

Fire Safety Design & Technology

Safety Design in Buildings



Abu Dhabi Conference

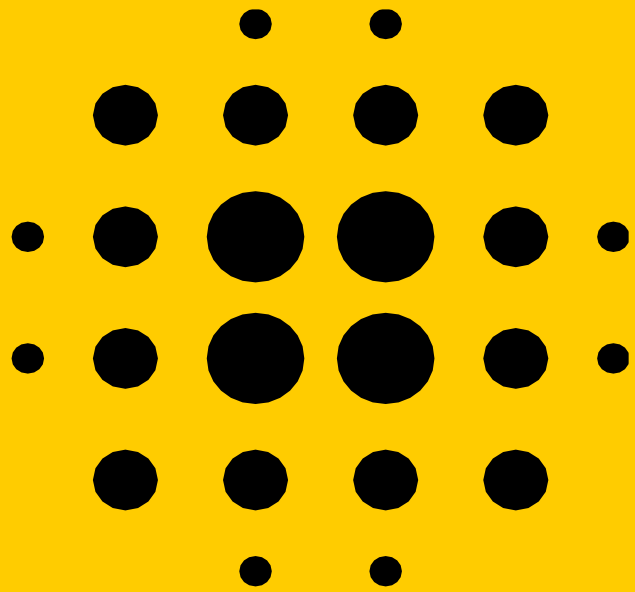
Jumeirah at Saadiyat Island, December 11

Learning Objectives

- 1. How digital is changing our industry – transformational*
- 2. Industry advancement through digital methods*
- 3. Integrating Fire Safety Engineering Tools*
- 4. Animated Fire Strategies*
- 5. Data driven mapping*

A conceptual image featuring a road that curves upwards into a sky filled with clouds. The road is dark asphalt with white lane markings, and it appears to be rising like a ramp. The sky is a mix of blue and white, with some clouds catching the light. The overall mood is one of upward movement and progress.

