

# **The Role of Quality Education in facilitating Smart Cities Management Education as a catalyst in globalization of the world**

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## **Abstract**

Education has been long viewed as an important determinant of economic well-being of any nation. An economy's ability to grow over time, its ability to innovate and rise in productivity and real incomes is strongly tied to the quality of education provided to the vast majority of people in the nation. Skills and intellectual capital are increasingly important in a modern economy and quality education through schools plays a central role in the development of valuable skills. Good quality education is the foundation of new discoveries, new knowledge, innovation and entrepreneurship that trigger growth and prosperity of the individual as well as that of a nation.

India been considered as a talent pool of the world, having qualified and educated human resources in abundance. Education has become a primary reason for transformation of India into one of the fastest growing economies in the world since liberalization in the 1990s. It is Sunrise Sector for many investments and offers a huge untapped market in regulated and non-regulated segments due to low literacy rate, high concentration in urban areas and growing per capita income. The Government has also been proactively playing the role of facilitator in this sector.

Education can increase the human capital inherent in the labor force which increases labor productivity and thus transitional growth toward a higher equilibrium level of output of any sector of progress. It can facilitate the diffusion and transmission of knowledge needed to understand and process new information and to successfully implement new technologies devised by others, which again promotes economic growth leading to globalization.

As concern to Smart City, Education is a facilitator in creating opportunities and innovation in the development of city. Future of Smart city is dependent on the intellect of the citizens inherited. This concept will be used as catalyst for all round development of the nation. Quality of education would help in creating an enriching socio economic development of an individual and nation as a whole. Thus a concluding statement can be summarized by quote given by economist Clark Kerr, "On a global scale, wealth and prosperity have become more dependent on the access to knowledge than the access to natural resources."

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## **Introduction to Smart City**

The concepts of Smart Cities already existed in this planet and ancient Indian university towns like Takshashila and Nalanda were smart cities of those times. Dating back thousands of years are numerous examples of ancient technology that leave us awestruck at the knowledge and wisdom held by people of our past. They were the result of incredible advances in engineering and innovation as new, powerful civilizations emerged and came to dominate the ancient world. These advances stimulated societies to adopt new ways of living and governance, as well as new ways of understanding their world (for example. Ancient Roman Concrete)

### **Definition of Smart City**

Smart cities can be defined by relevant use of technology to make life easier and more comfortable, while being friendly to the environment and human needs. It is a dream destination need to be made habitable where people of all age and income groups should experience a livable and safe city with equitable access to all basic amenities.

**Livability:** city as a place designed a safe and hygienic environment. Residents should live in physical comfort with basic services, utilities and facilities.

**Accessibility:** The city need to be equipped with adequate and appropriate transport networks enabling residents to reach work-place, services and amenities in a safe convenient manner.

**Power Supply:** Good quality power enables a technologically advanced set-up to facilitate good quality of life for people by delivering ‘uninterrupted power’ in a holistic manner.

**Communication:** An integrated communications strategy must involve communication infrastructure providers, service providers, IT vendors and city governments. Smart city require ubiquitous broadband connectivity through a high speed fiber optic backbone and high bandwidth Wi-Fi networks;

**Emergency Response:** A smart city need to be respond effectively to natural disasters and health complications with proper ICT infrastructure, including mobile networks, to efficiently receive, process, analyze and re-distribute data and mobilise various city services.

**Water Supply:** One of a city's most important elements of critical infrastructure is its water system. A smart water system is designed to make the necessary impact in 24 hours potable water supply.

**Solid Waste Management:** A smart solid waste management system is being put in place using advanced technology (automated garbage disposal system) where garbage will be disposed of with minimum human interference. Not only that, the waste will be recycled to make organic manure and generate power that will be consumed in Smart City itself.

This smart city strategy includes providing smart solutions to the entire critical sector by reducing the time and cost of citizens which will in turn have positive effects on productivity and quality of life of the citizens. Garbage waste originating from smart cities can be used to generate electricity along with other options like solar roof top, wind and biomass. Wireless technology helps people can enjoy Wi-Fi on the streets, while also improving citizen's services, such as meter readings, traffic lights management, transport fleet etc. These state-of-the art cities will use technology to make life of its citizens more organized, lowering the cost of living and less stressful.

### **Education as component of Smart Cities:-**

Among the various components of Smart Cities has mentioned earlier, the focus of this research paper is to understand the importance of Education in contributing to elements of growth and development which would facilitate Smart Cities Management. For generalizing this statement, it is utmost important to study the link of education in facilitating Economic growth which would indeed help in conceptualizing towards Smart City concept.

As much as technology and development is a key for the smart city initiative, a proper smart city education program is the foundation. Smart cities need a skilled workforce with training and experience that is in demand to succeed and continue positive growth. A refined, smart city-focused education system aids the urban development scene and combats unemployment simultaneously. Leaders from education and government aspire to improve their institutions' outcomes and value to society. They strive to meet rising expectations from students, communities and business with limited and increasingly constrained resources. Nations hold their educational systems accountable for a high level of performance for good reason. Education will be the critical determinant of success for communities in the 21st century just as land was key to agrarian societies and capital investment was critical to industrial economies.

