

64 Planning

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Planning is “the application of foresight to action,” something which could apply to any human endeavor. The profession of planning that has emerged over the last century focuses on the needs of places and the people who live in them. The built environment, in particular, needs planning, and this activity takes place at a range of scales from the local to the global. Planning as a profession has origins in architecture, civil engineering, public health, and the progressive social movements of the latter half of the nineteenth century. It represents a response to the environmental, human health, social, and economic crises caused by rapid urbanization. U.S. urban planners trace their professional roots back to a founding conference in 1909, although planning activities naturally go back to the dawn of urban civilization. If asked, planners often say that they strive to improve the population’s quality of life and ensure graceful transitions as places change.

Most professional planners operate locally—they are known as town planners or spatial planners in Europe, as city or urban planners in North America, and often as urban engineers in Asia. Those specializing in urban design strive to optimize the placement of buildings considering the mix of uses, internal and external connections, aesthetic objectives, and resource constraints. Comprehensive planners instead focus on the arrangement of land uses within a jurisdiction, and seek to establish a common vision for future development and to separate incompatible uses—such as residential and heavy industrial—so that they do not impinge upon one another. Additional planning specialties focus on specific systems including transportation, housing, environmental management, local economic development, and community development. Regional planners work on the broader canvas of a metropolitan area or watershed.

Like engineers or architects, planners in many countries undergo professional certification. The multi-year certification process includes graduation from an accredited academic program, several years of practical experience, and qualifying a rigorous written examination. The accepted credential in the United States is membership in the American Institute of Certified Planners, although two states, Michigan and New Jersey, also require planners to sit for an additional, state-administered examination. As is also true of architects and engineers, not all practicing planners are certified. The credential is only required for those who work in the public sector, sign plans and drawings, and serve as expert witnesses.

In most countries, the built environment consists of many privately owned buildings and a set of publicly owned

infrastructures. Lewis Hopkins identifies four rationales for planning under such condition. Interdependence is the first rationale; roads that do not connect to buildings are useless but buildings without roads are also useless; so they need to be planned together. Indivisibility is the second rationale: public goods such as clean water and neighborhood security will be underprovided unless government intervenes in market decisions. Irreversibility is the third rationale: it is important to get it right the first time because once settlement patterns are established they may persist for decades or even centuries, and if land is contaminated or degraded, the cost of adaptation may become prohibitive. Ignorance of the future is the final rationale for planning: all parties can benefit from better information about the future characteristics of the population, economy, and environment. These “4 I’s” justify public planning in market economies.

Planning has both substantive and procedural elements. Substantively, planners need to know something about demography, economics, land use, housing, transportation, environmental conditions, and many other factors that affect the built environment. However, often there will be substantive experts at the table who know more about their particular domains than the planners. For example, the civil engineer will know more about storm water management calculations, and the architect will know more about housing design, than the planner, but the planner needs to be able to communicate with each of these experts. Thus, planners end up with special procedural responsibilities because they are expected to be experts at getting project team members, members of the public, and public officials to work together effectively and communicate successfully. Planners therefore devote much effort to the design of participatory decision processes and the deployment of attractive visualization aids.

“Scientific” planning, a substantively rational perspective that brings the best possible information to planning questions and devotes effort to creating quantitative models of urban systems, has an uneven history. Sometimes the information has not been quite timely enough, and the models have not been quite good-enough predictors of future events to justify their scientific label. Some planners have therefore retreated into proceduralism, acting as advocates on behalf of disadvantaged parties, as mediators between stakeholders and interests, or as technocratic regulators who enforce zoning laws. These perspectives are really just different facets of a well-rounded planning practice that balances substantive and procedural rationality.

In the developing world, planning is a relatively technical discipline that is taught within engineering or architectural schools. The dramatic rural-to-urban migrations taking place in Asia, Africa, and South America have mandated that cities must grow rapidly, infrastructures must strive to guide evolving settlement patterns and catch up to burgeoning demand, and safe, functional buildings must be constructed quickly. These elements of the built environment need to be designed competently and put in place without delays for procedural niceties.

