Architectural design and managerial control

Lefebvre, Latour and the process of enrolment

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Abstract

Organizational scholarship on architecture often applies Henri Lefebvre's *conceived, perceived*, and *lived* framework. Karen Dale and Gibson Burrell, most notably, have illustrated how architectural design exploits each of these, exerting managerial control through processes of *enchantment, emplacement*, and *enactment*. Although this "3E framework" has been productively applied to buildings from the modern and postmodern periods, its weaknesses become apparent in the current occupant-centric design period. Drawing on Actor Network Theory's account of *translation*, we propose *enrollment*—a 4th "E"—which enables us to better capture the nature of spatial control in the occupant-centric design period. Our *4E expanded spatial control framework* recognizes the tensions that Lefebvre originally observed, tensions concealed by Dale and Burrell's otherwise rightly influential work. This expanded framework also augments our understanding of modern and postmodern periods: the dominant Building Movements of the past Century, we claim, have each engaged in a recursive *enrollment* of socio-political ideals.

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Introduction

The spaces *where* we work profoundly affect *how* we work. The "spatial turn" within organization studies (van Marrewijk and Yanow, 2010) has long emphasized the impact of architectural design upon our ways of working (Alexander and Price, 2013; Dale et al., 2018; Guillen, 1997; Hatch, 2018; Taylor and Spicer, 2007). Most existing conceptualizations of organizational space build upon the *conceived, perceived*, and *lived* spatial triad developed in Lefebvre's (1991) *The Production of Space.* The work has regularly been identified as the most significant contribution toward the study of organizational space and contemporary organizational discourse (Beyes and Steyaert, 2012; Taylor and Spicer, 2007) and is the foundation for a significant body of research (Dale et al., 2018; Weinfurtner and Seidl, 2019). These studies draw from fields as diverse as sociology (Halford, 2004), critical management studies (Takayama et al., 2022), and critical geography (Wilhoit, 2018). They engage themes including esthetics (De Molli, 2019; Guillen, 1997), control (Baldry et al., 1998; Dale, 2005), identity (Tyler and Cohen, 2010; Wasserman and Frenkel, 2015), human-materiality processes of co-creation of space (Salovaara and Ropo, 2018), and new ways of working (NWW) (Barth and Blazejewski, 2021; van Meel, 2011).

Dale and Burrell's "3E framework" (Burrell and Dale, 2014; Dale and Burrell, 2007), which has been particularly influential, leans heavily on Lefebvre's work. It demonstrates how architectural design exerts managerial control through processes of *emplacement, enchantment* and *enactment*. Emplacement controls worker behavior through physical elements such as walls and partitions, corresponding to Lefebvre's perceived space. Enchantment exerts control through emotional engagement, symbolism and esthetics: it is aligned closely with conceived space. Enactment exerts control through the instantiation of day-to-day routines and it can be linked to Lefebvre's notion of lived space. Dale and Burrell's framework has been applied within numerous studies (Fahy et al., 2014; Hancock and Spicer, 2011; Knox et al., 2015; Siebert et al., 2017; Sivunen and Putnam, 2020; Zhang and Spicer, 2014) but it is not without its critics. According to Beyes and Steyaert (2012), it overlooks the complex, simultaneous, and diverse interrelationships of Lefebvre's triad (see also (Beyes and Holt, 2020; Sivunen and Putnam, 2020)). In other words, because Dale and Burrell explored how *perceived, conceived*, and *lived* space separately impacted spatial control, Lefebvre's triad lost its inherent tensions and dynamic interrelationships, and became unraveled. We foreground the process of *enrollment*, understood by Actor Network Theory (ANT) as the recruitment of one (socio-technical) actor by another (Callon, 1984; Latour, 1994, 2005), and propose it as a mechanism that continually translates the three spatial aspects in Lefebvre's triad enabling it to maintain its wholeness, inherent tensions, and dynamic interrelationships.

We apply this theorization to interrogate managerial control throughout the three dominant office workplace periods and associated building movements of the past century: modern, post-modern, and occupant centric design. There is an established tradition of analyzing architectural design's affect upon managerial control within both modern (Baldry et al., 1998; Guillen, 1997; Hatch, 2018; Kerr et al., 2016) and post-modern workplaces (Harvey, 1989; Hatch, 2018; Kerr et al., 2016). Recent work also demonstrates how space affects work within emerging "occupant-centric design" buildings (Azar et al., 2020; Sivunen and Putnam, 2020). These workplace classifications—*modern, post-modern*, and *occupant-centric design*—relate to the three dominant "*Building Movements"* of the past century. The aspirations of Building Movements, defined here as actors seeking to transform the built environment in order to reflect a particular set of values and ideals, are translated into an architectural language (Lefebvre, 1991), creating "an easily discernible style" (Lefebvre, 1991, 227) for a particular period. They are further influenced by cultural, political, and economic forces either directly through policy, or indirectly though changing cultural values or emerging social movements (Rochon, 2000; Sentman, 2009; Stenberg and Räisänen,

2006). In this paper, we argue that by considering the evolution of office workplaces since the start of modernism, an emphasis on enrollment complements existing spatial control theorization in general, and Dale and Burrell's theorization in particular, by demonstrating how the visible and invisible elements of space both influence—and are influenced by—managerial control. Importantly, the framing of our analysis at the building movement scale allows us to consider these effects at a societal scale and consider the interrelationship between architecture and spatial control in ways originally recognized by Lefebvre.

Section 2 revisits Lefebvre's *Production of Space*, specifying how our theorization builds upon but ultimately departs from Dale and Burrell's framework. Section 3 applies our theorization to the modern, postmodern, and occupant-centric periods, augmenting previous contributions with our new theorization whereby *enrollment* and its *translation*, enable a more holistic understanding of spatial control. We synthesize our analyses into an expanded framework for spatial control in Section 4 and conclude in Section 5 with a summary of our findings and an indication of their implications for organizational scholarship.

Lefebvre, Latour and the process of enrolment

Throughout *The Production of Space*, Lefebvre emphasizes how social space is produced through three moments: spatial practice (*perceived space*), representation of space (*conceived space*), and representational spaces (*lived space*) (Lefebvre, 1991, p. 33). These three have a "dialectical" (p. 39), "interconnected" (p. 40), and "neither simple nor stable" (p. 46) relationship. Unfortunately, the interactive quality of this triad has been obscured by the otherwise rightly influential work of Dale and Burrell. This section revisits Lefebvre's conception of social space, with and beyond Dale and Burrell's 3Es framework. In order to restore Lefebvre's original emphasis on dynamic complexity, we integrate ANT's concepts of *enrollment* (Callon, 1984; Latour, 1994) and *translation (*Latour, 1994; Law, 2006*)*. Enrollment (Callon, 1984) describes the processes by which one actor recruits another to help it achieve its goals, while translation describes the unexpected and sometimes undesirable impacts of such recruitment (Callon, 1984; Latour, 1994). Such an application of insights from ANT to architectural processes is not without precedent (see e.g. Fallan, 2011; Farías and Bender, 2012; Latour and Yaneva, 2017; Peltonen, 2011; Rydin, 2013). Our combination of Latourian and Lefebvrian analysis rests on a weaving diagram which visualizes enrollment while treating the *production of space* as a process (Figure 1).

Perceived space, for Lefebvre (1991), is the space experienced by the senses. It bears traces of its means of production, which "makes it possible for us to reconstruct those operations" (ibid, p. 121). *Conceived space* is "tied to the relations of production and to the 'order' which those relations impose" (Lefebvre, 1991, p. 33). This is "the domain of designers (and) social engineers (. . .) who identify what is lived and what is perceived with what is conceived" (ibid, p. 38). Such actors create this space to exert power and to control occupants. *Lived space* "is the dominated—and hence passively experienced—space which the imagination seeks to change and appropriate" (ibid, p. 39) by making symbolic use of the objects of the physical space. This space thus becomes one of resistance, which can *translate (*Latour, 1994; Law, 2006*)* the symbolism and "must entail the production of new space" (Lefebvre, 1991, 46). By ignoring space's production, we obscure its meaning: Latour refers to this process as black-boxing.

