

Form, Content, and Community: Digital Layers, Urban Screens and the Making of Place in Future Cities

An integrative review of urban theory, public-display research and North American regulation, with implications for Vancouver

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Prepared for the Vancouver Persian Architects (VPA) × FANNI BC gathering, Vancouver, 6 October 2026 · Public edition: noda.community/paper.pdf

ABSTRACT

Urban design has long treated physical form — streets, squares, enclosure and typology — as the primary carrier of a city's identity. This paper examines whether that assumption still holds when cities are increasingly mediated by digital content, networked infrastructure and participatory platforms. Using an integrative review of canonical urban theory, peer-reviewed human-computer interaction (HCI) research on public displays, and grey literature on regulation, markets and recent projects (accessed September–October 2026), it assesses the relative contributions of form, programmed content and community governance to the qualities residents value in places. Three findings emerge. First, the strongest available evidence on place attachment identifies social offerings, openness and aesthetics as its leading drivers, so physical form accounts for only one of the three. Second, interactive public displays measurably increase gathering and interaction under specific design conditions, and screens already serve as civic infrastructure for public safety, art and shared events. Third, the best-documented failures of digital urbanism — LinkNYC, Sidewalk Labs' Quayside and NEOM's The Line — failed on governance, trust and finance rather than on technology itself. The paper proposes a four-layer framework (fabric, life, interface, community) that maps onto the empirical drivers of attachment and reconciles the form-centred tradition with digital placemaking. It concludes with design and governance principles for Vancouver and a research agenda addressing the scarcity of rigorous evaluations of advertising-funded screen networks.

Keywords: urban screens · digital placemaking · media architecture · place attachment · smart cities · digital out-of-home (DOOH) · participatory urbanism · Vancouver

HIGHLIGHTS

- Physical form supplies one of three empirical drivers of place attachment; programmed social life and openness supply the other two.
- Public displays increase sociability when designed for interaction and local relevance, not when used for generic broadcast.
- Digital-city failures are predominantly governance failures; technology should follow architecture and community, not precede them.
- A four-layer framework — fabric, life, interface, community — offers a shared vocabulary for architects, operators and residents.

1 Introduction

A long tradition in architecture and planning holds that the city is made by its physical fabric. From Sitte's (1889/1965) enclosed squares to Lynch's (1960) theory of imageability and Rossi's (1966/1982) collective memory embodied in urban artefacts, the quality of urban life has been explained primarily through spatial form. A parallel tradition, associated with Jacobs (1961), Gehl (1971/1987, 2010) and Whyte (1980), insists that form matters only to the extent that it supports social life. A third body of work, emerging since the mid-1990s, argues that networked media and data now constitute part of urban space itself (Castells, 1996; de Waal, 2014; Manovich, 2006; McQuire, 2008; Mitchell, 1995).

These positions are not merely academic. Public expectations of urban space have shifted towards experience, flexibility and participation (Lydon & Garcia, 2015; Moreno et al., 2021; Pine & Gilmore, 1998). At the same time, digital out-of-home (DOOH) screens have become the dominant growth segment of outdoor media in North America (Canadian Out-of-Home Marketing and Measurement Bureau [COMMB], 2026; Out of Home Advertising Association of America [OAAA], 2026a), and high-profile smart-city projects have faltered (AGBI, 2026; CBC News, 2020; Office of the New York State Comptroller, 2021). Vancouver, which hosted FIFA World Cup 2026 matches and a large screen-centred fan festival in the summer of 2026, offers a timely setting in which to examine the question.

This paper addresses three research questions:

1. **RQ1.** What does the available evidence indicate about the relative contributions of physical form and of programmed content and social life to place attachment and the use of public space?
2. **RQ2.** Under what conditions do digital layers — urban screens in particular — strengthen or erode public space?
3. **RQ3.** How can the form-centred tradition and digital placemaking be reconciled in a framework usable by architects, operators and communities in Vancouver?

The contribution is fourfold: an integrative synthesis across urban theory, HCI and policy; a four-layer framework mapped onto empirical drivers of place attachment; a set of design and governance principles for screen-based placemaking; and a research agenda. The paper is written for architects and planners as much as for technologists, and it deliberately states the strongest objections to its own thesis.