Transformational Change

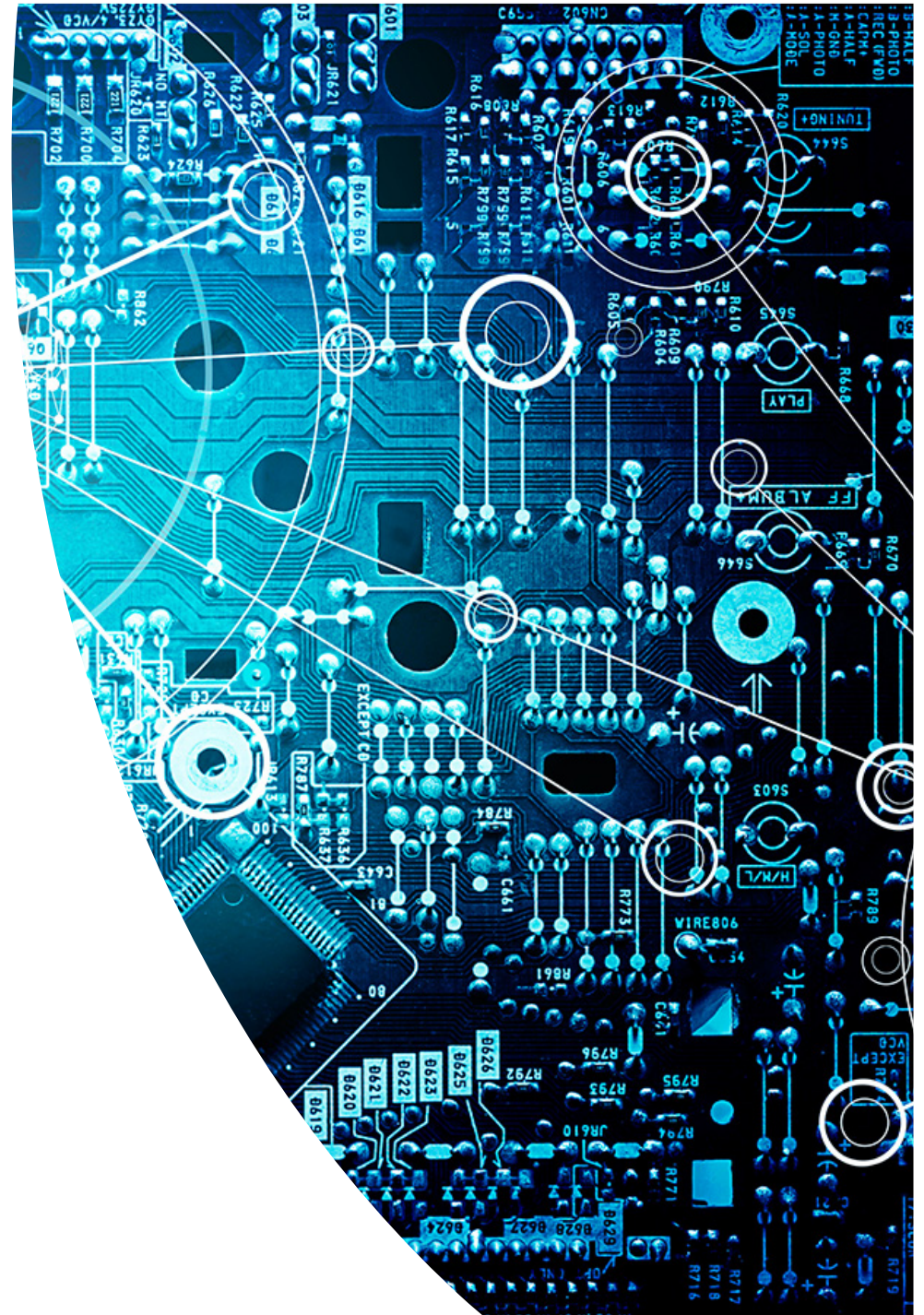



Exponential Thinking

“Technology has advanced more in the last 30 years than it has in the previous two thousand. The exponential increase in advancement will only continue”

Neils Bohr - Physicist

1885 – 1962



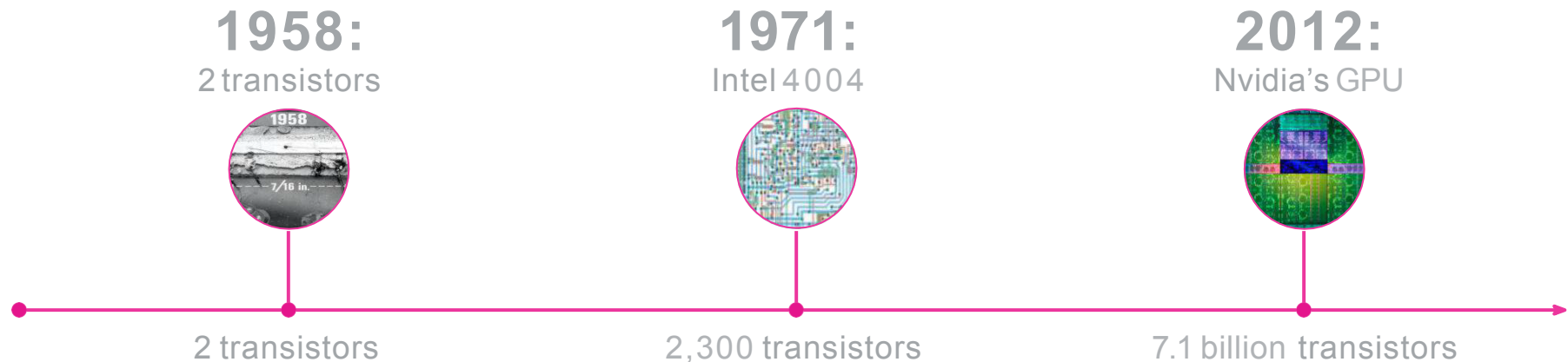
A close-up portrait of Gordon Moore, an elderly man with glasses, wearing a dark suit jacket over a light-colored shirt. He is looking slightly to the right of the camera with a neutral expression.