Lefebvre's (1991) understanding of social space rejects the separation between nature and society (knowledge, culture). ANT also avoids this through its concept of *generalized symmetry* (Callon, 1984), the equal treatment of human and non-human actors, networked together (Latour, 1993). Such networks—like the relationship between the elements of Lefebvre's (1991) spatial triad—are "neither simple nor stable" (p. 46). Instead, they are alive (Watkins, 2005), a web of
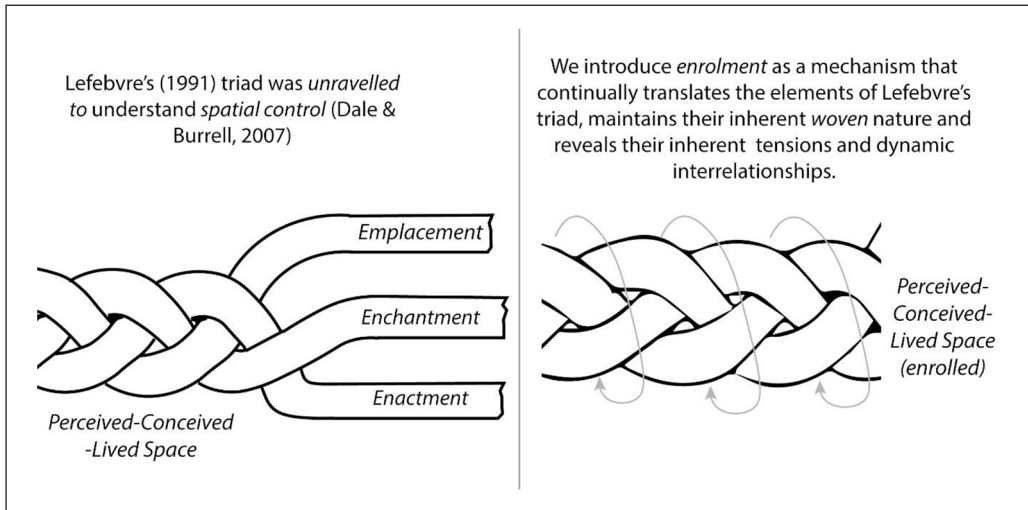
Figure 1. Theorization: Enrollment as the process weaving Lefebvre's three moments into a coherent whole.

dynamic, simultaneous, complex, interconnected relationships, stabilized only temporarily though physical artifacts (Latour, 2005). To understand the *production of space* as a process, we integrate ANT's concept of *enrollment* (Callon, 1984; Latour, 1994)—the recruitment of one (socio-technical) actor by another—within Lefebvre's framework.

While Building Movements were defined in the introduction, other actors warrant definition. "Organizations" refer to institutions led by decision-makers attempting to exert control over workers in order to achieve specific aims. "Architects" refers to registered architects and other design professionals engaged in workplace design, including interior designers, engineers, and consultants, who develop conceived space and translate it into physical or perceived form. "Workers" refers to employees outside of key organizational decision-making roles.

Actors enroll one another to further their objectives (Latour, 1994). On the one hand, Organizations enroll Architects to physicalize managerial prerogatives in the built space. They shape conceived space through their commands (Lefebvre, 1991), both emplacing and enchanting the workers. On the other hand, Architects enroll Building Movement ideologies and embed associated symbolic language into the physicalized space to strengthen the emotional and symbolic power of the perceived space. (Latour, 1994) refers to this process of shaping a material object with intention as "inscription." Through this inscription, the negotiations creating the conceived space become packaged into the space itself and thus obfuscated from the user's view—or *black-boxed* (Latour, 1994)—and taken for granted. The day-to-day enactment of the space exerts control through both the intentional and the unexpected symbols and routines that arise. These unexpected outcomes *translate* (Latour, 1994) managerial and architectural prerogatives, subtly shifting and reshaping their initial meaning, not unlike linguistic or geometric translation, introducing tensions between the lived and conceived meanings of the space, bending architect's conceived space to "their *demands* (from below)" (Lefebvre, 1991, 95). Through this *enrollment*, the societal values and forces driving the Building Movement thus impact both managerial and architectural practice.

With each new successful enrollment of Building Movement ideology by Organizations, the enacted or lived space inscribes new meanings onto the Building Movement, creating a normative

Table 1. Summary of building movement key ideas.

	Modernism (1905–1972)	Post-Modernism (1972–1999)	Occupant-Centric Design (2000–present)
Conditions of Production	Technological advancement; Ford's assembly line	Globalization; Computerization; Emergence of "knowledge worker"	Shift from goods-based to information & service- based economy; Increasing IT reliance; Dominance of the "knowledge worker"; Public awareness of climate crisis and wellbeing; "smart buildings"
Management Response	Maximize productivity; Surveillance; Hierarchy; Firm as Family; Corporate Power; Futurism	Decentralized leadership; networked firms; multi-functional teams; Embrace of change; Innovation.	Strategic flexibility; flexible workplaces (e.g. hoteling, activity-base work); Agile and Lean approaches; Self-directed work teams; Pursuit of "green" and "healthy" workplace designations
Architectural Response	Formal and strictly functional spaces; Minimal ornamentation; Focus on "new" materials	Rejection of formality; Play; Symbolism; Monumentality; Color; Open-plan, flexible spaces	Integration of leisure elements; Diversity of spaces; Biophilic design; "Green Architecture"; Overt integration of digital devices in office space.

architecture—or "language"—of recognized forms, symbols, materiality, etc. This language is then enrolled by Architects and Organizations to inscribe workplaces with the social movement's ideals, thereby imbuing them with symbolic power. Lefebvre (1991, 36) observes this reciprocal relationship, noting that "if space is a product, our knowledge of it must be expected to reproduce and expound the process of production." The Building Movement grows by enrolling the success of enacted spaces to establish its legitimacy and promote sanctioned practices commensurate with the social movement's ideals. This mutual enrollment of Architects/Organizations, their built spaces, and the Building Movement itself is critical to understand how workplace-scale emplacement, enchantment, and enactment is both *influenced by* and *intensified within* the Building Movement.

Enrollment in office workplaces

The above model enables us to both recognize and analyze the dynamic relationship between architectural design and managerial control. We focus our analysis on office workplaces from the start of modernism as this period marks the distinction from factory work with a focus on dedicated, centralized buildings for desk-based working. Architecturally, the "commercial office building" typology includes both private and open-offices as well as supporting spaces (e.g. meeting rooms), thereby excluding industrial, hospitality/service, and educational buildings.

Our analysis focuses on the three periods that have defined architecture since the turn of the 20th century: the modern period, the postmodern period, and the occupant-centric design period. The first two have been well-examined by organizational scholars and align with a single Building Movement of the same name. Although it comprises the *Green Building Movement*, the *Smart Building Movement*, and the *Healthy Building Movement*, the occupant-centric design has received limited attention from organizational scholars. Table 1 summarizes the key management

Figure 2. Modern buildings. Top left: Crown Hall by Mies van der Rohe (photo: Joe Ravi CC BY-SA 3.0), bottom left: Villa Savoie by Le Corbusier (photo: m-louis CC BY-SA 2.0; cropped by author), right: Larkin Building (interior) by Frank Lloyd Wright (photo: David Romero CC BY-SA 3.0); images changed to black and white by author.

prerogatives and the architectural response defining each building movement. These are discussed more detail in the following sections.

The modern period: Fetishizing efficiency (1905–1972)

The publication of *The Principles of Scientific Management* (Taylor, 1911) led to a fundamental shift in management practice. Taylorist workplaces subdivided labor into fragmented and specialized tasks, conducted by deskilled workers under a rigid management hierarchy (Hirst and Zeitlin, 1991). Scientific Management's prerogative (Guillen, 1997) to achieve "the greatest possible productivity of the men and machines of the establishment" *(*Taylor, 1911*)* pushed organizations toward a culture of surveillance and strict hierarchy to exert management control. Promising a utopia of machine-like perfection and simplicity, the Modern Building Movement[1] emerged in the early 20th century, This "was more of a reaction to the new conditions of production (. . .), circulation (. . .), and consumption (. . .) than it was a pioneer in the production of such changes" (Harvey, 1989, p. 23).

