

URBAN DESIGN, ARCHITECTURE AND BUILDING TECHNOLOGY: THE CORE OF OUTSOURCING

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ABSTRACT

Building construction is complex, involving a wide range of building personnel, products, services and systems (be it mechanical, electrical or integrated service systems). The design process is highly organized, draws upon research establishments that studied designs, material properties, performance, code officials who adopt and enforce safety standards, and design professionals who determine user needs. All these in today's world, involved Division of Labor and Specialization baptized, Outsourcing. The practice of architecture and building construction have for decades, adopted the services of the experts in putting together, buildings, structures, towns and communities without fundamentally baptizing the services with a name. The primary aim of this paper is to establish that Outsourcing has been in existence in architecture and building industry since the evolution of housing. To accomplish that, the authors adopted content base analysis, qualitative research method with data from secondary and primary sources. The building team includes, but not limited to the services of the architects, urban and physical planners, structural engineers, electrical engineers, mechanical engineers, builders, bricklayers, carpenters, etc. Be it the architect or the bricklayer, the components of the building have always been outsourced to different specialty areas or individuals with the capacity and special skills to put them together in what the economists called, "Division of Labor" and Social Sciences called, "Outsourcing."

KEYWORDS: *architecture, building, outsourcing, socio-economic, specialization, experts*

INTRODUCTION

The origin of architecture, although lost in the sands of time, has been connected with the evolution of man. According to Fletcher (1896), architecture may be said to include every building or structure raised by human hands; defined as a construction with an artistic motive, of which the value of the construction increases as the artistic motive increases. Earlier works of writers classed primitive dwellings into three: the caves or rocks for hunters or fishermen, the hut for farmers, and the tent for nomads. Documentation of architectural history according to Herndon (2007) coincides with the invention of writing by the Greeks. However, this architectural history over the years prior to this invention is limited to the durability of materials used for their construction. Architecture has gone through transformations from generation to generation. Many writers have defined the term differently depending on the school of thought and interest. In Soanes (2001), architecture is the "design and construction of buildings, the style in which a building is designed and constructed, and the complex structure of something.

Teacher (2011), looked at architecture from the Greek perspective, *arkhitekton*, which draws from all the components, from "chief" and "builder, carpenter, mason" and defines it thus:

- The art and science of designing and erecting buildings and other physical structures.
- The practice of an architect, where architecture means to offer or render professional services in connection with the design and construction of a building, or group of buildings and the space

within the site surrounding the buildings, that have as their principal purpose human occupancy or use.

- A general term to describe buildings and other structures.
- A style and method of design and construction of buildings and other
- physical structures

While reviewing the roles architects play in the building industry, Uji (2010), asserted that architecture is the means through which man intervenes in the natural environment and reshapes or refashions the physical environment for the purpose of sheltering himself from the elements, while he carries out activities that help him meet the biological, social, cultural, physical and spiritual needs. This function encompasses the organization of spaces and the enclosure, definitions or delineation of such spaces with physical features or structural components, in accordance with rules, norms, values or socio-cultural and economic characteristics of the people. The evolution of architecture implies that architecture changes over time and can be traceable to works produced by previous generations of architects (Brown, 2006). Each epoch offered something new while modifying its antecedents because architecture continues to be influenced by past civilizations even as it captures and midwives the birth of new ideas (Agbonome and Obiadi, 2015). These definitions when pulled together, addressed all aspects of designing an environment and the structures by a single class: the architect. They further, looked at architecture from a broad perspective comprising all aspects of designs from the urban design to the construction and finishing aspects. Architecture is both the process and product of planning, designing and constructing form, space and ambience that reflect functional, technical, social, and aesthetic considerations (Teacher, 2011). In general, it is a collaborative process where materials, technology, labor and mind come together to create a physical structure or form. That process also adopts drawings, plans, technical specifications, cost estimation, scheduling, construction administration and management in completing what architecture represents. This process cannot be complete without the involvement of the coordinator, who is the architect. A person who designs buildings and supervises their erection; someone who plans something (Geddess and Grosset, 2005). It is the responsibility of an architect to plan a project, design and coordinate the other components (contributions) from engineers and other relevant contributors needed in the construction of buildings and structures for the use of the people.

