Industrialism And Humanism In The Evolution Of Urban Forms

Abstract

Industrialism and humanism plays a major role in the evolution of urban form over the centuries. Ever since the first industrial revolution, urbanization has quickened the processes of evolution as the surge in population meant the dire need for changes to be made in cities. The urban form has and will evolve to the immediate and primary needs of man. Over the centuries the many phases of the industrial revolution from Industry 1.0 to Industry 5.0 the near future witness the different reactions of urban forms. The different reactions to the industrial revolution

This paper takes as its starting point Haussmann's renovation of Paris, followed by the analysis of a modern city, Chandigarh. This paper will analyze the dialectic of evolution in urban form through industrialism and humanism of the past in anticipation of the near future. The anticipation of the near future is premised on the current prediction of technology and socio-economic climate, in Industry 5.0, of 5G, blockchain and a focus into wellbeing.

Introduction

Industrialism and humanism have to integrate harmoniously to ensure evolution and progress in urban forms of the future. Since the discovery of new manufacturing processes, the transition of hand production methods to machines, new chemical manufacturing and iron production processes, increased use of steam power and water power, development of machine tools and the rise of mechanized factory systems gave rise to the industrial revolution. Since 1760, industrialism has played an essential role in modernising humanity through manufacturing and production. Goods were able to be produced massively and efficiently. Industrialism allowed new discoveries and the cultivation of a new way of life through the years. Industrialism brought about the evolution of new transportation, from horse-power to engine-power. Through the ages, the evolution of technology has progressed by leaps and bounds. The focus on finding the equilibrium between industrialism and humanism is becoming more prevalent in the coming decades. Progressing from Industry 1.0 to Industry 5.0, industrialism will begin to see itself being humanised and vice versa as Industry 5.0 is set to focus on the return of human hands and minds into the industrial framework. In the evolution from Industry 1.0 to 3.0, we have seen the evolution of various city plans to the changing needs of the masses. Looking forward into the future of Industry 5.0, the relation between man and machine will be ever close-knitted, with humans and robots co-working. Co-working between man and machine will encourage urban forms to evolve to cater to new and changing needs of the masses, as well as a new creation of urban and industrial spaces. Industrialism and humanism have to evolve harmoniously in the near future through future-ready urban practices. To propose future-ready urban practices, we must understand the implications of industrialism and humanism in urban form. This essay will scrutinize the dialectic of the evolution in urban form through industrialism and humanism of the future.

Keywords:

Industry 5.0, Evolution of Urban Form, New-Equilibrium, Industrialism, Humanism.

From Medieval cities to modern metropolises, the industrial revolution played a major role in allowing for the modernisation of cities. The manufacturing process promoted the dehumanisation of society. As cities become more industrialized, spaces designed were torn between the industrial and humanized. Mega roads in mega cities require a specialized skill set to humanize public spaces. Urban space evolves itself based on the needs of man. In underdeveloped spaces, neighbours are essential to the survival of the community. Community spirit is paramount to the culture of the society as amenities of the community are often shared, and the function of the community draws relation from the hunter-gatherer epoch. The sharing of manpower and distribution of responsibilities results in the evolution of urban forms and architecture. The urban form of rural areas allowed organic growth and interaction with the infrastructure. This often results in humanistic spaces that are coherent with the culture and vice versa. In a contemporary city, the culture is highly globalized in alignment to the industrial process. The culture of a modern man has acclimatized to the industrial preferences and adapted to its rigid methods. In contemporary cities, the vast network for transportation, efficient water supply, and electricity are provided through a network of systems. However, in aligning with the industrial process and modern advancements, man has evolved to be self sustainable. Self-sustainability heightens the distance between man's adjacency from each other, and the redundancy of a community. Industrialism made room and encouraged the evolution of man by allowing the fulfillment of Maslow's fundamental hierarchy of needs through the provision of psychological and safety needs. In industrialising, there were many 'second generational' issues created as a byproduct that poses a new issue to mankind. The industrial process produced the byproduct of environmental pollution, the risk of epidemics, psychological and other stresses. This stress impedes the improvement of the human condition. The evolution of urban form is the consequence of industrialism and humanism.

The renovation of Paris by Baron Georges Haussmann was the effect of the Industrial Revolution and cultural advancement. After the renovation of Paris, the evolution of the urban form allowed the city to emerge into the Modern era. In Haussmann's plan for Paris, he was effective in effecting the new equilibrium between industrialism and humanism of the era. The main issues of Paris during the industrial revolution were overcrowding, narrow and disease stricken streets. During the industrial change, the urbanization of Paris caused it to become disease-stricken as Paris was not ready to inhabit the incoming population from rural areas. With bad sanitization, improper living conditions and urban planning, Medieval Paris was unable to grow simultaneously with the economy. Haussmann's plan for Paris created new roads, public parks, public monuments as well as install new sewers and improved the architectural facade of the city. This transformation allowed progress in urban planning and liveability in Paris. The industrial nature of Haussmann's plan includes sectioning Medieval Paris with a geometric grid, widening of streets, and building new sewer tunnels under the sidewalks of new boulevards. These strategic changes encouraged smoother transportation as well as improved public health. The wider streets allowed for taller buildings, allowing Parisans to live and flourish in. Industrialism paved a way for a new humanism in Paris.

