11 Summary of the Webinar Presentation

Lars Marcus

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Hosted by: Spatial Analysis and Simulation Lab/Community (SASL)
Title: **How spatial capital can enhance and create resilience in urban process**

Introduction

The Spatial Analysis and Simulation Lab (SASL) hosted Professor Lars Marcus in an engaging webinar centered on the theoretical and analytical potential of "spatial capital" as a means to understand and support resilient urban processes. Dr. Nabil Mohareb, Associate Professor and session host, introduced the event and reiterated SASL's commitment to investigating the spatial dimensions of urban life using computational tools, morphological analysis, and simulation.

Speaker Profile

Prof. Lars Marcus is an architect and Professor of Urban Design at Chalmers University of Technology in Sweden. He leads the Spatial Morphology Group (SMoG), investigating how built form conditions urban life and societal processes. In addition to his academic work, he is a founding partner at Spacescape, a consultancy focused on spatial analysis and urban policy design. His research spans social integration, local markets, ecological systems, and the role of spatial form in economic development.

Presentation Insights: Theoretical Framework and Research Approach

The webinar focused on key insights from Marcus's recent open-access book, *Measures and Meanings of Spatial Capital: Contributions to the Theory of Land*. The book consolidates years of research into a cohesive theoretical framework on how spatial form—understood as a form of "capital"—enables or constrains urban processes.

Core Concept – Spatial Capital:
Marcus defines "spatial capital" as embodied labor in the built environment—especially street networks and buildings—tied to land and location. Unlike movable capital (e.g., tools, machines), spatial capital is fixed in place and profoundly shapes access, movement, economic potential, and ecological conditions. The concept bridges classical political economy (land, labor, capital) with spatial morphology.

Capital and Location:
Drawing from political economy, Marcus emphasized that land's value emerges from two components:

- **Spatial extension** (land as surface)
- **Natural resources**

Similarly, capital includes both financial accumulation and embodied labor. Spatial capital lies at the intersection—capturing how fixed infrastructures (e.g., buildings, roads) embedded in specific locations influence future activity.

Use Value vs. Exchange Value:
Marcus noted spatial capital's dual value system:

- **Use values**, such as livability, accessibility, or walkability.
- **Economic/real estate values**, such as land prices and investment potential.

Real estate value, he argued, derives from both **location** (largely shaped by the street network) and **land improvements** (buildings and density).

Analytical Framework and Methods

1. Measuring Location and Accessibility:

- Marcus used space syntax centrality metrics to quantify how street networks define location.
- High centrality correlates with pedestrian movement and urban vibrancy.
- An empirical study across London, Amsterdam, and Stockholm (with 846 observation points) showed a strong correlation (R=0.65) between street centrality and pedestrian movement using WiFi signal data.

2. Accessible Density:

- Traditional density measures (e.g., FAR) obscure spatial quality. Marcus introduced the concept of *accessible density*: floor area accessible within a defined distance (e.g., 800m) using street-based (topological/angular) measurements.
- This approach incorporates built form into space syntax by assigning floor space values to street segments, showing how accessibility to built volume influences movement and activity.

3. Composite Layers of Spatial Capital:

- Using Stockholm and Gothenburg as case studies, Marcus layered street centrality and accessibility to floor space.
- These two dimensions form the foundation of spatial capital, enabling more accurate descriptions of real estate value and use potential.

Applications and Thematic Explorations

Marcus emphasized spatial capital's explanatory power across social, economic, and ecological systems:

1. Social Integration and Cohesion:

- Co-presence in public space is essential for social cohesion.
- Central spaces (e.g., Gothenburg's plazas) host diverse populations, fostering awareness and interaction across social groups.
- Peripheral or homogeneous areas risk segregation or fragmentation.

2. Urban Economics:

- Spatial capital structures economic opportunities by shaping markets.
- Large-scale, high-access zones attract major brands; smaller, peripheral areas host niche or localized markets.
- Marcus revisited Alfred Marshall's *agglomeration economies* and how proximity fosters productivity, innovation, and knowledge diffusion.

3. Urban Ecology:

- He proposed extending spatial capital analysis to ecological systems—evaluating how built environments support (or block) biodiversity and ecosystem services.

Interactive Session (Q & A)

The Q&A session was an intellectually rich webinar segment, featuring attendees' active participation and a series of thought-provoking questions that extended and tested the applicability of the spatial capital concept across diverse urban contexts. Prof. Marcus engaged with various topics— planning theory, urban dynamics in the Global South, and methodological concerns—while maintaining a critical but constructive tone.

1. Urban Expansion and Peripheral Growth
Q1. How the concept of spatial capital might be applied to cities experiencing rapid and often unregulated growth, particularly in peripheral areas. Citing Cairo and other African metropolises as examples, he noted that such zones quickly evolve into de facto city centers without the layered historical accumulation found in core areas.

