality TV, pop culture, and educational eroding content. Furthermore the impact of these existing programs are social in nature, meaning they have been built without scale in mind limiting their impact to the few that they are touching.

What has been identified is that there are gaps that need to be addressed:

1. The social envelope is incomplete
2. Missing needed agents to connect existing and future resources
3. Lack of scale is holding back digital education
4. Lack of organization (s) driving the action

What We Have Learned (Progress)

Lester Schools

In a nine week experiment with Lester Schools in the Binghampton neighborhood we tested 6th graders capacity to receiving the social envelope for their growth in education. All components of the social envelope were not addressed, but we provided the following-

- Access and use of a digital lab
- Digital programming that included the building of websites
- Entrepreneurship programming that delivered life skills and problem solving and critical thinking
- Parental outreach and approval of digital programming
- The school pushed the digital agenda
- Technical mentors were leveraged
- Students were assessed for potentially securing computers in the home by the end of the program

This experiment taught Zero Gravity that 6th graders who had zero digital education to date, could explore ideas and build them, learn digital skills, take interest in innovation, learn business skills, and adopt intangible skills such as problem solving and critical thinking. The students used technology to solve problems, identify customers, experiment, and build investor presentations. Team building and leadership was exemplified through a self-selecting process of choosing and working on their business concepts. These students were very raw in terms of their background and educational experience, however this did not take away from their capabilities. Lester students did in fact have core principles behind business and entrepreneurship mostly due to the survival type environments that they are growing up in, and where they lacked in digital skills they made up for with a zeal to build something of their own. Attendance levels actually went up as the class went on.

As mentioned in the prior section around Computers and Internet Access and Literacy, 80% of the students did not have computers in the home. 30% had some basic knowledge on computer and Internet use based on parent and teacher involvement, however this was elementary in nature. The social envelope in terms of digital education was missing the following-

- Computers & Internet in the Home
- Schools & Teachers
- Parents
- Technical Mentors
- Digital Skills i.e. (app development, graphic design, digital literacy)
- Entrepreneurial Programming (problem solving, critical thinking, life skills)
- One on One Mentorship (from technical mentorship)
- Other Creative Programming (curiosity around technology and innovation)
- The School Environment for Learning
- Digital Labs for Learning (built but not activated)
- The Home Environment for Learning
- Online Tools for Learning

- Triage feedback
- Organization of digital testing and experiments
- Driving the Cloud901 agenda with others in the community (i.e. Memphis Grizzlies Foundation)
- Planning for scale and sustainability
- Connectivity to resources
- Partner organizations adopting the social envelope and where they fit in
- Creating volunteer and staff opportunities to plug in

Zero Gravity has learned a lot in this work with the library. Premature execution was a real possibility if not for the guidance and structure that has been brought to the library and the launching of this vital asset for youth in the Memphis community. Furthermore, the library exemplified a thirst to learn, have introspection, and do what it takes to get this endeavor right. There are challenges that exist and they include:

- Restrictions with government funding
- Scaling a Cloud901 presence to the branches
- Need for volunteer support
- The Library Foundation's capacity for raising ideal operating funds

Grizzlies Digital Lab

The Grizzlies Charitable Foundation invested in building a digital lab at the Lester Community Center, which included a makeover of the space, installation of 6 computer stations, 3 smart boards, and one large projector screen and AV equipment. The Grizzlies however were faced with an issue of investing in hardware and the brick and mortars of the physical lab, but had not considered what programming is truly needed for the youth and if that matched the equipment in the room. The experiment described above in terms of the social envelope also served as an experiment in how to outfit this digital lab and others that could be created in the community. One area of concern is the adopting of technology that may not have future relevance in the lives of the students. For example smartboards were used, and although these are great in terms of allowing students to collaborate around a large board that is reconfigured into a big computer; it was difficult to use in terms of teaching digital skills such as app development, website development, gaming, loading of documents/presentations, and searching the web. The best vehicle for doing these, were the individual computer stations with the ability to use a keyboard and mouse rather than a pen and touch screen. Going forward there needs to be more consideration in what form of digital programming will be taught. Areas of need were the downloading of Microsoft office to all the stations in the room; this is an interface that is compatible with most all systems.

Civic Realignment

We tested the willingness of community partners to work together in how Digital Education can be delivered. There are many pieces of the social envelope that require different and unique partners. However many of these partners were addressing needs that overlapped one another and we needed to spend time with them to educate how scale could be adopted working together, but more importantly, if they all believe in the social envelope and that they are only providing a portion of it, they could not be truly successful without the others. The test has proven successful; in that, we

have 23 partners who have been open in disclosing their service and business models, and that they are willing and available to be a part of this effort.

There were issues that had to be addressed such as silo efforts, miscommunicated or misconstrued sentiment, detracting viewpoints of one another, worry over funding, etc. The galvanizing agent was the fact that none had answers on the pathway to results that they could stand on, and the belief that the social envelope could be that pathway.

Entrepreneurship Programming

Start Co. brought to the table an entrepreneurship curriculum for the students at Lester to test their ability to solve problems and build business concepts including-

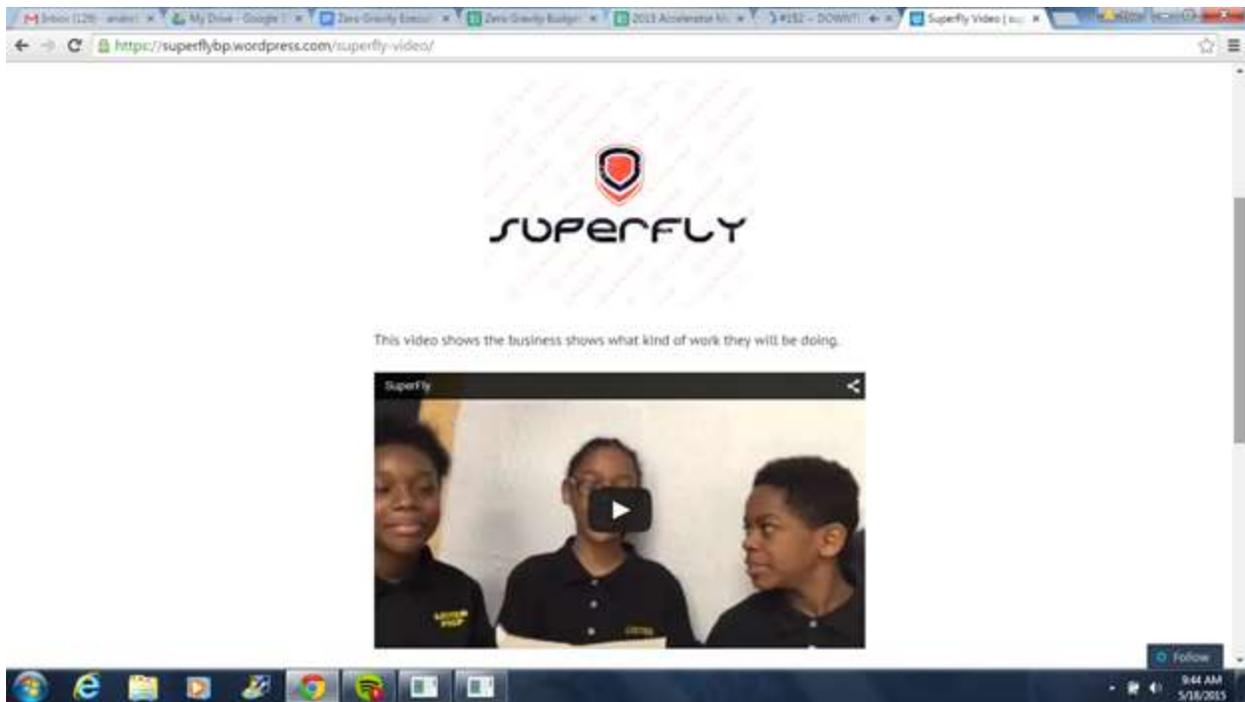
- General education on business, entrepreneurship, and money
- Customer discovery
- Prototyping
- Business modeling
- Elevator Pitching
- Video Demos
- Creation of Investor Presentations
- 9 Building Blocks of a Business
- Life Skills Component

The entrepreneurship programming worked well, however there were issues with students being lured away to other teams, girls congregating with girls, boys congregating with boys, sharing computer time, and allowing for all team members to participate with ideas and suggestions. The students were able to learn and absorb real business acumen from financial literacy, titles and roles, customer relationships, and applying these skills in the future.