2 Method

The study follows the integrative review approach, which combines theoretical and empirical sources of different types in order to generate new frameworks rather than to aggregate effect sizes (Snyder, 2019; Torraco, 2005; Whitemore & Knafl, 2005). Three bodies of material were examined: (i) canonical texts in urban theory, selected for their recurrent citation in planning and architectural education; (ii) peer-reviewed research on public displays, media architecture and smart urbanism, retrieved through the ACM Digital Library, SAGE and Crossref; and (iii) grey literature, including municipal and provincial regulation, audit reports, industry revenue statistics and journalistic reporting on current projects, accessed between September and October 2026. Bibliographic details of peer-reviewed sources were verified against Crossref metadata.

Because the sources differ in evidential weight, each claim in the results is attributed to its source type, following the grading in Table 1. Where grey-literature sources disagree, or where only press reporting is available, the disagreement is reported rather than resolved.

Table 1. Evidence classes used in the review.

CLASS	SOURCE TYPE	EXAMPLES IN THIS REVIEW	USE AND CAVEATS
A	Peer-reviewed empirical studies	Field studies of public displays; on-road driver-distraction studies; the 15-minute city	Primary basis for causal or behavioural claims; often small samples and specific sites
B	Scholarly theory and monographs	Lynch, Gehl, Lefebvre, Relph, McQuire, Mattern	Conceptual framing; not evidence of effect
C	Official, regulatory and audit documents	Vancouver Sign By-law; BC Technical Circular T-04/22; NY State Comptroller audit	Authoritative for rules and audited figures
D	Industry statistics and press reporting	OAAA and COMMB revenue reports; reporting on NEOM and the FIFA Fan Festival	Current but potentially self-interested or provisional; flagged in text

3 Theoretical Background: Three Traditions and a Critique

The city as physical fabric. The form-centred tradition explains urban quality through enclosure, sequence, legibility and permanence. Sitte (1889/1965) derived principles of artistic city building from the enclosed squares of European towns; Cullen (1961) described the “serial vision” of a pedestrian moving through a sequence of spaces; Lynch (1960) showed that people construct mental images of cities from paths, edges, districts, nodes and landmarks; Rossi (1966/1982) located collective memory in durable urban artefacts; Alexander et al. (1977) codified recurring spatial patterns; Krier (1979) catalogued typologies of streets and squares; and Norberg-Schulz (1980) framed architecture as the concretisation of a *genius loci*, the spirit of a place. Modernist planning, exemplified by Le Corbusier’s Radiant City (1935/1967), shared the conviction that form shapes society, while drawing the opposite conclusions about what that form should be.

The city as life, meaning and experience. A second tradition holds that form is valuable insofar as it supports encounter, belonging and rights. Jacobs (1961) located urban vitality in mixed uses and the everyday life of the street; Gehl (1971/1987, 2010) studied the optional and social activities that well-designed public spaces invite; Whyte (1980) documented, through systematic observation, how seating, sun, food and “triangulation” — an external stimulus that prompts strangers to talk — determine whether plazas are used; Oldenburg (1989) described the “third places” that sustain community. Phenomenological geographers emphasised that place is constituted through meaning and experience (Relph, 1976; Tuan, 1977), and Relph’s concept of placelessness warned against standardised, commercially generic environments. Lefebvre (1968, 1974/1991) argued that space is socially produced and that inhabitants hold a right to shape it. Sennett (2018) distils the tension as one between the *ville*, the built city, and the *cit  *, the lived city.

The city as hybrid physical-digital platform. A third tradition treats digital networks as constitutive of urban space. Mitchell (1995, 1999) anticipated the recombination of buildings and networks; Castells (1996) theorised a “space of flows” overlaying the space of places; Sassen (1991) showed how global economic functions concentrate in networked cities. Manovich (2006) introduced “augmented space” to describe physical space overlaid with dynamically changing information; McQuire (2008, 2016) analysed the media city and geomeia; de Waal (2014) described the city as an interface whose digital layer shapes public life. Urban informatics (Foth, 2009), sentient-city research (Shepard, 2011), media-fa  ade surveys (Haeusler et al., 2012), work on attention as a commons (McCullough, 2013) studies of sociability in networked public spaces (Hampton & Gupta, 2008) and accounts of the smart city (Ratti & Claudel, 2016; Townsend, 2013) extend this perspective.

