2006-660: ETHICAL IDENTIFICATION AND BUILDING TRUST FOR THE BUILT ENVIRONMENT: A SYSTEMS APPROACH

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Ethical Identification and Building Trust for the Built Environment: A Systems Approach

ABSTRACT

Ethics, social responsibility, and trust are critical issues for the built environment from production and professional identity perspectives. In professional degree curriculums, because of the specific areas and topical contents of the degree programs, the relationships and ethical responsibilities are generally illustrated using focused, specific and limited processes such as the design process, construction process and manufacturing process. As a result, the understanding of production objectives, expectancies and relationships among the professions and organizations are missing in a broader sense. This paper presents a systems approach for illustrating a broader picture for improving the understanding in expectancies and relationships among the built environment elements. The system identifies its elements from the creation of the financial sources through design, construction and delivery to the owner and public. The need for the systems thinking is discussed for ethical identification of and building trust for the built environment.

INTRODUCTION

Ethics, social responsibility, and trust are critical issues for the built environment from production and professional identity perspectives. These issues have been recognized by owners, manufacturers, designers and constructors through the creation of the codes of ethics/professional conduct and integration of ethics to the professional degree program curriculums. The codes of ethics/professional conduct are generally defined and enforced through licensing institutions, professional organizations or within individual companies or firms. The educational need for ethics and social responsibility is also noted in the higher education system by the revision of educational curriculums through accrediting agency requirements. However, in professional degree curriculums, because of the specific areas and topical contents of the degree programs, the relationships and ethical responsibilities are generally illustrated using focused, specific and limited processes such as the design process, construction process and manufacturing process. As a result, the understanding of production objectives, expectancies and relationships among the professions and organizations are missing in a broader sense. This understanding is critical in preserving and improving the trust and recognition within the system.

This paper presents a systems approach for illustrating a broader picture for improving the understanding in expectancies and relationships among the built environment elements. The system identifies its elements from the creation of the financial sources through design, construction and delivery to the owner and public. The need for the systems thinking is discussed for ethical identification of and building trust for the built environment.

In this paper, the term "built environment" is used in a broad sense representing the manmade/artificial surroundings (as opposed to natural environment) where the elements of the built environment are the participants that contribute to the creation and/or utilization of the end result.

ETHICS, APPLIED ETHICS, AND CODES

Ethics can be defined as a science of morals, moral principles or code. Applied ethics is a person's systematic approach to determine and select values for individual conduct and application of these values in human interrelationships. These basic principles and selection of values are at the center of our personal lives and their reflections drive the relationships between parties in professional and business context.

Codes of ethics/professional conduct are commonly used as guidelines in professional relationships that are generally defined by institutions, professional organizations or within individual companies or firms. Although they address specific issues and circumstances related to particular organizations or professions, there are commonalities among different codes. For example, codes of ethics for American Institute of Architects[1], American Institute of Constructors[2], and National Society for Professional Engineers[3] include common principles addressing the welfare of the public and professional responsibilities towards the employees, employers and clients.

In recent years, the professional degree programs in the higher education system also noted the importance of ethics and social responsibilities though their accreditation bodies. The Accreditation Board for Engineering and Technology[4], the American Council for Construction Education[5], and the National Architectural Accrediting Board[6] require ethics to be included in considerable course content and/or integrated throughout the curriculum as one of the accreditation criteria. However, the integration into the professional curriculums is usually done in a rather specific way focusing on the specific processes and topical areas. For example, design specific cases and discussion usually become the focal point in professional design curriculums[7] while contractual and/or competitive relationships take the center stage in construction and technology curriculums[8]. It should be noted that there are comprehensive study materials available which present a wider perspective of discussion (for example "Incident at Morales"[9]) and the discussions and study of these subjects are highly dependent on the instructor's approach and perspective.

