

RCE North Texas Annual Summit 2022





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A practical approach to sustainable development

RCE North Texas Summit November 9th, 2022

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We can solve 50% of the wicked sustainability challenge through existing technology and knowledge.

Future innovation will address the last 50% with R&D that is data-driven, economically viable, and accessible

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Practical Sustainability is based on research, behavioral psychology, and real carbon-neutral journeys



"More than **34 million people**, including 9 million children, in the United States are **food insecure**."

– USDA

"Wind and solar power 'bail out' Texas amid record heat and energy demand, while transmission and intermittence issues remain"

– CNN

"Over 600 million children and adolescents

worldwide are unable to attain minimum proficiency levels in reading and mathematics."



"Cities occupy **3% of the Earth's land**, but account for 60-80% of energy consumption and **75% of carbon emissions**."

– United Nations

"TERP has distributed over **\$1.4 billion in grants** to reduce NOx emissions across Texas."



"EPA seeks more **smog controls** in Houston, Dallas after they **fail to meet standards**."



Operating models directly affect our planet's health

Supply chains, products, buildings, and energy drive sustainability challenges, yet also hold the key to solutions.



Supply chains and products Supply chains account for 90% of GHG emissions Product design locks in 70% of total product cost

Buildings

40% contributor to greenhouse gas emissions Traditional tech laggard – more improvement potential

Energy

Second largest contributor to greenhouse gas emissions 66% of energy generated is wasted

Human experience

Overarching purpose behind most behavior Human capital as the ultimate renewable resource

Implementation and adoption

Feasibility to create and adopt sustainable solutions Responsibility to improve societal wellbeing

Create unity: Buildings must complement their natural landscapes



Make sustainability real by mobilizing the operating model

Operating model elements	Traditional (from)	Practical sustainability (to)	Themes	Key ideas
ু A A হির্মু Organization	ShareholderCSR	StakeholderESG	Regenerative future	True ESG with social and governanceDecarbonization as quantified priority
Value chains	ExtractionGlobal sourcing	CircularityProximity to source	Circular commerce	Circular supply chainsPredictive, traceable, ethical products
နှင့်နှ ဂြို်ဂြို People	Physical securityDiversity	Holistic wellnessInclusion	The human experience	Delight by delivering technology for goodEnvironment, health, and safety
IT systems	Point solutionsDumb endpoints	Systems designSmart connected	System of systems	Systems design to tame complexitySecurity and data privacy by design
Decisions	 Profitable Reactive	SustainablePredictive	Digital twin	Contextual and spatial data relationshipsHistoric analysis, real-time status, simulation

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Sustainability focus evolves from efficiency to amplification to innovation



Sustainability at work: Innovating to reach carbon neutral goals

Decarbonize, democratize, digitalize to achieve sustainability

Energy Efficiency

Deploy IT and IoT to reduce energy consumption and drive resource efficiency.

Optimize efficiency through smart automation

Retrofit existing buildings with energy efficient equipment; develop super-efficient new buildings

Reduce electricity intensity; increase and optimize captive solar power generation

Phase out carbon dioxide emissions from fossil fuels and transition to 100% renewable energy

Procure renewable energy from third-party providers and incentivize EV transportation

Offset all remaining emissions

Implement community projects rather than carbon trading – real emission reductions!

Example: Help rural communities embrace low-carbon futures through electrification, biogas plants, and reduced-emission cookstoves

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Carbon offsets for health of society, planet, and enterprise

Circular supply chains require sustainable energy, transportation, and tech

Challenges in a system of systems

- Complex ecosystems of physical and digital systems
- Fault detection and diagnosis are not straight forward
- Intervention in one system can cause issues in another system

Applied Systems Thinking

Identify the problem space which includes causes, effects, and opportunities for improvement

Consider interfaces, architecture, and data points based on problem type and context.

Organize these disparate components into systems that adapt to real world problems

A new approach is needed to address this complexity and realize opportunities...

Sustainability requires design that supports rapid innovation

Problem: Passenger vehicles contribute 41% of transportation emissions

Solution: Formula 1 is the perfect ecosystem to develop sustainable fuel:

- Operating model designed for rapid innovation
- Values functionality over short-term profitability
- Ability to scale innovations to the broader market

Practical sustainability is an agile system of systems

Applied systems design addresses complexity, enables agile techniques and bridges physical and digital worlds.

Infosys Knowledge Institute, 2021

Move stakeholders from confrontation to collaboration

Government-Industry interaction

Innovation ecosystem through policies and subsidies for sustainable practices

Smart and green technology will drive innovation across conventional civic infrastructure as smart cities become viable

Smart and green – and increasingly affordable – technologies power smart cities, from building and traffic management to smart grids and digital inclusion

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Practical Sustainability provides a science-based approach to solve the wicked challenge of sustainability.

Leaders and individuals alike – **take action** today: **influence** policy, **improve** process, and **join** the movement.

The Knowledge Institute – the think tank backed by Infosys

<u>The Knowledge Institute</u> is a multi-disciplinary team of industry, technology, content production, and research experts. Headquartered in Dallas, with offices in New York, London, and Bangalore.

We develop proprietary research insights on digital transformation, sustainability, AI, and cybersecurity, and contribute content to organizations such as the World Economic Forum, MIT Technology Review, and the Harvard Business Review.

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