The critique of digital urbanism. A critical strand cautions that smart-city discourse frequently serves vendors and surveillance rather than residents. Hollands (2008) questioned the self-congratulatory label of the “smart city”; Kitchin (2014) analysed the politics of real-time urban data; Greenfield (2013, 2017) challenged technological solutionism; and Mattern (2017, 2021) argued, from a long history of urban media, that a city cannot be understood or governed as a computer. These critiques are treated here as design constraints rather than as objections to be dismissed. Table 2 summarises the four positions.

Table 2. Positions on what makes a city, with representative sources and their contribution to the present argument.

POSITION	CORE CLAIM	REPRESENTATIVE SOURCES	CONTRIBUTION TO THIS PAPER
City as fabric	Urban quality derives from spatial form: enclosure, sequence, legibility, permanence	Sitte; Cullen; Lynch; Rossi; Alexander et al.; Krier; Norberg-Schulz	A shared vocabulary of legibility, pattern and spirit of place that the digital layer must respect
City as life	Form matters insofar as it supports encounter, meaning and rights	Jacobs; Gehl; Whyte; Oldenburg; Relph; Tuan; Lefebvre; Sennett	The bridge: classical concepts such as imageability and genius loci are perceptual, so content can shape them
City as interface	Networked media and data are part of urban space	Mitchell; Castells; Manovich; McQuire; de Waal; Ratti & Claudel; Townsend	The thesis: the digital layer is a new material of urban design
Critical urbanism	Smart-city technology often serves vendors and surveillance	Hollands; Kitchin; Greenfield; Mattern	Guardrails: governance, privacy and local relevance as preconditions

4 Results

4.1 What makes a place loved: evidence on place attachment

The most extensive North American study of why residents become attached to their communities is the Knight Foundation and Gallup *Soul of the Community* project, which surveyed residents of 26 U.S. communities annually from 2008 to 2010 (Knight Foundation, 2010a; Knight Foundation & Gallup, n.d.). Across all three years, the same three factors were the strongest predictors of attachment: **social offerings** (places for people to meet and things to do), **openness** (how welcoming a community is to different groups) and **aesthetics** (physical beauty and green space). Perceptions of the economy, jobs and basic services ranked well below these. The study also reported that communities with higher attachment tended to show higher local GDP growth, an association rather than a demonstrated causal effect. In the Miami community report, for example, the correlation between social offerings and attachment ranged from about 0.49 to 0.54 across survey years (Knight Foundation, 2010b). The Project for Public Spaces (n.d.) has drawn the practical implication that improving perceptions of any one driver can be associated with changes in attachment within the same year.

For the present debate, the significance is structural. Physical form directly supplies the aesthetics driver, and it enables social offerings through the provision of space. However, social offerings depend on what happens in that space — programming, events, information and encounter — and openness depends on governance and representation. The evidence therefore supports neither a “form only” nor a “content over form” position, but a complementary one (RQ1).

4.2 Changing expectations of urban space

Several strands of research document a shift in what people expect from cities. Pine and Gilmore (1998, 1999) argued that economic value moves progressively from commodities and goods to services and

staged experiences; cities increasingly compete on memorable experience. The 15-minute city concept frames proximity, multifunctionality and time as organising principles of post-pandemic urbanism (Moreno et al., 2021), which raises demand for neighbourhood spaces that can host varied activities. Tactical urbanism documents low-cost, temporary interventions as a route to lasting change (Lydon & Garcia, 2015), establishing a precedent for reconfigurable, modular elements in public space. The McKinsey Global Institute (2018) estimated that digital urban applications could improve some quality-of-life indicators by 10–30%; these are modelled potentials rather than observed outcomes, and the same report found low public awareness of many deployed applications, which suggests that visible physical interfaces have a role.

Recent Vancouver experience is consistent with these expectations. The free FIFA Fan Festival at the PNE and Hastings Park, organised around large screens and a new amphitheatre, recorded 502,157 visits in its first 25 operating days, with a single-day peak of approximately 41,000 when Canada played Qatar (Daily Hive, 2026a, 2026b). In Canada more broadly, COMMB reported that consumer spending on entertainment, dining, concerts and sporting events rose by more than 10% in 2025 (invidis, 2026). These are Class D sources and should be read as indicative.

