



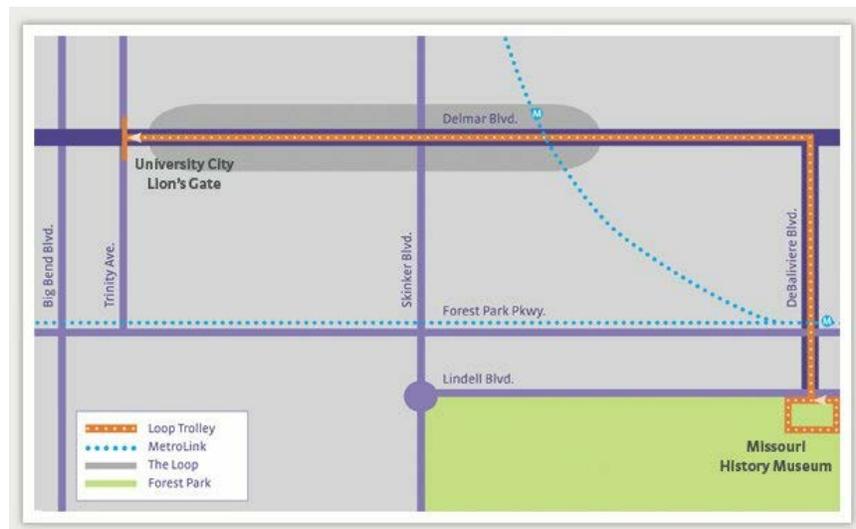
Loop Media Hub – As a Community Incubator

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Environment

The combination of the proposed, 1Gbps high speed, fiber optic networking capability for businesses in the University City Loop, along with the inclusion of an expected local area wireless network targeted at supporting smartphones and other connected devices in the local consumer population, will create a new and technologically sophisticated state of the art environment in the city, that when implemented, will likely be the first of it's kind in the region.

On a smaller scale, the Loop Media Hub, will be the technologically equivalent peer of Kansas City's highly profiled Google project effort. Based on the smaller size, more defined scope and the current highly collaborative environment, the Loop may well be in production long before the Kansas City project is complete.



In terms of the capabilities under consideration, it is appropriate to place these local efforts in a more global context in order to better understand the reach, reality and possibilities of what is currently under consideration. In November 2011, the UK announced a publicly subsidized, national effort to build similar high-speed networks in their major cities. This program was specifically aimed at making the UK the technological hub of Europe. The first of these cities to be connected under this program will be Belfast, with an identical target speed (1Gbps) to that being proposed in the Loop. The expectation from the UK is that this effort will place their cities on at least equal footing with the most advanced localities in Asia.

To provide further context and some relative idea of the total capacity under discussion, a simple comparison is in order. The most commonly accepted high throughput task for bandwidth is the streaming of video. Occurring typically at production levels of 24 image laden frames per second, video streaming is the most burdensome consumptive task in any normal network usage pattern. Currently the highest density DVD format is the Blu-ray DVD, which uses a maximum of 36 Mbps per second of network capacity. This is such a large requirement, that Blu-Ray is never normally a consideration for streaming media. Putting the 1Gbps proposed

speed in context through this medium however, shows the capacity levels very clearly. Throughput speeds of 1Gbps is equivalent to 1024 Mbps, so in theory, the capacity of any site connected to the Loop Media Hub would be equal to streaming 28 simultaneous Blu-Ray disks to that same location while still having 16Mbps left over for web surfing activities.

Netflix, the most common streaming video service on the Internet today typically requires 8Mbps for web optimized HD streaming. Under the same model as the previous example, connecting to the Loop Media Hub would allow a location to stream 128 concurrent HD Netflix video streams.

Impact

Leveraging this type of capacity, the Loop Media Hub has the potential to significantly redefine the overall economic development opportunities within the community over both the intermediate and long term.

When the project is completed, the new Loop Media Hub Ecosystem, will provide numerous potential benefits for University City, it's residents and local institutions as well as the greater St. Louis Metropolitan Area.

At the higher orders, these capabilities should entice, new, high tech businesses to the area, which based upon recent history in other locations such as San Francisco, New York, Boston and Chicago, has demonstrated the potential to create substantial economic value.