Influenced by these new conditions, Architects *enrolled* Taylorism—along with visual references to the *European Avant-Garde Modernist* and *Italian Futurist* movements—to communicate modernity and progress in their conceived spaces, which they *translated* into a rational and functionalist esthetic removing ornamentation in clean lines and regular patterns created with "new" materials such as structural steel, polished concrete, and glass (Figure 2). Through formal gestures, they *inscribed* Taylorist efficiency into the *perceived space*; the work of Le Corbusier, Gropius (of the Bauhaus School), Lloyd Wright, and van der Rohe exemplifies this movement. With each

Figure 3. "Daylit Factories" of Albert Kahn defined early 20th Century industrial architecture demonstrating similar open plans and high ceilings of industrial facilities (AEG turbine Factory, Peter Behrens, left, source: https://commons.wikimedia.org/wiki/File:Peter-Behrens-Halle-innen-2005.JPG (CC-SA)) and offices (Johnson Wax Office, Frank Lloyd Wright, right, source: https://lccn.loc.gov/2011635092).

subsequent *enrollment*, this use of form and structure became associated with the *modern ideals* of efficiency, family, and futurism—weaving the perceived space with the conceived. This enrollment and weaving enabled Organizations to *inscribe* these ideals into workplaces more readily, at which point they became woven with the lived space. As a result, Modern architecture became increasingly valuable to emplace and enchant workers and enact organizational identity.

Organizations sought to *enroll* spaces to impose a rigid hierarchy and surveil, rather than engage, "typical" workers (Braverman, 1974). Architects *translated* this prerogative into a conceived architecture of indistinct open-plan worker offices in view of partitioned manager offices above. The resultant perceived/concrete space emplaced workers, reinforcing organizational hierarchy and rank through seating position (Burrell and Dale, 2014; Wasserman and Frenkel, 2011) while exerting control by limiting worker movement (Foucault, 2008; Wasserman and Frenkel, 2011).

Despite the intention of the architectural layouts to delegate spatial control to the lived space, they did not work as intended. Instead, the *enrollment* of these layouts for worker surveillance introduced tensions as workers translated the conceived space intentions into new behavior, acting busy rather than actually working, leading to an enacted "performance of management" rather than "management of performance" (Kerr et al., 2016).

A second tension arose from the *inscription* of modern ideology into the perceived space. Responding to management prerogatives to display efficiency and progress, Architects alluded to capitalist utopias (Kerr et al., 2016) and futurist ideals, creating "daylit factories" (Burrell and Dale, 2014) (Figure 3), which were marketed to employees as productive and enjoyable work environments (GM, 1956). Large, light-filled atria, high ceilings, and open-plan spaces reinforced the surveillance prerogative while creating a nearly-religious conceived space. This was exemplified in the Johnson Wax offices (Figure 3, right), which Wright referred to as "an architectural interpretation of modern business at its best," designed to be "as inspiring a place to work in as any cathedral ever was to worship in" (S.C. Johnson, 2021). However, as noted by Lefebvre, the emphasis on the visual elements of space reduced such symbols to surface effects (1991, 145), translating their meaning. While dazzling visitors, behind the façades, this *enrollment* of Taylorist ideology and assumption of a homogeneous workforce (Hirst and Zeitlin, 1991; Watson, 2019),

Figure 4. Corporate power expressed through spaces conceived as a fortress, IBM Yorktown Heights by Eero Saarinen, left (https://www.loc.gov/resource/krb.00529/), or futuristic palace "where today meets tomorrow," GM Technical Center—the "Versailles of Industry" (Kerr et al., 2016).

rendered interior perceived spaces minimalist and indistinct. When lived, these spaces anesthetized their occupants, rather than enchanting them (Baldry et al., 1998; Dale and Burrell, 2003).

A final tension can be seen in relation to organizational legitimacy. During this period, corporations often identified themselves with power and prestige, "firm as family," and "community," while retaining control over workers (Kerr et al., 2016). Architects conceived of buildings as fortresses (e.g. IBM's Yorktown campus), or as rural manors or châteaux (e.g. GM's Technical Center) (both Figure 4) to equate "symbols of US corporate power with the greatest architectural symbol of the absolute monarchical power" (Kerr et al., 2016, p. 132). This allowed Organizations to *enroll* the perceived space to project corporate power and identity, translating economic into symbolic capital (ibid). This *enrollment* of conceived and perceived space was used to establish organizational legitimacy. However projected legitimacy may not be the same as actual legitimacy (de Vaujany and Vaast, 2014), and tensions result from these contradictions.

As these office buildings received critical acclaim, a characteristic "modernist" architectural language (conceived space) emerged that could be used to codify elements into the perceived space. As noted by Lefebvre: a "combinatorial system of signs loses its interest and emotional force as soon as it is known" (p. 46). Further, when lived, Modern offices became trapped by their inherent Taylorism, preventing Organizations from adopting new practices. This enrollment wove these elements into new conceived space through this codification and the enrollment of these coded elements—when translated into physical form and lived—further wove these perceived, conceived, and lived spaces, exposing tensions between them. The result of these tensions is evident in the Modern utopian Pruit-Igoe housing development. Critically acclaimed when conceived and initially perceived, when lived it became untenable to occupants (Wendl, 2013) and was demolished in 1972, hailing modernism's demise and the rise of its successor, post-modernism (Harvey, 1989; Rowe, 2011).

The postmodern period: A turn towards flexibility (1972–1999)

In the 1970s, managerial prerogatives were evolving. Globalization and computerization transformed office space "from a data processing factory to a center for the creative application of ideas and information" (Laing, 2006, p. 50). Changing products, the emergence of the knowledge worker,
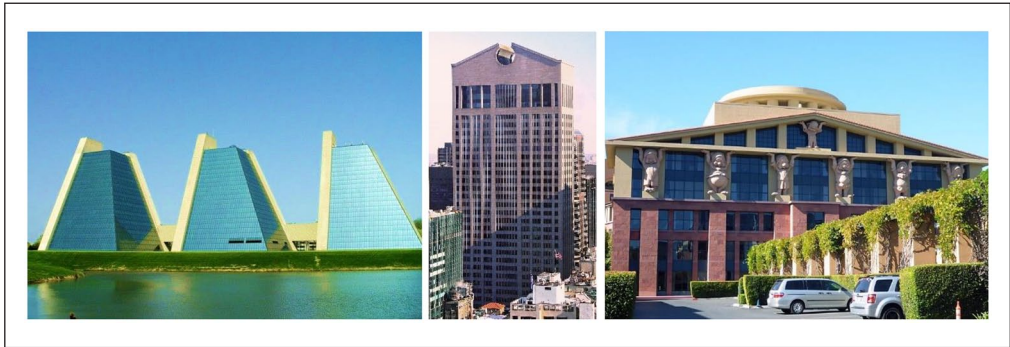
Figure 5. Postmodern architecture exemplifying classical references to power (College Life Insurance Campus "Pyramids," photo Serge Melki CC-BY-2.0; left), exaggerated motifs (AT&T Building, David Shankbone CC-BY-2.5; middle), and playfulness (Disney HQ, photo CoolCaesar CC-BY-SA-3.0; right).

increasing adoption of technology and ICT, globalization, and the changing social market (Ramioul, 2008) pushed organizations toward lean and Post-Fordist management approaches. Large individual firms gave way to networked firms focused on innovation, creativity, and a culture of permanent change (Boltanski and Chiapello, 2005; Hirst and Zeitlin, 1991; Vidal, 2007) while corporate hierarchies gave way to decentralized leadership managing teams of broadly skilled, engaged, and empowered employees (Vidal, 2007). Modern, *Taylorism-inscribed* offices constrained such evolution, requiring Organizations to *enroll* Architects to develop suitable new workplaces to foster innovation and creativity.