Moore's Law:

Price performance
of computers doubles
every 18 – 24 months

– Gordon Moore

Integrated circuits



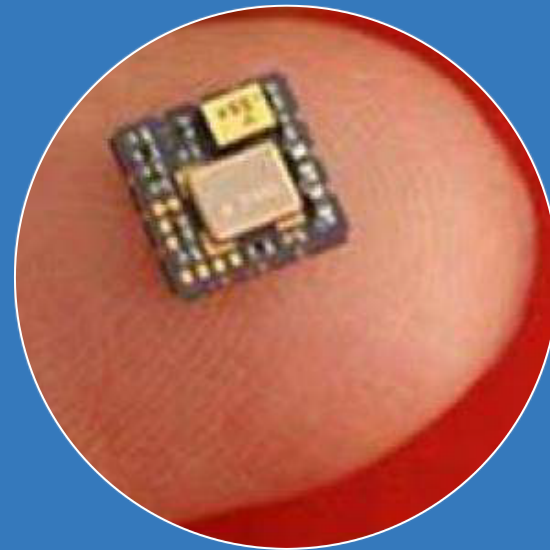
**10K (faster) & 10M (cheaper) →
100 billion-fold improvement (40 years)**

@singularityiu

Exponential growth



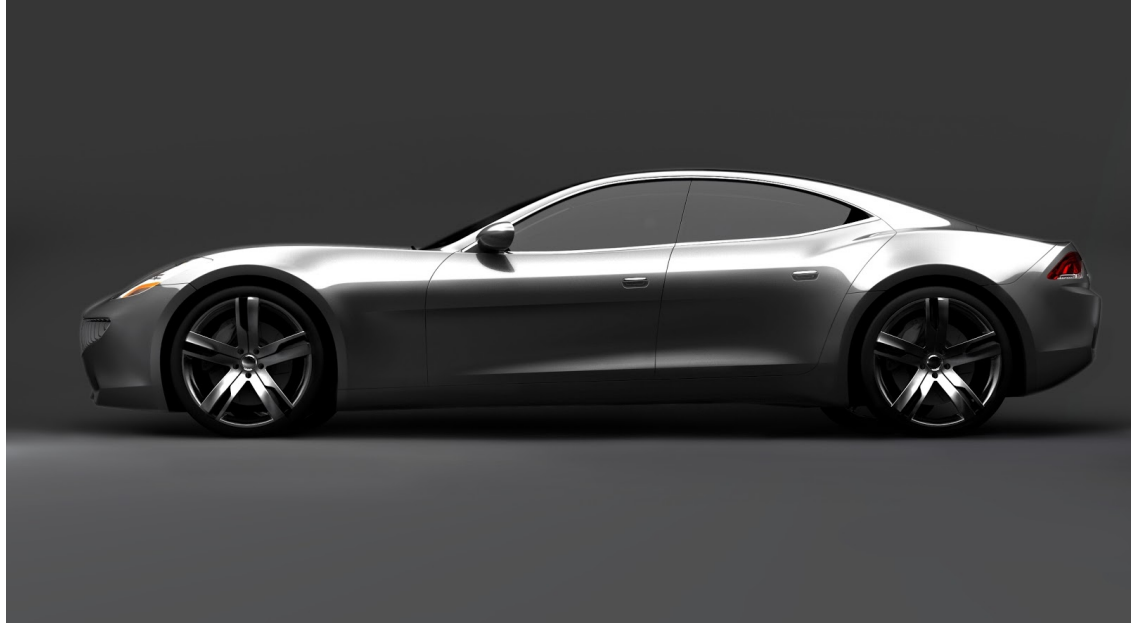
1st commercial GPS receiver in 1981
Weight: 53 lbs; Cost: \$119,900