Entrepreneurship is already an area of growing strength within the region, that should be fortified by a connectivity initiative of this nature. There is a flurry of startup activity occurring across Missouri in general and the St. Louis area in particular. According to the annual Kauffman Index of Entrepreneurial Activity, Missouri currently ranks 6th nationally for entrepreneurial activity. The state overall has risen rapidly up the ranks in terms of this measurement. As may be expected, the greater St. Louis area is instrumental in shaping this trend. In the latest annual report published by the St. Louis County Economic Development Counsel, St. Louis County, St. Louis City and St. Charles County hold down the number 1, 3 and 4 spots statewide in terms of new business starts, accounting for roughly 70% of the activity across the top four spots. Further



supporting the area's ability to sustain technology specific initiatives, St. Louis was listed in the top 8 markets for technology hiring by Mashable.com earlier this year.

Further enabling this current trend by adding to it the potential capabilities offered by the Loop Media Hub has the potential to spark innovation and ignite economic value creation on a comparably large scale, yielding numerous ancillary benefits in terms of job creation, new sources of tax revenue, increases in property values and a complete repositioning of the area in terms of core capabilities.

Stanford Effect

Much as Stanford has had an undeniable impact on the creation of Silicon Valley, geographically, The Loop corridor enjoys a unique relationship to two of this region's most prominent institutions of higher learning. The potential ecosystem, fueled by ultra high speed connectivity would enjoy the benefits of being connected to Washington University, and its renowned schools of business and engineering on the West side and to St. Louis University, which currently boasts one of the top 5 entrepreneurial programs in the country to the East.

While nothing serves as a guarantee, the creation of a state of the art technological environment in the business and residential district between the two campuses provides the potential to create an attractive environment that could serve as an incubator for bright young minds being trained in this part of town. The combination has the untapped potential to produce the next generation of businesses in the community.

Living Lab

Combining ultra-high speed networking, wireless capabilities and a comparably manageable geographic footprint, the area would be uniquely positioned to seek a larger role in the emerging mobile technology ecosystem. The Loop Media Hub should be positioned as an opportunity to provide a potential high tech living laboratory for firms seeking to prove out and test their next generation of mobile technology products.

The continued rise of the connected mobile economy over the next several years will yield a very high level and wide variety of innovation, much of which will be dependent on environments evolving to the type of high speed enabled communities that The Loop will already represent. Leveraging the value of being ahead of the curve, several key areas of opportunity will emerge in terms of partnerships with firms seeking to gain an edge in these highly competitive spaces. Some areas of opportunity will include, but not be limited to, mobile payment systems, connected retail experiences, virtual reality and numerous other mobile style "apps".

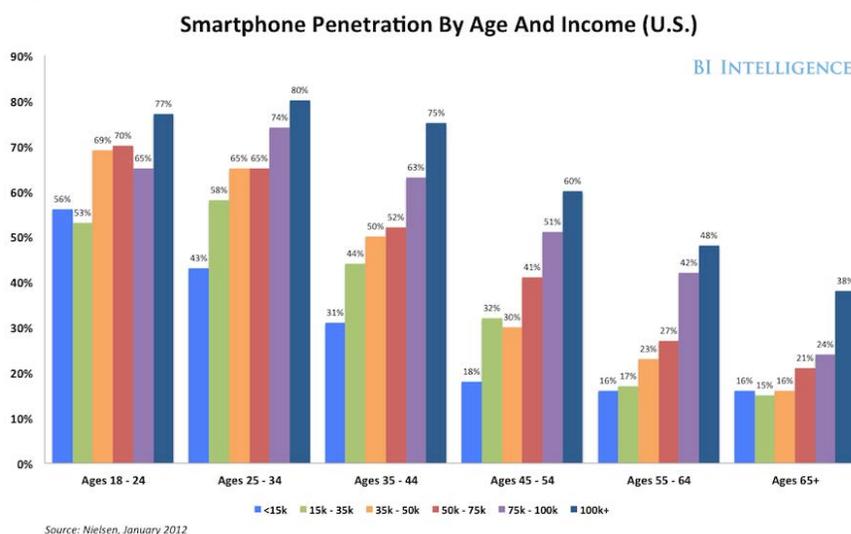
The manageable geographic footprint of the Loop, coupled with the diverse, age appropriate and educated demographic of it's residents, would make for an extremely attractive test bed for these types of innovations once the area has been fully enabled with the proposed connectivity.

