Co-optings

Computation and business theory both co-opted a strand of meaning from the term “architecture” in the 1960s to seed a radical repositioning within their respective fields. “Architecture” was used as a suffix, signifying at once organizational complexity and networked wholeness. It could be argued that from this moment, the term “architecture” and the discipline of architecture began evolving along separate routes. “Business architecture” and “information architecture,” for example, adopted an architectural idiom to signify their complex economic conditions and expanded data fields, today understood to be spurred by globalizing forces. As the word took on varied meanings, it further came to signify—outside of its discipline proper—a dynamic superorganism, capable of processing disparate extrinsic matter. From this moment, the term “architecture” as an activity within the broader globalized exchanges of economics, data, ecologies, politics, and land use—architecture after the superorganism. The work explores the possibilities of how architecture might benefit from a reintroduction of the term “architecture,” as it has evolved within business, management, computation, and information architecture practices.

From this reintroduction, architecture has the capacity to operate as a dynamic infrastructure within an increasingly complex and intertwined environment.

Architecture After Contingency

Lawrence and Lorsch were both professors of organizational behavior at Harvard Business School at the time Organization and Environment was published in 1967. The authors criticized the then-common organization theory for ignoring “relationships between the structural characteristics of complex organizations and the environmental conditions these organizations face.” In contrast, they sought an organization architecture that was more responsive to factors from extrinsic forces, or the wider environment. Extracting the unpredictability of the extrinsic from the more predictable intrinsic factors, Lawrence and Lorsch proposed a contingency theory of organization. From this viewpoint, external contingencies were considered to be constraints as well as opportunities that internal structures and processes responded to. At its root, contingency theory suggests that managers should no longer privilege “one best way” to organize. Given this, it follows that organization architecture should anticipate inevitable change. As competing methodologies of contingency planning emerged throughout the 1960s and 1970s, systems thinking expanded to include the idea of an open system, which continuously interacts with and adapts to its environment. In the natural sciences, an open system is permeable to both energy and mass. Military and disaster protocols fully embraced contingency planning, to the point that a National Contingency Plan was devised in 1968 to anticipate hazardous substance releases, such as oil spills.

The year 1967 also saw the establishment of the Architecture Machine Group at MIT. Negroponte considered any design act to also be an act of procuring information, and thereby declared that the group would be dedicated to “the construction of a machine that can work with missing information.” Managing contingencies that arise from problems of missing information created a rather different set of challenges in architecture. Negroponte was mainly interested in architect-machine symbiosis, and in a fluid discourse between the interface with machines, architects would not need to be computation specialists. Artist Peggy Weil, an early collaborator with the Architecture Machine Group, observed that her “project atmosphere of complete improvisation: using machines and tools for reasons far afield from their original applications.” While Negroponte suggested, combined with Lawrence Negroponte’s initiation of the Architecture Machine Group, the precursor of the MIT Media Lab, and the publishing of economists Paul R. Lawrence and Jay W. Lorsch’s landmark book, Organization and Environment: Managing Differentiation and Integration.

Contingency, as with design, is an anticipatory process that could work with unavailable or missing information. Negroponte suggests, combined with Lawrence
and Lorsch’s observation of “contingencies as opportunities,” is central to the intentions of the work included in Coupling. In the book, we ask: After the term “architecture” is absorbed back into the profession of architecture, what kind of architecture results?

**Formats: Surfaces, Containers, and Conduits**

Designing for contingency has no prescribed methodology in architecture, though certainly all architecture is already charged with anticipating possible eventualities—higher loading, inclement weather, potential of fire, or even change of use. However, anticipated contingencies typically focus on mitigating rather than opportunism. And an architecture that responds to opportunities of contingency is one that absorbs architectural spatial formats. Performing in a manner similar to infrastructures, these spatial formats support energies, flows, resources, and matter, yielding an emergent multivalent public realm. Coupling identifies three spatial formats in which a contingent architecture might materialize: surfaces, containers, and conduits. Each format mediates between architecture and its environment, between the biological and the infrastructural, the entrepreneurial and the logical—simultaneously performing the roles of both. These formats ignore an ignorance of the prejudices that distinguish architecture from infrastructure, landscape, and urbanism—instead refuting the dynamic ambiguity of a spatial format, or “spatial product.”

Much as Rosalind Krauss positioned and qualified sculpture practices in her essay “Sculpture and the Expanded Field” some thirty years ago, so too should infrastructure be qualified in an expanded field today. Using a Klein group diagram, Krauss identified three subpractices of sculpture that had previously been buried within a generalization of sculpture. She qualifies them as “site-construction,” “marked sites,” and “axiomatic structures.” These three uncovered practices became disciplinary parallels to sculptural practices today, architecture—previously absorbed within Krauss’s and—from site-construction to infrastructure, landscape, and urbanism—instead resurfaced containers networked by conduits (Land Reservations), or containers lined with intersecting surfaces (Wiring Runways). While one format typically serves as the primary organizational device, other formats absorb contingencies or account for missing information. The projects and proposals take the position that infrastructures operate as contingent ecologies, or managed dynamic systems. Identifying their role and how they interrelate becomes an act of design coupling.

**Coupling**

The twentieth century was witness to both an infrastructure boom and bust. It is the twenty-first century that will need to determine not only how to address crumbling and ineffective infrastructure, but also how to position new infrastructures that confront urgent issues of climate change, sustenance inequity, and environment degradation. The opportunity for projecting a future infrastructure lies in bundling multiple processes with spatial experiences. The work in this book aims to declare infrastructures as open systems, adaptive and responsive to environments and occupation.

What are these formats? Surfaces are planes of mediation, thickened and intelligent. Containers are shells of enclosure, processing and performing as nodes within a network. Conduits are carriers of matter and energy, exchanging and transferring within a larger network. Formats suggest an emergent productive public realm, one in which performative processes are integral to occupation. Rather than each operating as a single format, the projects in Coupling exhibit varying combinations of formats: conduits lined with containers (IceLinks), resurfaced containers networked by conduits (Land Reservations), or containers lined with intersecting surfaces (Wiring Runways).

While each format typically serves as the primary organizational device, other formats absorb contingencies or account for missing information. The projects and proposals take the position that infrastructures operate as contingent ecologies, or managed dynamic systems. Identifying their role and how they interrelate becomes an act of design coupling.

Coupling employs interventions that also operate extrinsically, sometimes at a territorial scale. Easily replaced or upgraded, these infrastructures double as landscape life support, creating new sites for production and recreation. The ambition is to supplement ecologies at risk rather than overhaul them. The following six design/research projects merge landscape, urbanism, and architecture into a mutant assemblage of surfaces, containers, and conduits. Existing landscapes meld with emergent systems to catalyze a multivalent network for a new public realm. Seeking opportunistic associations between economy, ecology, politics, and information, coupling is not simply a combinatory exercise so much as a typological investigation into new spatial formats for the twenty-first century.

1. Although much of the theory of superorganisms is centered on the eusocial behavior of organisms, as best chronicled by sociobiologists Bert Hölldobler and E. O. Wilson in The Superorganism (W.W. Norton & Company, New York, 2009), we use the term here to suggest a highly interconnected set of environments, as well as the occupants of those environments.
5. Keller Easterling uses the term “spatial product” in reference to how the market uses the phrase “real estate product.” Both suggest formulas for space prior to realization and construction.