
Developing Executive Academic Programs to Support Smart City Governance and Planning

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Abstract

Cities are investing heavily in data platforms, sensing infrastructure, and algorithmic tools, yet the officials who must govern these systems are rarely educated for the task. This article addresses how universities should design executive academic programs that build the governance and planning capabilities smart city transformation actually requires. It proceeds as an integrative review of two literatures that have developed in isolation: research on smart city governance, which documents the competencies and organisational capacities cities lack, and research on executive education for the public sector, which documents how experienced professionals learn. From the first literature the article derives five competency domains: socio-technical governance literacy, data governance and ethics, technology appraisal for planning, collaborative innovation, and organisational transformation. From the second it derives four design principles: problem-anchored action learning, cohort composition as curriculum, co-production with employing governments, and multi-level evaluation of effects. These elements are integrated into a program design framework that maps competency domains onto curricular structures and connects program outcomes to the organisational

capacities documented in the smart city literature. The framework's central claim is that executive programs succeed when the city itself becomes the learning environment, with live governance problems serving as the primary curricular material. The article states the framework's conceptual status plainly, identifies evaluation of program effects at the organisational level as the weakest link in the evidence, and sets an agenda for empirical testing in diverse institutional contexts.

Keywords: executive education, smart city governance, urban planning, competency frameworks, public sector capacity, action learning, curriculum design

1. Introduction

The governance of cities is being reshaped by data infrastructures, sensing networks, digital twins, and algorithmic decision support. A large research literature now agrees that the decisive constraint on this transformation is not technology but institutional and human capacity: smart city governance is a complex process of institutional change in which technology amplifies, rather than replaces, the need for skilled judgment (Meijer & Rodríguez Bolívar, 2016; Mora et al., 2023). Comparative case research finds that cities succeeding in digital transformation are those that deliberately built organisational capacity, through strategy, leadership, dedicated units, and collaboration arrangements, rather than those that procured the most technology (Gascó-Hernández et al., 2022). Interview studies with smart city managers across forty cities identify distinctive dynamic capabilities, sensing, seizing, innovation, integration, and empowerment, that such roles demand (Guenduez & Mergel, 2022).

Where are these capabilities to come from? The professionals who govern and plan cities are mid-career: department heads, chief planners, digitalisation officers, and municipal

executives who cannot return to full-time study and whose learning must connect directly to their organisations. The natural institutional response is executive academic education, the segment of university provision designed for experienced professionals. Yet the research on executive education for the public sector shows a field that is unevenly developed, concentrated in a small number of systems, and only loosely connected to the substantive challenges of digital governance (Rasmussen & Callan, 2016; Sørensen, 2023). Meanwhile, the smart city literature has produced competency checklists, capability frameworks, and workforce analyses (Kwon et al., 2025; Bastidas et al., 2024; David & McNutt, 2019) that stop short of specifying how an actual program of study should be designed, staffed, and evaluated.

The scale of the need is not marginal. Nearly every city pursuing a digital agenda confronts the same staffing reality: the officials responsible for data platforms, procurement of algorithmic tools, and digitally mediated participation were educated before these instruments existed, and the professions that feed city government, planning, administration, engineering, have been slow to adjust their curricula (David & McNutt, 2019). Recruitment alone cannot close the gap, because the roles demand combinations of institutional knowledge and technical judgment that external hires rarely carry. The remaining lever is education for serving professionals, which places the design of executive programs at the centre of smart city capability policy rather than at its periphery.

The gap this article addresses is the missing connection between these two bodies of knowledge. The smart city literature tells us with increasing precision what city officials need to be able to do, but not how programs should teach it; the executive education literature tells us how experienced professionals learn, but has not been applied systematically to the smart city domain. No published framework currently integrates smart-city competency research with the pedagogy of executive education into an actionable program design. Consequently,

universities designing offerings in this space work from intuition, and cities purchasing them cannot judge quality.

The article asks three questions. First, which competency domains does the smart city governance and planning literature identify as necessary for senior urban professionals? Second, which design principles does the executive education literature establish for programs serving experienced public professionals? Third, how can the two be integrated into a coherent framework for developing executive academic programs in this field? The contribution is a conceptual program design framework grounded in an integrative review. Section 2 reviews both literatures. Section 3 sets out the method. Section 4 develops the framework, with a synthesising table and figure. Section 5 discusses implications and limitations, and Section 6 concludes.