Advanced industrialized countries require planners with more procedural sophistication and a detailed understanding of the public policy context that governs development. At many U.S. and Canadian universities, planning is thus taught within schools of public policy or administration, alongside the more traditional base in architecture schools. This is because more elements of the built environment are already in place, the public is more aware of its rights, the political systems are more open, and public administrators have less latitude to be paternalistic than in the developing world.

Systematic comparisons of the administrative frameworks for planning across countries show important differences. For example:

France has a unitary governmental structure, a strong national legislative framework for planning, development that is largely plan-led, a moderate level of local autonomy in terms of both regulatory authority and fiscal authority, extensive intersectoral and interregional coordination, a moderate amount of administrative flexibility, and its major themes are protection of rural areas and participatory democracy. The landscapes of France maintain their historical connections but also reveal occasional bold, modern statements, showing a muscular approach to planning.

Germany has a federal system of government with much power delegated to the provinces, a strong national legislative framework for planning, development that is largely plan-led, moderate levels of local autonomy and intersectoral and interregional coordination, a moderate amount of administrative flexibility, and its major themes are decentralization, litigation, and accountability. German landscapes vary regionally, with historical themes dominating in some areas and the vast, postwar construction boom changing other areas dramatically.

Japan has a unitary governmental structure and a strong national legislative framework for planning, but development is led much more by the private sector. The degree of local autonomy is moderate in terms of regulatory authority but high for fiscal issues, there is moderate intersectoral and interregional coordination, high levels of administrative flexibility, and the major themes are protection of rural areas and spurring private development. The rural areas of Japan have gained infrastructure access without losing their character, but many of the cities have exploded with remarkably energetic and chaotic patterns of development that have left planners chasing behind—and cleaning up after—the private sector.

The Netherlands has a unitary governmental structure and a strong national legislative framework for planning,

development is largely plan-led, local regulatory autonomy is moderate but with low local fiscal burdens, there is a very strong intersectoral and interregional coordination, minimal administrative flexibility, and the major themes are public property, consensus, detailed plans, and certainty. Since a majority of the land area of the Netherlands was reclaimed from the sea, it represents an entirely man-made territory and its planners continue to shape the crowded landscape in quite literal terms. Private property is a much nuanced concept here, and a public role in providing everything from flood protection to housing to social services is widely accepted.

The *United Kingdom* has a unitary governmental structure and strong national legislative framework for planning, very little local autonomy, very strong intersectoral and interregional coordination, high levels of administrative flexibility, and the major themes are green belts and development as a privilege not a right. The British landscape exhibits the best and worst of publicly led planning, with too many dystopic “new” towns and council estates that a new generation is now plowing under, but also some of the world’s nicest, most easily accessible countryside and imaginative urban developments.

The *United States* has a federal governmental system, no national legislative framework for planning, development that is led largely by the private sector, high levels of local regulatory and fiscal autonomy, very low levels of intersectoral and interregional coordination, a high degree of administrative flexibility, and major themes that include localism, protecting private property rights, and separation of land uses. The U.S. landscape shows the results of privately led development in a land-rich country, with astonishing degrees of residential segregation by race and income, wasteful and land-consuming development patterns, underinvestment in infrastructure systems and urban cores, and, at the same time, remarkable levels of innovation in new patterns of spatial development that reflect changing economic and technological drivers.

These vignettes illustrate that there are also common themes that apply to planning as practiced around the world. First, local planning activities always have an intergovernmental context that strongly influences resource availability and outcomes. An implication is that planning has coordinative, even entrepreneurial elements if it is done well. Second, there are standard substantive topics that planners work with, including land use; housing; transportation and other network infrastructures; environmental services; employment; the retail mix to serve local consumer needs; the mix of public services needed by residents that includes schools, public safety, waste management, and serving the needs of special populations; and managing the cultural patrimony of places as they undergo dramatic change. Geographic information systems have become essential tools for planners all around the world; and standardized data sets such as national censuses of the population, housing, and businesses have become key parts of the knowledge infrastructure of planning.

