

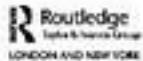
Digital Infrastructures

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Digital Infrastructures

Enabling Civil and Environmental
Systems through Information Technology

Edited by
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An invisible network of digital technology systems underlies the highly visible networks of roads, waterways, satellites, and power-lines. Increasingly, these systems are becoming the D nrastructure's infrastructure, D ' providing a crucial array of data on network demand, performance, reliability, and security. Digital Infrastructures presents an interdisciplinary analysis of the technological systems that envelop these networks. The book balances analyses of specific civil and environmental infrastructures with broader policy and management issues, including the challenges of using IT to manage these critical systems under crises conditions. Digital Infrastructures addresses not only the technological dimension but, importantly, how social, organizational and environmental forces affect how IT can be used to manage water, power, transport and telecommunication systems. The book is organized four sections. First, fundamental themes of policy, management, and technology are presented to frame the domain of digital infrastructures. Second, the way in which information technologies are applied in specific infrastructure sectors provides an in-depth assessment of what the advantages and disadvantages have been over time. Third, cross-cutting themes of economics, earth systems engineering, and international sustainability show how various systems perspectives approach some of the barriers to integrating information technology and infrastructure. Finally, the concluding section looks at some of the new directions and challenges being posed by issues such as security. Digital Infrastructures is the first integrated treatment of how IT technology is fundamentally affecting how critical infrastructures are managed. It is geared to provide the new infrastructure professional with state of the art concepts, methods, and examples for use in creating public policies, strategic plans, and new systems. It will be an essential book for upper level undergraduate and graduate courses in infrastructure management, critical infrastructure, environmental systems management, and management of IT systems.

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