2. Literature Review

2.1 Smart city governance as institutional change

Reviews of smart city governance converge on a socio-technical reading. An early and influential synthesis distinguished conceptions emphasising smart technology, smart people, and smart collaboration, and argued that governing the smart city means crafting new forms of collaboration through information and communication technologies rather than deploying systems (Meijer & Rodríguez Bolívar, 2016). Subsequent systematic reviews document persistent variance in definitions, components, and outcome measures (Ruhlandt, 2018), position smart governance as technology-enabled collaboration among government, citizens, and other stakeholders (Viale Pereira et al., 2018), and find that empirical evidence for sustainability benefits remains sparse and strongly context-dependent (Tomor et al., 2019). Research on developing countries adds that technology-enabled governance presupposes

concurrent reforms in regulation, human capital, and basic infrastructure (Tan & Taeihagh, 2020). A recent multidimensional synthesis identifies institutional capacity, alongside digital infrastructure, data governance, and citizen engagement, as a core enabler, and institutional inertia as a core barrier (Almulhim & Yigitcanlar, 2025). From an innovation management perspective, governance remains among the most undertheorised dimensions of smart city transitions (Mora et al., 2023). The consistent implication for education is that the object of study cannot be technology alone: officials must understand institutions, collaboration, and public value creation as the medium in which technology operates. A further implication follows from the reviews' repeated finding of definitional variance (Ruhlandt, 2018): because no settled model of smart city governance exists, programs cannot teach a canon; they must instead build the analytical capacity to evaluate competing models against local conditions, a capacity closer to judgment than to knowledge transmission.

2.2 Competencies and capacities for the smart city workforce

A second stream specifies what smart city work demands of people and organisations. Case comparisons of Milan, Barcelona, and Munich show that successful cities strengthened management capacity, strategy, leadership, dedicated units, and collaboration capacity, spanning public-private partnerships and multi-level government relations (Gascó-Hernández et al., 2022). The dynamic managerial capabilities identified among smart city managers, sensing opportunities, seizing them, driving innovation, integrating across silos, and empowering staff, interact with organisational readiness factors such as resource and strategic readiness (Guenduez & Mergel, 2022). Competency research has begun to formalise these demands: a Delphi study with experts produced five main competencies and fourteen sub-competencies for smart city managers, operationalised as a thirty-six item checklist intended to feed educational recommender systems (Kwon et al., 2025). A competency framework for leading urban digital innovation identifies the tasks, roles, and competencies needed to steer

digital projects toward public value and to break professional silos between city managers and built-environment professionals (Bastidas et al., 2024). Analyses of the planning and administrative professions argue that professional education has not kept pace with the governance use of information technologies and must change in both content and delivery (David & McNutt, 2019). Complementary work develops infrastructure for competence management itself, including ontology-based platforms that map skill-gap diagnoses to learning pathways for municipal staff (Iatrellis et al., 2021). Applied capacity-building studies show that competency-based training can foster collaboration across departmental silos in city government (Bhagavathula et al., 2021) and have begun to define competency profiles for emerging roles such as the smart city resilience officer (Tsoutsas et al., 2024).

Two features of this stream matter for program design. First, the competencies identified are predominantly integrative rather than technical: sensing opportunities across policy fields, orchestrating actors, and reading organisational readiness are capacities exercised in context, which constrains the pedagogy that can develop them. Second, the stream is methodologically young. Much of it rests on expert elicitation, single-city cases, and framework construction rather than on longitudinal observation of officials at work, so an education program built on it must treat the competency specifications as the best available map rather than settled ground truth, and must be designed to refine them through its own evaluation data.

2.3 Data, ethics, and emerging planning tools

A third stream defines the substantive knowledge base such programs must carry. Data governance research argues that value creation from urban data generates ethical and legitimacy challenges that must be translated into accountability mechanisms rather than left as abstract principles (König, 2021), and that sustainable smart city development requires trusted, participatory data governance (Paskaleva et al., 2017). Reviews of the ethical debate

cluster concerns into network infrastructure and surveillance, post-political governance, social inclusion, and sustainability (Ziosi et al., 2024). On the tools side, urban digital twins have moved from prototypes to city-scale infrastructure: case studies document their use for participatory planning in Herrenberg (Dembski et al., 2020) and for scenario-based planning on open 3D data in Zurich (Schrotter & Hürzeler, 2020), while systematic reviews catalogue interoperability, data quality, and governance challenges that delay implementation (Weil et al., 2023). Maturity-model research on city digital twins concludes that their governance implications, participation, trust, inclusion of marginalised groups, demand human-centric design and adaptive regulation (Haraguchi et al., 2024). For curriculum purposes, this stream supplies both content and caution: officials need enough technical literacy to appraise such tools, and enough critical literacy to govern them.

2.4 Executive education for public professionals

The final stream concerns how experienced professionals learn in academic settings. Surveys of executive Master of Public Administration programs find their strength in engaging diverse cohorts of professionals in sustained, experience-linked study, and their persistent challenges in funding, organisational relevance, and demonstrating impact (Holmes, 2012). Analyses of public policy schools find executive education unevenly developed globally, with an emerging orthodoxy built on action learning, leadership-focused curricula, and practitioner-supplemented faculty (Rasmussen & Callan, 2016). A systematic review of the effects of continuing public sector management education finds documented effects concentrated at the individual level, with organisational-level evidence scarce, a finding with direct consequences for how programs should be evaluated (Sørensen, 2023). Design scholarship proposes treating executive education as a co-produced service in which participants and their organisations are active stakeholders rather than recipients (Hiedemann et al., 2017).