4.3 Urban screens and sociability: the HCI evidence

Public-display research provides the most direct behavioural evidence on how screens affect public space. Brignull and Rogers (2003) described the *honey-pot effect*: people interacting with a display attract others, and the display provides a social licence to engage with strangers. Peltonen et al. (2008) observed 1,199 users of the CityWall, a large multi-touch display in central Helsinki, over eight days; most interactions involved several people, and the authors documented crowding, collaboration and negotiated turn-taking that reorganised the surrounding space. Müller, Eberle and Tollmar (2014) reported that passers-by were substantially more likely to begin interacting when others were visibly doing so — conversion increased by approximately 604% for locally visible interaction and 136% for remote interaction. Wouters et al. (2016) formalised these dynamics in a model of audience engagement.

Design and context determine whether these effects occur. Memarovic, Langheinrich and Alt (2012) proposed the Interacting Places Framework, which ties display applications to community interaction and place awareness. Fischer and Hornecker (2012) showed how the spatial configuration around media façades shapes shared encounters, and Hespanhol and Tomitsch (2015) and Hespanhol and Dalsgaard (2015) derived interaction strategies and design patterns for urban media architecture. Earlier media studies reached compatible conclusions: Struppek (2006) argued that the dominant commercial use of urban screens could be broadened to cultural and participatory content that ties screens to local identity, and McQuire (2010) found that large public screens can foster public interaction, contingent on the way media are integrated into complex public spaces. Papastergiadis et al. (2013) documented transnational interactive artworks connecting large public screens in Melbourne and South Korea.

Two qualifications are important. Most measured effects come from interactive, often research-run installations rather than from advertising-funded DOOH networks, and rigorous before-and-after evaluations of the latter remain scarce. The evidence therefore supports a conditional claim (RQ2): screens increase sociability when they invite participation and carry locally relevant content, and there is little evidence that generic broadcast loops do so.

4.4 Screens as civic infrastructure

Beyond sociability, digital screens already perform civic functions in North America. Since a 2007 pilot in Philadelphia, the U.S. Federal Bureau of Investigation and the OAAA have operated a programme that dis-

plays public-safety messages on more than 10,000 digital screens; the partnership, renewed in May 2026, reports more than 28,000 tips and contributions to the resolution of at least 58 cases (OAAA, 2026b). The industry also reports more than 1,000 AMBER Alerts displayed on digital billboards since 2008, and state emergency agencies use donated screens for disaster messaging (OAAA, n.d.-a, n.d.-b). These figures are self-reported by the industry (Class D).

Screens also host public art and cultural identity. Times Square Arts' *Midnight Moment*, launched in 2012 on six screens, has grown into a nightly synchronised artwork across more than 90 screens (Times Square Alliance, 2022). In Montréal, the Quartier des Spectacles has since 2006 developed a "Luminous Pathway" of architectural lighting, luminous signage and permanent projection sites as markers of district identity (Media Architecture Biennale, n.d.). McKim (2012) analyses the district as a form of "spectacular infrastructure" in which the boundaries between public art, urban design and place branding blur — an observation that is both a demonstration of the medium's potential and a caution about commercialisation. Public broadcasting screens in the United Kingdom and Australia have likewise been studied as sites of shared viewing and civic events (McQuire, 2010; McQuire et al., 2008). Figure 1 illustrates the two settings most relevant to this paper.



(a) Quartier des Spectacles, Montréal, 2014. Photo: art_inthecity, CC BY 2.0.



(b) FIFA Fan Festival, Vancouver, 2026. Photo: Northwest, CC BY 4.0.

Figure 1. Screens as public-space programming: a permanent projection site within a cultural district (a) and temporary large-screen gathering infrastructure (b). Images via Wikimedia Commons.

4.5 When digital layers fail

Three widely documented cases show how digital urban projects fail.