Three products have defined planning practice in the United States and elsewhere: master plans; regulations, especially for zoning; and capital improvement plans. Each has changed in recent years.

A master plan, also called a comprehensive plan, lays out a vision for future development of a place and it is periodically updated. It includes a narrative describing goals and objectives; inventories—often in the form of maps—of land use patterns that show environmental characteristics, transportation and network infrastructure system characteristics, housing, commercial, industrial and institutional land areas and buildings; discussions on problem areas such as accident-prone intersections or unmet housing demand; and it ends with specific recommendations describing the desired future pattern of land uses.

In recent years, master plans have incorporated new societal norms such as sustainability, historic preservation, and mitigation of global climate change. These themes become objectives to be addressed in the master plan. Another recent change has been a greater emphasis on metrics for measuring progress toward the achievement of each objective. Master plan updates are now full of trend data and targets.

To provide day-by-day guidance aligned with the objectives of a master plan, jurisdictions implement regulatory frameworks, known in the U.S. context as zoning ordinances. A zoning ordinance specifies what is allowed within each land use category identified in a master plan: which uses, activities, physical design constraints, and operational obligations accompany development.

Most U.S. jurisdictions still rely on Euclidian zoning (named not for the famous geometer, but for a Supreme Court case, *Euclid vs. Ambler*) that separates land uses from one another and specifies acceptable levels of performance along many dimensions. For example, the ordinance may specify minimum setbacks of buildings from the property line, minimum number of parking spaces per housing unit or employee, maximum building heights, and even appropriate roof colors.

In recent years, dissatisfaction with overly prescriptive ordinances that choke off design creativity, and a rigid separation of uses that prevents the construction of livable, mixed-use communities, has led to innovations. One such is form-based zoning, in which hundreds of pages of legalistic detail are replaced with a few dozen pages of text filled with illustrations. The intent is to provide planning boards and zoning boards of adjustment with general guidance about desired outcomes, trusting their judgment on how to get developers to achieve those outcomes. Another innovation is a rural-to-urban transect-based “smart” code that acknowledges the need within every jurisdiction to have a range of densities and a mix of land uses. So, instead of a separation of uses, it emphasizes putting combinations of uses together in locations that are appropriate.

Finally, the capital improvement plan is meant to establish investment priorities for infrastructure and public buildings. It

looks forward over decades to ensure that public investments keep up with private development, maintenance expenditures do not fall by the wayside, and the capital stock gets replaced as it depreciates. Unfortunately, this document receives much less attention than it deserves in many jurisdictions, with the result that capital expenditures seem *ad hoc*.

Some U.S. states have started to encourage localities to pay more attention to capital improvement plans by tying state matching funds to the preparation of these planning documents. They are also using these intergovernmental financial relationships to encourage consideration of public objectives including sustainability, affordable housing, and clean water.

Planning intersects with environmental science and engineering in many ways, because settlement patterns are such a powerful determinant of environmental performance. Air quality is strongly influenced by automobile-dependent settlement patterns, locations of industrial emitters, and provision of green space. Water quality is driven by the contents and locations of storm water runoff, sewerage and septic system arrangements, and water withdrawal practices. Soil contamination and degradation, and the health of the biota are likewise linked to our use of land and our settlement patterns.

A closing example illustrates how these fields could relate to one another more productively. Mitigating climate change will require rapid afforestation in exurban areas, adoption of cleaner and more efficient forms of energy for transportation and buildings, and changes in consumer behavior. More compact settlement patterns, with better-rationalized locations for employment and residences, could, over time, reduce the carbon footprint of daily life significantly. Engineering solutions, such as switching away from fossil fuels and installing energy-efficient light bulbs could do the same thing. The planning and engineering solutions ^{ought} to be compared in cost effectiveness, time frame, and feasibility in order to create integrated mitigation strategies, whereas they currently exist as incommensurable categories. The same disconnect applies to the challenge of adapting to climate change, with planners discussing orderly retreat from coastlines and engineers discussing levee heights, for example. Working together, environmental scientists, engineers, and planners can do better.

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