Altruistic Building: A Discussion of Balancing Budget, Performance and Function

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Learning Objectives

- Discern applicable solutions for building analytics and controls based on program and use.
- Measure return on investment for building owners and operators relating to Well Building and End User Satisfaction.
- Determine building elements that have a viable impact on work efficiency and employee satisfaction.
- Educate facility owners about holistic design and process impacts via employee performance, building operation and facilities management.

Description

Buzzwords like sustainability and collaboration get thrown around A LOT in the building industry. This class will discuss holistic-altruistic design representing the balance between sustainability, cost, and function. In addition to building trends, we will focus on analytics, communication and documentation tools and deliverables impacting the entire lifecycle of a project. The class will focus on new technologies informing design, analyzing patterns of use and leveraging technology to automate controls and optimize building operation.

Holistic-altruistic building practices can be achieved by leveraging human-centered design theories. We will explore this topic as well as how existing firms are able to implement these theories into practice.

Speaker(s)

Rich Conyers is a registered architect and project manager that also wears hats in BIM management, technology innovation and business development. Developing client interactions while implementing innovative technology and producing projects allows a unique perspective balancing occupant-focused design, project economics, sustainable practices and technological innovation.

Dave Webster is the BIM Manager for Walgreens responsible for transforming design and construction data into automated and predictive workflows, developing BIM protocol, training individuals and mentoring teams for successful BIM adoption from an owner's perspective. 20 years of architectural practice and 10 years of BIM consulting experience allows Dave a unique perspective on tool and process adoption and the change management necessary to successfully transform teams to embrace a hyper-collaborative culture.

Ian McGaw has a dual degree in computer science and international business, focusing on the management and research and development of emerging technologies in the AEC/O sector. Ian's interests, along with years of industry-related experience, have allowed him to understand complex technology process. Ian has experience in the full value chain of project development process, starting from early strategic planning, project planning, business IT innovation strategy and business portfolio management for long term clients all the way to project turn-over. Furthermore, Ian has been invited to speak at numerous conferences (including Autodesk University, BILT, & BIMForum) upon topics ranging from BIM content to the implementation of technology to virtual design & construction (VDC).

Introduction

Altruistic Building is the coalescence of technology, sustainability and information. As material costs and barriers to technology lessen there is greater availability to challenge the conventionality of sustainable practices. Holistic Design is to focus on the deliverable as more than the sum of its parts. Exceptional design, technological advancement, economy, and "sustainability" are often focal points in the AEC industry. Unfortunately, these focal points are often treated as the proverbial deliverable triangle: cheap-fast-quality, you can pick two. Our charge involves balancing the different elements and tools of beneficial design to produce a more well-rounded process and thus, a better product.

A reevaluation of the disjointed linear process focusing on clear and consistent visual communication, a stronger quality control process, analytical metrics informing decisions, occupant focused design and functioning deliverables improving building maintenance and management after occupancy. In addition to balancing the aforementioned focal points, we will discuss the advancements in technology that allow us to further analyze, evaluate and create better solutions for our next generation of buildings.

Technology has allowed culture to become more connected to its fellow person; however, societally we have greatly lost our connection to the environment. A more recent trend toward sustainable building design and operations have certainly been implemented the embodied cost of construction. Although, the production of greenhouse gases, mainly CO^2, have not been addressed. There is much to be said about the utilization of sustainable materials, specifically the upcycling of materials such as timber and shipping containers.

Well Building

The Well Building movement has incorporated various elements of "sustainability," including but not limited to: material embodied energy, recyclability, upcycling, life cycle analysis, operational efficiency and varying levels of comfort specific to the end user. By definition a "Well Building" is a building that helps users and/or communities thrive. The environmental impact through construction and operation as well as user impact defines the success or "wellness" of a building.

The Well Building approach is often justified through metrics of retention, sick leave, average productivity and recruitment through existing employees. Students are drawn to schools with collaborative class environments, flexible learning spaces and individual comfort considerations. Employees recruit (and retain) for similar reasons in addition to social considerations such as environmental impact, responsible waste management and efficient building operations. The Well Building movement targets many facets of "wellness" and arguably the most important, End User Satisfaction becomes the largest subset for this discussion.

End User Satisfaction

Countless resources portray employee satisfaction as impactful to performance, efficiency and retention. As an industry we have discovered employee satisfaction is driven by workplace amenities, biophilic design, and flexible work environments. Employee/student attraction, previously focused on workplace culture, salary and benefits has grown to include sustainable initiatives and innovative perception. Workplace design and higher education have taken a special interest in user attraction, retention and satisfaction.