The pedagogical core of this literature is action learning: structured work on real problems from participants' own organisations, in facilitated peer sets, with reflection as the engine of learning. Longitudinal evidence shows action learning fosters knowledge, skills, and attitudes that transfer to professional practice years later (Perusso et al., 2021). Accounts of accredited executive programs document how action learning treats participants as experts on their own problems (Ruane, 2016), requires trust and communication among learners, academics, and external contributors (Stephens & Margey, 2015), and produces learning with emotional, social, and relational dimensions that conventional teaching does not reach (Ruane & Corlett, 2024). Program-level studies show how live projects align learning with organisational goals (Conine & Peratoner, 2019), how reflection reports, learning contracts, and action-oriented theses combine rigor with organisational action (Berggren & Söderlund, 2011), and how the design process itself benefits from action-reflection among tutors and program managers (Kelliher & Byrne, 2018).

Read together, the four streams supply complementary halves of a design problem: the first three specify the competencies and content executive programs must deliver for smart city governance and planning; the fourth specifies the pedagogy through which experienced professionals can acquire them. The integration is missing. The present article constructs it.

3. Method

3.1 Design and rationale

The study is an integrative review with a design-oriented conceptual contribution. The choice follows from the research questions: identifying competency domains and design principles requires organised synthesis across heterogeneous fields, education research, public administration, urban studies, and information systems, whose methods do not support a

single effect-size synthesis; and constructing a program design framework is a conceptual task that must nevertheless be anchored in verifiable evidence. A systematic review was rejected because the two literatures use incommensurable outcome constructs; a purely speculative design essay was rejected because the framework's authority depends on its evidential base.

3.2 Search and selection

Literature was identified between June and August 2026 through structured queries of scholarly databases (Consensus, drawing on Semantic Scholar, Scopus, and related indexes), with verification of every candidate source against its digital object identifier or publisher record. Query families covered: smart city governance reviews and frameworks; organisational capacity and managerial capabilities in city government; competency frameworks for smart city professionals; data governance and ethics in smart cities; urban digital twins in planning; executive and continuing education for public sector professionals; and action learning in executive programs. Inclusion criteria were: peer-reviewed publication; direct relevance to at least one of the two halves of the design problem; and confirmable bibliographic identity. Exclusion criteria were: purely technical papers without governance or educational implication, promotional or unverifiable sources, and duplicative preprints of published articles, for which the journal version was retained. Thirty-three sources satisfied all criteria and constitute the evidence base.

3.3 Analytical procedure

The analysis proceeded in three steps. First, sources from the smart city streams were coded for the capabilities, knowledge, and dispositions they identify as necessary for governance and planning roles; codes were consolidated into candidate competency domains, merging overlapping constructs and discarding domains supported by a single source only. Second, sources from the executive education stream were coded for design features associated with documented learning effects; features were consolidated into design principles

by the same rule. Third, domains and principles were integrated: for each competency domain the analysis asked which pedagogical form the executive education evidence indicates for developing it, and the resulting mappings were assembled into the program design framework presented in Section 4, checked for internal consistency and for coverage of every retained source.

3.4 Rigor and boundaries

Bias was limited by including critical scholarship on smart cities alongside advocacy, by admitting only verified sources, and by requiring multi-source support for every domain and principle. The review's boundaries are explicit: it synthesises published research rather than new fieldwork; the executive education evidence derives mainly from business and general public administration contexts rather than smart city programs specifically, since the latter barely exist in the peer-reviewed record; and the framework is a design proposition whose validation requires implementation studies. These boundaries are taken up in the Limitations subsection.

4. A Program Design Framework for Executive Education in Smart City Governance and Planning

The framework integrates five competency domains derived from the smart city literature with four design principles derived from the executive education literature, and maps both onto a program architecture. Figure 1 presents the framework, and Table 1 summarises the competency domains, their evidential grounding, and their curricular expression. The subsections develop each element.

4.1 Five competency domains

The coding of the smart city streams yields five consolidated domains. The first is socio-technical governance literacy: understanding smart city transformation as institutional change, including the collaboration arrangements, legitimacy claims, and public value questions that technology raises but cannot answer (Meijer & Rodríguez Bolívar, 2016; Viale Pereira et al., 2018; Mora et al., 2023). The second is data governance and ethics: the ability to design accountability mechanisms for data-based value creation, to weigh privacy, surveillance, and inclusion concerns, and to institutionalise citizen-centred data practices (König, 2021; Paskaleva et al., 2017; Ziosi et al., 2024). The third is technology appraisal for planning: sufficient literacy in sensing infrastructures, digital twins, and algorithmic tools to evaluate their claims, costs, maturity, and governance implications, exemplified by the documented capabilities and limits of city digital twins (Dembski et al., 2020; Schrotter & Hürzeler, 2020; Weil et al., 2023; Haraguchi et al., 2024). The fourth is collaborative innovation: orchestrating partnerships across departments, governments, firms, and citizens, the capacity most consistently associated with successful transformation in comparative cases (Gascó-Hernández et al., 2022; Tomor et al., 2019; Bhagavathula et al., 2021). The fifth is organisational transformation: the dynamic managerial capabilities of sensing, seizing, integrating, and empowering, coupled with the ability to assess and build organisational readiness (Guenduez & Mergel, 2022; Kwon et al., 2025; Bastidas et al., 2024). The domains are distinct but interdependent; competency research warns that treating them as isolated skill lists reproduces the silos the roles must overcome (Bastidas et al., 2024; David & McNutt, 2019).