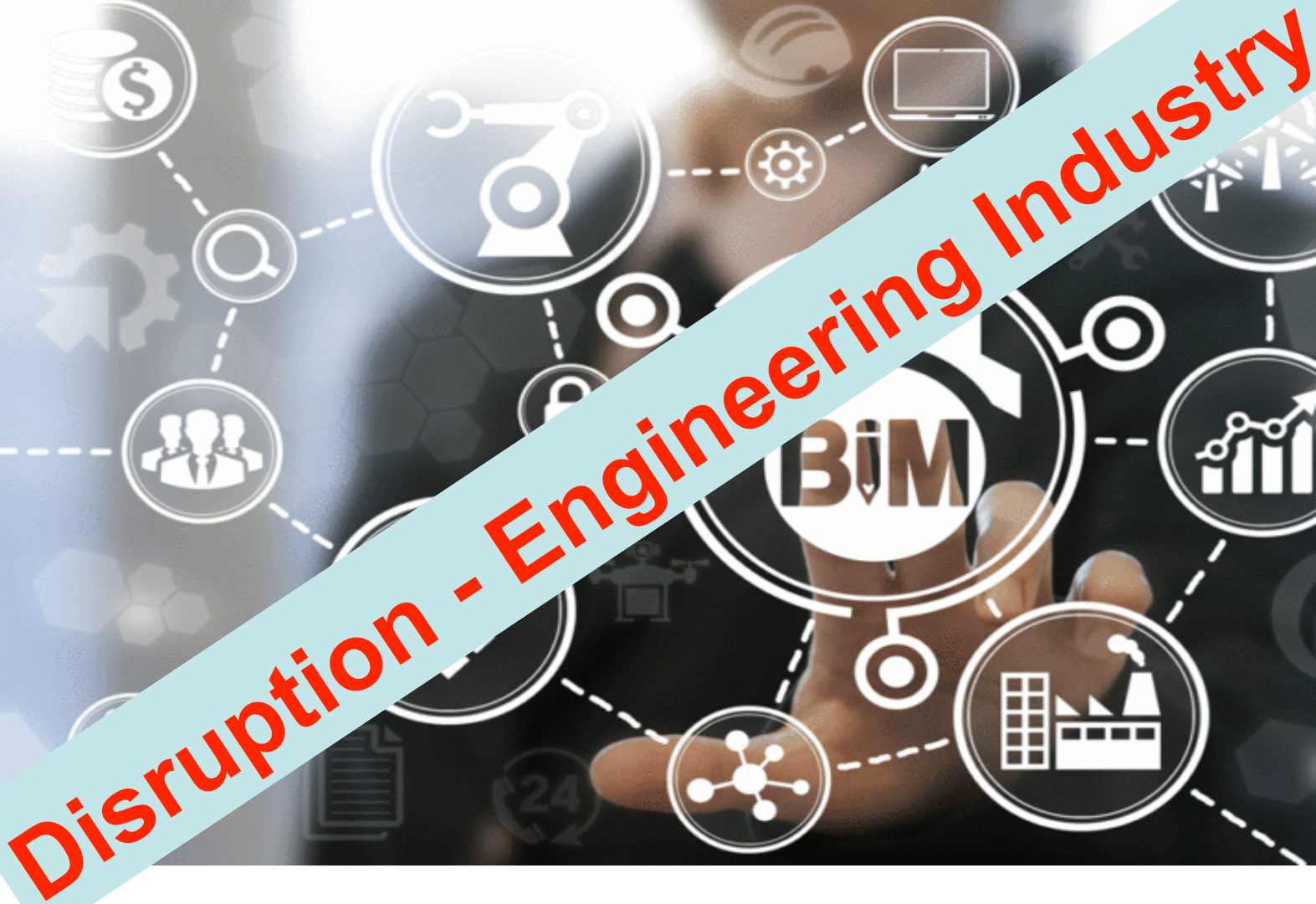
Single-chip GPS receiver in 2010
<\$5 each

Disruption





Automotive Industry



Disruption - Engineering Industry



This is a region on the move....



Construction startup Katerra gets \$865M in Softbank's latest mega-round



Bloomberg Associates

Bloomberg announces \$200 million American Cities Initiative as antidote to White House 'impotence'

wework®

WeWork Becomes World's Fifth Most-Valuable Startup

GOOGLE | TECH | TRANSPORTATION

SIDE | WALK | LABS

Alphabet's Sidewalk Labs aims to transform 16 cities into tech-friendly laboratories

Changes in Industry Landscape

Advancements in Technology have significantly impacted the construction industry

- *Cloud & Mobile Applications facilitate Stakeholder Collaboration and Communication*
- *BIM (Building Information Modelling) has resulted in the lines between digital and physical being much less defined.*

Changes in Industry Landscape

- *Virtual Reality – Creating the ability to provide fully interactive and immersive experiences.*
- *Augmented Reality – Using Tablet or Mobile Devices, Interacting with Real World Components Through a Screen.*
- *Predictive Data Analytics – Analyzing Risk Factors based on historical data*

Opportunities

It is time such forward thinking was implemented in the Fire Engineering Sector of the Construction industry.

