

**The Role of Information Technology in the
Economic Development of Inner City Communities**

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Abstract

The “digital divide” is the term used to describe the disparity in computer access and use between various social, economic, and racial groups within the United States. Since 1994, the National Telecommunications and Information Administration (NTIA) in the U.S. Department of Commerce has released three reports examining this problem, under the heading “Falling Through the Net.” Each study has reached the same conclusion: the disparities are getting wider.

One of the challenges in many inner city communities is to identify strategies for providing access, training, and encouraging meaningful use of digital technologies. Educators, social service organizations, community based organizations, private firms, major corporations, federal agencies, municipal governments and local citizens have all entered the arena of technology access to solve the problem. The challenge, however, presents exciting opportunities for entrepreneurs, established businesses, and those concerned with inner city community development.

For domestic emerging markets, technology access can be a vehicle for economic development. I frame the digital divide into a three categories of access strategies: Access to “New” Information Technologies, Access to the “New” Economy, and Access to “New” Markets. In this paper, I explore how concerted efforts toward technology access in each of these areas can impact the competitiveness of the inner city. The potential of this approach is being explored through three mini-case studies from the northeast United States.

This paper explores how the intersection of technology access and economic development can impact the competitiveness of the inner city.

Introduction

The history of urban revitalization in America is a history checkered by programs and fixes at varying degrees of success. The majority of them can be characterized as social programs designed to build skills, develop human resources, and attend to the human needs of the communities. In recent years, a more economically focused agenda has developed that attempts to bolster the economy of urban areas. The resulting enterprise and empowerment zones are having mixed results around the nation.

Just as the new millennium ushered in a new era of prosperity for all of those involved in Internet technology, it has been noted by various media sources that the “longest economic growth period in the history of the United States” has not reached all Americans. The disparities in income, poverty and unemployment are growing in America and most would agree that they are a result of complex set of problems that require both social and economic solutions. To that end, revitalizing our inner city communities requires reversing the trends that continue to exist: joblessness, lack of education, and cycles of gripping poverty.

This paper seeks to extend the work of Michael Porter and the Initiative for a Competitive Inner City by exploring the role of Internet technology in the economic development of the inner city. The central premise is this: to stimulate economic development we must build the competitive advantage of the inner city. The challenges that I have begun to document here indicate a new direction for those interested in the future of America.

In the following section, I provide some background for the research I have conducted in this area. I then specifically discuss the “digital divide” and present my

framing of the it in economic terms: Access to “New” Information Technologies, access to the “New” Economy and access to “New” Markets. I conclude each of these sections with the implications for inner city communities. I close this paper with a discussion of strategic lessons that we can learn from the trends and initiatives briefly profiled in this paper.

Inner City Economic Development

In Michael Porter’s article entitled “The Competitive Advantage of the Inner City” he writes that revitalizing America’s inner cities requires a new approach that “supports – and does not undermine – a coherent economic strategy.” (Porter 1995: 55) This economic strategy is based upon the premise that inner cities have compelling competitive advantages over other locations. These advantages will be attractive to business people.

On the other side of the economic development equation are inner city entrepreneurs who have learned how to survive and in some cases flourish within their communities. The research of Gregory Fairchild of the University of Virginia Darden School of Business provides a useful integrating framework for explaining the existence of inner city communities and the strategies that inner city entrepreneurs use to remain viable. In his model, three forces contribute to the formation of inner city communities: low valued human capital, social capital flight and segregated communities. (Fairchild 2000) In Fairchild’s research, as in Porter’s, business plays a significant role in revitalizing inner city communities by using their social capital to provide job opportunities and economic development.

In this paper I endeavor to extend the arguments of both Porter and Fairchild to the digital economy and what has commonly been referred to as the “digital divide.” In other words, when we view the inner city through these lenses, it is possible to create wealth and stimulate economic development by building competitive advantages based upon the same technology that is carrying the rest of the nation to new heights of economic growth.