4.2 Four design principles

The executive education stream yields four principles with documented support. The first is problem-anchored action learning: the primary curricular material should be live

governance problems from participants' own cities, worked in facilitated peer sets, because this is the form with the strongest evidence of durable transfer to practice (Perusso et al., 2021; Ruane, 2016; Conine & Peratoner, 2019). The second is cohort composition as curriculum: deliberately diverse cohorts, across functions, professions, and cities, are themselves a learning resource, and sustained engagement of such cohorts is the documented strength of executive public administration formats (Holmes, 2012; Stephens & Margey, 2015). The third is co-production with employing governments: programs should be designed as services co-produced with participants and their organisations, aligning projects with organisational goals rather than treating the employer as absent (Hiedemann et al., 2017; Conine & Peratoner, 2019; Kelliher & Byrne, 2018). The fourth is multi-level evaluation: because documented effects of continuing public sector education concentrate at the individual level, programs must build evaluation at individual, organisational, and professional levels into their design rather than asserting organisational impact (Sørensen, 2023; Berggren & Söderlund, 2011).

4.3 The program architecture

Mapping domains onto principles produces the architecture summarised in Table 1 and Figure 1. Its organising claim is that the city is the learning environment: each competency domain is developed not as a taught subject followed by application, but through structured work on the participant's own city, with academic content sequenced around the problems that work surfaces. Socio-technical governance literacy and data ethics are developed through case seminars and critical reading anchored to participants' current initiatives; technology appraisal through structured evaluation exercises on real systems, including digital twin and data platform assessments modelled on the documented cases (Schrotter & Hürzeler, 2020; Haraguchi et al., 2024); collaborative innovation through inter-city peer sets and stakeholder engagement tasks within the action learning projects; and organisational transformation

through a program-long applied project, supported by learning contracts and reflection instruments of the kind documented in rigorous executive formats (Berggren & Söderlund, 2011). Assessment combines academically examined components with organisationally validated project outcomes, giving effect to the co-production principle. Faculty composition follows the same logic: academic staff carry the research base, while practitioner contributors carry contextual credibility, a mix the executive education literature treats as standard (Rasmussen & Callan, 2016).

The architecture implies a deliberate sequencing across a program cycle. An entry phase establishes shared conceptual ground in socio-technical governance and diagnoses each participant's competency profile against instruments of the kind developed in the reviewed literature (Kwon et al., 2025), so that pathways can be differentiated rather than uniform (Iatrellis et al., 2021). A development phase runs the taught domains in parallel with the action learning sets, alternating short residential blocks with workplace periods so that each block processes what the preceding workplace period surfaced, a rhythm the accounts of accredited executive programs identify as the point where reflection becomes learning (Ruane, 2016; Kelliher & Byrne, 2018). A consolidation phase centres on the applied project's organisational delivery and the reflective thesis that converts experience into transferable knowledge (Berggren & Söderlund, 2011). Program length follows from the logic rather than from convention: the cycle must span enough workplace time for a real governance problem to move, which favours designs measured in semesters rather than weeks and distinguishes this architecture from the short-course formats that dominate commercial executive provision (Rasmussen & Callan, 2016).

Table 1

Competency Domains for Smart City Governance and Planning: Evidence and Curricular Expression

Competency domain	Core content	Principal evidence	Curricular expression	Assessment form
Socio-technical governance literacy	Smart city transformation as institutional change; collaboration; public value	Meijer & Rodríguez Bolívar (2016); Viale Pereira et al. (2018); Mora et al. (2023)	Case seminars anchored to participants' initiatives; critical reading	Examined analysis of own-city governance arrangement
Data governance and ethics	Accountability for data-based value creation; privacy, surveillance, inclusion	König (2021); Paskaleva et al. (2017); Ziosi et al. (2024)	Applied data governance audit of participant's organisation	Audit report with remediation plan
Technology appraisal for planning	Capabilities and limits of sensing, digital twins, algorithmic tools	Dembski et al. (2020); Weil et al. (2023); Haraguchi et al. (2024)	Structured appraisal exercises on real deployed systems	Appraisal dossier with procurement recommendation
Collaborative innovation	Orchestrating partnerships across departments, governments, firms, citizens	Gascó-Hernández et al. (2022); Tomor et al. (2019); Bhagavathula et al. (2021)	Inter-city peer sets; stakeholder engagement tasks in live projects	Facilitated peer review of collaboration design
Organisational transformation	Dynamic capabilities; organisational readiness; leading change	Guenduez & Mergel (2022); Kwon et al. (2025); Bastidas et al. (2024)	Program-long action learning project with learning contract	Organisationally validated project outcome; reflective thesis

Note. Domains were consolidated from the reviewed smart city literature; curricular expressions apply the design principles derived from the executive education literature (Section 4.2). Assessment forms combine academic examination with organisational validation, following Berggren and Söderlund (2011) and Hiedemann et al. (2017).