According to Teacher (2011), the earliest surviving written work on the subject of architecture is *De architectura* by a Roman architect, Vitruvius in the early 1st century. In his book, Vitruvius indicated that a good building should satisfy three basic principles:

- Durability - it should stand up robustly and remain in good condition.
- Utility - it should be useful and function well for the people using it
- Beauty - it should delight people and raise their spirits.

These attributes require professionals in different areas of the building industry and decorators. Furthermore, these early attributes outlined by Vitruvius have remained to present, measuring sticks for good architectural work adopted by almost all architects. Teacher (2011) further indicated that, at that era, Leone Battista Alberti, who supported Vitruvius and his architectural attributes (durability, utility and beauty) went on in his essay: *De Re Aedificatoria*, that beauty is a matter of proportion although supported by ornaments. Following Alberti's idea that beauty comes from properly proportioning a building and that, "the rules of proportion were those that governed the idealized human figure, the Golden mean," the most important aspect of beauty should be originally incorporated in the body of the creative work and not something added to improve on it regarded as superficial, and that the original part of the composition should be based on universally recognizable truth and acceptable standards (Teacher, 2011). Teacher (2011), in the 19th century stated that an English art critic, John Ruskin wrote in his *Seven Lamps of Architecture*, published in 1849 that

"Architecture was the art which so disposes and adorns the edifices raised by men ... that the sight of them contributes to his mental health, power, and pleasure." Ruskin believes that the aesthetics of a building is more important as it create first impression that is healthy to the viewer. He went further to state that "a building is not truly a work of architecture unless it is in some way "adorned." In his views, a building could be well-constructed, proportions well resolved, materials properly used and the building very functional, but if it is not admired and pleasant to the users, it is not a good architecture. On this point, renowned 20th century architect, Le Corbusier made a sharp and simple distinction between "ideals of architecture and mere construction" and wrote:

You employ stone, wood, and concrete, and with these materials you build houses and palaces: that is construction. Ingenuity is at work. But suddenly you touch my heart, you do me good. I am happy and I say: This is beautiful. That is Architecture" (Teacher, 2011).

As noted earlier, an architect is a person who designs buildings and supervises their erection; someone who plans something (Geddess and Grosset, 2005). It is the responsibility of an architect to plan a project, design and coordinate the other components (contributions) from engineers and other relevant contributors needed in the construction of buildings and structures for the use of the people. That component, building construction of the building supervised by the architect is a specialized area in built environment (structures). According to Swenson and Chang (2018), building construction, is the techniques and industry involved in the assembly and erection of structures, primarily those used to provide shelter. Building construction is an ancient human activity. It began with the purely functional need for a controlled environment to moderate the effects of climate. Constructed shelters were the means by which human beings were able to adapt themselves to a wide variety of climates and become a global species.

Human shelters were at first very simple and perhaps lasted only a few days or months. Over time, however, even temporary structures evolved into such highly refined forms as the *igloo*. Gradually more durable structures began to appear, particularly after the advent of agriculture, when people began to stay in one place for long periods. The first shelters were dwellings, but later other functions, such as food storage and ceremony, were housed in separate buildings. Some structures began to have symbolic as well as functional value, marking the beginning of the distinction between architecture and building (Swenson and Chang, 2018). The history of building is marked by a number of trends. One is the increasing durability of the materials used. Early building materials were perishable, such as leaves, branches, and animal hides. Later, more durable natural materials—such as clay, stone, and timber—and, finally, synthetic materials—such as bricks, concrete, metals, and plastics—were used. Another is a quest for buildings of even greater height and span; this was made possible by the development of stronger materials and by knowledge of how materials behave and how to exploit them to greater advantage. A third major trend involves the degree of control exercised over the interior environment of buildings: increasingly precise regulation of air temperature, light and sound levels, humidity, odors, air speed, and other factors that affect human comfort has been possible. Yet another trend is the change in energy available to the construction process, starting with human muscle power and developing toward the powerful machinery used today (Swenson and Chang, 2018).