As an example, there are several competing technologies arrayed around the next generation of payment systems using mobile devices. Inside The Loop, a technology provider could actually sponsor a pilot program for the merchant side of such a payment system for the local retailers and service providers in exchange for data about the usability and uptake of the technologies. The size of the Loop environment makes this practical and the highly educated, mobile enabled student population, coupled with the local residents would provide an interesting and capable set of test subjects.

To kick off programs of this nature, the local economic development authorities would need to take an active role in the early stages to both promote the opportunity to the leading technology players as well as enlist the support of the local business and public service organizations. Once in place, follow on activities would be much simpler to initiate. The positive press gained from such activities would have the potential to create a virtuous circle, positioning the area as both a high tech hub to the outside world as well as within the local environment. If successful, a program of this nature could go as far as having the potential to attract local office presence from the major technology players, which would further add to the economic development potential of the area.

Retail Recruitment

Figure 1.



As illustrated here in Figure 1., the penetration rate of smartphone ownership is extremely high, particularly across ages 18-44. In this breakdown, even the lowest level of penetration for smartphone devices at the median income level is 50%. With a

median age of 31 on the West end of the Loop and 30 on the East, the age alignment fits perfectly into the core of this technological and cultural shift.

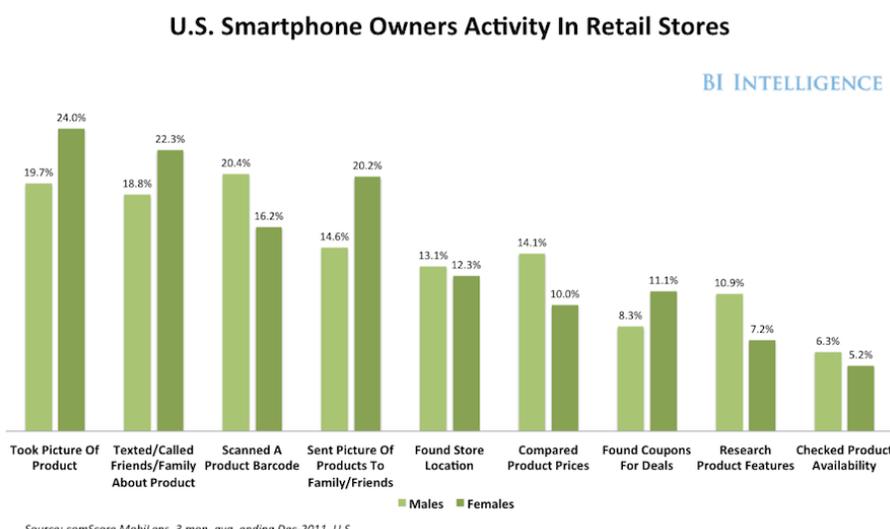
Increasingly these technology enabled consumers are expecting to perform an ever wider array of tasks directly from their devices. From an in store retail perspective, they are coming to expect to be supported by online services right up to and eventually at the point of purchase.

This trend was verified by a study completed in Fourth Quarter of 2011 by Comscore. When looking at the behaviors, as highlighted in Figure 2 below, it becomes apparent that consumers are indeed actively using their smartphones while shopping. In fact, more than half of American smartphone owners surveyed use their phone to engage in retail-related activities while physically shopping in stores.

Retailers, who have already been challenged by online shopping, are now faced with a situation where they must vie with competitors for consumers who are *already in their store*. This is a trend that retailers know that they need to embrace. Providing the high speed connectivity to the retail premise along with supporting high speed wireless connectivity, will allow them to experiment and evolve in new ways to meet these challenges.

Coupling the low cost options for this high speed connectivity being proposed with a managed partnership program for technology innovation should combine to provide a cost effective test bed for merchants themselves, in addition to the technology providers. Having this set of options at the disposal of the economic development organizations will be a helpful tool in recruiting major chain stores.

Figure 2.