The existence of perspective differences and focused view points are also noted in surveys and analyses of the industry. In 2004, a survey on ethical practices in the construction industry was conducted by FMI and Construction Management Association of America[10]. The survey included several participants within the construction industry, including, owners, designers, construction managers, contractors, subcontractors, and facility and program managers. Four suggestions were noted by the participants to minimize the chances of unethical or illegal behavior in the construction industry[10]:

- Stiffer penalties for those caught in unethical or illegal acts

- An industry-wide code of ethics
- More emphasis placed on social responsibility in award criteria
- More training

These suggestions clearly show a need to emphasize a system-wide approach (industry-wide code of ethics and weight of social responsibility in award criteria) and education for and enforcement of ethical behavior. The same study also notes that the ethical identity, reputation and trust are very important criteria especially when establishing long term relationships.

SYSTEMS THINKING AND STRUCTURE FOR THE BUILT ENVIRONMENT

Systems thinking is not a new concept. Over the years, systems theory, systems thinking, systemic approach, and systems engineering concepts have been utilized in several areas including leadership and organizational management[11,12], business management[13], education[14], and planning and design[15] among others. The soft-systems concept also gained popularity where the discussions were able to be carried onto a more qualitative, complex and fuzzy platform[16].

The idea behind the systems thinking concept is to study things in a holistic way while aiming to gain insights into the whole through the interactions and processes between the elements that comprise the whole "system". In light of this definition, the first step to establish the systems approach framework is to describe the structure for the built environment. Figure 1 illustrates the major building blocks of the system that starts with public defining the need and ends with the delivery of the full project for use.

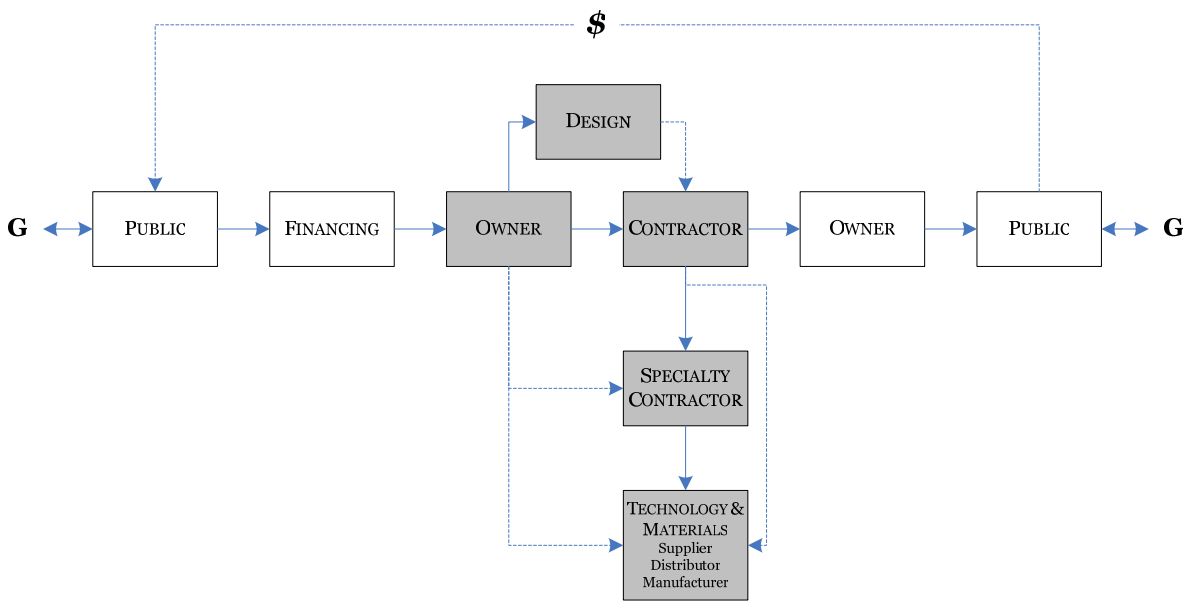

Figure 1. Built Environment System Flow and Components

In this illustration, the public element represents "the people" either as the private owner of the project or the primary beneficiary of the result. The "G" symbolizing the government, also has a multi dimensional role within the system that in certain cases represents the originator (defining needs), the owner and/or the financer of the project. Regardless of the type of design, construction, financing resource or owner, the government also carries the role of the protector of the public welfare through the enforcement of laws and regulations. The system flow includes the process usually known as the construction process marked as the gray shaded blocks. The elements of the construction process are well recognized within the built environment that includes the owner, designer, contractor, and material/technology providers. However, cyclic nature of the built environment and public and financing blocks are generally not included in analysis and development efforts.

