Edison Electric INSTITUTE

Urbanization and the Need for Smart Cities

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Roundtable on "The Role of Smart Cities in Energy Transformation in ASEAN"
Singapore International Energy Week

Singapore
October 31, 2019

GRAND CHALLENGES & OPPORTUNITIES

- CLIMATE CHANGE
- URBANIZATION
- POPULATION GROWTH
- RESOURCE SCARCITY AND ABUNDANCE
- POVERTY
- TRUST DEFICIT
- THE PACE OF CHANGE
- RESILIENCE and SECURITY
- LEGACY MENTAL MODELS FOR A NEW WORLD

New
Thinking

Electrification of Urban and Rural Futures

CITIES - THE EPICENTERS OF URBANIZATION

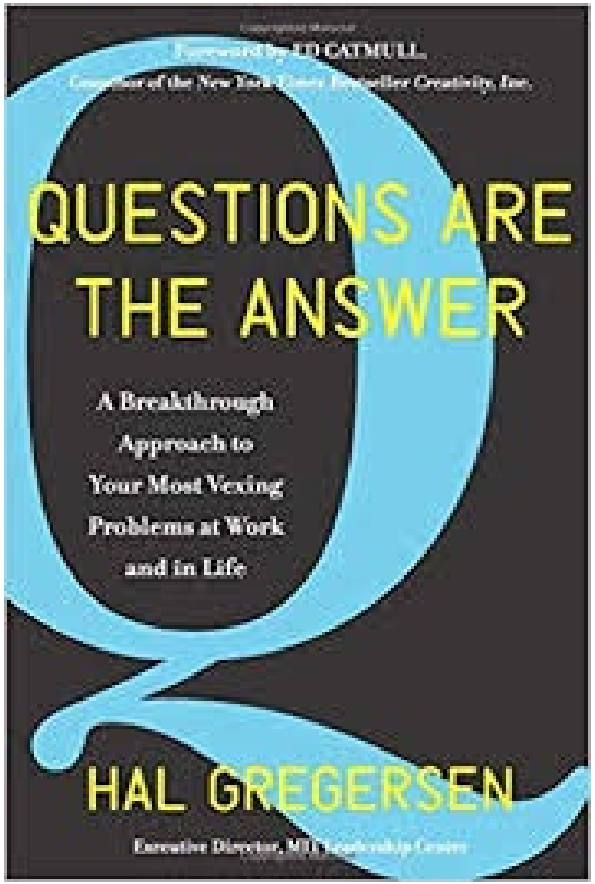
“Urbanization is one of the planet’s greatest challenges. It is also ripe with the fruits of opportunity which, if harvested, can create a more equitable, sustainable world for all. Because cities are the epicenters for reimagined urban life, our focus for transformed urbanization begins with cities.

Can we reimagine cities – large and small – and adopt the principles of reinvention, to let go of the past, to imagine possibilities that don’t yet exist and create new livable urban spaces?

Can we move beyond the status quo to a new set of ground rules that challenge everyone to think differently, to ask the hard questions which ultimately produce transformative outcomes for cities? “

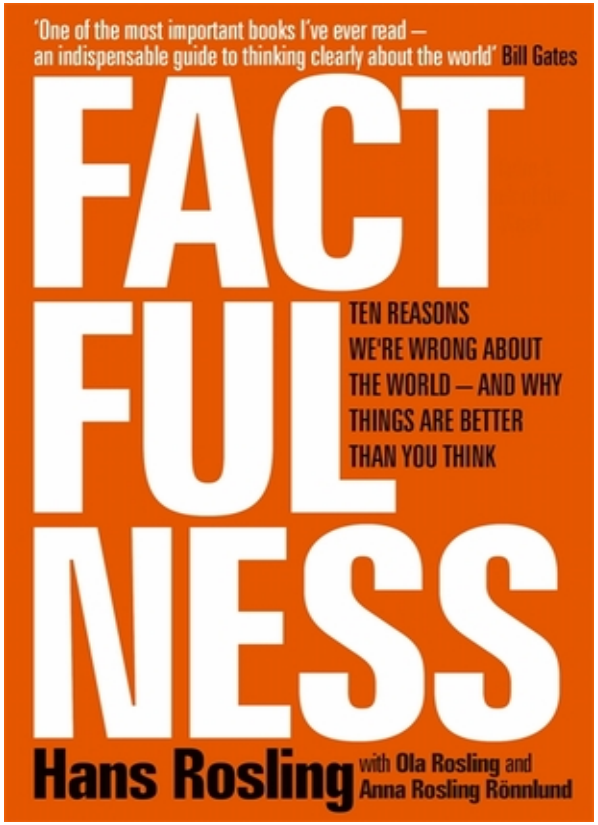
From “**Rethinking, Reimagining Global Urbanization: The Hard Questions for Urban Leaders”** by Sandra Baer & Lawrence Jones. November 2019