Architecture was also evolving in the 1970s. The Postmodern Building Movement[2] rejected the purism, orthodoxy, and literal translation of industry of modernism, prioritizing instead the representational and communicative roles of architecture as space, sign, and persuasion (Venturi et al., 1967) through the reintroduction of ornament, decoration, and allusion. Architects drew from this new movement to *translate* the new prerogatives into a conceived space embracing flexibility and creativity while retaining power through allusion. Despite its rejection of (modernism's) rigid architectural rules, postmodernism came to develop a characteristic architectural language as it was increasingly *enrolled* into organizational space and gained public acceptance. Its ideals of creativity, fun, and flexibility were *inscribed* into unconventional spaces defined by exaggerated motifs, organic forms, bold colors, parody, fun, and the *enrollment* of recognizable, if exaggerated, classical and symbolic elements () to enchant occupants. For example, the Disney Headquarters (Figure 5, right) literally used stone dwarves in place of columns.

Organizations *enrolled* Postmodern perceived space to support new emplacement strategies, asserting flatter organizational hierarchies, providing organizational flexibility through (re)movable partitions, and defining spaces for creativity and innovation. Workers' desire for autonomy, creativity and empowerment led to Organizations *enrolling* them in their own management, fundamentally changing the organizational structure and role expectations. The conceived space's *enrollment* of postmodern values of flexibility, creativity, and fun were intended to shape the organizational culture, strengthening emotional connections and feelings of belonging through the projection of strong corporate but differentiated team identities (Hatch, 2018). This is illustrated in the modern-postmodern shift in corporate campus design (Kerr et al., 2016) as well as that of individual departments (Peltonen, 2011).

Tensions quickly arose when postmodern spaces were lived between the Organizations who *enroll* the lived space to enact this "fun" team culture, and employees who "perform fun"

for management (Baldry and Hallier, 2010), just as those in modern buildings performed work. A second tension is revealed in this period through the impact of cubicles. Initially perceived to support organizational flexibility, individual workspace personalization, and collaboration, the high walls *conceived* to provide employee privacy, when translated into the *lived* space actually limited interaction and collaboration, isolating employees (Sujansky and Ferri-Reed, 2009). These physicalized *perceived* spaces were popularly perceived as dull and characterless—the very opposite of the dramatic and "fun" postmodern buildings housing them. This example demonstrates both the tensions revealed by the cubicles themselves as well as the resultant tension between the interior and exterior space, paralleling the glass offices of the modern period—referred to by (Baldry et al., 1998) as "Bright Satanic Offices" that are beautiful from the outside but unpleasant for the occupying workers.

While Postmodernism continues to influence conceived workplaces (Farrell and Furman, 2019), the information age has translated work patterns, fundamentally changing the lived space. The variation of individual needs based on activity (Appel-Meulenbroek et al., 2019; Gong et al., 2018) combined with the ability to support non-territorial (Sivunen and Putnam, 2020) or virtual offices (Davenport and Pearlson, 1998) shifted the focus to individual needs, translating Postmodernism toward an *occupant-centric* design. Having demonstrated the applicability of our theorization to well-established Modern and Postmodern periods—and their eponymous Building Movements—we now turn to focus on this occupant-centric design period.

The occupant-centric design period: New ways of working (2000–present)

In the 21st century, the knowledge worker came to dominate due to the fundamental economic shift from produced goods to information and services, creating a management challenge for organizations (Drucker, 1999). Such workers are not engaged or motivated by extrinsic rewards (Deci and Ryan, 2000); rather, "autonomy, integration and communication come to the forefront" (Ramioul, 2008, p. 8) to support collaboration and flexibility. Responding to these changes, new management prerogatives led to a "design turn" (Leonard, 2013) in the configuration of office environments, with hoteling, Activity-Based Working (ABW), and flexible workstation layouts introduced to support organizational adoption of strategic flexibility (Brozovic, 2018). Agile and Lean approaches, and self-directed work teams (Kauffeld, 2006) also became popular. Because worker emplacement is limited in such non-territorial offices, enchantment and enactment have become more important for spatial control. In this context, the more successful an organization becomes in "winning hearts and minds," the more workers voluntarily give their whole lives to their employer. This has required workplaces to support managerial control that is simultaneously more intense, powerful, and subtle, shifting from overt to coercive (Vidal, 2007) and neo-normative control focused on "whole employee" to selectively enlist the private dimensions of employee life through existential empowerment (Fleming and Sturdy, 2009).

In response to the desire for holistic employee engagement, architects have increasingly adopted Occupant-centric design, which focuses on "the features and strategies that maximize one or more occupant-centric metrics (e.g. visual comfort, space utilization)" (Azar et al., 2020, p. 2) While such occupant-centric offices continue to use Postmodern forms in the perceived space (Farrell and Furman, 2019), their conceived and lived space have been significantly translated by a new management context. This has led to two changes to workplace design: a shift toward informality and integration of leisure spaces, and the *enrollment* of societal values (sustainability, health and wellbeing, collaboration) to expand enchantment beyond the visual into the ephemeral and ideological.

The impact of leisure elements (Figure 6) in the perceived space have been explored by Burrell and Dale (2014), who observed that these elements blur the lines between public and private life,
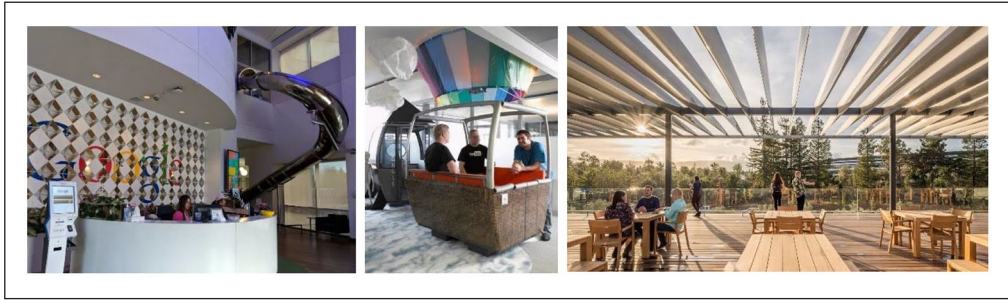
Figure 6. Leisure elements "cater to the whole employee," reinforcing a flat hierarchy, and blur the lines of work and non-work life. Left to right: Google Headquarters (Mountainview) © Heatherwick studios; colorful hot-air balloon breakout spaces at Google Switzerland @Camenzind Evolution Architects; Apple Campus (Cupertino) © Foster + Partners.

increasing the affinity of employees to their employer and facilitating the expansion of working at home. This exerts spatial control on occupants through a combination of enchantment, and—as employees begin to associate work with leisure—enactment (ibid). As the work-life distinction disappears, subtle managerial control is exerted over employees beyond the workplace, reflected in the increased expectation of the "24-hour employee," the "flexible" shift to home working (Wapshott and Mallett, 2012), and workplaces catering to employees every need. The latter is exemplified in Google Deutschland where "the fully engaged Google employee may never need to leave the facility" (Burrell and Dale, 2014, p. 6). Further, Postmodernism's informality, fun, and playfulness continue to be *enrolled* by Organizations through *playbour* (Ferrer-Conill, 2018; Lund, 2015) and gamification (DeWinter et al., 2014), subtly adapting Taylorist principles so that "work can be made to seem more like play and, so, potentially more productive through enjoyment, while leisure time can be made productive" (DeWinter et al., 2014, p. 115). Such spaces also support "chance encounters" associated with cultivating innovation (Sailer and Thomas, 2021).

The focus on invisible elements to enchant and engage workers is core to occupant-centric design. Ever-changing occupancy patterns required the maintenance of thermal, visual, and acoustic comfort and high "indoor environmental (air) quality" (IEQ) to maximize worker productivity (Papagiannidis and Marikyan, 2020), aligning occupant-centric design with "green or sustainable buildings that minimize resource consumption while ensuring high levels of occupants' comfort, wellbeing, health, and productivity" (Azar et al., 2020). These align with three Building Movements that have come to prominence: the Green Building Movement (GBM; sustainability and comfort), the Well Building Movement (WBM; health and wellbeing), and the Smart Building Movement (SBM; connected). As demonstrated in the following sections, each has been *enrolled* by Organizations as the ideological and material means to exert management control over knowledge workers, *translating* organizational space and being *translated* in the process.

