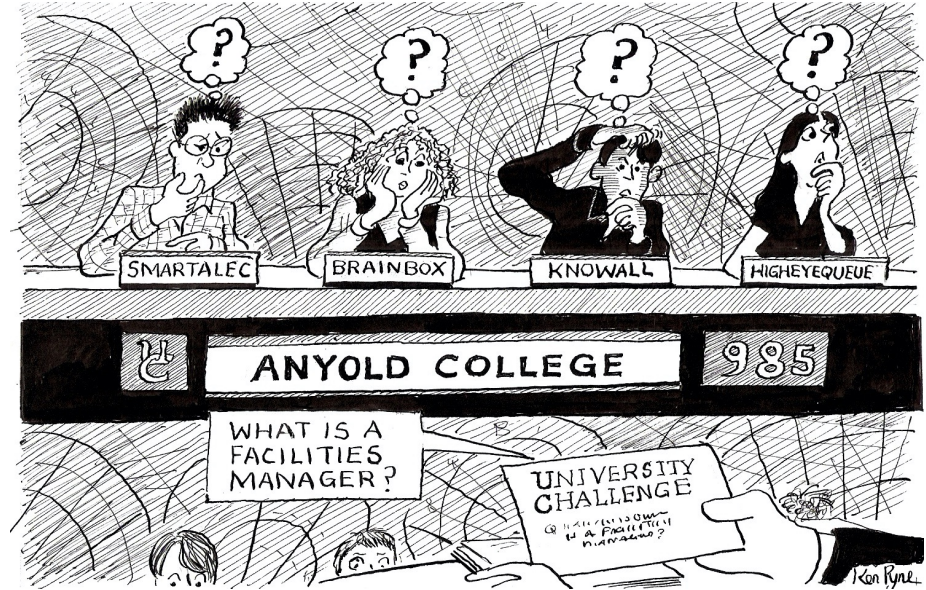


Workplace Futures Conference

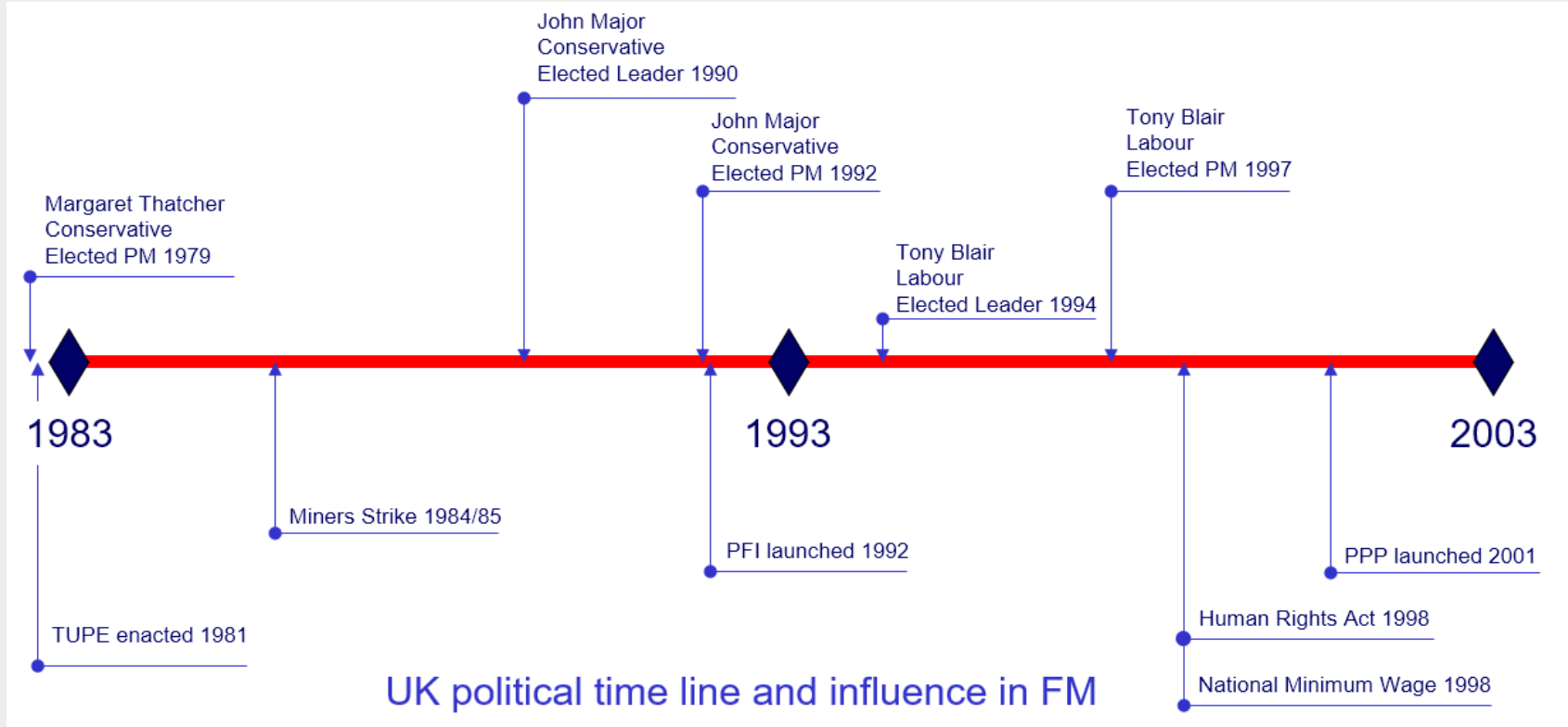
Time's Gone

The influence of technology