R1. responded by reflecting on the paradox of scale: cities grow larger but must often be made to feel smaller again to maintain functionality and cohesion. He observed that urban planning interventions, such as Haussmann's Parisian boulevards or investments in mass transit, often aim to "reconnect" or "rescale" overly expansive cities. He concluded that rather than aiming for uniform centrality, spatial capital analysis can help identify and strengthen emerging centers to ensure distributed resilience across the urban landscape.

2. Climate Adaptation and Urban Resilience

Q2. Can spatial capital serve as a framework for shaping spatially responsive strategies for climate adaptation?

R2. affirmed this potential, noting that traditional planning often lacks a systemic view of existing spatial capital. He argued that recognizing the built environment as a long-term spatial investment—rather than as a series of discrete projects—enables planners to maintain, retrofit, or adapt key infrastructural components to meet ecological goals. He emphasized that spatial capital maps can reveal vulnerabilities and opportunities in urban form, especially for climate-conscious interventions.

3. Ghost Cities and Underutilized Urban Areas

Q3. Inquired about "ghost cities"—planned urban areas with infrastructure but failing to attract sustained activity. She asked how spatial capital analysis might help repurpose such spaces to enhance resilience.

R3. acknowledged this as a critical issue, particularly in Sweden, where post-war housing projects often led to spatial and social isolation. He emphasized that spatial misalignment—not merely architectural form—was to blame. In his view, effective reuse requires understanding the physical conditions and the social and economic flows they are meant to support. He positioned spatial capital as a diagnostic tool to determine why certain spaces lack vitality and how to connect them to larger urban systems better.

4. Diversity, Homogeneity, and Spatial Form

Q4 raised two questions: first, should cities strive for homogeneity or embrace heterogeneity? Second, are benchmarks needed when comparing pedestrian flows across areas with different social or physical characteristics?

R4. strongly argued for heterogeneity, identifying it as one of the cities' defining qualities—and advantages. He drew from Durkheim's idea that cities foster social differentiation and specialization through co-presence. Regarding benchmarks, he agreed that comparative studies must account for underlying spatial and demographic differences. He noted that space syntax tools are most effective when paired with socio-economic data to contextualize findings.

5. Interpreting Public Space and Social Backgrounds
Q5. contributed a reflective commentary on Marcus's Gothenburg case studies, suggesting that factors such as proximity to transport, affordability of amenities, and user demographics significantly affect public space usage. She emphasized the need for multi-layered analysis.

R5. welcomed this input and agreed that spatial capital should be seen as a foundational layer—one that supports or constrains other dynamics but is never the whole story. He emphasized the importance of keeping the spatial baseline visible while interpreting it through cultural, economic, and demographic lenses.

6. Conceptual Clarification of Accessible Density
Q6. asked for clarification on the concept of "accessible density," noting that many dense areas include private or restricted spaces. He questioned whether this still constitutes accessible capital.

R6. clarified that accessible density refers not to literal access to interiors but to the *urban effects* produced by being near high concentrations of floor space. Higher accessible density often correlates with more vibrant public space, greater foot traffic, and economic potential. He noted that this approach was initially developed to improve pedestrian movement prediction, especially in areas with uneven density distribution.

7. Heritage, Path Dependence, and Planning Constraints
Q7. closed the session by asking how path dependence and historical trajectories constrain or inform the formation of spatial capital.

R7. responded by highlighting the inertia of cities. Urban form, once established, exerts a lasting influence on future possibilities. He emphasized that planning should not be conceived as starting from scratch but as carefully working with existing spatial capital, acknowledging its value and constraints. Strategic interventions should aim to *redirect* rather than *replace* existing spatial logics.

Key Takeaways

1. Spatial capital is a foundational form of embodied labor tied to land and location—distinct from movable capital—and represents long-term, fixed investments (e.g., buildings, infrastructure) that shape future social, economic, and ecological processes.
2. The built environment functions as a form of capital that enables and constrains urban transformation, offering resilience through its stability while presenting challenges when misaligned with contemporary needs.
3. Location in cities is primarily defined by the configuration of the street network, not geographic coordinates, and this spatial structure is a major determinant of land value, movement behavior, and urban potential.
4. Accessible density (floor space within a walkable network distance) adds explanatory power to centrality metrics, especially in predicting pedestrian movement and revealing spatial inequalities in urban peripheries.

5. Real estate value is co-produced by street network centrality and land improvements (e.g., building mass, type, and intensity), which jointly condition economic activity and urban life.
6. Spatial capital serves as a bridge between disciplines—urban sociology, urban economics, and urban ecology—offering a shared spatial language for analyzing phenomena like segregation, market formation, and ecosystem connectivity.
7. Cities function as layered systems of co-presence, markets, and ecosystems, where spatial form conditions not only how people move, but who they encounter and what types of exchanges—social, economic, or ecological—are possible.

Conclusion

Prof. Marcus's session provided a rigorous and insightful synthesis of theory, empirical methods, and urban practice. His framework of spatial capital advances spatial morphology's relevance in multidisciplinary urban discourse. The SASL team extended their gratitude and emphasized the importance of interdisciplinary collaboration between SASL and Chalmers.

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