Digital Programming

This experiment involved testing if the students could learn digital skills including but not limited to computer functionality, website development, video creation, and basic graphic design and formatting. Some students were stronger in certain areas than others due to availability of computer resources in the home with parental involvement. Technical mentors assisted in the website development. This is the area that was the most attractive to the students, being able to build something using technology and seeing the final product. This type of programming was able to be taught in a manner of 1-3 hours, and was infused with the entrepreneurial programming.

The following is a screenshot of WordPress Website Built by Lester Prep 6th Graders



Memphis Must Seek & Engage National Best Practices

Through the process of working through Zero Gravity, it became overwhelmingly clear that Memphis is lagging other communities in terms of how to address this digital divide. Huge gaps were identified in the digital continuum. One key element that was missing in the effort was the understanding that this work must begin at the earliest possible stages of kindergarten. This became clear in the many visits with Iridescent, a non-profit dedicated to building a digital continuum for K-12. The curiosity around technology must begin early so that students will be ready to receive digital programming such as coding later in their educational lives. Iridescent with their work in East Los Angeles and the South Bronx is transformational. In addition their ability to engage corporate partners such as Boeing for their financial and their developers as mentors was truly eye-opening. This is one tangible example, that is being incorporated into the below recommendations, but there were numerous resources identified nationally in our customer discovery process that should be reviewed in the references section of this report.

Recommendations

Zero Gravity recommends adding digital and innovation programming for K-12 students for improved performance in educational and career attainment. Specific programs, partners, schools, laboratories, mentors, and parents will surround the student as he lays a digital foundation for the future. A student entering kindergarten under Zero Gravity Digital Education Recommendations will receive the following over the next 12 years.

K-5: Students that fall into this category of Kindergarten through 5th grade would have had made available to them the following items at or before these digital education recommendations-

- Computer in the Home
- Internet Access in the Home
- Computer Literacy Training
- Engagement and Interaction of Parents and Schools

Zero Gravity then recommends the engagement of Iridescent (<http://iridescentlearning.org/>) to bring the Curiosity Machine to these students. This is a program that instills curiosity and ideas around technology and innovation increasing their awareness and aptitude for learning and acquiring digital skills in the future. This is a train the teacher type of program where the teachers are allocating time during school for this type of programming. Parents are trained along side the teachers to make sure there is a seamless transition from the classroom to the home. Technical mentors are sourced locally and nationally through the Memphis network or Iridescent's national network for continued guidance and assistance. This program is about learning, and the building of ideas for real relevancy in later education. In summation the following will take place.

- Teachers and Parents Are Trained on the Curiosity Machine Curriculum
- Students Learn This Curriculum
- Students Build Ideas
- Technical Mentors are Trained and Made Available to the Students
- Online System Adopted for Interface Between Students, Parents, Teachers, and Mentors
- Video Tutorials Accelerate Learning

6th-8th Grade: After a student has had 6 years of innovation programming described in the K-5 Strategy, they are then ready to begin receiving a higher level of programming which will include digital programming, entrepreneurship programming, and continued assistance through the technical mentors. Digital programming will include Iridescent's Technovation and the CodeCrew's youth coding platform, both of which will take the concepts learned through Curiosity Machine as a basis for building technologies. The entrepreneurship training that will be utilized is that of Start Co.'s Entrepreneurship Toolkit which has been customized for students.

Students will begin leveraging digital or computer labs in or nearby the schools for further submersion into environments of digital learning. The Blended Lab in Binghampton or the Computer Lab at the Stax Academy are examples. As of the age 13 students will be able to leverage Cloud901 at the Memphis Library as a part of the continued training. It is in these grades from 6th through 8th where a foundation is further laid in terms of innovation, problem solving, critical thinking, and information technology skills for the future. The 6th - 8th graders will have the following offerings-

- Beginner Level Digital Programming
- Beginner Level Entrepreneurship Programming
- Access to Cloud901 & Other Digital Lab Offerings
- Digital Programming Offerings (CodeCrew & Black Girls Code)
- Higher Level of Use of Technical Mentors
- Youth Partner Organization Introductions

9th-12th Grade: Students in their last four years of high school would have been touched the following ways by digital and innovation programming and resources.

- Curiosity Machine
- Computer & Internet in the Home
- Computer Literacy Training
- Beginner Level Digital Programming
- Beginner Level Entrepreneurship Programming
- Teacher & Parent Training
- Youth Partner Organization
- Access to Cloud901 Offerings & Other Digital Labs
- Use of Technical Mentors As Needed

These same students will be transitioning into a preparatory mode for higher education and career pursuits. Zero Gravity then recommends-

- Advanced Level Digital Programming
- Advanced Level Entrepreneurship Training
- Adult Digital Program Offerings
- Adult Entrepreneurship Program Offerings

Students going through Zero Gravity’s Digital Education pathway would have changed how they look at technology and innovation, and would have changed the Social Envelope that they are in with technology. This will improve their educational performance and career pursuits through the acquired digital skills, business skills, life skills, and problem solving and critical thinking skills. They will be in a much better position to adapt with the shifting economy keeping them relevant the rest of their lives.

Budget Estimates

Digital Education	Year 1	Year 2	Year 3	Year 4
Phase 1 Proof of Concept				
School Training				
<i>Survey & Analysis</i>	\$150,000.00			
<i>Iridescent's Curiosity Machine</i>	\$75,000.00			
<i>Iridescent's Technovation</i>	\$75,000.00			
<i>Start Co. Entrepreneurship Curriculum</i>	\$25,000.00			
<i>Start Co. Entrepreneurship Curriculum Development</i>	\$15,000.00			

Service Providers				
<i>Cloud901</i>	\$15,000.00			
<i>Grizzlies Code Camp</i>	\$15,000.00			
Marketing & Communications	\$10,000.00			
Management & Administration	\$25,000.00			
Phase 1 Total	\$405,000.00			
Phase 2 Proof of Concept				
School Training				
<i>Iridescent's Curiosity Machine</i>				
<i>Iridescent's Technovation</i>				
<i>Iridescent Total</i>	\$320,000.00	\$320,000.00	\$320,000.00	\$320,000.00
<i>Start Co. Entrepreneurship Curriculum</i>	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00
Service Providers				
<i>Cloud901</i>	\$85,000.00	\$85,000.00	\$85,000.00	\$85,000.00
<i>CodeCrew</i>	\$85,000.00	\$85,000.00	\$85,000.00	\$85,000.00
Marketing & Communications	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00
Management & Administration	\$75,000.00	\$75,000.00	\$75,000.00	\$75,000.00
Phase 2 Total	\$725,000.00	\$725,000.00	\$725,000.00	\$725,000.00

3. ***Digital Talent (Talent Advancement)***

What is it?

This phase of Zero Gravity focuses on the advancement of talent at all levels of the Memphis community from youth to professionals. While coding talent is an obvious need for the advancement of industry in the area, creative talent such as digital designers and user experience designers, meeting vocational technology talent such as low voltage cabling, inspiring youth to enter these professions, as well as corporate and professional talent are also focal points for health industry advancement.