4.4 Evaluation and institutional embedding

The framework treats evaluation as a design component rather than an afterthought. Following the evidence that individual-level effects are the best documented (Sørensen, 2023), the architecture specifies three evaluation levels: individual learning, assessed through examined components; organisational effect, assessed through the validated outcomes of

action learning projects and follow-up at defined intervals; and professional-field effect, observed through alumni networks and inter-city diffusion of practices, the level on which evidence is thinnest and structured data collection most valuable. Institutionally, the framework implies that programs cannot be run as detached teaching products: they require standing partnerships with city governments for project access and validation, a faculty mix spanning research and practice, and governance arrangements that let curricula track a fast-moving field, updating technology appraisal content as tools such as digital twins mature (Weil et al., 2023). Competence management infrastructure of the kind developed for municipal workforces can support diagnostic entry assessment and personalised pathways within the program (Iatrellis et al., 2021; Kwon et al., 2025).

The framework also anticipates its characteristic failure modes, each corresponding to a suppressed component. A program that retains the taught domains but drops the action learning projects reverts to the instruction-only format whose transfer to practice the evidence base gives least reason to expect (Perusso et al., 2021). A program that runs projects without organisational co-production produces academically interesting work the employing government never validates or adopts, the relevance failure long attributed to detached provision (Hiedemann et al., 2017; Rasmussen & Callan, 2016). A program that treats the technology appraisal domain as vendor-led training rather than critical appraisal reproduces inside the classroom the promotional asymmetry that already distorts municipal procurement, precisely the condition the governance literature warns against (Meijer & Rodríguez Bolívar, 2016; Haraguchi et al., 2024). Naming these failure modes converts the framework from a description of good practice into an instrument for diagnosing weak practice, which is how design frameworks earn their keep in institutional settings.

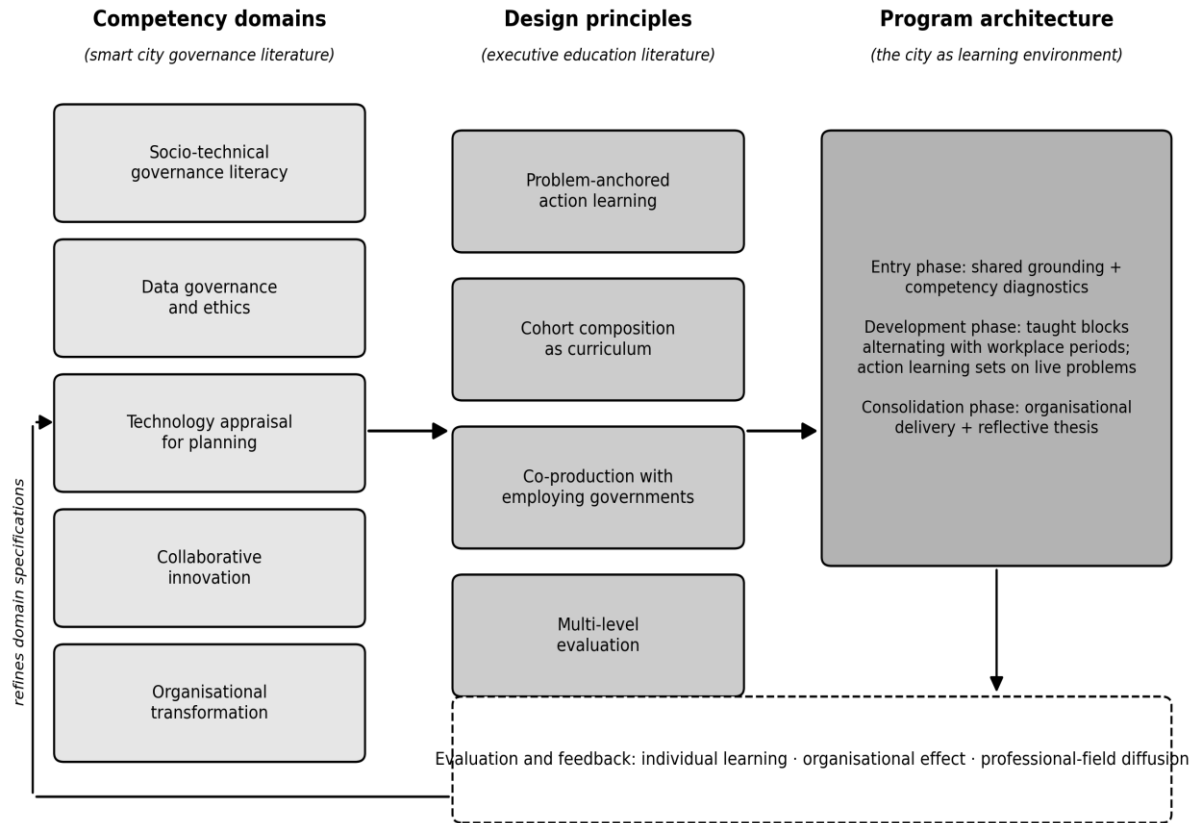


Figure 1. Program design framework for executive academic programs in smart city governance and planning. Five competency domains (left) derived from the smart city literature are developed through four design principles (centre) derived from the executive education literature, yielding a program architecture (right) in which the participant's own city is the primary learning environment; evaluation feeds back at individual, organisational, and professional levels. Source: author's elaboration based on the reviewed literature.