In addition to architectural considerations, individual comfort also has a substantial impact on happiness and productivity. A healthy balance of individual comfort and a tactical approach to project collaboration is critical for optimizing knowledge, experience and project data exchange. From a personal level, the workplace needs to provide flexibility to meet the needs of individuals daily interactions. Confidential or focused tasks may require isolated and quiet spaces. Tasks that require multiple Subject Matter Experts (SME) to collaborate require adequate space, technology and interactive media (especially large whiteboards!) Many corporate office environments today are providing these diverse portfolios of spaces for formal meetings, casual gatherings, informal collaboration and simply working alongside individuals from other divisions for a broader view of corporate workflows.

Versatile & Collaborative Innovation

Collaboration and Innovation get thrown around more than almost any other term today. However, there are few words that can convey the intent of flexible and intentional space that create our greatest workplaces and education centers; creating task specific spaces that allow freedom, restraint, technology or lack thereof to promote the most radical, or simple, solutions. As we delineate the key spatial components of encouraging successful collaboration and innovation, we also evaluate the tools used.
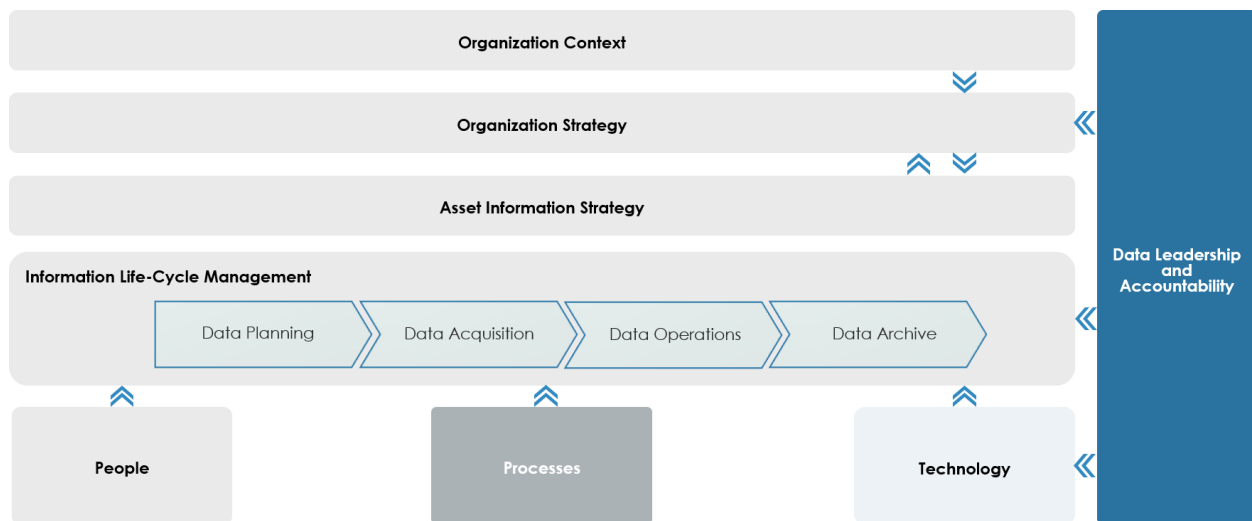
We must go beyond these legacy, rule-based, often siloed solutions and federated techniques, to include and integrate data on a broader scale, then structure that encompassing data into a model which can be analyzed. We will be able to make more informed decisions and produce better outcomes. As well, these data processes would surely transform our related business practices.

What typically is missing is intentional allocation of space and data to encourage face-to-face interaction of SME's to collectively resolve a given problem within a singular source of truth environment. An altruistic approach to work life encourages individuals to situate in the workplace to optimize collaboration on a singular dataset; not just choosing an environment that is comfortable to the individual on a given day.

Corporate environments can't always be improved with merely spatial considerations. Optimizing a project outcome requires fostering a culture of leveraging collaborative files in a cloud-based environment and embracing technology to connect the team. The most efficient means of resolving a problem involving multiple SME's is face-to-face; but today's teams are often geographically dispersed. Latest technology allows teams to emulate personal interaction with singular cloud hosted files, live collaboration and interactive data authoring. This culture is disruptive and difficult to adopt, but implemented successfully, will result in less searching for the latest version of data and more embellishing, engineering and refinement of solutions.

Construction & Operations

Digital Twins and the 4th industrial revolution means that the connection of data for analysis has become mainstream. The increasing interdependence between new methods of energy production, distribution and storage and how energy is used and consumed, will specifically require vast and agile application of data sciences. While many of these technologies have been available for the better part of 10 years, it is only now that the price reduction in sensors and management platforms have allowed the thoughtful execution for buildings. Being able to effortlessly scale rich workplace operations to support varying needs and global growth is critical. In a nutshell, a unified approach to digital asset management can enable your teams and empower your end users.

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