The premise is that at all levels of our community we need a net increase in digital talent to meet the needs of today and prepare a pipeline to enter industry tomorrow. For today, positions in our area businesses are going unfilled for lack of talent. Our community is having a hard time recruiting businesses in the technology sector due to lack of talent. In a digitally wired world we need

vocational talent to wire our community and maintain network infrastructures. Instead of outsourcing interface design our community should be able to build the future here. Corporations are presently providing on the job continuing education and training that isn't meeting the state of the art in coding and design. Our professional talent in the technology sector lacks cohesion, opportunities to exchange, and peak experiences to "sharpen the saw" to be on the cutting edge. Our colleges and universities struggle to source young talent for the technology sector and we need to inspire the next generation to enter these fields or risk further economic stagnation.

We could view this digital talent along a continuum where advancement of one area feeds the needs of the downstream parties and economic advancement of our community at large:

Youth Inspiration and Immersion Experiences →

Professional Training →

Talent Pool of Creatives/Designers & Coders/Development & Vocational Technologists →

Industry Jobs →

Corporate Talent Development/Continuing Education/Professional Affinity Groups/Culture →

Recruitment and Retention of Talent and Industry

The Current Situation

Memphis' share of advanced industry jobs ranks 89 out of the 100 largest metros in the United States with only 5.1% of our employment making up these fields. To move the Memphis area ahead economically these advanced industries that leverage technology talent need to lead our growth. Yet from our survey of job listings on popular job sites there are approximately 1000 open programmer positions in the Memphis area. It is estimated that for each filled coding position in Memphis an additional 4 jobs would be created to support these individuals and their lifestyles. That is a 5,000 job swing if we had the talent to fill those positions. From reports of corporations, small businesses, and startups there simply is not enough technology talent to fill these coding positions. And this is scratching the surface as many other information technology based jobs are also going unfilled. Even if we could fill the demand with a magic wand today it unfortunately won't be enough as these jobs are expected to increase by the Bureau of Labor at a rate of 3.9 percent annually through 2020. Whether it be vocational technology talent, design talent, coding talent and related information technology fields, the need is already great and will continue to grow.

As these jobs increase rapidly nationwide it is estimated that colleges and universities will only fulfill half the demand for these positions at current rates. A pipeline of inspired youth to enter the STEM fields will be needed to fulfill part of the growing demand. Transitioning existing workforce members to these fields will also be needed. Memphis' competitiveness in recruiting technology based industries will be predicated on the pipeline of diverse technology talent that we can build to meet the demand.

While filling these jobs and future demand feels like the finish line, we face other local challenges for retention and the continuing education of these technology knowledge workers. Our survey of technology user groups and focus groups found that the active participation of professionals in growing and advancing their knowledge and skills in these fields has occurred in a limited manner. The technology community lacks a cohesive inclusive culture that support "Creative Collisions" and best practice exchanges. The technology user groups struggle to build audiences for their programming with most of these affinity groups struggling to get 20 attendees at monthly meetings.

Further, the largest technology conference for best practice exchange attracted a scant 100 people. Similar peer communities attract 300-500 or more for such culminating experiences.

For corporations looking to expand the professional technical skills of their employees there are not any local outlets for continuing education. Employees are trained on the job inefficiently to pick up new technology knowledge and skills -- the economic cost of which is hard to calculate but is estimated to impact local GDP.

Taken in total the dividend of advancing technical talent at all levels of community would have large economic benefits. Advance the entire continuum from youth and raw talent to peak professional experiences is needed.

Existing Programs

Tech901: Tech901 is a new non-profit organization with a charter to train current or potential Memphians for a variety of information technology jobs and to work with employers to increase the Memphis technology job base in software development, low voltage cabling, and computer technicians.

Greater Memphis IT Council: The Greater Memphis IT Council is a membership association that aims to build Memphis into a center of excellence for information technology. Focusing on employers of IT workers and those already established in the field. The effort will not be directly building needed talent.

User Groups: These are groups of professionals that gather around an affinity area such as PHP, Java, Web Development, User Experience, and other technology areas and specializations on a monthly basis. Occasionally there are joint meetings. Attendance as function of professionals in the field is comparatively lower than would be expected. Run often in a grassroots and bootstrapped manner the experiences are not inspiring attendance from the corporate world with most attendees coming from small businesses and freelancers.

Memphis Technology Foundation: The Memphis Technology Foundation is presently a grassroots effort of the technology user group community and their leaders to increase support for and programming for technology professionals. With limited resources and no clearly identified leader willing to leave their day job the impact has been limited.

Creative Works: Creative Works was started as a mechanism to provide peak professional development experiences to creative and digital professionals such as designers, storytellers, video producers, animators, and the like. Founded as a conference with international attendees the program offering has demand for growth and receives strong sponsor support. 300+ attendees were at the first event in October 2014.

AIGA: AIGA is a community network of creative professionals – for in-house, freelance, boutique, agency, entrepreneurs, and students alike -- that advances design as a professional craft, guide design education, enhance professional development, and make powerful tools and resources accessible to all. Monthly membership meetings attract 25-50 professionals but there are limited peak experiences established to attract larger audiences.

Black Girls Code -- Memphis Chapter: Black Girls CODE is devoted to showing the world that black girls can code, and do so much more. By reaching out to the community through workshops and after school programs, Black Girls CODE introduces computer coding lessons to young girls from underrepresented communities in programming languages such as Scratch or Ruby on Rails. The demand for workshops has outstripped supply. The program is limited strictly to black girls and thus doesn't address other populations where there is also large demand.

Community Colleges and Universities: Presently community colleges and universities have limited computer science enrollment to build needed talent. Many of those students focused on information technology are not getting professional skills in technologies that are used in the modern day workforce. With great demand and the colleges and universities providing limited output increased training for students is needed.

Overall the impact of these existing programs is limited. The limiting factors include:

- a. Limited leadership: because of high demand and higher pay, getting talented technology leaders to leave their day jobs to build proper infrastructure to build and cultivate new talent is difficult and expensive. To date there has yet to emerge someone willing to take the risk.
- b. Limited professional culture and programming: Existing professional organizations do not build talent merely support existing talent. Even then community organizations, companies, and others have not recognized the need to create and support peak experiences for technology professionals to exchange and learn. With limited support comes limited scale and professionalism that signals weak culture and dynamism. This impacts both recruitment and retention of talent.
- c. Limited youth programming: While there is certainly interest in STEAM education K-12, the programming outside the classroom to provide exposure to professional crafts is limited to small pockets and in some cases is not inclusive of all populations (e.g. Black Girls Code). With limited ability to service the demand these programs are under performing to meet the need.
- d. Lack of sufficient training schools: To produce programmers to meet the demands of today and tomorrow the universities cannot meet the demand.

Recommendations

1. A for-profit coding school formed and funded to provide non-technical workers with the skills they need to become successful, entry-level software developers. The coding school may also provide existing software developers with advanced or supplemental skills. Start Co. has begun taking the necessary steps to launch Capital C summer of 2016, a code school for individual and corporate use.
2. To begin growing the pipeline for the coding school, Zero Gravity recommends supporting a youth coding nonprofit - Code Crew. Code Crew will focus on providing software development skills to any student - from elementary school through high school. Zero Gravity has been working with the Grizzlies Foundation and Start Co. to lend resources to CodeCrew. The Memphis Grizzlies

Foundation has seed funded the nonprofit. Start Co. is serving as the fiscal agent and providing the guidance and direction needed for CodeCrew as a startup social enterprise.

3. Link college students majoring in art, design, graphics, etc. with digital design creative professionals to build talent and skills. Zero Gravity has been working with the Memphis College of Art to provide their students with opportunities to gain experience within the local digital community. An experiment has already led to the hiring of one student in the videography arena.
4. Begin in-depth discussions with the corporate community regarding the information technology talent needs. As part of this, identify corporate technical personnel willing to serve as technical mentors for participants in the coding school and youth coding academy.