LinkNYC. New York City's 2014 franchise for advertising-funded Wi-Fi kiosks projected more than US\$500 million in revenue for the city over 12 years and approximately 7,500 kiosks. A 2021 audit by the Office of the New York State Comptroller found kiosks in only 86 of 185 city ZIP codes (46%) and US\$68.93 million in revenue and interest owed to the city; the franchise was subsequently renegotiated (Office of the New York State Comptroller, 2021; Urban Omnibus, 2022). Privacy advocates also reported that a later municipal audit found device identifiers were not anonymised as the programme's privacy policy had promised (Surveillance Resistance Lab, 2023).

Sidewalk Labs Quayside, Toronto. Sidewalk Labs withdrew from the 12-acre Quayside project on 7 May 2020, citing economic uncertainty (CBC News, 2020). The withdrawal followed sustained public controversy over data governance, including the 2018 resignation of the project's privacy adviser over de-identification commitments; civil-liberties groups welcomed the cancellation.

NEOM's The Line, Saudi Arabia. Announced in 2021 as a 170-km mirrored linear city, 500 m tall and 200 m wide, for nine million residents, The Line has been substantially scaled back. Reporting indicates that

construction was halted in September 2025 and that significant write-downs were taken (ArchDaily, 2026); a planned 2029 Asian Winter Games venue was postponed (Euronews, 2026); and in July 2026 the project’s public description shifted to a phased, demand-led approach without the earlier population target (AGBI, 2026). No official cancellation has been announced, and figures for the reduced scope vary across reports (Class D). The case belongs to the lineage of top-down, form-first megastructures from the Radiant City onwards, and it is a cautionary tale for both camps.

Across the three cases, the proximate causes were finance, governance, trust and over-projection rather than failures of the underlying technology. This supports the principle that technology should follow architecture and community rather than precede them.

4.6 Externalities and regulation

Driver distraction. The evidence is contested. In an on-road study of 41 drivers in Sweden, Dukic et al. (2013) found that electronic billboards attracted more and longer glances than other roadside objects, with a mean daytime dwell time of 2.25 s compared with 0.87 s for traffic signs. Belyusar et al. (2016) found significant shifts in glance behaviour near a digital billboard on a Massachusetts highway. A study for the U.S. Federal Highway Administration reported that the longest glances at digital billboards were 1.34 s, below the commonly used two-second threshold (Perez et al., 2011); industry bodies cite this study, while advocacy groups dispute it (ISHN, 2017). The prudent position is to keep dynamic displays out of high-speed, high-workload road environments and to concentrate civic screen uses at pedestrian scale — which is also where the sociability evidence is strongest.

Light, siting and privacy. Table 3 summarises the rules most relevant to Vancouver. Privacy law also applies: audience-measurement systems that collect personal information fall under federal and provincial private-sector privacy statutes, and the LinkNYC and Quayside experiences favour anonymisation at the device and published data practices.

Table 3. Selected rules governing digital displays relevant to Vancouver and North America.

JURISDICTION	PROVISION	SOURCE
City of Vancouver	Electronic signs permitted only where specifically allowed; luminance capped at 300 nits from sunset to sunrise and 5,000 nits from sunrise to sunset; site-specific provisions in the Granville Street sign district	City of Vancouver (2026)
City of Vancouver (practice)	A rooftop digital billboard application at 897 Granville Street committed to brightness limits relative to ambient light	Shape Your City Vancouver (n.d.)
Province of British Columbia	Digital and projected advertising displays prohibited within provincial highway rights-of-way; spacing and clear-zone requirements; removal may be ordered for distracting signs	BC Ministry of Transportation and Infrastructure (2022)
United States (federal)	Highway Beautification Act of 1965 controls outdoor advertising along federal-aid highways; later federal guidance allowed states to permit digital billboards subject to conditions	23 U.S.C. § 131; FHWA guidance (2007)
Canada (privacy)	Federal and provincial private-sector privacy legislation applies where audience measurement uses personal information	Statutory; see §4.6

4.7 Market context

Digital formats now dominate outdoor-media growth. In the United States, out-of-home revenue reached a record US\$9.46 billion in 2025, with digital formats accounting for 36.3% of the total and growing by 10.5%; first-quarter 2026 revenue rose 7.1% year on year, with digital up 12.9% (OAAA, 2026a, 2026c). In Canada, COMMB’s first industry revenue report recorded C\$842 million in 2025, of which digital formats accounted for C\$492 million, or 58%, up from 55% the previous year (COMMB, 2026; Media in Canada,

2026). Figure 2 shows the composition. Local government appears among the leading U.S. advertiser categories (OAAA, 2026a), which indicates that public bodies already use the medium to communicate with residents.