The Inner City and the Digital Divide

At the New Economy Summit convened by President Clinton in April 2000, it was declared, “Technology is the engine behind the new economy.” Technology has been shown to affect the economy in many different ways. In recent years, researchers have documented the influence of technology on the productivity of individual workers organizations and industries and, the marketplace and wages (Tushman and Anderson 1985; Barley 1998; Bartel and Sicherman 1998, 1999). It follows that technological change will have a dramatic impact on every community. My concern here is the inner city. As the new economy is booming, inner city communities are left behind. For business leaders concerned about the inner city, the ultimate question is, how will the new economy impact the inner city?

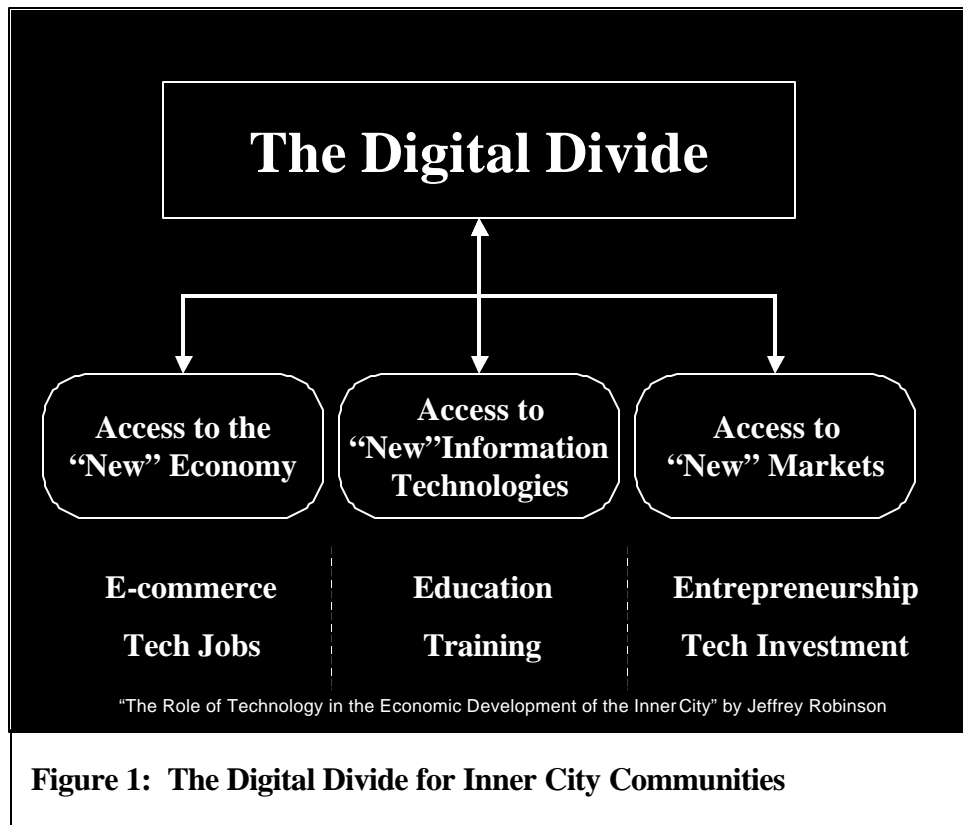
In New York City, there has been some discussion of this problem over the past two years. As billions of dollars are being made everyday of the year on Wall Street and in Silicon Alley, other parts of the city continue to struggle with poverty and underemployment. Several of New York City’s initiatives are taking the Porter approach by attracting businesses to areas in Harlem, the Bronx and Brooklyn that have been declared empowerment zones or economic development districts. Fewer initiatives are

taking the Fairchild approach and developing the entrepreneurial base of the inner city areas.¹ The digital economy presents a unique opportunity to integrate these approaches into a strategy that points towards the role that information technology can play in the economic development of inner city communities.