Other notable recommendations include placing small amounts of resources on increasing the vibrancy and energy around building a culture of digital talent. This can be accomplished through nascent efforts already in place, such as Creative Works, a national conference hosted in Memphis, and through creative marketing and messaging through Archer Malmo and I Heart Media. Zero Gravity recommends the design and execution of a thorough survey of vocational technology human capital needs done before formally launching a vocational technology school.

As with each of these efforts, Zero Gravity strongly recommends funding to support the administration, measurement, promotion and communications of the Digital Talent pilots and programming. As noted, it will be critical to the success of the Plan that strong connections be made among programs, partners, supporters and others. The funding should also support the creation and expansion of the social envelope. Although many would like to believe that the required networks and information flows will occur organically, this belief is naïve especially at the early stages of development and learning.

Representative metrics for the Digital Talent programming will include:

- Number of students in code school and youth code school
- Job and internship placements after completion of the programs
- New digital talent efforts launched
- Professional connections made for digital and creative talent
- Number of underserved dislocated talent touched

Budget Estimates

Digital Talent	Year 1	Year 2	Year 3	Year 4
Coding School	\$300,000.00	\$0.00	\$0.00	\$0.00
Grizzlies Code Camp	\$50,000.00	\$50,000.00	\$50,000.00	\$50,000.00
Creative Works	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00

Digital/Creative Talent Culture & Outreach	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00
Survey of Community Need: Vocational Tech	\$25,000.00	\$0.00	\$0.00	\$0.00
Total	\$425,000.00	\$100,000.00	\$100,000.00	\$100,000.00

4. *Digital/Technology Startups (Economic Advancement)*

In terms of how we create jobs the digital agenda is not materially supported in the Memphis region, which is perplexing considering information technology affects most all forms of job creation in our city. New technology solutions have to be created in order for our industries to compete in the global economy. We discussed in the executive summary how Memphis' job births have fallen 50% in the Information Communications Technology and High Tech High Growth Arena from 1980 - 2011. Our lack of density here where the rest of the country saw explosions of 210% and 69% respectively has hampered our startup job creation in our community. The lower the number of information technology jobs, the lower the number of high growth IT ideas that can be cultivated as a community. Those few ideas that are pursued find themselves in a perpetual cycle of trying to find digital talent to support their startup companies.

If we were to step outside of the startup world and look into existing business efforts, Memphis is lacking in a couple of areas: 1) helping to fill the 1,000 open IT sector positions that currently exist in Memphis, and 2) lack of recruitment of information technology companies to the area. Existing businesses are having to find talent elsewhere or are not able to discover the local talent that exists. When they do find digital talent, there are haphazard approaches of growing the digital skills needed to execute effectively.

It is because of this major gap in the Memphis economic development agenda that technology startups have been the focus of an effort called MEMx (Partners for Exponential Entrepreneurial Growth) which is a regional innovation strategy for the city of Memphis with entrepreneurship as the key ingredient. Start Co. engaged Jumpstart America (a venture development organization in Cleveland, OH) to help assess the region in terms of entrepreneurial opportunities and gaps, and provide a specific growth plan. 2014 was the year to get results from these strategies so that the community can take bigger bets in 2015 and beyond. This plan was an entrepreneurial one in itself, in that the goal is to constantly work lean and efficiently while getting results for iteration and expansion.

The core goal of the MEMx plan was to increase local deal flow of early stage startup companies. Deal flow was very thin in the Memphis region with 150 quality startup concepts annually with 30-40 in the demonstration phase of building and only 5-10 at a level worthy of material investment. In order to achieve this goal, it was recommended to enhance the local accelerators who support early stage companies, begin teaching the teachers in a concept called Entrepreneurship for Everyone, and finally to spread a culture of startup activity through pre and post accelerator activities. The call to action was operational dollars, investment dollars, mentors, customers and

partners, and enhanced communication and messaging locally, regionally, and nationally. A recap of the MEMx effort is below which sets the stage for Zero Gravity's recommendations to close the digital divide for startups in Memphis.

MEMx Recap (January 2015)

New Data & Perspective

The premise in the MEMx plan was that Memphis' economy was broken and this was exhibited in what was learned from the primary and secondary research conducted. Whether it was poverty, unemployment, underperformance in educational attainment, etc. Memphis was a leader in the nation. To compound the problem local economic and community development efforts failed to see a comprehensive root of the problem making it extremely difficult to dig out from the Great Recession.

The fact that most all net new jobs are coming from high growth entrepreneurial companies was and still is being ignored by many communities like Memphis, TN. New data was released in 2014 to further show the disconnect that so many communities have in terms of where real material resource is being placed versus what is producing and sustaining jobs.

Memphis' primary focus for those 30 years were incentives for recruiting new industries to town, mostly in the manufacturing or consumer discretionary sectors; it was not in ICT and HGHT sectors. The report later connected the explosion in these two sectors and job growth citing that the number one drivers in the fact that most all net new jobs come from high growth entrepreneurial companies the last 30 years was because of ICT, HTHG, and companies 5 years in age or younger.

Memphis has struggled in the ensuing years leading the nation in poverty, unemployment, and economic segregation in 2012, 2013, and 2014 respectively. Our educational attainment numbers are 17% below the national average and 17% below Shelby County, TN.

National economist Edward B. Montgomery (Dean of Policy & Economics, Georgetown University) delivered in a presentation to Memphis that startups are the key to Memphis' future and that their must be balance in efforts around existing businesses and creating startups. Notably, he presented specific numbers on how job creation from existing businesses is stalling over the last three decades while job destruction from these existing companies is remaining the same. Startups are outperforming existing businesses at a clip of 34% in terms of net job creation. Montgomery was quick to note that existing businesses make up the majority of all employment so there still must be major support in this area; the key is to find the right balance with startups.

Montgomery noted the fact that women are leading in the recovery in terms of employment gains. Much of this is contributed to a shift away from manufacturing where the 75 year trend has been from it making up close to 40% of employment share to just under 10% today. Montgomery made it quite clear in his Elements of a New Strategy for Economic Development that there needs to be a focus on investing in allowing entrepreneurs to converse with other entrepreneurs, strong and relevant assistance must be provided, collaboration across many, build on the community's assets

and strengths, focus on existing business and startups and create a skilled workforce to match, and that we need to relook at the amount of money allocated to incentives on the local and state level:

“—Local government needs to remember the fundamentals – much of the \$70 billion states and local areas spend on business incentives is wasted,” – Edward B. Montgomery

Finally Montgomery conveys that the United States and Tennessee had recovered to pre Great Recession economic numbers; however Memphis is approximately 2 years away.

Other economic notes uncovered in 2014 that are becoming more and more vital to a community's success or lack thereof are access to innovation based infrastructure and looking at talent as a commodity in this innovation era we are in. Unfortunately Memphis lags the nation by 20% in terms of households with Broadband Internet at 45%. From the years 2011-2013 we ranked 50 out of 50 cities in terms of growth in 24-35 year olds with a bachelor's degree. Memphis lost 3,499 or 6.6% while our first place neighbor Nashville gained 20,652 or 25%. Although there was a compelling case to support building a vibrant entrepreneurial ecosystem here in Memphis last year, it is even more evident now with the above data and clarity. The primary research gathered further supports the theme in MEMx: entrepreneurship for everyone, inclusion, increase deal flow, enhance the accelerators, IT/logistics/healthcare, creative collisions, etc.

One of the goals of the MEMx effort in 2014 was to garner proof points for better focus and increased support in 2015 and beyond. 2014 helped to validate hypotheses and eliminate some as well.

Proof Points

Information Technology is the Nexus- Memphis is not known for being an Information Technology giant especially in terms of startups; however it was believed that IT has and will continue to provide solutions in most all industries especially those that make up Memphis. The intersection of information technology, healthcare, logistics, and social sectors provided great proof points this year in terms of startups built, investment capital to support, and customers stepping up to the table. Four examples include GraphStory (logistics), Cabsolutely (transportation), Musistic (music), and MentorMe (social) where IT posed as the solution for struggling industries. IT because of its low cost to ROI is needed in a starved community such as Memphis.

