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ENVIRONMENTAL DESIGN

Cities are getting hotter, but we can redesign them to keep us cool

“As days of extreme heat get more common, there are a few simple solutions that cities around the world are implementing to keep people a little more comfortable.”
Source: Fast Company

DIGITAL DISRUPTION

How Cities Should Prepare for Artificial Intelligence

“To realize the potential of AI, city administrations have to work with local employers to plan for new opportunities — along with possible painful transitions — that their communities may experience ... In order for these economies to continue to prosper, cities — along with organizations and education experts — need to assess and prepare for AI-related skills gaps.”
Source: MIT Sloan Management

The age of artificial intelligence: Cities and the A.I. edge

URBAN TRANSPORT

Equality of public transit connectivity: the influence of mass rapid transit services on individual buildings for Singapore

“In this paper, we propose a graph-based Public Transit Connectivity (PTC) index to measure the accessibility of individual buildings focusing on transportation factors. A large-scale graph is created to connect all buildings in the city through multi-modal public transit services.”
Source: Transportmetrica B: Transport Dynamics

An urban consolidation center in the city of Copenhagen: A simulation study

“Urban consolidation centers (UCCs) have a key role in many initiatives in urban logistics, yet few of them are successful in the long run. The high costs often prevent attracting a sufficient number of UCC users. In this paper, we study sustainable business models and the supporting role of administrative policies.”
Source: International Journal of Sustainable Transportation

Moving past the sustainable perspectives on transport: An attempt to mobilise critical urban transport studies with the right to the city

5G

5G as an Enabler of Smart Nations in Asia-Pacific

“Asia-Pacific is on track to become the largest adopter of 5G by 2025. When 5G is implemented, it is typical to focus on smart city applications. Mobile network operators must look at smart cities—for initial volume—to get 5G at the right price point for the mass market. 5G can address gaps within smart cities, which will open up opportunities for enterprises in terms of new services and business models.”
Source: Frost & Sullivan

INNOVATIVE CITIES

Dell 2019 Women Entrepreneur Cities (WE Cities) Index

“The 2019 Dell Women Entrepreneur Cities Index (WE Cities) report measures a city’s ability to attract and support high potential women entrepreneurs. The 2019 WE Cities index ranks those 50 cities again and provides an analysis of how cities have improved relative to the 2017 benchmark year.”
Source: Dell Technologies
“Artificial intelligence (AI) is tipped to power the fourth industrial revolution. AI practitioners are now able to do a lot more, and at a quicker pace, to shape the way people live and work in cities. Insight looks at how six Asian cities - Singapore, Seoul, Tokyo, Taipei, Padang (Indonesia) and Lucknow (India) - are using AI variously to predict employee flight risk and crop yield, fight illegal logging, and be more inclusive to the elderly and people with disabilities.”
Source: The Straits Times

**INNOVATIVE CITIES**

The next start-up cities that will transform the global economy

“There will be no ‘new Silicon Valley’ - but there are a pack of up and coming cities with thriving ecosystems for start-up ventures.”
Source: World Economic Forum

**URBAN TRANSPORT**

Advanced traffic management is the next big thing for smart cities

“Traffic data and analytics company INRIX estimates that traffic congestion cost U.S. commuters $305 billion in 2017 due to wasted fuel, lost time and the increased cost of transporting goods through congested areas. Given the physical and financial limitations around building additional roads, cities must use new strategies and technologies to improve traffic conditions.”
Source: GreenBiz

**SMART CITIES**

A survey of data fusion in smart city applications

“The advancement of various research sectors such as Internet of Things (IoT), Machine Learning, Data Mining, Big Data, and Communication Technology has shed some light in transforming an urban city integrating the aforementioned techniques to a commonly known term - Smart City… To this end, we introduce a multi-perspectives classification of the data fusion to evaluate the smart city applications.”
Source: Information Fusion

A Conflict-Detecting and Early-Warning System for Multi-Plan Integration in Small Cities and Towns Based on Cloud Service Platform

“This article presents a system to assist small cities and towns to carry out their multi-plan integration (MPI) tasks. The system, named conflict-detecting and early-warning for MPI (CDEW4MPI) is developed based on a cloud service platform. CDEW4MPI enables small cities and towns in remote locations to detect inconsistency and conflicts among multiple plans.”
Source: Smart Cities

Performance evaluation of FIWARE: A cloud-based IoT
platform for smart cities
"... These devices are expected to generate significant amounts of data requests at high data rates, therefore, necessitating the performance benchmarking of IoT platforms to ascertain whether they can efficiently handle such devices. In this article, we present our results gathered from extensive performance evaluation of the cloud-based IoT platform, FIWARE.”
Source: Journal of Parallel and Distributed Computing

FOCAN: A Fog-supported smart city network architecture for management of applications in the Internet of Everything environments
"... this paper presents a Fog-supported smart city network architecture called Fog Computing Architecture Network (FOCAN), a multi-tier structure in which the applications are running on things that jointly compute, route, and communicate with one another through the smart city environment.”
Source: Journal of Parallel and Distributed Computing

Smart cities: Advances in research—An information systems perspective
"This study provides a valuable synthesis of the relevant literature by analysing and discussing the key findings from existing research on issues related to smart cities from an Information Systems perspective. The research analysed and discussed in this study focuses on number of aspects of smart cities: smart mobility, smart living, smart environment, smart citizens, smart government, and smart architecture as well as related technologies and concepts.”
Source: International Journal of Information Management

ENVIRONMENTAL DESIGN

The application of a high-density street-level air temperature observation network (HiSAN): The relationship between air temperature, urban development, and geographic features
"The urban heat island effect in cities has become an important problem in relation to not only urban climate
but also public health and urban planning ... this study investigated the urban thermal condition by employing a high-density street-level air temperature observation network (HiSAN) ..."
Source: Science of The Total Environment

**WATER MANAGEMENT**

Floating treatment wetlands as a suitable option for large-scale wastewater treatment
"In many developing countries, there are limited or insufficient wastewater treatment infrastructures. Floating treatment wetlands (FTWs) can be a cost-effective phytoremediation approach to treat various types of wastewater ..."
Source: Nature Sustainability

Efficient numerical incorporation of water management operations in integrated hydrosystem models: Application to tile drainage and reservoir operating systems
"Hydrologic control structures are designed to connect or disconnect water movement in natural surface water-groundwater systems, and it is important to represent these features effectively within a finite difference/element model without over-discretization. This study presents efficient numerical schemes for operating water allocation and water rights systems in integrated hydrosystem models."
Source: Journal of Hydrology

**SUSTAINABLE CITIES**

Sustainable cities: The relationships between urban built forms and density indicators
"The paper introduces a novel indicator of urban built form termed Form Signature. Generic models of four urban built forms are developed including pavilion, terrace, court and a newly introduced tunnel-court which are used to compare and contrast their land-use performance and density characteristics ..."
Key aspects of building retrofitting: Strategizing sustainable cities

“This paper uses a business perspective to analyze and compare three major retrofitting interventions under implementation in three different European cities, Nantes, Hamburg and Helsinki, to capture the principal needs and challenges and to identify governance recommendations for local authorities on building retrofitting replication and scale-up strategies.”
Source: Journal of Environmental Management

Towards modern sustainable cities: Review of sustainability principles and trends

“This paper reviewed each element needed to make a functional sustainable city. We adopted a simple approach; we explained each sustainability principle, highlighted its core values and gave reasons why it is an important candidate to be considered in making a working city.”
Source: Journal of Cleaner Production