Recent indicators of computer access and usage have demonstrated that Americans in lower income categories and members of racial minority groups (African-Hispanic- and Native- American) are less likely to be connected to the Internet at home, at work and at school than whites. In terms of income, households that earn more than \$75,000 per year are 20 times more likely to be connected to the Internet than those at lower income levels. (NTIA 1999) These categories correspond to many of the residents of inner cities as defined by the ICIC.² The “digital divide” is the term used to describe these disparities. Since 1994, the National Telecommunications and Information Administration (NTIA) in the U.S. Department of Commerce has released three reports examining this problem, under the heading “Falling Through the Net.” (NTIA 1999) Each study has reached the same conclusion: the great divide is getting greater.

¹ As I write this paper, there are number of success stories including *Harlem USA* and the Upper Manhattan Empowerment Zone-Urban Box Office partnership. It is not my intention to discuss all of them here.

² I use the term “inner-city” here as it is defined by the ICIC: urban areas that have “significantly lower income and higher poverty and unemployment than the Metropolitan Statistical Area Average.” (ICIC 1999)



The challenge in many communities has been to identify strategies for providing access, training, and encouraging meaningful use of digital technologies. Educators, social service organizations, community based organizations, private firms, major corporations, federal agencies, municipal governments and local citizens have all entered the arena of technology access to solve the problem and yet the problem continues to exist.

The economic implications of these findings can only be estimated at this point. Many agree that as society integrates digital technology into all aspects of living, the equitable distribution of digital resources will become an increasingly significant issue. Today, institutional and economic obstacles thwart equal access to information, commerce and the benefits of a new economic environment to all people.

My research, however, has demonstrated that the digital divide is not merely an issue of access to computers and the Internet as much of the press coverage about the digital divide indicates. The digital divide concerns access to the new economy (in the form of jobs and e-commerce) and new markets (through entrepreneurship and technical investment).

Digital technologies are just as critical to the future of the inner city as it is to the rest of the world. In the next three sections, I consider how each aspect of this digital divide (see Figure 1) impacts the inner city and its ability to compete in the new economic environment.

Access to “New” Information Technologies

The digital divide in access to information technologies is perhaps the most well documented disparity. Numerous studies have demonstrated the existence of the divide between the digital haves and the have notes.

The disparity in access to computers was distinguishable as early as 1988. (Attewell and Juan Battle 1999) Attwell and Battle’s findings demonstrate that in their sample having a home computer was correlated with higher income and social standing. Minorities were less likely than whites to have computers. (Attewell and Juan Battle 1999)

Many researchers and practitioners hope that the digital divide is closing but the evidence from the National Telecommunications and Information Administration (NTIA) demonstrates that the disparities are getting wider. The most recent report *Falling Through the Net: Defining the Digital Divide* drew the following conclusions:

Black and Hispanic households are approximately one-third as likely to have home Internet access as households of Asian/Pacific Islander descent, and roughly two-fifths as likely as White households (NTIA 1999: xiii)

Households with incomes of \$75,000 and higher are more than twenty times more likely to have access to the Internet than those at the lowest income levels. (NTIA 1999: xiii)

The statistical profile of the least connected Americans describes many residents of inner cities: “low-income, Black, Hispanic or Native American, senior in age, not employed, single parent households with little education residing in *central cities* or especially rural

areas.” (NTIA 1999:85 – emphasis added) Therefore, it is the inner city community that faces the most severe circumstances to overcome the digital divide.

In a related research project, Laquita Blockson and I are studying the efforts to close the digital divide in Harlem, New York. (See Robinson and Blockson 2000) In November 1999, representatives of the nonprofit, private and public sectors met to discuss how to better close the digital divide in Harlem. The result was the formation of the Digital Bridge Collaborative. Community technology centers, educational and training programs have been established to provide residents with access to new information technologies. Private firms and foundations have partnered with public agencies and nonprofit organizations to provide extraordinary services to Harlem residents.