First Customers & Strategic Partners- We believe that the key to building great startups is getting access to both the intellectual capital and social capital of key influencers, partners, and customers that have the knowledge and rolodex to launch a great startup with real footing. Our recent efforts have rapidly expanded true engaged partners and first customers on a scale not previously seen in comparable programs. In the past 12 months alone the base has grown from 5 key relationships to 25 with the balance of the new ones coming from outside of Memphis.

Women Can Lead- when we became more deliberate in helping women founders 2 years ago we were unsure the gap that existed because of the lack of inclusion in the startup world. Although our experiments have shown more males with coding and programming skills than females, women have been able to lead and manage their companies better than their male counterparts.

Management skills, CEO level skills, less ego, and the willingness to do what it takes are skills where we are seeing the women rise to the top. There may be a correlation with men accumulating pride over the products they are building causing them to be less open for taking things under advisement. In 2014 women led teams were the best performing teams by far.

Women, the Pathway to More African Americans- In the experiments we have run to be more inclusive in both startups and small businesses, we have seen more minority female founders than minority male founders at a clip of over 70%. In a city that is 64% African American MEMx has made great strides in rallying latent talent in the form of African American women with entrepreneurial pursuits in information technology, social enterprises, and transportation to name a few.

Private Equity Will Seek Out Memphis- Memphis, contrary to popular belief, has investment opportunities that either private equity cannot find in other markets or that accelerators in the area are becoming more trusted as quality startup builders. The intersection of information technology, logistics, and healthcare makes for a unique combination of sectors that is unmatched. Memphis is one of two cities that provide a women's focused accelerator. 4 years ago zero private equity companies were investing in technology startups and today there are 8 from 5 cities globally and numerous individual angels. In most all cases being uninformed that there are quality startups being built in Memphis is the reason why most never looked in on Memphis.

Resources Will Travel → Think Bigger Than Memphis- The reach and impact of the work conducted by Start Co. goes beyond the geography of our city limits. Now the balance of our investment partners, key technical resources, and other partners comes from outside of Memphis. Few programs in the world have the reach and access beyond their home city that is enjoyed by the startups in the Memphis ecosystem. 2014 ignited many inquiries from cities all over the world of gaining best practices from Start Co. to export back to their communities; Brazil, Africa, London, Indianapolis, Jackson, Cleveland, etc.

Online Entrepreneur's Toolkit Serves as Great Screening Test- with anticipated increase in deal flow, Start Co. built an online toolkit to help entrepreneurs by providing a guide for building from idea to product success. This is a very effective tool to determine who are the hobbyists, who are serious about starting up, and who are not quite ready but could be with a little more preparation. This online toolkit saves time for resource providers with face time being allotted to those who have learned this process and are applying versus any one that walks through the door. The goal moving forward will be to enhance the online toolkit for even more independent working by the entrepreneur until ready to make the leap such as enter an accelerator.

Memphis a Better B2B Environment- The business culture of Memphis is especially conducive to B2B business development. With low pretense comes high access that enables startups in Memphis to get meetings with key decision makers at other businesses and organizations faster and with greater results. This culture coupled with the knowledge and skills of the accelerator operators and the broad rolodex of engaged mentors creates a big opportunity for B2B startups that would be hard to replicate in larger and comparable markets.

980 versus 20- 2014 proved this concept of 1,000 entrepreneurs. The hypothesis based is based on the amount of work it would take to adequately screen 1,000 raw ideas and begin the process of providing technical assistance to the ones who continue to increase their investable story. This process showed that it requires 16,000 hours of assistance and only 20 make it on to growth and sustainability. The other 980 are not failures but are recycling back in either as entrepreneurs or intrapreneurs going back to the public and private sector but with a skillset that makes them more employable and better citizens at large. This context of describing talent in the community resonated with the public sector around the 980 and the private sector around the 20. It clearly defined things and eliminated confusion as to where resource providers allocated support. This conversation became regionally and nationally relevant when talking with over 20 communities about similar confusion and issues.

Entrepreneurship for Everyone

Sky High- in an attempt to instill lean startup principles civically in the Memphis community we ran this social innovation accelerator and it proved well with 4 of 4 social enterprises securing dollars, while changing entirely how they looked at affecting change in the community. We learned that the need for information technology was very real in the social space. More importantly we saw the attention local foundations gave to this form of building. Moving forward Sky High can affect more change and scale in two ways: one is forcing IT solutions to be used or two having foundations run already funded efforts through the accelerator.

Library Small Business Resource Center- This has proven to be a tremendous success in just 1 year. With the addition of monthly entrepreneurial programs and weekly mentoring provisions, we saw the need to have separate programming for small and lifestyle businesses. Although the fundamentals are the same, creating clarity in this entrepreneur class from startups made for less confusion for resource providers and the entrepreneurs themselves. The library was able to secure more funding and have added the following to the center: 500 hours of mentoring annually, 1500 more books, online entrepreneur's toolkit, and 6 more events annually. This was in addition to the co-working lab, paid small business librarians, conference rooms, Wi-Fi, meeting space, and 3,000 books already in place. The SBRC also has laid a foundation for the new Teen Learning Center which is being built where entrepreneurship will now be the underlying theme as it instills STEM skills in inner city youth.

Teen Learning Lab- Start Co. will be providing entrepreneurial mentoring and programs to the Memphis Public Library's Teen Learning Center. The \$2.5MM Construction Project began December of 2014 and there will be 2 floors of dedicated to helping teens in Memphis acquire skills and pursue passions in STEM, music, film, graphic design, etc. The center will leverage startup programming to build its effort through startup weekends and ad hoc mentoring showing that they are embracing the principles they will teach.

Start University- in the application process for the accelerators we noticed a gap in many of the minority applications in terms of entrepreneurial skill and knowledge. Rather than turn all of these entrepreneurs away we created Start University which was a 14 week program that had 3 touch points weekly; two workshops, one mentor session, and a construct for building through a founder's toolkit. The founders were included in some of the accelerator programming for

efficiency in use of resources. The lessons learned through Start U is that it was a good buffer to see who was not truly ready, and however it also did in fact close the gap and those who completed the program would be excellent candidate for the next accelerator. Programming such as Start U will be crucial for Memphis and how we address this disparity gap for minorities.

University of Memphis- Crews Center for Entrepreneurship was rolled out and Start Co. assisted in an advisory capacity to programs and events throughout the year. An Entrepreneurship Fellows program was created for select student entrepreneurs could quit their part time jobs and get paid to build their startups. This will be a good source of deal flow for the accelerators in the future.

Rhodes College- the entrepreneurship club expanded to aligning itself in a larger way with the efforts through Start Co. More offices hours were hosted; pitch competitions and a business plan competition were held providing cash awards to the winners. Turnout was strong setting the stage for larger growth in 2015 and beyond. It is notable that for a small amount of money Rhodes College touched many students and even engaged a meaningful number of alumni both in Memphis and nationally.

First Customers- this is one area that evolved in 2014 due to the greater engagement of the private sector. CEOs saw that by becoming first customers to startups, they could not only support startups but efficiently find solutions to problems they were having. For instance for local cab companies new startups such as Uber and Lyft can cause revenues to slide by up to 40% because cab companies are behind technologically and do not have online dispatch systems and smartphone capabilities. One startup built in Memphis, Cabsolutely, can provide such solutions to solve this problem. The need is to connect the startup properly to local needs thus enabling existing industries to compete and even gain market share. That's where a first customer program can help. Other examples include private sector first customers are entities such as the Memphis Grizzlies, I Heart Media, and the Visible School.

Enhance the Accelerators

The number one recommendation in the MEMx plan was to enhance the accelerators and this was done through the increase of assistance, connections, and in-kind services. Furthermore the onboarding of regional and national partners who are seeking new markets they trust in terms of the quality of startups being built. 5 accelerators were executed in 2014.