To Rethink, Reimagine, and Reinvent, One Must Question

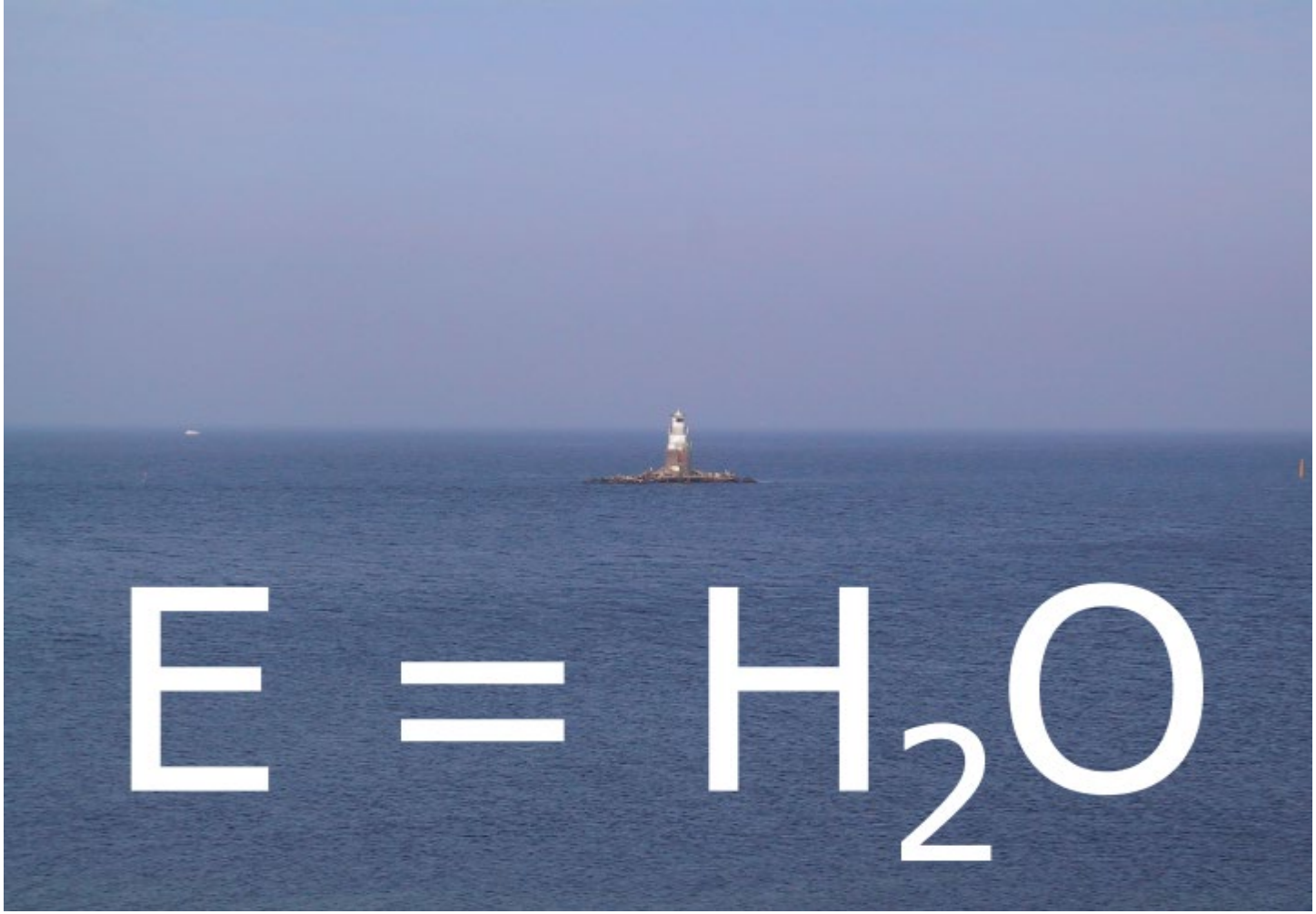


"The bigger the problem or opportunity in the world, the bigger the insight we need – and the bigger the questions we should be prepared to ask" - Hal Gregersen