These models are being replicated nationwide. Exciting programs that begin to address existing disparities are holding most of national attention. My only criticism of this approach is that it is not enough. For inner city economic development to take place, the efforts across sectors must include providing inner city communities and their entrepreneurs access to the new economy and the new digital markets.

Access to the “New” Economy

Inner city programs that close the digital divide of access to information technologies are the first steps toward making these communities competitive. The next step is to provide access to the new economy. Access to the “New” Economy is characterized by two components: e-commerce and technical job opportunities.

E-commerce

E-Commerce is perhaps the most powerful business tool to be developed since the computer. E-commerce is the use of the internet to perform business transactions, business-to-business (B2B) and business-to-consumer (B2C). Numerous articles and books have been written regarding its impact on the world of business. The real power is in the ability of this technology to utilize and maintain elaborate databases on customer preferences and inventory, thereby eliminating the need for data entry and manual collection. In the most advanced circumstances, fully integrated systems of e-commerce streamline the purchase, manufacturing, and delivery of products saving millions of dollars in salaries, benefits and training. The U.S. Department of Commerce reports,

“By opening an immediate and convenient channel for communicating, exchanging and selecting information, e-commerce is allowing firms to reconsider which functions they should perform ‘in-house’ and which are best provided by others. *The new technology has helped to create new relationships and to streamline and augment supply chain processes.*” (Commerce, 1999 #1, 11)

The efficiencies gained by the advent of Internet technology impact America’s economy. It is predicted that business-to-business e-commerce will rise to \$1.3 trillion by 2003. (Commerce 1999, 5) Savings in business-to-business e-commerce spillover to saving for the consumer. According to a survey conducted by NFO Interactive, deep price discounts is the largest driver (80%) of first time users to the purchase via the Internet. (NFO Interactive 1999) America’s inner cities spend \$85 billion in the retail sector. (ICIC 1999) Unless inner city communities are on-line, many of the benefits of the digital economy will be missed.

Barriers to e-commerce in inner city communities

Three barriers to e-commerce exist for inner city communities. In addition to basic access to the Internet technology, inner city communities have concerns about privacy and may have limited access to credit.

The Intermarket Group published a list of barriers to online purchasing last year. (*ecommerce@MIT* 1999) Included in this list were concerns about credit cards and privacy. For inner city communities, these concerns are amplified. Most Internet transactions are conducted using a credit card. Without a credit card, it is difficult to make online purchases. Privacy on the Internet is an issue for all. However, in inner city communities it may be exacerbated because of negative historical experiences with both the private and public sector utilizing private information for malevolent purposes..

Each of these barriers can be addressed. The private sector, however, must lead the way. Internet companies are just beginning to realize the potential of e-commerce for underserved communities. Just as major retail stores have moved into what were previously red lined areas, those involved in e-commerce must lower the barriers and invest in the underserved consumer.³

Technical Job Opportunities

Joblessness has been a significant obstacle toward the economic development of inner city communities. William Julius Wilson writes

The consequences of high neighborhood joblessness are more devastating than those of high poverty. A neighborhood in which people are poor, but employed, is much different from

³ This discussion is part of a larger discussion of content for low-income and underserved communities. For more information on this see the most recent report of the Children's Partnership available at <http://www.childrepartnership.org/>.

a neighborhood in which people are poor and jobless. Many of today's problems in the inner-city ghetto neighborhoods – crime, family dissolution, welfare, low levels of social organization, and so on – are fundamentally a consequence of the disappearance of work. (Wilson 1999)

Given the opportunity, residents of inner city communities can gain access to the new economy through technical job opportunities. Recent U.S. government figures indicate that the gap between workers in IT-producing jobs and the all industries average widened in 1997. Workers in IT-producing jobs on average earned 177% more than the average wage for all other workers. (Commerce, 1999 #1) This kind of wage disparity will only negatively impact inner city communities if they do not have access to the new economy's technical job opportunities.