The service-based economies of tomorrow will increasingly require the meta-skills of critical thought, information literacy and creativity to solve problems that haven't yet been encountered. Knowledge workers of the future will function within a web of collaborators and almost limitless information and computational resources. Education must begin to build a student-centered industry that develops in each citizen the skills necessary to prosper and thrive in that world of tomorrow. Governments and educational

institutions must begin to see themselves as part of a holistic system that anticipates the needs of its citizens by directing investments and resources to embrace the future.

Education is a worthy investment for state government, with immense social and economic benefits. Research shows that individuals who graduate and have access to quality education throughout primary and secondary school are more likely to find gainful employment, have stable families, and be active and productive citizens. They are also less likely to commit serious crimes, less likely to place high demands on the public health care system, and less likely to be enrolled in welfare assistance programs. A good education provides substantial benefits to individuals and as individual benefits are aggregated throughout a community, creates broad social and economic benefits. Investing in education is thus far more cost-effective for the state than paying for the social and economic consequences of under-funded low quality schools.

A population that is better educated has less unemployment, reduced dependence on public assistance programs and greater tax revenue. Education also plays a key role in the reduction of crime, improved public health, and greater political and civic engagement. Investment in education results in billions of dollars of social and economic benefits for society at large. The social and economic benefits produced by public education for employment, crime, health, and civic and political participation.

### **Quality Education the need of the hour**

Through the various benefits of education for an economy as made it clear that education can help in its development and growth. But mere access to education can support the generalized statement is to be studied. Quality of Education is the prime requisite is to be understood. So it is indeed essential to understand that the quality of education rather than mere access to education is what impacts economic growth.

Schooling cannot alone deliver fully on its promise as the driver of economic success. Expanding school attainment has not guaranteed better economic conditions and attention to the quality of education is utmost important ensuring that students actually learn. There is strong evidence that the cognitive skills of the population rather than mere school enrollment are powerfully related to individual earnings, to the distribution of income, and to economic growth.

For an economy, quality education can increase the human capital in the labor force, which increases labor productivity and thus leads to a higher equilibrium level of output. It can also increase the innovative capacity of the economy such as knowledge of new technologies, products, and processes promotes growth. And it can facilitate the diffusion and transmission of knowledge needed to understand and process new information and to implement new technologies devised by others promoting growth.

## **Opportunities that can help to render change in education into quality education**

Educational system responds to trends which will determine not only its value to its students but ultimately its long-term value to society. It is important to understand the areas which would help the rate of change and direction of developing realistic and actionable strategies for education policy, investments and programs.

The following areas of concern can help in achieving quality education under change in instruments of education system

### **Technology enabled teaching and learning approach**

For the first time in history we have a generation of digital natives, the students of the Internet generation have grown up immersed in the use of information technologies. Unlike generations past, these students are at ease with technology and easily adapt and integrate new functionality from smart phones, laptop computers, mp3 players, game stations, and virtual reality worlds. They arrive at school expecting to leverage technology in the learning environment just as they do in their personal lives. In much of the world today, young people have come to depend on digital resources for communications, learning and entertainment activities at home, school or workplace. This revolution of mobile technology is being driven by innovations in the consumer marketplace. New devices and services are being introduced around the world, even in emerging market economies. In addition to cellular communications, other forms of wireless connectivity are also providing access to regions that previously have had minimal Internet access. Broadband local wireless, radio frequency, and satellite devices are enabling new services and greater access in many regions. A plethora of new devices will emerge over the next decade as microchips proliferate, technology becomes more affordable and connectivity becomes globally pervasive.

Digital learning is a key concept that needs to be embraced by educators in today's classrooms. It could refer to the use tablets in the classroom. It could mean using online sites, services and programs as teaching tools. Alternately, it could even refer to the practice of using popular apps, social networks and communications platforms as tools to create your own digital assignments and agendas. Few example that can be quoted are as follows

### **Cloud Computing**

The impact of this technology continues to unfold in new and expanding ways of learning various subjects like language, social sciences, science etc. Cloud services nicely complement giving greater mobility and flexibility leads to greater collaboration and engagement. With cloud computing, the programs used to create and share become even

more mobile and less tethered to a particular device, exponentially increasing the pedagogical benefits e.g. better exam results.

### **Mobile Learning**

More and more schools are moving toward mobile learning in the classroom as a way to take advantage of a new wave of electronic devices that offer portability and ease of use on a budget. Netbooks, iPads, cell phones, iPods, e-readers and even PDAs are increasingly becoming the tools of choice for today's educators.

### **Use of smartboards/ tablet computing**

Traditional chalkboards have been increasingly replaced with interactive digital screens called smart boards. This product lets a teacher save his or her notes and send them to students, as well as to show instructive videos without having to set up another device and projection screen.

### **Learning Analytics**

While analyzing student data is not a new practice, the field of learning analytics has only recently gained wide support among data scientists and education professionals. In the coming years, as learning analytics platforms become increasingly complex and effective, outcomes of learning analytics will have a significant impact on the evolution and refinement of education, especially in the design of personalized and online learning platforms.