5. Discussion

5.1 Theoretical implications

The framework makes two theoretical moves. First, it recasts the smart city capability problem as an educational design problem. The competency literature has been accumulating checklists and frameworks (Kwon et al., 2025; Bastidas et al., 2024) whose implicit theory of change, that specifying competencies leads to their development, leaves the development mechanism unexamined. Connecting these frameworks to the action learning evidence supplies the missing mechanism: competencies of the kind the smart city literature describes, judgment-laden, collaborative, and organisationally embedded, are precisely those the

executive education literature shows are developed through structured work on real problems rather than through instruction alone (Perusso et al., 2021; Ruane & Corlett, 2024). Second, the framework gives the executive education literature a substantive domain in which its service-dominant and co-production arguments (Hiedemann et al., 2017) acquire specific institutional content: in smart city programs, co-production is not merely good pedagogy but the only access route to the live systems, data arrangements, and stakeholder networks the curriculum requires.

The framework also clarifies a boundary condition. Because empirical evidence on smart governance outcomes is context-dependent (Tomor et al., 2019) and developing-country conditions differ structurally (Tan & Taeihagh, 2020), the framework specifies design logic rather than fixed content: the domains are stable, but their content must be localised, which is itself an argument for the problem-anchored pedagogy the framework adopts.

A third implication concerns the relationship between education and evidence generation. The organisational-level evidence gap that Sørensen (2023) documents is usually read as a shortcoming of evaluation research; the framework reads it instead as a consequence of program designs in which organisational effect was never a structural component and therefore never measurable. Programs built to the present architecture generate organisational-level data as a by-product of their operation, through validated project outcomes and follow-up, which means each implementation is simultaneously an intervention and a study. Executive education in this reading is not only a consumer of the smart city evidence base but one of the few available instruments for producing it, since the action learning projects constitute structured, documented interventions in real city governance of a kind researchers rarely gain access to otherwise (Conine & Peratoner, 2019; Berggren & Söderlund, 2011).

5.2 Practical and policy implications

For universities, the framework offers a template that can be audited: a proposed program can be checked against the five domains for coverage and the four principles for delivery form. Its most demanding implication is institutional: a credible program requires negotiated partnerships with employing governments before launch, because project access and organisational validation are structural components, not enhancements. For city governments, the framework provides a procurement standard: programs that cannot name the live problems participants will work on, or the mechanism by which the organisation validates outcomes, are unlikely to produce the organisational effects purchased. For accreditation and policy bodies, the analysis suggests that the scarcity of organisational-level evidence (Sørensen, 2023) is partly a design failure of past programs, and that requiring multi-level evaluation in program approval would generate the evidence base the field lacks. For both sides, competency instruments already available (Kwon et al., 2025; Tsoutsas et al., 2024) can serve as entry diagnostics and outcome measures, giving programs a common metric.

The framework also carries implications for equity between cities. Executive education concentrates where purchasing power concentrates, and the reviewed evidence shows that capacity constraints are most severe precisely where provision is thinnest, in smaller municipalities and developing-country systems (Tan & Taeihagh, 2020). Because the architecture's costs lie mainly in facilitation and partnership rather than in physical plant, consortium models, in which several smaller cities share one cohort and peer sets deliberately cross city boundaries, are a direct extension of the cohort-composition principle and a plausible route to provision at scales single small governments cannot sustain (Holmes, 2012; Bhagavathula et al., 2021). Development agencies and national urban ministries funding smart city programs could treat such consortium-based executive education as eligible infrastructure, on the same footing as the technical systems it teaches officials to govern.

5.3 Limitations

Three limitations bound the contribution. First, the framework is a conceptual synthesis: no program built to this design has been evaluated here, and the integration of the two literatures, however disciplined, is the author's analytical construction. Second, the evidence bases are asymmetric: the smart city competency literature is recent and partly expert-opinion based, while the action learning evidence derives mostly from business and general public administration education, so the transfer of its effects to smart city content is inferred rather than demonstrated. Third, the reviewed cases overrepresent European and high-capacity cities; the framework's applicability where basic digital infrastructure and administrative capacity are still developing (Tan & Taeihagh, 2020) requires localisation this article can specify only in principle.