Some argue that the educational requirements for IT workers will shut inner city residents out of the IT arena. The issue here, of course, is human capital. As Fairchild (2000) describes in his research, inner city communities are viewed as places of low valued human capital. Furthermore, any skills relevant 10 years ago obsolesce at a faster rate due to the pace of technological changes. Bartel and Sicherman's (1998, 1999) research explore the effect of technological change on the wage structure. Their findings demonstrate that the increasing rate of technological change increases the disparities between highly skilled and lower skilled workers.

The implications for inner city communities are not positive. As the pace of technological change increases, the wage disparity between low skilled workers -- low valued human capital as described by Fairchild (2000) – and highly skilled workers will also increase. Inner city communities that have large numbers of unskilled workers

cannot be competitive unless significant portions of the workforce can gain access to the new economy and its job opportunities.

To meet the demand for IT workers in the new economy, Congress enacted

Table 1: IT-Related Occupations
(*The Emerging Digital Economy II, p. 40*)

Engineering, science, and computer systems managers	Computer engineers, scientists, and systems analysts
Computer programmers	Electrical and electronics engineers
Data processing equipment repairers	Electrical powerline installers and repairers
Electromechanical equipment assemblers, precision	Electrical and electronics technicians
Data entry keyers, composing	Broadcast technicians
Electrical and electronic equipment assemblers, precision	Computer equipment operators
Duplicating, mail and other office machine operators	Electronic semiconductor processors
Billing, posting and calculating machine operators	Communications equipment operators
Electronics repairers, commercial and industrial equip.	Telephone and Cable TV installers and repairers
Central office and PBX installers and repairers	

legislation to increase the number of H-1B visas to allow highly-skilled workers from several nations (especially India) to enter the country to work. (Commerce, 1999 #1, 43)

The caps were raised from 65,000 in 1998 to 115,000 in 1999 and 2000, and 107,500 in 2001. The cap is scheduled to be returned to 65,000 in 2002. Imagine if these jobs were filled by inner city residents that were just as prepared to enter the technical workforce as temporary workers from overseas. (See Table 1 for a list of IT-related job titles.)

Moving Forward

As technology is transforming the way business is being done, inner city communities need to develop their economies by taking advantage of e-commerce and its business ramifications and by making sure that residents who gain IT skills have access to the enormous job opportunities in an industry that will take all of the help it can get.

Access to New Markets

The “New Markets” Tour of the Clinton Administration is drawing attention to the emerging markets of the domestic landscape. To promote the economic development of the inner city, this renewed interest must be focused on the areas of entrepreneurship and technology investment.

Three trends should be noted with regards to the new domestic emerging markets.

- The minority population will be the source of 90% of the population growth from 1995 to 2050. (MBDA 1999)
- Eight million households are estimated to be in America’s inner cities. (ICIC 1999)
- America’s inner cities spend \$85 billion in the retail sector. (ICIC 1999)

Each of these trends should impact how entrepreneurs, venture capitalists and the general business community make investments in inner city communities. What we find, however, are a small number of firms considering the potential of the inner city. The “new” market is what I call the *domestic emerging market*, inner city (and rural) areas this nation that have been largely overlooked by corporate America. The key to developing these untapped economic resources in this era of information technology will be entrepreneurship and technology investment.

Entrepreneurship

Entrepreneurs can gain competitive advantage by utilizing technology to become more efficient than their competitors. But this is not the only mechanism for gaining competitive advantage using technology. Beyond efficiency, there specific cultural and economic advantages that have not been sufficiently explored within inner city communities. In my assessment, the digital divide in the access to “new” markets exists

between inner city communities and other communities because entrepreneurs are just beginning to involve domestic emerging markets in the new economy.

The challenge of the entrepreneur is to foresee how this technology will impact their businesses. Information technology promises to be the single most transforming technology in the history of business. Those interested in inner city business development must react to this shift in the business environment. Tushman and Anderson (1986) demonstrated in their research that technological discontinuities can be disruptive to industries. These changes are characterized as competence enhancing or competence destroying discontinuities. (Tushman and Anderson 1986) For many inner city business people, the Internet revolution and the advent of the digital economy has been competence destroying. Re-tooling and investing in the new technologies that will keep them competitive in the their market is yet another challenge to the inner city entrepreneur.