Seed Hatchery (B2B IT); Upstart (B2B IT); FedEx Logistics (IT); Sky High (Social Innovation IT); Zero to 510 (Medical Device)

Business Partners- direct or indirect provision of business assistance (legal, accounting, marketing, customers, finance, etc.)

Baker Donelson
Archer Malmo
The Marston Group
Mosaik Solutions

American Airlines new
Chairman's Circle/Epicenter

Technical Partners- direct assistance in the form of technical development assistance or technical resources (development, building platforms, in-kind ecommerce, data, SMS, etc.)

AutoZone new
Amazon Web Services new
Softlayer new
FedEx new
Paypal new
Keen IO new
Twilio new

Investment Partners- provision of capital or capital connections; investment mentorship; investment screenings)

WRA Fund I & II
Innova
e.ventures
Angaros Group
Square Roots
JumpFund

The above resources created \$3.5MM worth of value delivered to startups in 2014 from investment capital to in-kind services. In addition to the alignment and provision of the above resources, we saw other enhancements to the accelerators setting the stage for continued growth and progress.

- Increased accelerator seed funding from \$15,000 to \$25,000
- Increased mentor pool to 97 mentors
- Increased service providers from 5-20
- Launched 12 week post acceleration track
- Invested leadership and professional development track
- Member Global Accelerator Network
- Additional demo day in San Francisco
- Women's participation increased to 38%
- Minority participation grew to 39%
- 5,000 hours of technical assistance
- \$2.5MM dollars invested as capital
- \$1MM invested as services

Goals to Increase Marketing, Operational, & Investment Budgets

Marketing Budgets

Archer Malmo (largest brand/marketing company in the region) took the lead in providing over \$150,000 in services in support of Start Co. and the MEMx effort. This ranged from brand positioning, accelerator promotion, startup media spotlights, media editorial boards, SEO, social media management and oversight, key personnel interviews, grassroots approaches, and training to startups and operators to do the same. The goals were met with over 332 media placements, 104MM impressions, and \$380,000 in ad value in 2014.

Operational Budgets

Memphis did not step up to support MEMx from an operational dollars perspective; however there was great momentum built in rallying resources to the table from the Chairman's Circle (Memphis Chamber CEO group), and several philanthropic organizations. Operational dollars decreased from certain parties and others were promised but never came to fruition. Only 2 new local supporters stepped up in a meaningful way. New 2014 support came from non-local startup partners/funders and Start Co. donating services to realize goals and progress. Half of the \$1MM needed was raised.

Investment Budgets

2014 was a success in rallying more investment off the sidelines to support accelerator teams. Most of this has come in the form of follow on funding post accelerator where we have seen \$2MM invested over several teams to continue their trajectory. Key developments were new investment partners who are stepping for 2015 which is allowing increased funding at the seed funding stage from \$15,000 to \$25,000 per team. New partners include Innova, Wolf River Angels Fund II, e.ventures, JumpFund, Square Roots, Angaros, etc.

Memphis must understand that Digital Education is not just a focus in the classroom, but considering that students are online on average 7.5 hours each day, it must be a focus both inside and outside the classroom. The social envelope must be expanded to include the majority of the above ingredients considering the current digital education being received is not educational, academic, or practical. This severely limits educational and career awareness and attainment.

Cloud901

Zero Gravity assisted the Memphis Public Library in their creation of Cloud901 in making sure that it's \$1.9MM facility fits into the social envelope. It was discovered that although the construction, equipment, and overhead was accounted for in the future plans; the service delivery, programming, and business model had not been developed. Zero Gravity has been instrumental in driving the agenda for the creation of these components so that the digital lab would not just be location, but an activated vibrant space driving a digital and innovation agenda. Areas of support include-

- Orchestrated a planning process of customer discovery, experimentation, and business modeling

Grow Regional and National Partnerships for Resources

AutoZone- allocating technical talent to lead instruction during the prototyping phase and developers to assist with minimal viable product delivery.

Softlayer- provides sophisticated platforms, heavily involved in office hours while sponsoring

FedEx- lends technical mentors and brand to select startups and logistics startups

Global Accelerator Network- access to mentors, speakers, office hours, and connections

Amazon Web Services- provides free cloud based platform for technology companies as well as technical assistance and sponsor dollars to help evangelize in the community

PayPal- provides \$1.6MM in free transactions to Start Co. accelerator teams

Keen.i.o- serves as mentors and hosts office hours to assist teams technically in terms of data mining and management

Twilio- provides free sms and text services for all Start Co. accelerator teams

SAP- Start Co. accelerator teams with big data needs have access to their startup focus program

American Airlines- provides accelerator teams 500 points towards free tickets, and funded teams greater awards to assist with travel needs

Wolf River Angels- started making placements in 2014 for seed and follow on funding

Send Grid- provides intense email delivery solutions to all Start Co. accelerator teams

Bay Area Economic Institute- San Francisco- thought leaders assisting with the MEMx vision especially in terms of regional innovation; moving forward they will work research projects to assist with furthering the cause

Google for Entrepreneurs- assists with events in and around women and minority entrepreneurs

Google Fiber- conversations have begun to bring Google Fiber to Memphis

Google STEM- with Google Fiber has interest in assisting teenagers acquire STEM skills

Google (visas) - in early talks with allocating a 500-1,000 tranche of H1BVISAS to the Memphis community to majorly increase technical talent in the Memphis region

Angaros- sovereign wealth equity company making placements in later stage startups

e.ventures- have come on board as an investment partner (San Francisco); will host office hours, sponsor events, seek to participate in follow on funding

Square Roots- private equity company seeking deals in IT, healthcare, civic solutions, entertainment, etc.

BMG Chrysalis- screener of any entertainment related deals

Delos- founder has interest in Memphis helping in ecosystem building; civic real estate and startup infrastructure

TN Workforce Development Board- lobbying to make sure knowledge based jobs are included on the State's agenda

CES- source of sponsors, supporters, and connections

SBA Growth Accelerator Fund- funder in conjunction with the Global Accelerator Network

One Torch- women's investment fund with interest in the Upstart Accelerator

JumpFund- women's investment fund making placements post accelerator

Library SBRC- version 2.0 started January 2014 with the addition of one on one mentoring for SMWBE, 1,500 more books, and monthly startup events.

MEMx Startup Goals Versus Actual Results (based on 50% of \$1.5MM fundraising goal)

2014 Goals	Minorities		Minorities	
	Overall Goal	& Women Goal	Overall Actual	& Women Actual
Raw Inquiries	750	450	497	343
Qualified Deal Flow	375	187	261	171
Technical Assistance Investments	100	30	61	32
Seed Investment	30	12	20	11
Angel Investments	12	3	8	5

New Lessons & Obstacles to Overcome

Retaining Relocated Technology Startups- While now close to half of matriculating accelerator participants come from outside of Memphis, we find that some (not all) are using Memphis as a stepping stone to get to Silicon Valley or are simply heading back to their place of origin. Strengthen post accelerator support and validation funding will certainly help but the main problem will be availability of talent and Series A capital access. Presently, startups do not view Memphis as having a full suite of support. Further, success stories will be needed to reinforce the image of Memphis as a startup city -- these are also being held back by capital and talent access. More material resource must be placed on increasing the technical talent here in Memphis while increasing the culture and activity for this technology talent. Startups would then have the ability to hire this talent strengthening their companies resulting in more investment confidently flowing to these new businesses.

Universities Not Taking Big Enough Bet- Over the past 12 months we are finding that universities have the interest in building campus startup ecosystems as feeders to the greater Memphis ecosystem. However, the current level of support and funding for these initiatives is so low that the cultivation of talent and startup ideas is merely a trickle. Colleges and universities that would be considered peers of our local institutions are investing at least ten to twenty times more in idea cultivation work (think human capital, mentoring, programming, contests, and competitions). This low investment is decreasing the talent pool available for growing startups in our greater community.