Sustainable offices: Green buildings (2000–present). The GBM arose in the 1990s as environmentally-minded building practitioners sought a means to define and promote sustainable buildings and began to impact commercial space circa 2000. Sustainability rating tools (SRTs) were developed as technical guides, defining "green buildings" through a combination of both visible and invisible interventions, *black-boxed*, and *enrolled* by the GBM to speak on behalf of the movement. Regulators *enrolled* these tools to guide green buildings, benefiting (York et al., 2018) but also *translating* the GBM as sustainability was reduced to these checklists of easily quantifiable
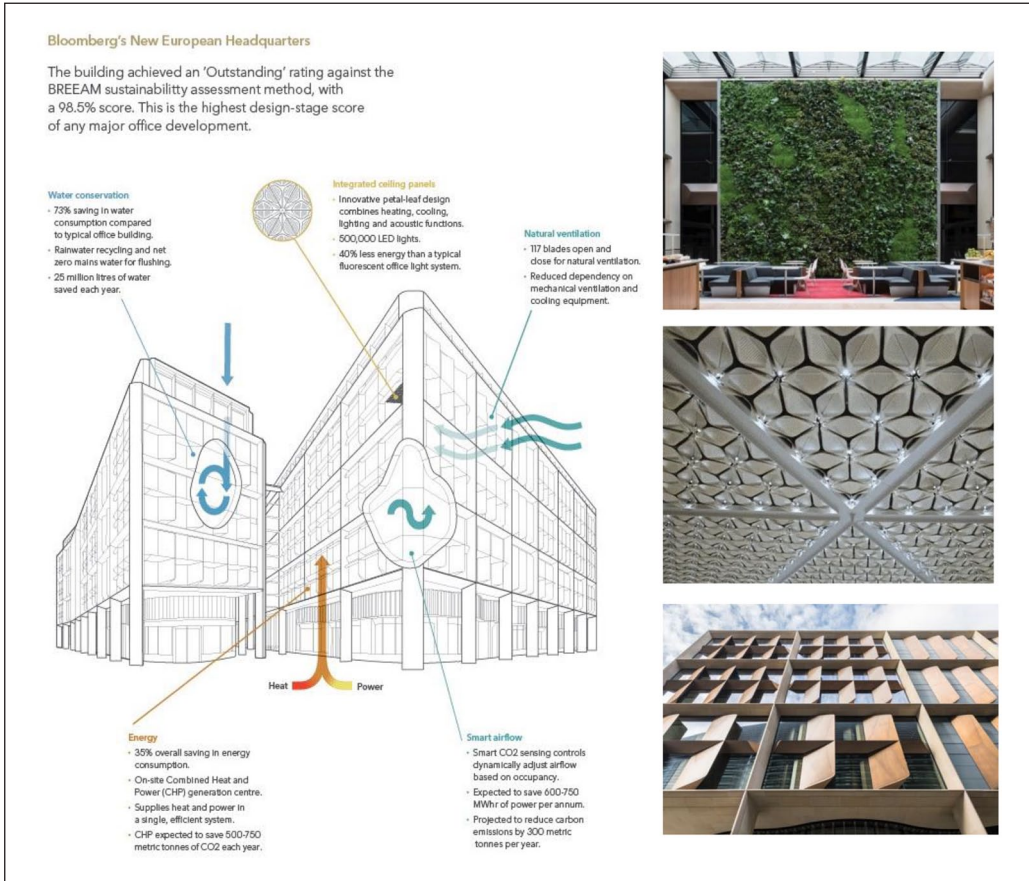
Figure 7. Bloomberg London's sustainability features as conceived (left; image: Foster + Partners) and translated into perceived space (right; images: Bloomberg).

metrics and broader environmental concerns were lost (Rutland and Aylett, 2008). As societal concern regarding climate change grew, Organizations also recognized the value of the GBM. Occupying SRT-certified space permitted Organizations to enact sustainability, supporting employer branding that proved valuable to both recruit and retain employees (Budhiraja and Yadav, 2020; WGBC, 2013). This led to unprecedented organizational interest in green buildings and a "Green Premium" for sustainable real estate (Cajias and Piazolo, 2013), *transforming* SRTs into marketing tools, particularly when "green buildings" were shown to achieve employee productivity, satisfaction and retention (Al Horr et al., 2016). To achieve these managerial prerogatives, Organizations *enrolled* Architects to create exemplary green office space. The Architects then *enrolled* GBM language into conceived space to appeal to society's rising environmental consciousness, supporting employee enchantment through subtle ideological means and an increased employee emotional connection with the company (Budhiraja and Yadav, 2020) and *translated* it into a perceived space inscribed with "green" symbolism, which was further *enrolled* by Organizations to enchant workers and enact corporate sustainability.

Consider Bloomberg's new European headquarters. The Organization's prerogatives were for the space to foster productive employees who were proud of their workplace and "happy to come in every day to tell their friends: 'I work in that building. They really care about me!'" (Bloomberg,

2018). The desire to enact corporate sustainability was clear from its branding as "the world's most sustainably-designed office" that "reflects our commitment (. . .) to the planet" (ibid). Translating these prerogatives into conceived and perceived space, Architects Foster + Partners enrolled biophilic imagery and other "green building" language, translating them into explicitly "green" features: a living roof, louvered façade for natural ventilation, and flower petal-inspired efficient lighting (Figure 7). The building's Outstanding SRT rating was marketed by Bloomberg, the Architects, and the GBM, to evidence corporate sustainability, the ability to deliver it, and the value of the SRT, respectively.

The enrollment of GBM ideology allows workplaces to become conferred with their own political capacity (McGuirk et al., 2019) in conceived space, resulting in lived spaces that act as "agents of change" or "messengers" for sustainable behavior (Homchick Crowe, 2020). This enrollment can introduce new spatial tensions as evidenced in the Bullitt Centre in Seattle. One element—the "irresistible stair"—was conceived to improve occupant health and discourage elevator use. Physicalized as a brightly-lit enjoyable perceived space, it enchanted its users, subtly emplacing workers to use *it* rather than the elevators to save energy and thus support the tenant organization's sustainability mandate. In the lived space, this enactment of sustainability shamed elevator users, forcing them into uninviting spaces (Homchick Crowe, 2020) and—in doing so—disenchanted disabled employees (Van Laer et al., 2022). This violated the equitable use principle of "universal design" (Story et al., 1998), intended to make all spaces accessible. Such issues illustrate the need for improved understanding of how Architects could better meet the physical and psychological needs of all employees. To this end, a new movement emerged: the pursuit of "well" buildings.

Healthy offices: Well buildings (2014–present). In the early 21st century, evidence of improved IEQ on workplace productivity grew (see reviews by (Al Horr et al., 2016; Cedeño-Laurent et al., 2018)), leading Architects to focus on maximizing both psychological and physical health benefits. The WBM emerged in 2014 with the release of the WELL Building (IWBI, 2014) and fitwel (Fitwel, 2022) standards, immediately seeking to enroll the GBM, which had significant members already interested in designing healthier offices. The enrollment of the GBM, exemplified in the co-branding of the WELL Building and Fitwel standards with SRTs LEED® and BREEAM® respectively, benefited the movement with substantial growth to over 150 billion ft^2 certified space globally by 2021 (IWBI, 2021).

From their inception, WBM standards were marketed to both Architects and Organizations as authoritative tools to communicate best practices, thus facilitating *enrollment* in workplace design and operations, respectively. Design interventions include visible elements—such as incorporation of plants and natural materials, biophilic (nature-mimicking) patterns, and views of nature—and physical but invisible elements such as improved air quality and acoustics. These result in subtle enchantment of employees, who perceive these visible and invisible interventions through improved comfort and well-being and occasionally emplacement when these are used to guide wayfinding or promote congregation in specific spaces. These are enacted through policy to communicate organizational support of the whole employee, thus increasing employee recruitment and retention, while simultaneously reducing sick leave and increasing productivity (Miller et al., 2009). However, the enrollment of the GBM needed to reach these groups translated WBM objectives radical empirically-supported interventions to those with limited impact on energy consumption. This tension between improved health and sustainability is evidenced in ventilation rate guidance: evidence supports a 1000% increase over code minimums (Wargocki et al., 2000), however this is limited to 30% for consistency with GBM SRTs.