In Figure 1, the arrows represent relationships (ethical and contractual) between each interrelated element. The smooth and efficient flow of the system depends on these relationships between the system elements and a clear understanding of responsibilities. By definition, "a system is an entity that maintains its existence and functions as a whole through the interaction of its parts"[17]. Ackoff[13] suggests that "performance of a system is not the sum of the performance of its parts taken separately, but the product of their interactions." As a system behavior, any problems, delays, or inefficiencies between elements will have a direct effect on the system flow. For example, a shortage in the "materials & technology" element will have a direct effect on the construction process (owner, designer, contractor, and specialty contractor) but the effects will also extend to the public in terms of higher costs, late deliveries or low quality.

SYSTEMS APPROACH

The systems approach for ethical identification and building trust within the built environment can be summarized under four major headings to provide the body of knowledge and system wide perspective.

System Structure and Flow for the Built Environment

The systems approach starts with the introduction of the built environment system including the description of the elements, their relationships and overall system flow. It is important to clearly emphasize the system behavior where problems in any part of the system will have an effect on the entire flow. It is also critical to establish the depth of the relationships in terms of ethical behavior as well as contractual obligations. This discussion can be expanded through a number of illustrative examples that are tailored for a particular audience to increase the understanding of the system structure.

Ethics, Applied Ethics, and Codes

Concepts of ethics, applied ethics and social responsibilities are the second group of information to be discussed while establishing the importance of the links between

personal beliefs/values, personal relationships, and relationships in professional and business contexts. At this stage, the established codes provide valuable guidance and discussion points for the given profession. However, the codes from different perspectives/professions must be included in this discussion, perhaps by highlighting the commonalities and differences of several codes. Such comparison creates opportunities to further recognize the different elements of the built environment discussed under the previous topic.

Professional Responsibilities, Ethical Identification and Relationships
Understanding the needs and expectations of the stakeholders within the system is the foundation to properly recognize the relationships between the elements of the system. For this discussion, the needs and expectations of the stakeholders (system elements) can be described as the identified requirements and unidentified requirements, respectively. From both ethical and contractual view points, understanding and exceeding needs and expectations of the stakeholders are the key issues for productive relationships. The ethical identities of the parties within the built environment are established through realization and satisfaction of these requirements.

Decision Making and Handling Conflicts
It is necessary to establish a solid connection between the principles and application for any decision making scenario. Regardless of the circumstances and complexity of the situation, the principles should not be compromised when the decisions are made. It should be noted that as the complexity of the circumstances elevate, there may be a tendency to overanalyze the situation, leading away from the clear link between the principles towards the application. Consistency in this practice helps establishing the ethical identity as well as the reputation and trustworthiness of the element. Importance of the consistent application of principles must be demonstrated especially for handling conflicts. In other words, the question in decision making process should not be "Can one do something?" but "Should one do something?"

When the systems approach body of knowledge is established, there are two important issues that have to be addressed. These issues are not specifically systems approach related but rather important overall arguments. First is to emphasize avoiding situational analyses. Regardless of the circumstances surrounding and parties involved in the situation, the decisions must be based on the principles while avoiding conditional variations. The second important issue is to differentiate between the legality and ethical principles. In other words, a practice that is considered legal by the existing laws and regulations may still be unethical. There are several examples of legal but unethical practices in the built environment such as bid shopping which is the practice of divulging solicited bids as leverage with contractors to lower their prices.