We now have the opportunity to modernize our approaches to how:

- *Information is Collected;*
- *Data is Organized & Analyzed;*
- *Strategies are Presented;*
- *Buildings are Monitored Through Their Life Cycle*

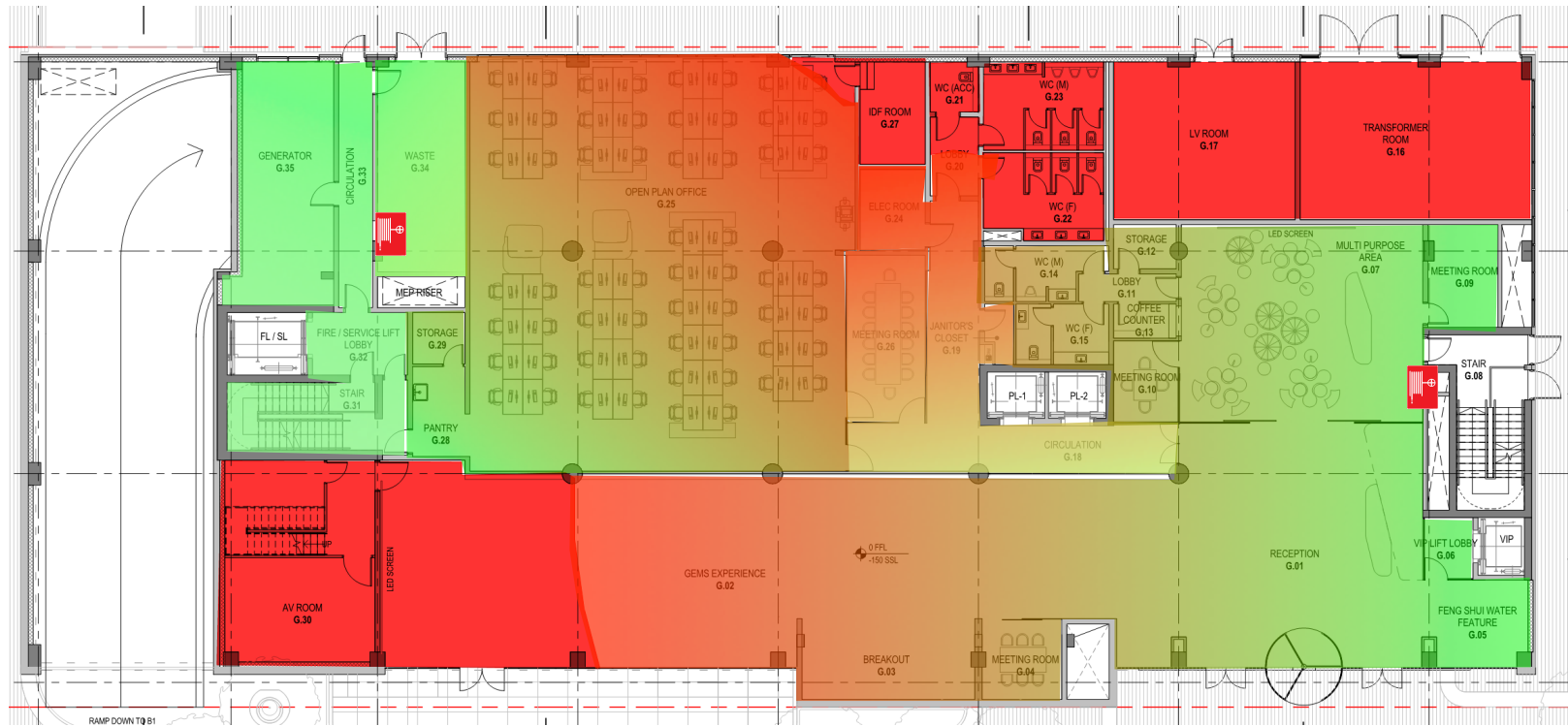
Automating **our core work processes** (travel distance assessments, occupancy loading) through BIM plug in's

With automation we can focus on better outcomes to **improve** the **quality** of our **advice** and the **solutions we deliver**