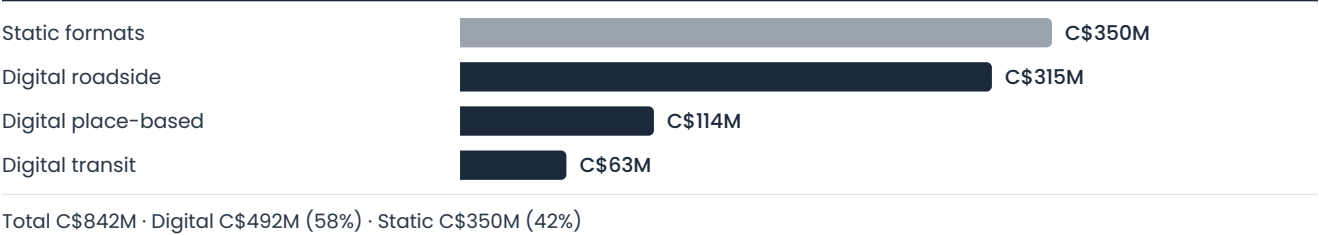


Figure 2. Canadian out-of-home advertising revenue by format, 2025 (C\$ millions). Static is derived as the total less digital. Source: COMMB (2026), as reported by Media in Canada (2026).

4.8 Emerging models: pop-up cities, Society 5.0 and participation

Pop-up and value-based cities. Zuzalu, convened by Vitalik Buterin in Montenegro from March to May 2023, assembled around 200 core residents and rotating visitors for two months around shared interests in technology, longevity and public goods (Buterin, 2023). Buterin presented the format as a middle ground between a hacker house and a conference, while acknowledging that two months and two hundred people were too limited to test durable governance. Successor gatherings include Edge City’s Edge Esmeralda in Healdsburg, California, whose third edition ran from 30 May to 27 June 2026 with roughly 500 participants and is framed as a prototype for a permanent walkable town (Edge Esmeralda, 2026; Edge City, 2026). These are temporary cities in a literal sense: they require wayfinding, schedules, announcements and community notice-boards from the first day. The adjacent network-state proposal (Srinivasan, 2022) is more contested, raising concerns about exit-oriented governance and exclusivity.

Society 5.0 and “Society 6.0”. Japan’s Fifth Science and Technology Basic Plan introduced Society 5.0, a human-centred society that integrates cyberspace and physical space (Cabinet Office, Government of Japan, 2016). The European Commission’s Industry 5.0 agenda similarly emphasises human-centric, sustainable and resilient development (Breque et al., 2021). “Society 6.0” has no authoritative definition: Žižek, Mulej and Potočnik (2021) use it to describe a well-being society grounded in social responsibility, while policy commentators have proposed it as a blueprint integrating technology, nature and decentralised decision-making (Friedrich Naumann Foundation for Freedom, n.d.). In this paper the term is used only as a working label for participatory, well-being-centred, value-based communities.

Participatory platforms. Verified-membership community platforms provide a further governance option. NODA, operated by the NODA Social Impact Foundation, describes itself as a trust-based community economy in which verified members record contributions, with referral and charity shares and payments settled outside the platform; it states explicitly that it is not an investment fund or token scheme (NODA Social Impact Foundation, 2026). Such platforms could, in principle, curate and credit community content for public screens.

5 A Four-Layer Framework for the Future City

The findings suggest that the traditions reviewed in Section 3 are not successive replacements but cumulative layers. Figure 3 presents a four-layer framework in which each layer adds to, rather than supersedes, those beneath it. The right-hand column maps each layer onto the empirical drivers of place attachment identified in Section 4.1.