Question Today's Facts Before Reinventing the Present to Create the Future



Duality of *Scarcity and Abundance*



Courtesy of Prof. Gustaf Olsson, Sweden

Waste-to-Energy-to-Poverty Reduction

Choices Have Consequences

2018 Natural Disaster Events & Losses

Top 10 Global Economic Loss Events

Date(s)	Event	Location	Deaths	Economic Loss (Billion USD)	Insured Loss (Billion USD)
Oct 10-12	Hurricane Michael	United States	32	17.0	10.0
Sept 13-18	Hurricane Florence	United States	53	15.0	5.3
November	Camp Fire	United States	88	15.0	12.0
Sept 4-5	Typhoon Jebi	Japan	17	13.0	8.5
July 2-8	Flooding	Japan	246	10.0	2.7
Spring & Summer	Drought	Central & Northern Europe	N/A	9.0	0.3
Sept 10-18	Typhoon Mangkhut	Oceania, East Asia	161	6.0	1.3
July-Sept	Flooding	China	89	5.8	0.4
November	Woolsey Fire	United States	3	5.8	4.5
Aug 16-19	Tropical Storm Rumbia	China	53	5.4	0.3
		All Other Events		123	45
		Totals		**225**	**90**

Source: AON, Weather, Climate & Catastrophe Insight: 2018 Annual Report

2019 Natural Disaster Events

Questions

- What kinds of cities do we want to live in tomorrow?
- What if assumptions behind the projections about urbanization are wrong, and the current trend of urbanization is reversed by 2030 or 2050?
- What if the global south achieved the same level of prosperity, wealth, and standard of living as the global north?

What Does a Smart City Mean to You?

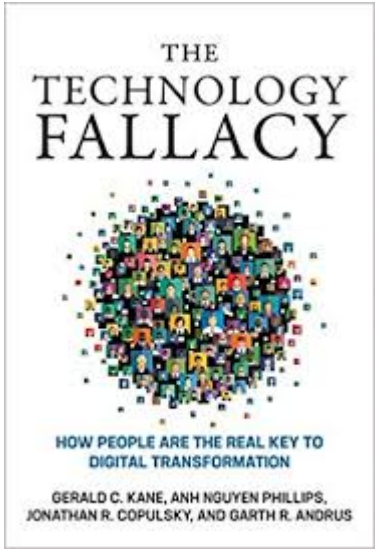
"To me a smart city is like the vitamin to a body. The job of the planner is to make sure the body is healthy. That requires careful, *intelligent planning*. Only on that basis can you then take on vitamins to make the city stronger. The vitamin is the smart part of it, the technology.

My biggest fear is that people think that technology can solve urban problems. It can't. *Urban needs must be met through intelligent planning and design*, which requires real hard work.

The ideal situation is to combine smart technology with *good planning*, but there are not many good examples of that in the world."

Dr. Liu Thai Ker, Singapore's Former Chief City Planner. Interview in *Creating Chemistry*, Issue 8 2019.

Technology and Urbanization



- Is technology the panacea to the problems caused by urbanization?
- How will technology enable planning, design, and delivery of infrastructure services?
- Data is increasingly a valuable raw material. How will decentralized/local hosting of data at the device level, combined with on-demand access of this data affect urban policies and solutions?
- What if technology changes how we travel and experience the world - e.g. virtual reality?
- What if 5G and other 4IR technologies provide similar services and opportunities in rural communities? Will people still migrate to urban centers in large numbers?

FUTURE-PROOFING CITIES

- Planning Long Term
- Resilience by Design
- Financing Urbanization
- Policies for Urbanization
- Managing Infrastructure Transition

TRUST, URBANIZATION AND THE ENERGY TRANSITION

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