A major transformation of Paris in Haussmann's plan for Paris was the installation of new sewers that seperated stormwater from sewage water. Industrialism promoted humanism through the improvement of living conditions in Paris. Industrialism improved the collection of sewage water by allowing human faeces to be repurposed as fertilizer for agriculture. It allowed

for the mechanization and eliminated the need for dangerous and degrading human labour to clean, collect night-soil, and service sewers. Human faeces were collected as night soil, profited as fertilizer for agriculture, and used in the production of saltpeter for gunpowder. The recycling of bodily functions was critical for the regional economy. By introducing a separate system for ‘clean’ stormwater from ‘dirty’ human waste, Haussmann was able to isolate contamination of the underground city as well as prevent the dilution of human waste, which would disrupt the organic economy of the city. The separation of sewage water from stormwater brought about a shift in attitude towards the use of water. The use of the river for drinking water was a main contributor to the public health epidemic. The use of water pipes, rising mains, and sewer construction succeeded in the curbing of cholera and typhoid cases. After the cholera epidemics of 1884 and 1892, it became obligatory in 1894 for private dwellings to be linked with sewer systems. The connection between the city’s water and sewer system pressured the increase in modernization of urban infrastructure. The transformation of new sewers improved public health, created better ways of inhabitation, and encouraged a more pleasant city. Industrialism promoted humanism through the improvement of living conditions in Paris

Prior to the renovation of Paris, Medieval Paris had only four public parks: the Jardin des Tuileries, the Jardin du Luxembourg, Palais Royal, and the Parc Monceau. During the industrial revolution, it was a general perception that leisure would be well afforded by all classes of Parisians. As industrialization meant the mechanization of work processes, man was able to free up time to rest and relax. Napoleon III wanted to build more new parks and gardens in the new neighbourhoods of the expanding city. He began the construction of Bois de Boulogne to provide rest and relaxation for families of all classes of Parisians. In a span of seventeen years, Haussmann, Jean-Charles Alphand, Jean-Pierre Barillet-Deschamps, along with thousands of workers and gardeners planted six hundred thousand trees, added two thousand hectares of parks and green space to Paris. Haussmann’s plan to humanize Paris was to supplement Paris with the greatest possible number of squares for relaxation and recreation for all the families and children, rich or poor as directed by Napoleon III. A total of twenty-four new squares; seventeen in the older part of the city, and eleven in the new arrondissements were added. There was a park in each of the eighty neighborhoods of Paris. These parks were no more than ten minute walk from the residences. The adjacency and proliferation of ‘green and flowering salons’ were an immediate success with all classes of Parisians. The industrialisation of Paris led to the humanisation of Parisians.

During the 1900s, a city that underwent major changes in political and economic power was India. With a modernising front, Chandigarh was put to the test to draw the balance between industrialism and humanism. There was a struggle between the original ideals for Chandigarh and the final design for Chandigarh. During the disagreements between Le Corbusier and the bureaucrats, Thapar and Verma on the creation of tall residential tower blocks throughout the sectors, the low-density horizontal city from the original Garden City character as envisioned by A. L. Fletcher in 1948 were retained instead. The age of mass production led to the influx of people into cities to work in factories, and urbanisation where the abandonment of rural areas. When slums formed around Chandigarh, it became clear that urbanisation of India was a success, and the success of humanism in the time of industrialisation brought about a new form of equilibrium in urban form.

Chandigarh was conceived on the principles of modernism in 1947. Le Corbusier, the founder of Congrès Internationaux d’Architecture Moderne (CIAM) was driven by modern principles to create functional city. He designed Chandigarh into self-contained clusters with a clear analogy

to the human body. The presence of a head, heart, lung, intellect, circulatory system, and viscera and the use of modular, geometric and cubist methods for master planning aligned with the CIAM urban philosophy. Industrialism played an important role in the manifestation of Chandigarh. Motor vehicles, efficient transportation, segregated pathways, and compact living spaces were key in Chandigarh's master plan. The separation of foot traffic from wheeled by the construction of pavements were formed with the safety of pedestrians in mind, and to allow the full range of horse-drawn vehicular mobility, and later automobile vehicular mobility. Chandigarh was manifested to contain the influx of 7.3 million refugees, a population growth of 41% of India's cities. The hastened process of urbanization in India was accelerated by the famine in 1942. Chandigarh became the new capital and administrative centre of India. The functionalist approach in Chandigarh's master plan clearly distinguishes the industrial and humanist aspects. Industrialism, and modernism allowed for a humanist touch in the manifestation of Chandigarh.