Better Engagement of Developer Community- the developer community is splintered not allowing like-minded programmers, startups, developers, and designers to have enough creative collisions. It is through these collisions where partners and co-founders are found. This lack of inclusion is also a deterrent in keeping technical talent here in Memphis. Start Co. is seeking more support with its current expansion of facilities to give developer talent a home base to build at their leisure. More must be done by the community at large to acknowledge the talent group as pertinent to the success of Memphis.

Raise the Level of Mentors- Memphis is home to tons of quality business mentors with backgrounds in financial services, law, accounting, banking, etc. however we are lacking in terms of serial entrepreneurs in the information technology space. There must be a deliberate effort to find the few who exist in Memphis and others across the nation to serve as mentors to our teams; this is glue that makes accelerators work.

Raise the level/quality of connections- Stronger connections are needed for startups to scale and grow. This comes in the form of customers, strategic partners, mentors, and other resources. This needs to be improved as it is sometimes more valuable than money or increases the investable story for startups.

SMWBE Landscape Unsure- Small Minority Women Business Enterprises are still taking a “needs based” approach to uplift this segment of the business community versus taking a “comprehensive approach.” The MEMx plan offered a solution by testing how startup building methods could be used to help the SMWBE community. These experiments came in the form of the Library experiment; and although this created strong results and proof points, the SMWBE partners did not adopt and apply said methods by extended support services to the early stage. Outside of the library, a major gap still exists from the idea stage to product success stage. This gap makes it difficult to secure resources for said later stage SMWBE because their business is lacking the foundation that is worthy of those resources.

Local Budget Issues Supersede All New Needed Efforts- Every year there seems to be a major budget crisis for the city of Memphis putting a moratorium on supporting all new efforts. This has become a trend where action must be taken on the policy level to shelter efforts that are a necessary must to the future of the city. Local government is very entrenched with severe prescriptive funding.

Recommendations

Pour More Fuel on the Fire

The underlying principle to the MEMx Plan was letting entrepreneurship be the nexus to regional innovation: the creation of innovative jobs, livable communities, social inclusion, and collaborative governance. Entrepreneurship is enhancing all of these things from new investment creating new jobs to the strategic relocation of Start Co. offices and other startups to the downtown area and creating inclusion through the pursuit of ideas to civic collaborations using startup principles.

The key is to start pouring more material resource on the ecosystem, and this comes in the form of the following ways annually.

- New Investment → \$10MM
- New Operational Dollars to the Accelerator Efforts → \$1MM
- More Mentors→ diversifying the mentor pool to include more successful startup founders
- More Storytelling→ celebrating Memphis nationally to attract more talent and resources
- More First Customers→ Secure 25 First Customers
- More Strategic Partners to Embrace Entrepreneurship for Everyone→ Secure 5-10 local and regional partners

The Path Ahead- MEMx has laid the foundation to make more Memphis and national resources less risk averse to supporting startups, innovation, and leveraging entrepreneurial principles to

move Memphis forward. The research is indisputable, the experiments have been run, and it is now time to contribute in a meaningful way. There are 4 core areas to moving forward.

Number One: Startups

- Corporate Giants- must finalize the onboarding of FedEx, AutoZone, Louis Dreyfus, etc. to become game changers in the trajectory of the startup community; they can provide technical talent, dollars, serve as customers, etc.
- New Investment- there must be \$10MM secured by startups in 2015. This will take increased cultivation of deal flow and increased cultivation of investment partners.
- New Operational Dollars- \$1MM in new operational dollars to increase the above mentioned cultivation of startups and investment partners.
- First Customers & Strategic Partners- the Chairman's Circle and other private sector entities must be leveraged as potential customers and strategic partners for startups.
- Storytelling- Memphis must be celebrated as a startup city by the Memphis Chamber and other outlets; and this needs to be told to the world.

Number Two: New Infrastructure

- Google Fiber- Memphis must land this deal and lay the fiber optic infrastructure that will better enable efforts in education, youth, startups, recruitment of business, existing business efforts, attraction and retention of talent while bringing higher graduation rates, improved test scores, new jobs, and \$1B impact.
- Google STEM- Memphis must land Google STEM to ensure that we are cultivating today's youth to become tomorrow's leaders in this digital and innovation age we are in. With Google Fiber on the ground as an enabler, this accelerates the process.
- H1B VISAS- Memphis and the South in general have always lacked in terms of immigrant talent contributing to the local economy due to free and cheap labor for hundreds of years. An injection of 500-1,000 immigrant persons in STEM related fields raises the bar for Memphis to achieve to and provides density to better assist how we cultivate local talent in these areas.
- Urban Core- Memphis must continue to emphasize the urban core in terms of attracting and retaining talent. With all the recent and future developments outlined in this plan, we cannot afford to lose talent due the lack of inclusion in the cities vibrancy.
- Storytelling- the new infrastructure story must be told globally

Number Three: Entrepreneurship for Everyone

- New Partners- Memphis must continue to get new partners to embrace how entrepreneurial principles can assist them. A priority lies around the Memphis Public Library's Teen Learning Lab as this can be the nexus for the Google STEM partnership.
- Universities- Both the University of Memphis and Rhodes College must increase efforts 2X in 2015 the way that they did in 2014. This is crucial to the development of the pipeline of deal flow and entrepreneurs post-graduation. They must also work to leverage entrepreneurial programming at the high school level as a means to identify talent, accept experiential learning credits, and much more.

- Chairman's Circle- this body of CEOs must understand that they can take our innovation efforts to the next level simply by supporting the Google Effort and supporting startups by becoming investors, sponsors, mentors, customers, partners, and communicators. By doing this, they themselves are becoming entrepreneurial in solving problems in their businesses and in their commitment to the community.
- Memphis Chamber- must consider diversifying its portfolio in terms of economic development and where it places its resources. Most all its resources are around PILOTs, site relocations, existing businesses, and recruitment of existing businesses. Can they diversify this portfolio by 20-25% to incorporate startups and innovation based infrastructure?
- Civic Efforts- Local foundations and civic leaders should consider running major civic efforts that are funded through an accelerator style program to prevent the tragic flaw of premature execution. Our history of being a city that gets stuck in planning meetings and multiple head fakes could be solved by leveraging these programs. The Sky High Accelerator has already been tested and works ideally for certain civic efforts.

Number Four: Celebrate Memphis

- Memphis must be celebrated in terms of not just startups but all things innovative. The goal should be to outweigh the negative and have news travel from coast to coast. Resources that are already at the table are I Heart Media, Archer Malmo, Memphis Tomorrow, etc. There are major developments in the works that are globally worthy, and this should change how we are selling the city. Resources such as American Airlines, PayPal, and IBM are already supporting Memphis in meaningful ways. These resources were on boarded through word of mouth; imagine what the city could do with a more deliberate means of marketing and promotions.

Do Not Lose Guiding Principles

High integrity and fidelity have led to the successful growth of entrepreneurial activity in Memphis. The Start Co. in and of itself is a startup and by using entrepreneurial methods has achieved needed changes for the community. Further, because Start Co. practices what it preaches the startups in the platform have faith in the methods and their ability to get results. The guiding principles are:

Lean- By taking the first risk and investing small amounts to get outsized results, Start Co. proves our methods and programs at low or no cost to community stakeholders. Further, only asking for small investments before taking big bets insures money is spent on results and not speculation.

Measured- Without measurement, we don't know whether we are treading water, advancing or going backwards. Further, going beyond outcomes, we seek to measure why something is underperforming or outperforming. It is only with this knowledge that we can change and tweak to improve.

Iterative- Iteration trumps perfection. Taking an action and learning whether it was positive or negative and then making adjustments allows Start Co. to move quicker and better than initiatives that rely on multi-month planning and multi-year plans that are outdated the day after release.