5.4 Future research

The priority is implementation research: design-based studies that build programs to the framework, instrument them with the multi-level evaluation it specifies, and report effects at the organisational level where evidence is scarcest (Sørensen, 2023). Comparative work should test whether the five domains hold across institutional contexts, particularly in developing-country city systems. Measurement research should connect competency instruments (Kwon et al., 2025) to program outcomes so that entry diagnostics and effect measures share a construct base. Finally, longitudinal alumni studies would test the framework's professional-field claim, that cohort networks diffuse governance practices between cities, which currently rests on the documented but domain-general strengths of executive cohorts (Holmes, 2012).

6. Conclusion

This article asked how universities should develop executive academic programs that support smart city governance and planning. Integrating a smart city literature that specifies what senior urban professionals must be able to do with an executive education literature that specifies how experienced professionals learn, it derived five competency domains and four design principles, and combined them into a program design framework whose organising claim is that the participant's own city is the primary learning environment. The framework converts competency checklists into curricular architecture, gives co-production concrete institutional content, and embeds multi-level evaluation as a structural component. Its status is conceptual, and its test is implementation. As cities continue to acquire technological capability faster than governing capability, the institutions best placed to close that gap are those that can join research, pedagogy, and municipal practice in one design, and the framework offered here is a blueprint for doing so.

Declarations

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Conflicts of Interest. The author declares no conflict of interest.

Ethics Statement. This study is an integrative review of published literature and involved no human participants, personal data, or animal subjects; ethical approval was therefore not required.

Data Availability. No new data were created or analysed in this study. All sources reviewed are publicly available through the references listed.

References

- Almulhim, A. I., & Yigitcanlar, T. (2025). Understanding smart governance of sustainable cities: A review and multidimensional framework. *Smart Cities*, 8(4), Article 113. <https://doi.org/10.3390/smartcities8040113>
- Bastidas, V., Oti-Sarpong, K., Nochta, T., Wan, L., Tang, J., & Schooling, J. (2024). Leadership of urban digital innovation for public value: A competency framework. *IET Smart Cities*, 6(3), 237–252. <https://doi.org/10.1049/smc2.12063>
- Berggren, C., & Söderlund, J. (2011). Management education for practicing managers: Combining academic rigor with personal change and organizational action. *Journal of Management Education*, 35(3), 377–405. <https://doi.org/10.1177/1052562910390369>
- Bhagavathula, S., Brundiers, K., Stauffacher, M., & Kay, B. (2021). Fostering collaboration in city governments' sustainability, emergency management and resilience work through competency-based capacity building. *International Journal of Disaster Risk Reduction*, 63, Article 102408. <https://doi.org/10.1016/j.ijdr.2021.102408>
- Conine, T. E., Jr., & Peratoner, C. B. (2019). Applying action learning to corporate projects in executive education programs. *Global Business and Organizational Excellence*, 38(2), 23–30. <https://doi.org/10.1002/joe.21907>
- David, N., & McNutt, J. (2019). Building a workforce for smart city governance: Challenges and opportunities for the planning and administrative professions. *Informatics*, 6(4), Article 47. <https://doi.org/10.3390/informatics6040047>
- Dembski, F., Wössner, U., Letzgus, M., Ruddat, M., & Yamu, C. (2020). Urban digital twins for smart cities and citizens: The case study of Herrenberg, Germany. *Sustainability*, 12(6), Article 2307. <https://doi.org/10.3390/su12062307>

- Gascó-Hernández, M., Nasi, G., Cucciniello, M., & Hiedemann, A. M. (2022). The role of organizational capacity to foster digital transformation in local governments: The case of three European smart cities. *Urban Governance*, 2(2), 236–246.
<https://doi.org/10.1016/j.ugj.2022.09.005>
- Guenduez, A. A., & Mergel, I. (2022). The role of dynamic managerial capabilities and organizational readiness in smart city transformation. *Cities*, 129, Article 103791.
<https://doi.org/10.1016/j.cities.2022.103791>
- Haraguchi, M., Funahashi, T., & Biljecki, F. (2024). Assessing governance implications of city digital twin technology: A maturity model approach. *Technological Forecasting and Social Change*, 204, Article 123409.
<https://doi.org/10.1016/j.techfore.2024.123409>
- Hiedemann, A. M., Nasi, G., & Saporito, R. (2017). A public service-dominant logic for the executive education of public managers. *Teaching Public Administration*, 35(1), 66–87. <https://doi.org/10.1177/0144739416665881>
- Holmes, M. H. (2012). Raising the ranks of public sector leaders: Results of a national survey of executive Masters of Public Administration programs. *Public Personnel Management*, 41(3), 449–463. <https://doi.org/10.1177/009102601204100304>
- Iatrellis, O., Panagiotakopoulos, T., Gerogiannis, V. C., Fitsilis, P., & Kameas, A. (2021). Cloud computing and semantic web technologies for ubiquitous management of smart cities-related competences. *Education and Information Technologies*, 26(2), 2143–2164. <https://doi.org/10.1007/s10639-020-10351-9>
- Kelliher, F., & Byrne, S. (2018). The thinking behind the action (learning): Reflections on the design and delivery of an executive management program. *Journal of Work-Applied Management*, 10(1), 35–49. <https://doi.org/10.1108/JWAM-05-2018-0010>