In the context of business practices and maximizing profits, the discussion of legality and ethics is very clearly highlighted in evaluation of "Freidman vs. Freemen" choices. Friedman[18] choice refers to the argument that the sole responsibility of the business is to

maximize profit (within the law) while Freeman[19] choice refers to a wider view of consideration for all stakeholders including owner, stockholder, management, employees, suppliers, customers, and the community. Moylan[20] suggests that "formulating of an integrity chain" relating to long term profitability (and relationships) is more in line with the Freeman view of stakeholder ethical actions. The systems approach supports this concept of ethical profitability and production within each step of the system flow.

ILLUSTRATION OF SYSTEMS PERSPECTIVE

To illustrate the systems approach and perspective, assume that a new application such as online reverse auction bidding is introduced to the built environment. The purpose of this illustration is not to provide a detailed ethical analysis of a technology application but to simply highlight different dimension of discussion within the systems approach framework.

In simple terms, online reverse auctions can be defined as a "real-time dynamic auction between a buying organization and a group of pre-qualified suppliers who compete against each other to win the business to supply goods or services that have clearly defined specifications for design, quantity, quality, delivery, and related terms and conditions. These suppliers compete by bidding against each other online over the Internet using specialized software by submitting successively lower priced bids during a scheduled time period. This time period is usually only about an hour, but multiple, brief extensions are usually allowed if bidders are still active at the end of the initial time period."[21] The participant's identities are kept anonymous during the auction to create a level playing ground.

When the reverse auction method was introduced into the built environment to procure services, it created considerable reaction within the construction industry from designers, contractors, specialty contractors, and construction managers. It should be mentioned that the traditional procurement of design and construction services are usually performed using a sealed bid method (where the bids are submitted before an established deadline and opened at the same time) or through negotiated contracts while preserving the confidentiality of the information throughout the process.

In a traditional and focused view, the discussion of this application would be limited to legality, benefits of using the method and perhaps addressing mechanical problems within the application. This limited analysis and narrow perspective have been studied without looking at the system wide impacts [21, 22, 23, 24]. However, the systems approach suggests that the analysis has to be in a broader perspective where different views points and their impact on relationships are addressed in addition to legality and suggested benefits.

For example, the designers and contractors who find themselves in participating in a reverse auction express concerns that their services are commoditized with the lack of respect for their investments and efforts in preparing a bid package. The anonymous auction environment adds to the concerns which negatively impact the trust between the parties because of the possibility of phantom bidders tempering with the auction process. In addition, there are

arguments that online reverse auctions are another form of bid shopping which is considered to be unethical by the majority of the industry.

On the other hand, the owner who uses this method aims to maximize their savings/profits, for their shareholders, for a given project by creating a highly competitive auction environment. However, by doing so, the owner also increases the risk for its projects by forcing the auction participants to submit prices below their lowest possible which would have been their price in a sealed bid environment. This high risk can easily translate into low quality, poor safety record and environmental concerns. There is also a need for a discussion from the perspective of the owner's shareholders, asking questions about their investments and the practices that encourages high risk games and perhaps the lack of respect in terms of ethical profitability and responsibility [25]. This discussion may have a direct impact on their future investments which directly relates to the financing block of the built environment system.

Overall, a system wide analysis highlights different perspectives, concerns and potential impacts on relationships between the elements. The response to these discussions directly relate to the ethical identity of a company/firm or an individual. The identity is not only how they see and evaluate their own practice but also how other elements of the system perceive their practices. Without an established ethical identity, it will be very unlikely to create trust and long term relationships within the built environment.

CONCLUSIONS

This paper present a systems approach for ethical identification and building trust within the built environment. The idea behind the systems concept is to study in a holistic way while aiming to gain insights into the whole through the interactions and processes between the elements that comprise the whole "system". Clear understanding of the system elements, relationships between the elements and the overall system flow are the key requirements for professionals within the built environment to establish ethical identities and long term relationships based on trust. Although it is important to be able to reach out to the elements of the built environment as practicing professionals, perhaps reaching out to tomorrow's professionals at the higher education system is the definitive approach.

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