The present state of building construction is complex. There is a wide range of building products and systems which are aimed primarily at groups of building types or markets. The design process for buildings are highly organized and draws from research establishments that study material properties and performance, code officials who adopt and enforce safety standards, and design professionals who determine user needs and design a building to meet those needs. The construction process is also highly organized; it includes the manufacturers of building products and systems, the craftsmen

who assemble them on the building site, the contractors who employ and coordinate the work of the craftsmen, and consultants who specialize in such aspects as construction management, quality control, and insurance. Building construction today is a significant part of industrial culture, a manifestation of its diversity and complexity and a measure of its mastery of natural forces, which can produce a widely varied built environment to serve the diverse needs of society.

Division of Labor and Specialization that could be baptized "Outsourcing" is the business practice of hiring a party outside a company to perform services and create goods that traditionally were performed in-house by the company's own employees and staff. Usually done as a cost-cutting measure, it can affect jobs ranging from customer support to manufacturing to the back office. Outsourcing was first recognized as a business strategy in 1989 and became an integral part of business economics throughout the 1990s. The practice of outsourcing is subject to considerable controversy in many countries. Those opposed argue it has caused the loss of domestic jobs, particularly in the manufacturing sector. Supporters say it creates an incentive for businesses and companies to allocate resources where they are most effective, and that outsourcing helps maintain the nature of free market economies on a global scale (Investopedia, 2018).

However, the argument whether or not Outsourcing, causes loss of domestic jobs or creates incentive for business and companies to allocate resources where they are most effective is not the intent of this paper, but to establish that, Architecture and the Building Industry are the Hub of Outsourcing. From one of the definitions above, "it is a collaborative process where materials, technology, labor and mind come together to create a physical structure or form. That process also adopts drawings, plans, technical specifications, cost estimation, scheduling, construction administration and management in completing what architecture represents. This process cannot be complete without the involvement of the coordinator, the architect. A person who designs buildings and supervises their erection; someone who plans something (Geddes and Grosset, 2005). These components of architectural work are specialized areas yet, put together to complete the work of architecture and building and in the contemporary world and in social sciences, may be referred to as, "Outsourcing."

More than 5,000 years have passed since the Urban Revolution and about 180 generations separate us from the origins of the first cities. But neither the purpose nor the structure of cities has changed basically in the five millennia. What have undergone transformation are the complexity of city life and the size of urban communities. When men first cut out a little space from the surrounding land, enclosed it with a wall, and formed a place where they could live without tilling the soil themselves, they gave up their intimate solidarity with nature. A new type of human being was born and with it, from the very beginning, began the antagonism between the country people and the town people. The first cities were small enclosures with small numbers of inhabitants. They were limited in conception and size and reflected on earth man's vision of a limited universe that, like his city, sheltered him (Okonkwo, 2006).

The first root of urbanization could be located at the point when man's conception of the universe changed from the limited geocentric one to the still limited heliocentric ideas of Copernicus, so over the centuries, the urban scale has widened and the limitations have disappeared. Now that the universe is conceived of as unbounded yet not infinite, something similar has happened to our cities: their scale and their size have grown beyond all expectations into the open country, requiring the services of the professionals in the building industry. The old scale has lost its meaning. The first cities arose where and when agriculture was sufficiently advanced to supply food, not alone for the actual producers, but also for those who were not engaged in agriculture. This was the basic prerequisite, for artisans, craftsmen, soldiers, and traders who congregated in the cities. And even if they owned fields outside the city or gardens without it, they produced hardly more than a welcome

portion of the food they needed in addition to the supply from full-time farmers (Gutkind, 1964). In all, the roots of urbanization go deep into human history. The conventional theory was well stated by Lewis Mumford (1961). He identified the first germ of the city in the ceremonial meeting place that serves as a goal for pilgrimage, a site to which early man with his family or clan group is drawn back from his wanderings at seasonable intervals because it concentrates, in addition to any natural advantage it may have, certain spiritual or super natural powers. From periodic meetings a few steps lead to settlement and agriculture, to villages and finally, to a differentiation of villages in terms of concentration of technical and religious power, the seats of power becoming towns vis-à-vis the villages. In a counter thesis, Jane Jacobs (1969) advanced the claims of the city above those of the village. She argues that historically it was the development of cities that made possible and necessary the development of satellite agricultural villages; that agriculture was indeed "farmed out" from the city to the countryside.