To understand how the WBM (and related GBM) has been enrolled, we consider the example of New York City's "The Spiral" building where the *inscription* of the Organization's (Tishman
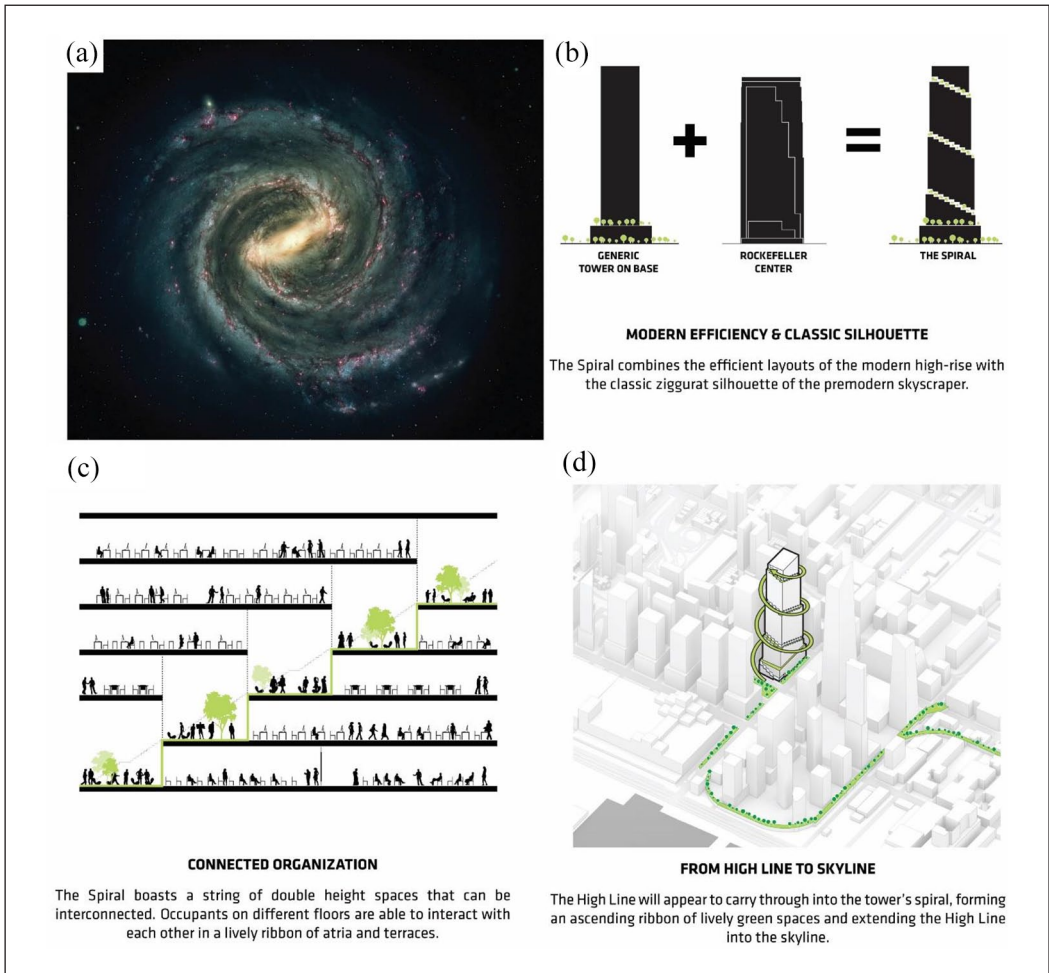
Figure 8. The Spiral as conceived: (a) spiral galaxy as inspiration. (b) Spiral massing parti. (c) Spiral sectional parti. (d) Spiral inscribed with 'Green' and 'Well' building movement imagery—Images by BIG— Bjark Ingels Group.

Speyer—real estate developer) objectives is clearly evident: "The Spiral embodies Tishman Speyer's bold vision and optimism for the future of our city" (Tishman Speyer, 2022). *Enrolled* by the Organization to undertake the building design, Architects Bjarke Ingels Group (BIG)'s conceived space *enrolled* the spiral (Figure 8a), identified as "occurring throughout nature" and having an "immaculate geometry and suggestion of the infinite" (BIG, 2016). This symbolic form was overlapped onto the skyscraper silhouette (Figure 8b), a form developed in response to the public's demand for sunlight at street level (ibid), creating a series of interconnected spaces (Figure 8c). The building was then wrapped in hanging gardens, literally *inscribing* GBM and WBM language onto the building façade (Figure 8d). The spiral form is further marketed as providing employers with "a single uninterrupted workspace" (BIG, 2016) through interconnected outdoor spaces and double-height atria to foster the desired "chance encounters."

The constructed building (Figure 9) was marketed by BIG, *enrolling* GBM language of access to outdoor space, fresh air, and daylight (BIG, 2016). Similarly, the developer *enrolled* GBM

Figure 9. The Spiral as physicalized– (Image by Michael Young).

"sustainable by design" alongside WBM " enhancing the health and well-being of your workforce" (Tishman Speyer, 2022) language to attract its anchor tenant. The large glass façade, while providing an appealing psychologically beneficial *perceived* and *lived* space, increases energy consumption, limiting the actual sustainability and evidencing the healthy-versus-sustainable tensions.

As with the GBM, organizational *enrollment* of the WBM increases worker enchantment through visible physical and ephemeral IEQ improvements to promote physical, psychological, and social wellbeing and enacts their commitment to the "whole employee" through these measures. New technologies soon permitted a more dynamic and responsive IEQ, further enhancing these impacts.