Automatic Occupancy Calculation and Visualisation



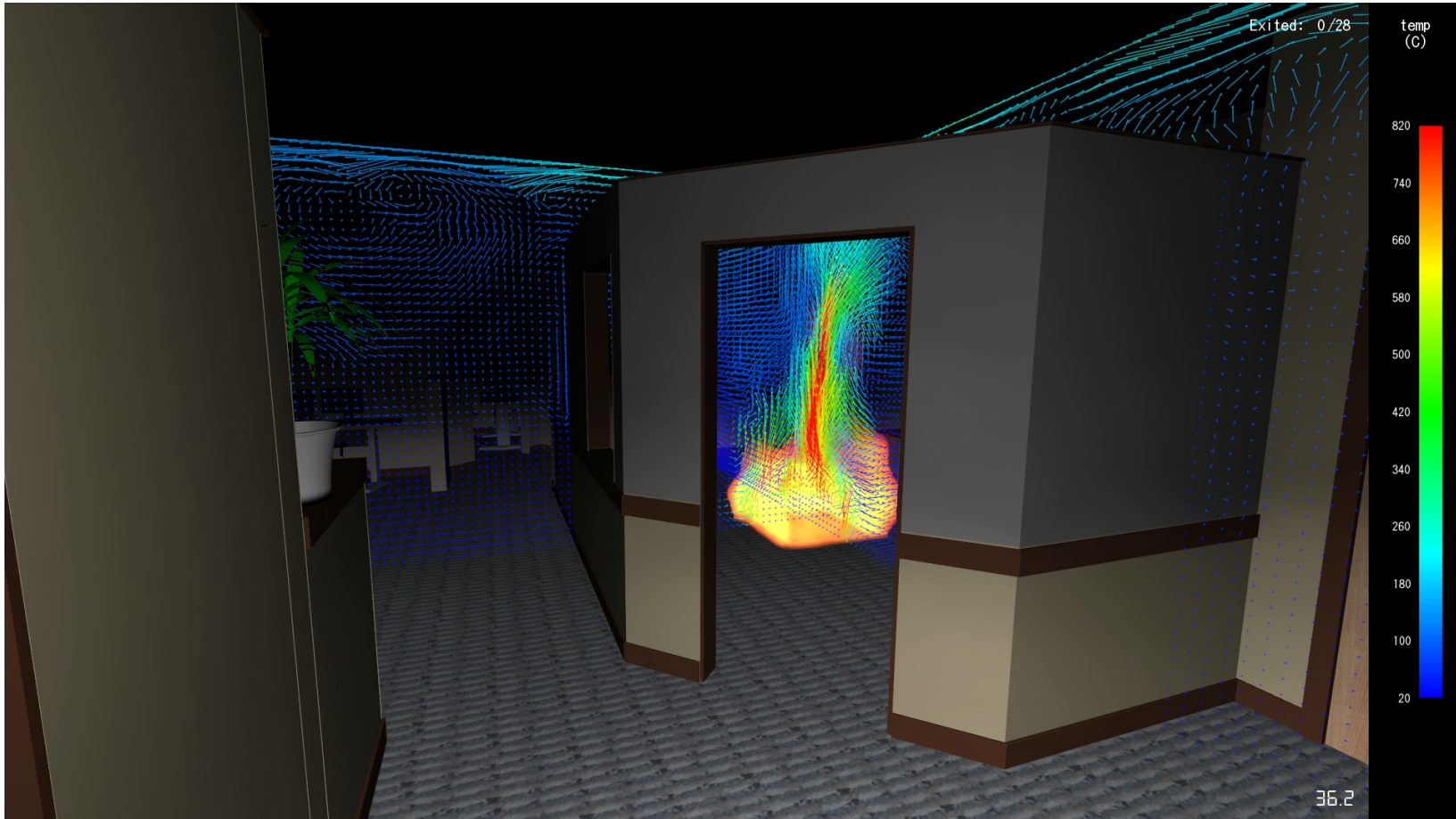


Distance Heat Mapping - Hose reels



Critical thinking and alternative fire engineering design will become more important (automation to cover core fire strategy code compliance)

Integration of tools such as
evacuation, radiation and
smoke control software



Evacuation / CFD Model Visualisation (Courtesy of Thunderhead Engineering)



Evacuation / CFD Model Visualisation (Courtesy of Thunderhead Engineering)

Digital Fire Strategies

Animation

Stronger visuals and Animation

- Consolidated Summary to aid Civil Defence approvals
- End user operations
- Training & Trials
- Fire Safety Management
- Effective Record of Fire Safety Strategy

Augmented reality to test designs (i.e. evacuation route planning and placement of exit signs), present to Civil Defence for approvals, for operational readiness trials etc.