### **Blended Learning**

Historically, classroom teachers have used a range of learning activities and resources to assist learners to achieve learning objectives. Face-to-face presentations, visual material, paper-based assessments, online research and group activities have been the mainstay of classroom teaching for many decades. More recently mobile technologies and collaborative Web 2.0 tools have expanded opportunities for learning. Now the latest technology that is talked about is combination of Traditional teaching and online teaching, which is termed as “Blended Learning”

### **Wearable Technology**

The main focus of wearable computing is that these devices can be carried anywhere and they take active participation in human activities. It refers to electronic technologies that are incorporated into items of clothing and accessories which can comfortably be worn on the body. In education can wearable technologies have impetus significance is a note flying under the radar. New wearable technology innovations have transformed the

learning and teaching process in which students deal with knowledge in an active, self-directed and constructive way.

### **Personalized learning paths**

As students evaluate their educational opportunities made available through technology, they begin to define highly individualized paths for learning and skills development. Increasingly, students value programs and services tailored to their abilities, lifestyle, needs and preferences. The rate of increase in online course enrollments at all levels – from primary school to universities indicates a student willingness to pursue educational offerings delivered through technology.

No longer are educational offerings constrained by physical place and time. Students and parents are free to choose from a wide variety of primary and supplementary educational service providers that complement their needs, abilities, means and preferences.

Personalization for students has extended outside the classroom into the curricular structure of their individual learning process. Students expect greater flexibility to pursue their own pathways to achieve skill objectives and certification. Educational institutions are experimenting with greater accommodation and flexibility by offering programs based more on certification of competency, versus the traditional “time in class” model.

### **Development of knowledge skills**

The students of the future need different skills to compete in an increasingly services dominated job market. As demand for agricultural and industrial workers continues to decline, students need to acquire skills that prepare them for knowledge-based professions. Teachers and faculty members are developing new teaching methods using tools for interactivity, personalization and collaboration to engage students in real life situational experiences that convey concepts, promote learning and develop lifelong skills.

Educational providers are responding to the shift of integrating 21st century teaching methods into their curricula. These new teaching methods are important in two dimensions: first to deliver traditional courseware in a more interactive mode in order to increase what a student learns and second to develop lifelong 21st century skills in how a student learns and works.

Employers increasingly hire prospects that possess both job-related skills and foundational competencies that indicate an individual’s potential to adapt to changing market and economic circumstances. They have identified adaptable skills, global

awareness, language learning and information technology proficiencies as top priorities for competitiveness in global front.

A globally integrated world will create opportunities for institutions to reach new learners, for learners to access new resources and as a result create a more integrated web of collaborators and resources. While this leads to more competition, it also means greater need for collaboration skills among the prospects of tomorrow, greater ability to access and manage information and greater cultural awareness.

### **Economic Growth through education excellence**

Governmental leaders and economists have recognized that education is a key differentiator in economic prosperity in the 21st century. Leaders are calling for closer alignment between educational systems and their region's economic development initiatives and goals. There is mounting evidence that the quality of human resources is directly related to individual earnings, productivity and economic growth. Economic growth determines how much improvement can occur in the overall standard of living of a society. A more educated society may translate into higher rates of innovation, higher overall productivity through firms' ability to introduce new and better production methods, and faster introduction of new technology. Economic implications of education are that educational quality measured by cognitive skills has a strong impact on individual earnings and educational quality has a strong and robust influence on economic growth. Educational systems will transition from outcome metrics that assess the performance of individual institutions to measuring the efficacy of the entire system in contributing to economic goals. To incubate new economic initiatives, communities and nations must plan to develop a broad spectrum of skills to nurture new business and industries.

Economic initiatives will require the support of the entire education system. For example, funding to a top-tier research program will require coordination at all levels of the educational system to be successful. Investments in research must coincide with intense focus on building the skill base and workforce capabilities needed to quickly staff new firms and grow new industries. Research programs would help define critical learning programs, provide mentoring to younger students, and inspire a new generation of learners and workers. Educational and governmental leaders will require the tools and resources at their fingertips to make informed investment decisions in programs and initiatives. Data must be integrated at an aggregated and individual student level from all education providers to give decision maker a single view of educational system.



## Conclusion

Education is the formal process by which society, through schools, colleges, universities and other institutions, deliberately transmits its cultural heritage and its accumulated knowledge, values and skills to the next generation. In knowledgebased economies, education underpins economic growth, as it is the main driver of technological innovation and high productivity. It is means to transmit knowledge through generations and basis of human civilisation.

Education is a basic determinant of the quality of life of individuals, people with limited skills and competencies are excluded from good jobs and have fewer prospects for economic prosperity. It enhances people's understanding of the world they live in, and hence the perception of their ability to influence it. Higher levels of educational attainment are generally linked to better occupational prospects and higher income for individuals, hence having a positive effect on their quality of life. People who have completed tertiary education improve their possibilities to secure a job: the unemployment rate decreases with the educational level.

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