Entrepreneurs face a second challenge when dealing with technology and the inner city: market development. New entrants into the Internet space are entertaining venture capital and developing unprecedented valuation. Yet, there are only a few cases of Internet entrepreneurs who see the potential of the inner city market place. These trailblazers will reap most of the first-mover advantages.

To summarize, entrepreneurs that take full advantage of the efficiencies offered by streamlining operations on-line and in-house will gain competitive advantage. Entrepreneurs who locate in inner cities can take advantage of B2B and B2C e-commerce to build two types of returns to their investment: 1) in the Internet space they can operate their business with little regard for location – no one needs to know where their offices

are located; 2) they can build their business upon the economic base and unique historical and cultural heritage of the community. The profits will flow from building upon these competitive advantages.

Technology Investment

In the information economy, technology investments are found in two forms: venture capital investment and technology infrastructure investment. The digital divide exists in terms of the “new” market because capital investment in inner city related projects does not follow the meteoric growth rate as projects related to other communities and the technology infrastructure investment takes place along socio-economic lines. Entrepreneurs interested in the inner city cannot develop a competitive advantage unless they have access to both venture capital and technology infrastructure.

Many have heralded the equalizing nature of the Internet space where “if you have a good idea it can get funded no matter who you are.” But, the reality has not lived up to the hype. A recent publication of the Internet industry reported, “Venture capital, while plentiful, has been slow to find its way into the pockets of minority entrepreneurs.” (AlleyCat News, 66) For those interested in marketing to inner city communities or locating in inner cities finding venture funders willing to deal is their most insurmountable challenge.

To understand the impact of technology infrastructure investment on entrepreneurs and inner city businesses, consider how resources can impact a firm’s competitive advantage. In the old economy land and location were very important resources. In the new economy, land resources are replaced by efficient access to the Internet. The Federal Communication Commission has recently documented the

existence of “electronic redlining” in major metropolitan areas. Businesses have three high speed Internet access options that are appropriate for e-commerce and other Internet business models. So-called T-1 lines are the most expensive of the three options with costs of \$15,000 per year. The alternate options, digital subscriber lines (DSL) and cable modem technology are not as cost prohibitive at \$600-\$1000 per year.

To take advantage of these high speed Internet options, businesses must be located in areas that have access to the technology infrastructure. In many inner city communities, access to high-speed infrastructure and Internet service has not been built. According to FCC Chairman William Kennard, “The private sector builds where the high volume and the money is in. In most communities, the fiber-optic rings circle the businesses district. If you’re in a poor suburban neighborhood or the inner city, you’re at risk.” (USA Today 1999)

In the end, it is clear that the domestic emerging market of America’s inner city suffers from a lack of investment in its entrepreneurs and its technology infrastructure. An economic agenda that encourages technology investment in the inner city as I have detailed provides the most promise for developing the economy of the inner city in this information economy.

Conclusion

If we allow technological change to widen the gap between haves and have nots we risk the future of America. As a nation, we must make significant capital investments in inner city communities if not for some altruistic reasoning, at least because of a desire to enter a domestic emerging market that has been virtually untapped.

For inner city communities, the implications are clear. As information technology is being integrated into the world economy, inner cities are being left behind. Without the appropriate education and training of the community, the inner city, with all of its promise, will be caught in a poverty trap caused by the digital divide between the haves and have nots.

In this paper, I have presented a different framing of the digital divide that is relevant to economic development of the inner city. I have begun to uncover the first few layers of a multi-layered researched area. Future research should explore the intersection of public policy, inner city economic development and the information economy. By establishing a common understanding amongst researchers that economic development arises from competitive advantage, we can begin to appreciate the significant role that technology can play in the rise of the inner city.

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