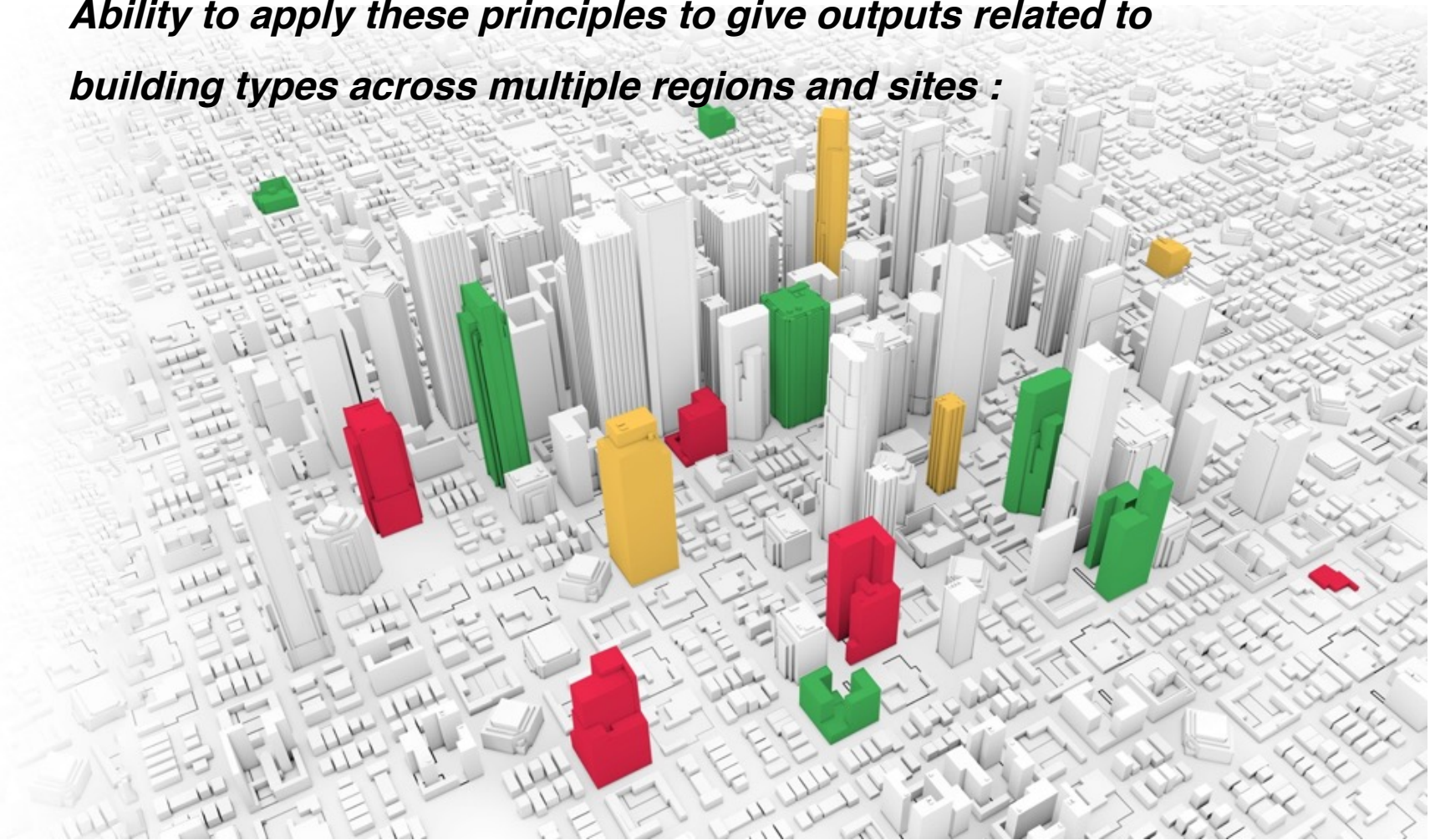
Data Analysis

Utilizing data gathered over multiple project sites, it would be possible to:

- *Provide Real time Assessments of Building Performance During Operation.*
- *Allow property owners to manage risk more easily.*
- *Optimizing risk assessments and inspection works, resulting in cost saving*

Data Analysis

Ability to apply these principles to give outputs related to building types across multiple regions and sites :



Concluding Remarks

- Embrace the technologies that are available
- Use these tools for better design and co-ordination
- Use these tools for better illustration and record of the Fire Strategy Design
- Automation – efficiency and cost effectiveness
- It's time to disrupt the fire and life safety industry!

Thank You

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