LAYER	CORE IDEA · KEY THINKERS · ROLE OF SCREENS	ATTACHMENT DRIVER
LAYER 4 Community: the city as commons	Participation, belonging and shared value. <i>Lefebvre; Ostrom (1990); Society 5.0; pop-up cities; participatory platforms</i> . Screens as civic windows : community-curated content, consultation prompts, recognition of contributions.	Openness governance, representation, welcome
LAYER 3 Interface: the city as platform	Responsiveness and information. <i>Mitchell; Castells; Manovich; McQuire; de Waal; critics Greenfield and Mattern</i> . Screens as a dynamic interface : transit, alerts, wayfinding, programmable media façades.	Social offerings information that enables use
LAYER 2 Life: the city as stage	Encounter and experience. <i>Jacobs; Gehl; Whyte; Oldenburg; Relph; Tuan</i> . Screens as triangulation devices : shared events, public art, interactive installations.	Social offerings things to do, places to meet
LAYER 1 Fabric: the city as artefact	Legibility, enclosure, beauty, permanence. <i>Sitte; Cullen; Lynch; Rossi; Alexander; Norberg-Schulz</i> . Screens as integrated elements : sited, scaled and lit as part of the architecture.	Aesthetics physical beauty, green space

Figure 3. The four-layer framework. Each layer depends on those beneath it; screens carry a different function at each layer. Attachment drivers after Knight Foundation (2010a).

The framework yields six design principles that translate classical concepts into the digital layer:

1. **Dynamic legibility (after Lynch).** Screens can act as temporary nodes and landmarks and support real-time wayfinding, but they extend rather than substitute for a legible plan.
2. **Serial vision in time (after Cullen).** Content can be sequenced along a pedestrian route so that information and art unfold with movement.
3. **Digital patterns (after Alexander).** A “civic window” — a modular, eye-level screen paired with seating and a notice-board — can be specified as a recurring pattern rather than a bespoke intervention.
4. **Programmed life between buildings (after Gehl and Whyte).** Low-brightness, eye-level, interactive formats that invite lingering are preferred to large broadcast loops.
5. **Digital genius loci (after Norberg-Schulz).** Content should draw on local histories, languages and cultures — including Indigenous, diaspora and heritage material — so that it intensifies rather than dilutes the spirit of place.
6. **An anti-placelessness rule (after Relph).** A minimum share of locally produced or locally relevant content should be guaranteed on any public-facing network.

6 Discussion

6.1 Reconciling form and content

The strongest arguments for the primacy of form remain valid. Buildings and streets endure for generations, while screens and software are replaced within a decade; orientation is first spatial; mass media can produce placelessness; and digital projects have failed conspicuously. Table 4 sets out how the digital-placemaking position can respond to each objection without rejecting the classical canon.

Table 4. Classical objections to digital placemaking and responses grounded in the same canon.

OBJECTION	RESPONSE
"Screens destroy the spirit of place."	Genius loci is perceived meaning (Norberg-Schulz, 1980). Locally curated content can intensify it, as the Quartier des Spectacles shows; the risk is generic content, which is Relph's placelessness, not the medium itself.
"Legibility comes from form."	Agreed. Digital wayfinding extends imageability (Lynch, 1960) through dynamic nodes and landmarks; it cannot repair an illegible plan.
"It is only advertising."	Advertising can fund civic layers: public-safety alerts, synchronised public art and transit information already share the same screens. A transparent civic-content share addresses the commodification concern.
"Smart cities fail."	When technology precedes governance, they do (Section 4.5). The proposal reverses the order: architecture and community first, technology as a modular, removable and governed layer.
"Light pollution and road safety."	Meet and exceed existing limits: ambient dimming, night-time caps, static dwell times and no siting in high-workload road environments (Table 3).

6.2 Implications for Vancouver

Vancouver's planning identity — slender towers on podiums, active street walls, view corridors and a continuous seawall — is a form-centred success. The argument of this paper is that its next chapter concerns the programming of the public realm it has created. Three conditions make the city well placed. First, its regulation already constrains brightness and siting (Table 3), favouring responsible operators. Second, its temporary public-space programmes demonstrate an institutional appetite for tactical, reconfigurable interventions, which are natural hosts for modular screen pilots. Third, the 2026 fan festival demonstrated public demand for shared, screen-centred gatherings, raising the question of which of these practices should continue as legacy.