Whatever its origins and individual peculiarities, an urban center is distinguished most fundamentally by its functions. It is essentially a central place, a center for the mobilization and organization of services for an area. The "basic" urban functions, which generally have to do with administration, commerce, industry, transportation, are facilitated by aggregation. This is in marked contrast to primary production-agriculture, forestry, fishing, mining, extraction and the like – which, spread over favorable sites tied to available sources, is necessarily dispersed (Ukwu, 1980). Walter Christaller (1966), the pioneer urban theorist whose formulation of the problem remained the most elegant, in modern times, in its logic and simplicity, has likened the process of town formation to "the crystallization" of mass about a nucleus". The number, scale and variety of facilities and services concentrated about a given nucleus determine its status as a town and reflect the size and character of its hinterland. For a given region, the historical process of urban development does not depend on a steady uni-directional pattern of concentration and coalescence of urban facilities and services about a number of given centers. Rather it hinges on a series of critical events in the socio-economic organization of the communities, events which create new nuclei or enlarge, change the character, diminish or destroy pre-existing ones, hence, the development of towns or systems of towns tends to be episodic and it is often possible to identify the key events and the phases of urban development associated with them. Each key event imposes a new set of area relationships and a new functional ordering of centers thereby setting the scene for a new phase in urban development (Okonkwo, 1993). The development of towns or systems of towns involved collaborative efforts of the professions in architecture, building and planning industry and what would in today's world termed, Outsourcing." The events in urban development manifested from different professions in the built environment coming together and working for a common goal, structures and city building. The components are outsourced to specialized fields and later collaborated by the leaders, players or urban actors. The profession of architecture and the building industry have for centuries, outsourced their services for the interest of the built environment. This outsourcing that is new to the socio-economic professional world is seen as a new invention, dominating business and policy decisions in the business world without crediting architecture, urban design and the building industry that adopted it as a common practice from inception, as part of their practice.

The diversity and complexity in architecture, urban design and the building Industry would signify that, the built environment had for long, even since the inception of the industry, adopted "Outsourcing" (specialized services provided by possibly, the experts). Outsourcing could be classified as Division of Labor that leads to Specialization. According to Mattazza (2016), Division of Labour can be defined as the breaking down of a production process into specific tasks and roles to be performed by cooperating individuals. Division of Labour is the separation of a work process into a number of tasks, with each task performed by a separate person or group of persons. Mattazza indicated that Division of Labour leads to Specialization and that, Specialisation is the concentration of the

productive efforts of an individual, a firm, or a country in a given aspect of economic activity on a particular line of production in which it has the greatest comparative advantage. Specialisation is a method of production in which a business or area focuses on the production of a limited scope of products or services in order to gain greater degrees of productive efficiency within the entire system of businesses or areas. Many countries specialise in producing the goods and services that is native to their part of the world. This specialisation is the basis of global trade as few countries produce enough goods to be completely self-sufficient (Mattazza, 2016).

Aim of study

It is primarily, the aim of this paper to create awareness and point to the fact that Outsourcing has been in existence and not a today's thing as widely believed in the communities. As indicated above and according to the definitions of architecture and building construction, the practice of architecture and building construction have for decades, adopted the services of the experts in putting together buildings, structures, towns and communities without fundamentally giving the services a name.

METHODOLOGY

The authors adopted content base analysis where they carefully analyzed and interpreted works of other authors and used them in buttressing their points as applied to the issue at hand, "architecture, urban design and the building industry, the hub of outsourcing."The topical issues of focus are architectural, urban design, building industry and outsourcing or better said, architecture, urban design and the building industry, the hub of outsourcing as such, the authors laid emphasis on qualitative research method that considered previous works on the subject matter.

