EVALUATION IN THE DIGITAL AGE

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1. Introduction

As the convergence of computers and communications continues, every aspect of the city is becoming computable. We face the prospect of a world in which the science that we use to analyze and plan is simultaneously changing that very world. In an era of such immediacy, the role of science and of planning begins to change for we can contemplate involving many interests hitherto excluded, previously peripheral to the design of the future. Digital communications, the net and virtual reality systems where the emphasis in on linking all to all through the visual media herald a multitude of opportunities for the many to interact and decide where few have done so in the past. We chart this emerging world where seemingly unlike phenomena and interests can be juxtaposed. To give some sense of where we might be heading, we demonstrate three possible pointers: first how the science of cities built around mathematical models developed by the very few might be made accessible to the many through VR systems; second how we can develop network-based systems where the many can interact remotely and discuss planning and design online within a visual context; and third, how the many can develop their own analyses though simple software which enables them remotely to explore and manipulate data through their own GIS.

In all these possibilities for applying computers to planning, evaluation is central. Evaluation is the process of assessing the relevance of plans but it is also central to the way diverse interests who are not usually involved in the scientific design of planning proposals bring their interest to the process. In this, the dramatic developments in ways of communicating using new digital media are central and although computers can be used at every stage of the planning process, it is in evaluation that the greatest opportunities for using the new media lie.

As we approach the millennium, it is not computers or communications systems per se that will dominate the way we will understand, plan and build our cities of the 21st century but the very activity of digital computation. It is digital computation that represents the singly most important transition from the industrial to the postindustrial world. Computation does not simply mark the divide between mechanics and

N. Lichfield et al. (eds.), Evaluation in Planning, 251–272.

electronics but between the world of the tangible, hard, material, and the emerging world of the intangible, soft, ethereal. Over half a century ago, the great pioneers of computing, Turing and von Neumann, and before them, Godel, Boole, and back to Leibniz, realized if phenomena could be represented using binary distinctions, then there was the prospect of building a single machine which might manipulate phenomena of very different kinds. These pioneers invented the basic logics which showed that digital computation was possible but they did not invent the machine - the computer. These came from a very different source, and during the last 50 years, society has been dominated by the development of ever more powerful computers. In this headlong rush, the notion that everything might ultimately become computable using these same machines has, at best, remained implicit. Apart from some prescient speculation such as the insight of Vannevar Bush (1945), only now is there a dawning realization that the age of the universal machine is almost upon us.

Computation is about manipulating phenomena which can be represented digitally. Until quite recently, most computation was concerned with manipulating digital artifacts on single computers where the purpose has been to produce some result or product, which is then input to some other set of activities, often nondigital. But in the last decade and especially since the rise of the internet as a global phenomena, the emphasis in computation has changed from manipulation to communication of data and ideas. The quest is increasingly communication and it is the process rather than the product which is all important. This has, of course, become possible from a convergence of computers with communications systems whereby digital information can be transmitted at high speeds across networks, thereby enabling computation to take place 'at-a-distance'. Computation is becoming a strange mix of manipulating data and ideas but communicating the same for diverse purposes. And some products particularly those that relate to abstract concepts such as scientific ideas, financial transactions, and various forms of entertainment might never leave the digital media, existing entirely in digital space, in cyberspace as it has come to be called (Whittle, 1997).

It is the notion of 'communication' that raises the prospect that cities might be computable. Cities exist to facilitate communication, first and foremost as market places where trade is initiated and goods are exchanged. These markets have hitherto always been places where some physical transaction has taken place even though the media might have been symbolic, through money, for example. But the prospect is before us that these markets might not longer reside in the material realm, that there now exist goods and services which will remain entirely in the ethereal realm and whose manipulation will inevitably be mediated through computation. This notion was raised nearly 40 years ago by Richard Meier (1962) in an early prelude to the computable city, and it was foreseen in Mel Webber's (1964) nonplace urban realms, and in the concept of the transactional city (Gottman, 1983). Of course, the idea that cities might be entirely computable is far fetched and it is difficult to foresee a time when cities will not be places where the material and the ethereal will interact in subtle and confusing ways.