In Chandigarh, the composition of the entire master plan is made of the repetition of multiple sectors and roundabout between the sectors in a geometrical grid system. The industrialism and humanism of Chandigarh is met with a symbiotic arrangement in the meta-scale urban form. On the meta-scale planning, the geometrical grid system and wide road lanes are designed for efficient transportation to support the industries. Within the sectors, are self-contained neighbourhood intended to meet all the daily needs of the residents. The design of the masterplan was to be evenly distributed ranging from fifty persons per acre to and hundred persons per acre. As a resident, the close proximity to amenities, parks and ease of mobility are aspects of humanism that the master plan tries to achieve. However, the land allotment by the government was unevenly distributed as envisioned. Closer to the Capital Complex (Sector 1), the plot ratio is larger, allowing a more private and spacious household. These sectors are reserved for government housing. There was a discrepancy in the visible dissection of the sectors and the distribution of persons per acre. This resulted in the compact and more densely settled clusters of low-caste employees in other sectors. The conflict in ideology and politics on the master plan level created the discrepancy of progressive industrial evolution in the urban form and the humanist approach to habitation.

The creation of sectors in Chandigarh focused on the industrial purpose of having efficient roads to support the industries on the boundary of the sectors. Within sectors are green spaces that amenities and houses looked into, alongside a green designated spot in the masterplan. Within the sectors, houses are small, with low room heights and thin walls. Marked differently from the pre-partition conception of suitable tropical housing, houses at Chandigarh are thought of homes for a new way of life. The unequal distribution of land meant that the lower grade housing would be grouped to be more convenient and communal to increase its affordability. The lower grade housing is designed with public open spaces such as health centres, nursery schools, community centres, and swimming baths. The only difference in the houses for the sweeper to the chief minister was the finishes and the size of rooms. The humanist aspect of the master plan was a success in the clear division of spaces from the industrial, which resulted with functional and livable spaces in the industrial city. This is further proven by the influx of slums towards the unplanned sectors of Chandigarh. However, the rigid form of Chandigarh did not consider the future additions to the master plan. This led to the increase in pollution, health, disease, poverty, and crime. The byproducts of industrialisation can be mediated to a certain extent, such as the proper housing of residences. However, it will blow out of proportion when the city is left to grow organically. Then the slums addition showed the incapability of a city's design for expansion. Humanism in the industrial city was met with many challenges such as

the sustainability and livability of future spaces.

Industrialism and the humanism of the future will evolve very differently than the urban transformation of the past. In the timeline from the renovation of Paris to Chandigarh, the two different periods saw the progress and evolution of industry in relation to its urban forms. The economical changes from a mercantilist economy to the free market and evolution of values augmented the societal systems and its issues. After urbanization, urban forms of developed countries faces the ‘second generation of issues such as environmental pollution, the risk of epidemics, psychological and other stresses. Industrialism of the future looks into the closer collaboration between man and machine, unlike the earlier industrial revolution that dabbled with metta-urban issues such as motorways and sanitization. Industry 5.0 is the digital revolution where the digital interface becomes paramount in society. Compared to the previous industrial revolution, the digital revolution is intangible and might not suggest changes to the urban form of cities. The digital interface and master plan would mean more network receivers, and network transmitters to enhance connectivity between devices. The new equilibrium of industrialism and humanism in Industry 5.0 will tackle ‘second generation’ issues caused by the previous industrial revolution, and continually tackle the aspects of humanism.

In Industry 5.0, humanism will play a greater role in the urban scale. The increased focus on wellbeing, community, health, and the overall awareness through the world wide web and IoT has encouraged a revolutionary way of life for the generation. Today, the health and wellness industry is worth $4.2 trillion dollars. From eating organic to wearable devices, the aspect of wellness is increasing foothold in today’s society. The awareness and appreciation of health, wellness, and community is evident in many cities. For example, the Highline in New York City, a 2.33km former rail trail was repurposed as an elevated linear park. The project attracted nearly five million visitors annually. The success of the project stems from the fundamental of giving the community space for appreciation of nature and public space. Along the Highline, projects like the Vessel by Thomas Heatherwick at Hudson Yards purposed as a public space was designed for an ever evolving usage. These are prime examples of urban spaces becoming more humanized as the usage of the public and landscape softens the industrial aspect of the project. The appreciation of tactile could bring about a change in the needs of the man in Industry 5.0. The new equilibrium of industrialism and humanism in Industry 5.0 will be primarily focused on humanising experiences.

In conclusion, the equilibrium of industrialism and humanism is greatly influenced by the primary and immediate needs of man. In the first industrial revolution, man became urbanized and moved from rural areas to the city. The experiences of the city, factory and the manufacturing process widened the gap between industrialism and humanism, placing more emphasis on the mechanical aspects of industrialism. As cities modernized, a more balanced measure was used to bridge the gap between industrialism and humanism. The optimization of industrialism, the manufacturing process, and the efficiency of mechanisms enabled a more humanistic society as a consequence. As technology improve and evolve, the equilibrium between industrialism and humanism will become more humanized as the digital revolution meant more invisible connectivity, efficient network services that will converge and supplement the daily lives of man.