FINDINGS

The establishment or development of the built environment, be it a building, a shopping complex, church, stadium, open space or a football field requires the involvement of more than one professional of which, the architect is the leader in a building team. All over the world, the architect continues to be recognized as the central figure in the building industry without whose initiative in design and specifications there would not arise any need for the input of the other professionals in the first place. The acceptance of the architect as leader of the building team (even if grudgingly) has still not been repudiated (Uji, 2010).The architect continues to remain the leader, to whose satisfaction all aspects of the works must be carried out before the contractor is deemed entitled to any payment and to be discharged from any contractual obligations (Uji, 2010 citing Ogunrayewa and Agbo, 2001). The building team would include, but not limited to the services of the architect, urban and physical planners, structural engineers, electrical engineers, mechanical engineers, builders, bricklayers, carpenters, etc. These are specialized areas in a building industry and their services have always been part of the building industry from the beginning of the housing industry. Be it the architect or the owner of the building project, components of the building have always been outsourced to different entities or individual with capacities and special skills to put them together in what economists called, "Division of Labor" and Social Sciences called, "Outsourcing."

According to Investopedia (2018), companies can employ an outsourcing strategy to better focus on core aspects of the business. Outsourcing non-core activities can improve efficiency and productivity because another entity performs these smaller tasks better than the firm itself. This strategy may also lead to faster turnaround times, increased competitiveness within an industry and the cutting of overall operational costs and have, for centuries, been the practice in the building industry. Different authors have looked and defined Outsourcing differently. According to Rouse, Pratt and Sales (2018), Outsourcing is a business practice in which a company hires another company or an individual to perform tasks, handle operations or provide services that are either usually executed or had previously been done by the company's own employees. The outside company, which is known as the

service provider or a third-party provider, arranges for its own workers to perform the tasks or services either on site at the hiring company's own facilities or at external locations Rouse, Pratt and Sales (2018), as is the case in the building industry's prefabrication, where components of the work are hired out to outside entities and works are performed outside the site, transported to the site and assembled by the best, experts. According to Cockrams (2018), a prefabricated building is a building that exists of many factory built units that are assembled on site to complete the unit. These prefabricated buildings have been manufactured in sections that can easily be transported to a home or building site for construction and installation. They are commonly delivered by a flatbed truck, and some a steel frame needs to be built for transport. When on site, cranes and trucks are used to assemble them, another area of the building industry. According to Rouse, Pratt and Sales (2018), companies often outsource as a way to lower costs, improve efficiencies and gain speed. Companies that decide to outsource rely on the third-party providers' expertise in performing the outsourced tasks to gain such benefits. The underlying principle is that because the third-party provider focuses on that particular task, it is able to do it better, faster and cheaper than the hiring company could. While that may be the case in other professions and services, in architecture and building industry, the jobs are divided as no single built industry company can handle all the services applied in the delivery of a building project, starting from the design of the project to the completion, materials' processing notwithstanding. The building industry requires putting together, a whole lot of components and managed by the architect as have been the practice from the day, man first built a shelter. For the building industry, that would be a must and for other socio-economic professions, Outsourcing is purely for benefits and according to Rouse, Pratt and Sales (2018), given such benefits, companies often decide to outsource supporting functions within their businesses so they can focus their resources more specifically on their core competencies, thereby helping them gain competitive advantage in the market. However, some companies decide to outsource for other reasons. For example, they outsource because they are unable to hire in-house workers with the specialized skills and experience needed to perform certain jobs. Companies sometimes opt to outsource as a way to shift meeting regulatory requirements or obligations to the third-party provider. In the building industry, the architect designs and the builders build. There is no such scenario as to push job to others because of not meeting regulatory requirements and obligations.