- König, P. D. (2021). Citizen-centered data governance in the smart city: From ethics to accountability. *Sustainable Cities and Society*, 75, Article 103308.
<https://doi.org/10.1016/j.scs.2021.103308>
- Kwon, B., Roh, I., & Ro, Y. (2025). Competency checklists and education recommender programs: Training smart city managers. *Journal of Urban Technology*, 32(2), 107–131. <https://doi.org/10.1080/10630732.2025.2475520>
- Meijer, A., & Rodríguez Bolívar, M. P. (2016). Governing the smart city: A review of the literature on smart urban governance. *International Review of Administrative Sciences*, 82(2), 392–408. <https://doi.org/10.1177/0020852314564308>
- Mora, L., Gerli, P., Ardito, L., & Messeni Petruzzelli, A. (2023). Smart city governance from an innovation management perspective: Theoretical framing, review of current practices, and future research agenda. *Technovation*, 123, Article 102717.
<https://doi.org/10.1016/j.technovation.2023.102717>
- Paskaleva, K., Evans, J., Martin, C., Linjordet, T., Yang, D., & Karvonen, A. (2017). Data governance in the sustainable smart city. *Informatics*, 4(4), Article 41.
<https://doi.org/10.3390/informatics4040041>
- Perusso, A., van der Sijde, P., Leal, R., & Blankesteyn, M. (2021). The effectiveness and impact of action learning on business graduates' professional practice. *Journal of Management Education*, 45(2), 177–205. <https://doi.org/10.1177/1052562920940374>
- Rasmussen, K., & Callan, D. (2016). Schools of public policy and executive education: An opportunity missed? *Policy and Society*, 35(4), 397–411.
<https://doi.org/10.1016/j.polsoc.2016.12.002>

- Ruane, M. (2016). Action learning in postgraduate executive management education: An account of practice. *Action Learning: Research and Practice*, 13(3), 272–280.
<https://doi.org/10.1080/14767333.2016.1220175>
- Ruane, M., & Corlett, S. (2024). Participant perspectives on action learning in higher education: A framework for learning. *Action Learning: Research and Practice*, 21(2), 144–158. <https://doi.org/10.1080/14767333.2024.2355912>
- Ruhlandt, R. W. S. (2018). The governance of smart cities: A systematic literature review. *Cities*, 81, 1–23. <https://doi.org/10.1016/j.cities.2018.02.014>
- Schrotter, G., & Hürzeler, C. (2020). The digital twin of the city of Zurich for urban planning. *PFG – Journal of Photogrammetry, Remote Sensing and Geoinformation Science*, 88(1), 99–112. <https://doi.org/10.1007/s41064-020-00092-2>
- Sørensen, P. (2023). The effects of continuing public sector management education: A systematic literature review. *International Journal of Public Sector Management*, 36(4/5), 300–314. <https://doi.org/10.1108/IJPSM-01-2022-0001>
- Stephens, S., & Margey, M. (2015). Action learning and executive education: Achieving credible personal, practitioner and organisational learning. *Action Learning: Research and Practice*, 12(1), 37–51. <https://doi.org/10.1080/14767333.2014.993592>
- Tan, S. Y., & Taeihagh, A. (2020). Smart city governance in developing countries: A systematic literature review. *Sustainability*, 12(3), Article 899.
<https://doi.org/10.3390/su12030899>
- Tomor, Z., Meijer, A., Michels, A., & Geertman, S. (2019). Smart governance for sustainable cities: Findings from a systematic literature review. *Journal of Urban Technology*, 26(4), 3–27. <https://doi.org/10.1080/10630732.2019.1651178>

Tsoutsas, P., Panagiotakopoulos, T., Damasiotis, V., & Fitsilis, P. (2024). Empowering urban futures: Key competencies for smart city resilience officers. *Urban Governance*, 4(3), 180–192. <https://doi.org/10.1016/j.ugj.2024.07.001>

Viale Pereira, G., Parycek, P., Falco, E., & Kleinhans, R. (2018). Smart governance in the context of smart cities: A literature review. *Information Polity*, 23(2), 143–162. <https://doi.org/10.3233/IP-170067>

Weil, C., Bibri, S. E., Longchamp, R., Golay, F., & Alahi, A. (2023). Urban digital twin challenges: A systematic review and perspectives for sustainable smart cities. *Sustainable Cities and Society*, 99, Article 104862. <https://doi.org/10.1016/j.scs.2023.104862>

Ziosi, M., Hewitt, B., Juneja, P., Taddeo, M., & Floridi, L. (2024). Smart cities: Reviewing the debate about their ethical implications. *AI & Society*, 39(3), 1185–1200. <https://doi.org/10.1007/s00146-022-01558-0>

Hashtags:

#SDG11 #SustainableCitiesAndCommunities #SDG4 #QualityEducation #SDG16
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