Connected offices: Smart buildings (2010–present). With the increased focus on sustainable and healthy workplaces came a need to respond to individual occupants and their changing needs over time. "Smart Buildings," facilitated by the development of new technologies such as cloud computing, the Internet of Things, machine learning, data analytics, and system integration facilitated this change (Buckman et al., 2014). These buildings integrate multiple systems—for example ventilation, lighting, room scheduling, telecommunications, and security—with occupant-centric, adaptive, "self-aware" (Kiliccote et al., 2011) controls. Such buildings support offices "with adaptability, not reactivity, at the core, in order to (achieve) energy and efficiency, longevity, and comfort and satisfaction." (Buckman et al., 2014, pp. 98–99), further increasing the abilities to emplace and enchant workers through individually-tailored workplace experiences. The *enrollment* of these digital technologies within workplaces has had dual benefits of improving employee comfort and
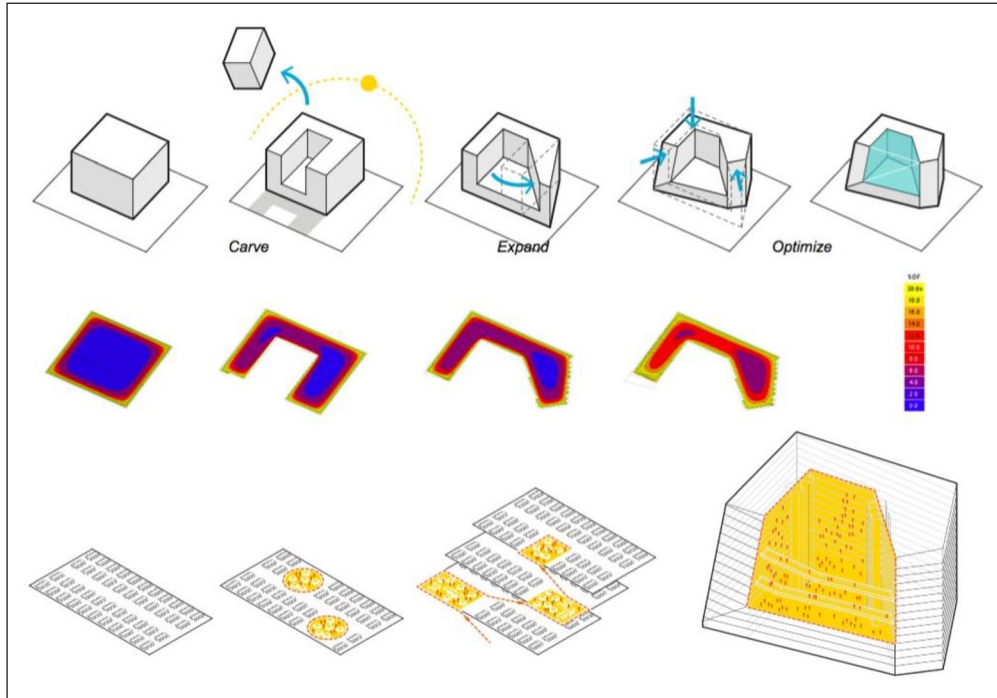
Figure 10. The "social condenser" in The Edge, which enrolls sustainability and "connectivity" language in its conception
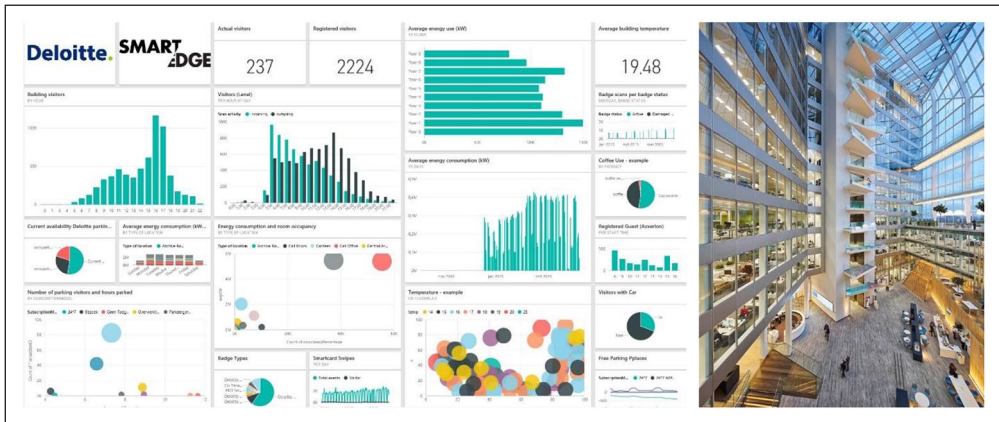Source: (Images: PLP Architects).

productivity (Papagiannidis and Marikyan, 2020) while reducing building operation costs. Several contemporary management prerogatives are also well-served by Smart Buildings. Because the can monitor, adapt to, and even predict employee movement, these buildings support non-territorial emplacement strategies such as activity-based working, hoteling, and rapid reconfiguration.

Initially branded as providing *connectivity*, the SBM had limited adoption until 2015 when Smart Building benefits were reframed to focus on improved energy efficiency. This rebranded the SBM as promoting "Smart and Sustainable Buildings" (Ghaffarianhoseini et al., 2016), and leading to significant market growth (Hatcher, 2016). This *enrollment* of sustainability language by the SBM resulted in a translated focus of the SBM, driving the development of technologies to provide the "new green" and play a significant role in global decarbonization and climate change mitigation efforts (McGuirk et al., 2019). Further, the *enrollment* of the WBM has also translated some "Smart" technologies toward healthy—rather than connected—office benefits. These alignments allow Organizations and Architects to *enroll* the SBM and WBM, integrating their ideologies into the conceived space and translating them into tangible elements such as interactive displays in the perceived space.

Consider Deloitte's *The Edge* in Amsterdam. Marketed as "the certifiably greenest (. . .) and most connected building in the world" (Bloomberg, 2015), it exemplifies the dual *enrollment* of GBM and SBM language. The Edge was "intended as a catalyst for Deloitte's transition into the digital age" (PLP Architecture, 2016). In developing their conceived space, the Architects questioned the role of architecture in an environment mediated by technology and asked how "design could augment these virtual frameworks to create places that encourage spontaneous sociability"

Figure 11. The Edge as lived in virtual space (left; Image: Deloitte) and physical space (right) (Images: PLP Architects).

(ibid). The conceived space was that of a "social condenser (. . .) a symbolic display out of the informal collaboration spaces and the multitude of different working atmospheres demanded by new patterns of working—flexible and social, physically and virtually interconnected" (ibid). Conceived to maximize daylight and natural ventilation, this was physicalized as a 15-storey atrium (Figure 10) to create a "soothing" collaborative environment for employees and support Deloitte's "specific internal working culture" through chance encounters and collaborations (ibid).

As constructed, the lived space has two components (Figure 11): an app and the occupancy of the constructed space. Deloitte created this app to customize the employee environment, tracking their movements, assign ideal desks, control IEQ, and connect them to services, both emplacing and enchanting them, and enacting the Organization's own "digital transformation" strategy. The completed building is marketed as the physicalisation of "Deloitte's Vision for the **Future of Work** (. . .) the most **sustainable and innovative** office building worldwide" (Deloitte, 2015), evidencing the enrollment of the GBM and SBM, respectively.

With respect to managerial control, The Edge serves as a technologically-enhanced panopticon, containing both the visual surveillance observed by Foucault (2008) and enhancing this with virtual elements such as the location-enabled employee app and occupancy monitoring systems. The SBM, like the GBM it actively enrolls in its own promotion, highlights how the shift to the human scale through occupant-centric design has increased the *enrollment* of ideological and invisible means to exert management control. This multi-modal approach to spatial control, incorporating visual elements, invisible-yet-physical indoor environmental conditions, and ephemeral ideological appeal reinforces the shift from visual to coercive control characterizing the move from modernism/Taylorism, through postmodernism, to occupant-centric design for knowledge worker management.

Discussion

Space matters. Organizational practices are often produced by the processual vagaries of the spaces in which they occur (van Marrewijk and Yanow, 2010) and so the contestation of these practices is frequently undertaken along spatialized lines (Beyes and Holt, 2020). This paper enhances organizational scholarship's conceptualization of spatial control by emphasizing how ANT's concept of

Table 2. 4E expanded spatial control framework.

	Organizations *enroll*. . .	Architects *enroll*. . .	The Building Movement *enrolls*. . .
Organizations to. . .		provide the resources and location for the expression of architectural intentions	serve as spokespeople for the benefit of the Building Movement* values and promoted practices
Architects to. . .	design the workplace to achieve management objectives of corporate identity, hierarchy, and management control		serve as advocates for the Building Movement* values and promoted practices
the conceived space to. . .	enchant workers, enrolling using social movement ideologies to give greater meaning to their work	serve as a spokesperson (through models and drawings) to communicate the ideals and expertise of their firm	serve as a case study to promote Building Movement* values and promoted practices (Rydin, 2013)
the perceived space to. . .	emplace workers according to hierarchy and control interactions, access, and surveillance; enchant workers with emotional responses to the organization and clients with compelling images of the organization; and include symbolic elements to guide the enactment of organizational space at the workplace level	emplace workers according to hierarchy and control interactions, access, and surveillance; enchant workers with emotional responses to the organization and clients with compelling images of the organization; and incorporate symbolic elements to create meaning within the enacted space	
the lived space to. . .	*enact* symbolic power and persistence by inscribing it into organizational routines, policies, and procedures, re-enforcing management control and desired worker behavior	serve as a precedent for future workplace design projects and *enrolling it* as a case study demonstrating the architect's value to organizations	
the Building Movement to. . .	strengthen the symbolic and emotional appeal of workplace elements and the associated organizational branding or identity through associations with Building Movement* values	strengthen the symbolic and emotional power of the architecture by using the architectural "language" associated with the Building Movement*	