While Outsourcing has been an integral component in the building industry, in the socio-economic professions, it has often raised some ethical issues. According to Rouse, Pratt and Sales (2018), most notably, some have criticized the practice for its impact on workers. Employees at companies that decide to outsource frequently see the decision to outsource as a threat to their job security; in many cases, that fear is justified as they lose their jobs to workers who may be paid less and receive fewer benefits. This scenario has also drawn criticism from the public as well as from politicians, labor leaders and others. Companies could also face negative publicity as a result of their decisions to outsource, with customers and the public in general viewing the move as a way to cut workers' wages and benefits or as a way to skirt environmental, financial or safety regulations. While it was not the intent of this paper, to get into the evolution of architecture, buildings and outsourcing, it is rather important to note that its primary focus is to point and establish that, architecture, urban design and the building industry have for centuries, outsourced different components of their services for the interest and comfort of the users and a better built environment. According to Architectural History (2018), ever since Antiquity, architecture - the art of designing and constructing buildings - has always been closely intertwined with the history of art, for at least three reasons. First, many public works (especially religious buildings) were designed with aesthetics in mind, as well as functionality. They were built to inspire as well as serve a public function. As a result, they involved the services of a wide range of 'artists' and decorative craftsmen as well as laborers. Second, in many of these buildings, the exteriors and interiors acted as showcases for fine art painting (eg. Sistine Chapel), frieze and relief sculpture (eg. The Parthenon, European Gothic cathedrals), stained glass art (eg.

Chartres Cathedral), and other artworks like mosaics and metalwork. Thirdly, public building programs typically went hand in hand with the development of visual art, and most major 'arts' movements (eg. Renaissance, Baroque, Rococo, Neoclassical) influenced both architecture and the fine arts. As indicated by Vitruvius, a good building must satisfy three values: durability, utility and beauty. These three values in architecture, urban design and housing industry are specialized areas handled by different experts in the industry. The architect, engineer and the builder hire these services to come up with a pleasing structure according to Vitruvius.

Early architecture had two main functions: (1) to consolidate security and power; (2) to please the Gods. The richer the society, the more important these functions became. Renaissance architecture was catalyzed by the rediscovery of architectural styles and theories of Ancient Rome. The first depictions of this Classical architecture emerged in Italy during the early 15th century when a copy of *De Architectura* ("Ten Books Concerning Architecture") by the 1st century Roman architect Vitruvius, was suddenly unearthed in Rome. At the same time, the Florentine architect and artist Filippo Brunelleschi (1377-1446) had begun studying ancient Roman designs, and was convinced that ideal building proportions could be ascertained from mathematical and geometrical principles. It was Brunelleschi's magnificent 1418 design for the dome of the Florence Cathedral (1420-36) - now regarded as the first example of Renaissance architecture - which ushered in a new style based on the long-neglected placement and proportion rules of Classical Antiquity (Architectural History, 2018). In all these, architecture, physical planning, fine arts, sculpture, painting and building construction played pivotal parts in the works of the architect. The services of these professionals were outsourced to the best as necessitated in the building industry. They were part of the package in delivering the edifices indicative that, Outsourcing has been in existence in the building industry, but only manifested in the socio-economic professions in the 1990s as a result of modern economic and business management policies.

CONCLUSION

While no profession could claim the right to originality of Outsourcing, the architecture and the building industry have maintained that Outsourcing has been in existence in the industry ever since man started building shelters and dividing the work according to specialized skills and area of interest. As indicated earlier, and according to Soanes (2001), Architecture is the "design and construction of buildings, the style in which a building is designed and constructed, and the complex structure of something. From the design of the building to the construction, different experts in the architecture and building industry are required and the works must be outsourced. Uji (2010), asserted that architecture is the means through which man intervenes in the natural environment and reshapes or refashions the physical environment for the purpose of sheltering himself from the elements, while he carries out activities that help him meet the biological, social, cultural, physical and spiritual needs. In Uji's definition, from the designing of the building to clearing of the bush for a building, the involvement of different experts, be it laborers, artisans, engineers, or contractors must be required and the jobs outsourced. According to Uji (2010), this function encompasses the organization of spaces and the enclosure, definitions or delineation of such spaces with physical features or structural components, in accordance with rules, norms, values or socio-cultural and economic characteristics of the people. This definition would now, include municipal activities not limited to: approval and monitoring of construction works that require specialized skills in the building industry. In summary, for a building to go up, different components must come together and requiring the services of different professionals specializing in different areas and in general, the components of the work are outsourced.

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