The following governance principles are proposed for discussion among architects, operators, communities and the City:

- **Civic-content share.** A fixed, published share of screen time for community, cultural, emergency and transit content.
- **Local-content quota.** A minimum share of locally produced or locally relevant material, including multilingual and diaspora content.
- **Light and siting by design.** Ambient dimming, night-time limits at or below by-law caps, and siting at pedestrian scale.
- **Privacy by design.** No collection of personal information; anonymisation at the device; published data practices.
- **Community curation.** Content proposed, verified and credited through accountable community structures, such as verified-membership platforms, with editorial rules made public.
- **Design-stage integration.** Power, sightlines, brightness and heritage fit resolved by architects at design stage rather than retrofitted.

6.3 A research and practice agenda

The principal evidence gap identified by this review is the scarcity of rigorous evaluations of advertising-funded screen networks in public space. Most behavioural evidence comes from interactive research installations, while the commercial networks that now dominate outdoor media have rarely been studied with the observational methods of Whyte (1980) and Gehl (2010) or with validated attachment measures. A

pilot on a single Vancouver plaza, combining before-and-after behavioural mapping, dwell-time measurement and a short attachment survey adapted from the *Soul of the Community* instrument, would begin to close that gap.

To advance this agenda, a public forum titled *Future Cities: Form, Content, and Community* is proposed for Vancouver in 2027, to be co-convened by Vancouver Persian Architects, the NODA community and Totemian, with the participation of planners, universities, artists and civic bodies. Indicative sessions would address: whether form still makes the city; the evidence on place attachment; screens as civic infrastructure; lessons from failed digital projects; pop-up and participatory communities; and a design charrette for a modular civic-window prototype. Intended outputs are a short white paper, a pilot proposal for one public space and an open record of contributions.

7 Limitations

This review is integrative rather than systematic; it does not report search strings, screening counts or pooled effect sizes, and source selection reflects the author's judgement. It is limited to English-language sources and emphasises North America. Several figures rely on industry or press reporting (Class D), including revenue statistics, public-safety outcomes and the status of NEOM, and may be revised. The HCI studies cited are field experiments at specific sites with specific populations, and their effects may not transfer to commercial networks or to Vancouver. The driver-distraction literature remains contested. Finally, the author's organisational interests, disclosed below, are relevant to Sections 6.2 and 6.3.

8 Conclusion

The question of whether the future city is made by its physical fabric or by its content is poorly posed. The evidence reviewed here indicates that residents' attachment to place rests on aesthetics, social offerings and openness together; that urban screens strengthen public life when they are designed for interaction and local meaning; and that digital urban projects fail when technology is placed ahead of architecture, governance and trust. Form gives a city its body and its permanence. Content and community give it the daily life through which people come to care about it. The four-layer framework proposed here offers architects, operators and residents a shared vocabulary for designing these layers together – and the forum and pilot proposed above offer a way to test it in Vancouver.

– Declarations

Competing interests. The author is chief executive of Totemian Brandboards Inc., which operates a digital out-of-home advertising network in Vancouver, and is involved with the NODA community platform. Both organisations are named in the proposals in Section 6.3.

Funding. No external funding was received for this work.

Use of AI tools. Literature searching, source verification and drafting were assisted by an AI system (Claude, Anthropic). The author reviewed the content and takes responsibility for it.

Data availability. All sources are publicly available; locations are given in the references.

Image credits. Figure 1(a): “Luminothérapie, Trouve Bob, BAnQ, Quartier des spectacles, 2014” by art_inthecity, CC BY 2.0. Figure 1(b): “2026 FIFA World Cup at Vancouver Fan Festival” by Northwest, CC BY 4.0. Both via Wikimedia Commons; cropped.

Suggested citation. Asgharian, H. (2026). *Form, content, and community: Digital layers, urban screens and the making of place in future cities* (Working Paper v1.0). Totemian Brandboards Inc. <https://noda.community/paper.pdf>

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ABOUT THIS PAPER

Form gives a city its body. Content and community give it the daily life through which people come to care about it.

Totemian Brandboards Inc. is a Vancouver-based digital out-of-home network. This working paper is published for discussion and may be revised. Comments and collaboration proposals: info@Totemian.com · Download: noda.community/paper.pdf