*(and the underlying social movement's values).
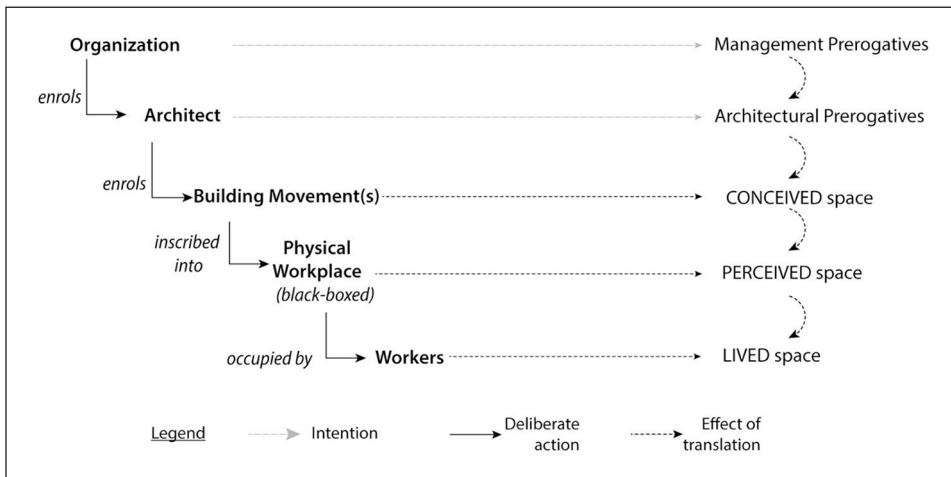
Figure 12. Actor-network enrollment in knowledge workplaces.

enrollment is inherent to the process Lefebvre (1991) influentially referred to as "the production of space." By overlaying *enrollment* onto the *emplacement-enchantment-enactment* Lefebvrian theorization of spatial control originally developed by Dale and Burrell (Burrell and Dale, 2014; Dale and Burrell, 2007), we proposed the *4E expanded framework* (Table 2). This expansion incorporates Beyes and Steyaert's (2012) emphasis upon the importance of the tensions that exist within the original Lefebvrian framework.

Table 2 demonstrates that the enrollment of one actor by another results in the translation of goals in the resultant (lived/enacted) space, thus generating the tensions Lefebvre originally noted in his triad. Actors enroll one another because of the benefits they each realize; however, the *translation* it introduces is risky. At the workplace scale, the repeated translation as each new actor is enrolled rises incrementally from management prerogatives to the conceived, perceived, and lived space, respectively. At the societal scale, this risk may transfer to the underlying social movements if significant ideals are lost in enactment. This was the case for the environmental movement, which—as translated into the GBM—became focused on what was measurable, at the expense of less-quantifiable environmental stewardship (Rice, 2011). As a result, societal understanding shifted to reflect *enacted* rather than *conceived* practices, popularly redefining the terms driving the social movements themselves (see also Van Laer et al., 2022). Figure 12 therefore demonstrates how broader societal forces impact workplaces and can enhance managerial control. Our analysis connected workplace-level architectural interventions to broader social and cultural trends. Throughout, we revealed a recursive relationship between Organizations, Architects, and Building Movements.

We illustrated the value of this framework by highlighting how it accounts for spatial control both within and beyond Taylorist organizations (see also Guillen, 1997). By extending our analysis into the occupant-centric design period (see also Wasserman and Frenkel, 2011), we showed how the symbolic capital identified by Kerr et al. (2016) in their "fortress," and "chateau" campuses of the modern period parallels the contemporary offices incorporating leisure elements to "cater to the whole employee" observed by Burrell and Dale (2014). We show how these have evolved further to more ephemeral references to notions of "green," "healthy," and "smart and sustainable" offices in the occupant-centric design period.

We have illustrated that throughout the occupant-centric period, the mutual enrollment of Building Movements was evident and served two purposes: new movements could quickly reach a large number of potential members and existing movements could reposition themselves by aligning with another—often stronger—movement. The WBM is the clearest example of the former. Launched at "green building" events, it immediately recruited members from the green building community through its co-promotion and SRT alignment, leveraging the IEQ knowledge base and architectural language developed within the GBM. This knowledge was *black-boxed* into "well" building rating systems, mimicking the GBM's SRT approach to propagate its own ideals and practices into workplaces. This enrollment drove the WBM's rapid early growth but extracted a significant cost. Radical, empirically-supported interventions were discarded in favor of those more compatible with the GBM rating systems it had enrolled, translating the WBM to one focused on less-ambitious workplace interventions to achieve a broader impact at scale. Similarly, to overcome a lack of market penetration, the SBM enrolled the GBM, adopting the "Smart and Sustainable buildings" moniker. By enrolling sustainability ideals, the SBM responded to larger societal trends, fundamentally shifting both its messaging, and technological focus. While system integration remains central to the SBM, it is increasingly applied to reduce energy consumption rather than simply to "connect" buildings. Interestingly, the GBM also found that "Healthy" and "Smart" Building events were reaching a previously-inaccessible market and enrolled the WBM and SBM, redefining "green" more broadly and diluting its focus.

Considering the role of Building Movements as intermediaries between societal values, architectural intents, and management prerogatives, three key trends are notable. First, when Organizations and Architects enroll Building Movements, this not only translates spatial control, the movements themselves are translated. A key example is the shift in the GBM, which began as an environmental movement to decrease building environmental impact but with increased organizational *enrollment* focused on market-friendly tools to enable rapid market adoption and Organization-desired "green" branding. This became increasingly noticeable over time, often driving an architecture prioritizing highly-visible, beautiful "green" elements over more effective but less-attractive technical solutions. Second, Building Movements enrolled exemplar buildings, standards, and regulations, as evidence claims of their value to expand their influence. Third, Building Movements were translated through their mutual enrollment with one another. Uncovering this recursive nature of the production of space as both enrolled and translated is therefore a key contribution of this research.

Conclusions

Our paper is premised on the claim that the spaces *where* we work contribute to *how* we work. While conceptualizations of organizational space typically build upon the *conceived, perceived*, and *lived* spatial triad developed by Lefebvre (1991), these are too often approached as three discrete elements, neglecting the interrelationships and subsequent tensions which are inevitable when considering the *process* of the production of space (Beyes and Steyaert, 2012). Our woven spatial triad incorporates the concepts of enrollment and translation from ANT (Latour, 1994) to theorize how management and architectural prerogatives manifest and are black-boxed throughout the production of organizational space. Focusing on the *process* of enrollment allows us to demonstrate the recursive nature of this phenomenon, especially as relates to Organizations, Architects, and Building Movements. Moreover, applying this to the recent occupant-centric design period allows its unique analysis, as compared to the Modern and Postmodern periods, given the novel challenges of workplaces in this period where managerial control shifts from overt to coercive (Vidal, 2007) with a neo-normative control focused on "whole employee" (Fleming and Sturdy, 2009).

We demonstrate that alone, *emplacement, enchantment* and *enactment* are unable to consider the production of space in its fullness because they are unable to reveal the tensions inherent in this process. Our revised *4E expanded spatial control framework* addresses this with a focus both on enrollment (the 4th E) and translation, which both emanate from—and contribute to—the tensions that emerge when restoring the spatial triad and approaching the *Production of Space* (Lefebvre, 1991) as a process.

The theorization presented here would benefit from further study beyond the scope of this paper. We observed few tensions in the occupant-centric design period. Further study may reveal whether this is related to its newness, or to Smart Technologies overriding the occupant behavior in the lived space that would otherwise be in tension with the conceived. Because only offices were considered, there is also value in future research to determine how enrollment is present in other contexts such as service, manufacturing, or educational environments. Second, this research emphasized a Western context, not because the movements discussed have been confined to the West, but rather because cultural contexts are sufficiently different that they warrant their own analysis; further research is recommended to explore how these manifest differently geographically. Finally, the breadth of this analysis required us to limit ourselves to consider only the agency of Architects, Organizations, and Building Movements; there was not sufficient space to adequately address the worker perspective, and in particular worker resistance. More granular studies to explore labor enrollment of social movements within workplaces would be a valuable line of future inquiry.

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Notes

1. Note that this contains families of related styles, for example, Brutalism, Italian Futurism, and the International Style; the core ideology, however, is consistent across each.
2. Several architectural styles (high-tech architecture, neo-futurism, deconstructivism, etc.) fall within Postmodernism but share the rejection of modernism's rigidity and prioritization of creativity and exploration in design.

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