Results Oriented- Measuring is certainly important but in the end results are different. Clearly knowing the outcomes needed to advance an entrepreneurial community are important. Traditional resources and measures focused on the hardware (buildings built, spaces used, headcounts) and not the software (hours of business and technical assistance, professional connections, measured investments made). Focusing on the leading indicators and trailing indicators of meaningful results leads to the change needed in the market place.

Inclusive- Women and minorities have been underrepresented in technology, innovation, and high growth startups and yet this is where the future economy will be as well as the jobs of tomorrow. In a majority minority city, we cannot advance our community by leaving 80%+ of our population behind. Further, the data clearly shows that diverse startup teams and ecosystems outperform systems that have ignored inclusion principles. The Start Co. team is diverse and the teams it attracts are diverse.

Nimble- Most of the time entrepreneurial efforts require pushing the market to where it needs to be. Sometimes though the market pulls you, and you either ignore it or you answer the call. The key is being nimble and able to change rapidly to meet new opportunities and demand.

Independent- Responsible use of freedom enables maintenance of independent thinking. For our community increases in entrepreneurial activity have come from this independent thinking and action. If everyone is thinking the same thing, then somebody isn't thinking at all.

Budget Estimates

Startups	Year 1	Year 2	Year 3	Year 4
Enhance the Accelerators	\$300,000.00	\$300,000.00	\$300,000.00	\$300,000.00
Chief Technology Officers	\$150,000.00	\$150,000.00	\$150,000.00	\$150,000.00
Administration	\$125,000.00	\$125,000.00	\$125,000.00	\$125,000.00
	\$675,000.00	\$675,000.00	\$675,000.00	\$675,000.00
Total				\$2,700,000.00

Aggregate Budget Includes Phase II

Zero Gravity Budget					
Digital Infrastructure	Year 1	Year 2	Year 3	Year 4	
Phase 1 Proof of Concept					
<i>Computers (\$150)</i>	\$30,000.00				
<i>Hot Spots (\$94)</i>	\$18,800.00				
Training	\$5,000.00				
Marketing & Communications	\$5,000.00				
Management & Administration	\$15,000.00				
Phase 1 Total	\$73,800.00				
Phase 2 Scale					
Hardware					
<i>Computers (\$150)</i>	\$825,000.00	\$825,000.00	\$825,000.00	\$825,000.00	
<i>Hot Spots (\$94)</i>	\$517,000.00	\$517,000.00	\$517,000.00	\$517,000.00	
Training & Tech Support	\$110,000.00	\$110,000.00	\$110,000.00	\$110,000.00	
Marketing & Communications	\$50,000.00	\$50,000.00	\$50,000.00	\$50,000.00	
Management & Administration	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00	
Phase 2 Total	\$1,562,000.00	\$1,562,000.00	\$1,562,000.00	\$1,562,000.00	

Phase 1 & 2 Total				\$6,321,800.00	
Digital Education	Year 1	Year 2	Year 3	Year 4	
Phase 1 Proof of Concept					
School Training					
<i>Survey & Analysis</i>	\$150,000.00				
<i>Iridescent's Curiosity Machine</i>	\$75,000.00				
<i>Iridescent's Technovation</i>	\$75,000.00				
<i>Start Co. Entrepreneurship Curriculum</i>	\$25,000.00				
<i>Start Co. Entrepreneurship Curriculum Development</i>	\$15,000.00				
Service Providers					
<i>Cloud901</i>	\$15,000.00				
<i>Code Crew</i>	\$15,000.00				
Marketing & Communications	\$10,000.00				
Management & Administration	\$25,000.00				
Phase 1 Total	\$405,000.00				
Phase 2 Proof of Concept					
School Training					
<i>Iridescent's Curiosity Machine</i>					

<i>Iridescent's Technovation</i>					
<i>Iridescent Total</i>	\$320,000.00	\$320,000.00	\$320,000.00	\$320,000.00	
<i>Start Co. Entrepreneurship Curriculum</i>	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00	
Service Providers					
<i>Cloud901</i>	\$85,000.00	\$85,000.00	\$85,000.00	\$85,000.00	
<i>CodeCrew</i>	\$85,000.00	\$85,000.00	\$85,000.00	\$85,000.00	
Marketing & Communications	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00	
Management & Administration	\$75,000.00	\$75,000.00	\$75,000.00	\$75,000.00	
Total	\$725,000.00	\$725,000.00	\$725,000.00	\$725,000.00	
Phase 2 Total				\$2,900,000.00	
Phase 1 & 2 Total				\$3,305,000.00	
Digital Talent	Year 1	Year 2	Year 3	Year 4	
Coding School	\$300,000.00	\$0.00	\$0.00	\$0.00	
Code Crew	\$50,000.00	\$50,000.00	\$50,000.00	\$50,000.00	
Creative Works	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	
Digital/Creative Talent Culture & Outreach	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	
Survey of Community Need: Vocational Tech	\$25,000.00	\$0.00	\$0.00	\$0.00	
	\$425,000.00	\$100,000.00	\$100,000.00	\$100,000.00	
Total				\$725,000.00	
Startups	Year 1	Year 2	Year 3	Year 4	

Enhance the Accelerators	\$300,000.00	\$300,000.00	\$300,000.00	\$300,000.00	
Chief Technology Officers	\$150,000.00	\$150,000.00	\$150,000.00	\$150,000.00	
Administration	\$225,000.00	\$225,000.00	\$225,000.00	\$225,000.00	
	\$675,000.00	\$675,000.00	\$675,000.00	\$675,000.00	
Total				\$2,700,000.00	
Social Envelope	Year 1	Year 2	Year 3	Year 4	
Marketing & Communications	\$50,000.00	\$50,000.00	\$50,000.00	\$50,000.00	
Events & Culture Building	\$50,000.00	\$50,000.00	\$50,000.00	\$50,000.00	
	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00	
				\$400,000.00	
	\$3,965,800.00	\$3,162,000.00	\$3,162,000.00	\$3,162,000.00	
Grand Total					\$13,451,800.00

Zero Gravity Next Steps

Zero Gravity strongly believes the next step is a call to action to expand Memphis’ Social Envelope. The call to action should be a community wide public, private effort attracting partners to the common theme of testing, measuring, continuous learning and iterating. Overall, this entrepreneurial approach is likely to reduce the time between action and results, while also minimizing the time wasted in non-productive discussions. This approach will empower others to be a part of something greater that will actually move the needle. Aspects of this approach and call to action should focus on the following:

- Funding
- Access to Schools & Students
- Nonprofit Service Providers

- Corporate Engagement
- University Engagement
- Key Influencers or Champions
- Social & Political Support
- Government Roles
- Shelby County School Board Access
- Messaging & Communications
- Partners for Scale

The Opportunity

Zero Gravity is presenting an opportunity to the City of Memphis. If accomplished, Memphis could become a model for closing the digital divide while bringing opportunity to all segments of its population. No other community has devised a comparable approach for a city facing the challenges of Memphis. A city that is maximizing its digital potential can begin exploring endless possibilities. As a result of this plan,

- 30,000 students will be enveloped with a new set of social expectations regarding their futures as enabled by digital skills.
- 25% more households will have computers and home broadband Internet access.
- Memphis can become a magnet for both young and adult coding talent, and a creator of knowledge-based jobs.
- A foundation will be laid to exponentially enable youth and adult education, job creation and outputs, and economic competitiveness.

One of the original reasons for this digital effort was a conversation about Google Fiber, and whether Memphis is worthy and could maximize such an investment. With the launching of Zero Gravity, Memphis immediately shows up on the radar for fiber investments and other material digital resources. Although there are components of this effort that are currently being pursued by numerous partners, it is encouraged for others to understand and incorporate the digital agenda into their work in the community. Zero Gravity is compiled research, experiments, and strategies that serve as a resource to the community.

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