Creating this highly connected local ecosystem would be a major enabler for the retail business recruitment strategy that has been outlined in the Delmar Area Retail Plan & Development Strategy Study that was completed for

Washington University last November.

The level of available bandwidth coming in from the curb would allow retailers to include advanced technology centric enhancements to the shopping experience such as fully functional, video enabled kiosks that would allow consumers to search, ask questions and watch videos related to features and usage of some of the more complex purchases such as electronics. These kiosks or independent intelligent signage capable of running videos and promotions could also be supported. These types of shopping extensions will increasingly be able to interact with the consumers mobile devices.

Creating an environment that actively supports and promotes the next generation mobile platforms would also allow local stores to be extremely aggressive in experimenting with and adopting new forms of in store direct to consumer promotion. Emerging technologies on the retail front will allow stores to understand via the consumers device, attributes about age, gender, income and location that will enable highly targeted digital offers to be extended without the transition of any of the consumer name or other personal information being exchanged.

Business Productivity

Additionally, these capabilities and the affordable nature of what is being proposed would allow businesses of all kinds to gain the productivity benefits of ultra high speed connectivity. These benefits are particularly suited to knowledge working sectors such as research, software development, financial services and any other type of information centric business. These capabilities will also benefit management and related knowledge working functions within all types of existing businesses already located in the area.

Another avenue that could be explored is the use of a common SDK and data collection mechanism for mobile “apps” deployed specifically for outlets within The Loop. This standardized approach would provide a safe mechanism for local merchants to share data about traffic patterns and engagement beyond anything that exists today while also assuring that the consumers privacy is not violated. An approach of this nature would require support from the retailers themselves in concert with the either the local Chamber of Commerce or University City as well as selected service providers.

Entertainment and Restaurants

On the major business sectors and significant cultural components of The Loop are the entertainment and restaurant sectors. This combined nightlife function would serve to benefit significant from the emergence of a technologically enabled ecosystem. Functionality such as that provided by OpenTable has open up this sector to technology in new, exciting and productive ways. As a result, this segment

would benefit almost immediately by further enabling consumers. Restaurants could also add new forms of in venue entertainment directly from the Internet.

New capabilities could be offered from the clubs, including streaming internal scenes to monitors stationed throughout The Loop, giving potential patrons an idea as to what the club is about from anywhere in the area (including the restaurants) . These establishments could also benefit from the a fore mentioned standards for Loop Apps, to understand their share of local traffic and share of wallet.

Venture Capital

To further leverage these capabilities and actively cultivate innovation within the environment, it would serve the community well to actively recruit and support venture capital within the environment. While steadily improving, access to venture capital within the region has been more limited here than in some other metropolitan markets. This is a necessary component to substantial economic development for the types of businesses that could leverage and extend these technologies.

Another option to be considered revolves around the fact that institutions of higher learning such as Washington University and St. Louis University typically allocate a small percentage of their endowment investments toward venture capital. For both the long term good of institutions and the benefits to the area, it would be a significant advantage for the area should some of this funding find its way to new businesses inside the Loop. If a small part of this small part of their portfolios were directed in this manner, it could have a significant impact on the region.

Education

In addition to the aforementioned benefits to the commercial sector, there is also a great deal of capability that will be extended toward the public sector in terms of expanded options for leveraging the Internet in the local educational community and increasing overall public access through library facilities. These facilities will have greater access to the high speed streaming capabilities in place across the Internet and should no longer be constrained by bandwidth to gain access to them. This should allow the institutions to institute new forms of curriculum and collaboration that will better equip their students to deal with the increasingly connected world of the 21st Century.

The Arts

The arts have always been a large part of the Delmar Loop, as it is home to both the Regional Arts Commission and the Center for Creative Arts (COCA). The proposed networking capabilities would provide new venues for artists to perform on. Streaming throughout the Loop is an active possibility.

Courses currently taught within COCA could be extended and even enabled via distance learning techniques. There has also been some discussion regarding the creation of a digital engagement center to help train the next generation of students in the latest digital techniques and technologies.

Further models could be explored in both cases to extend both the artists performing reach, their ability to market and merchandise their works and even potentially to create new interact models between themselves and their intelligent device carrying audience.