in FM over the years

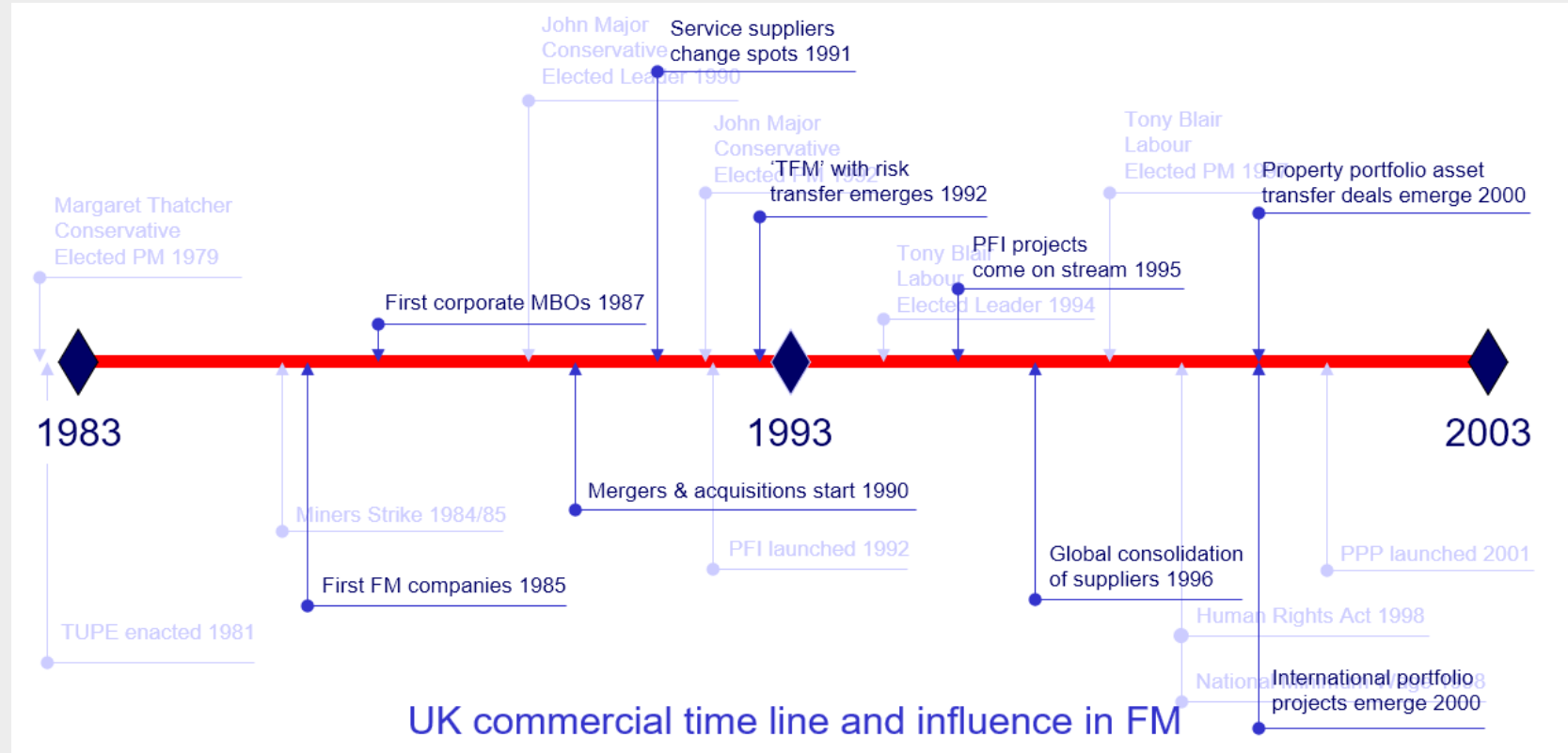
Lionel Prodders
Managing Director
Agents4RM International
www.agents4rm.com



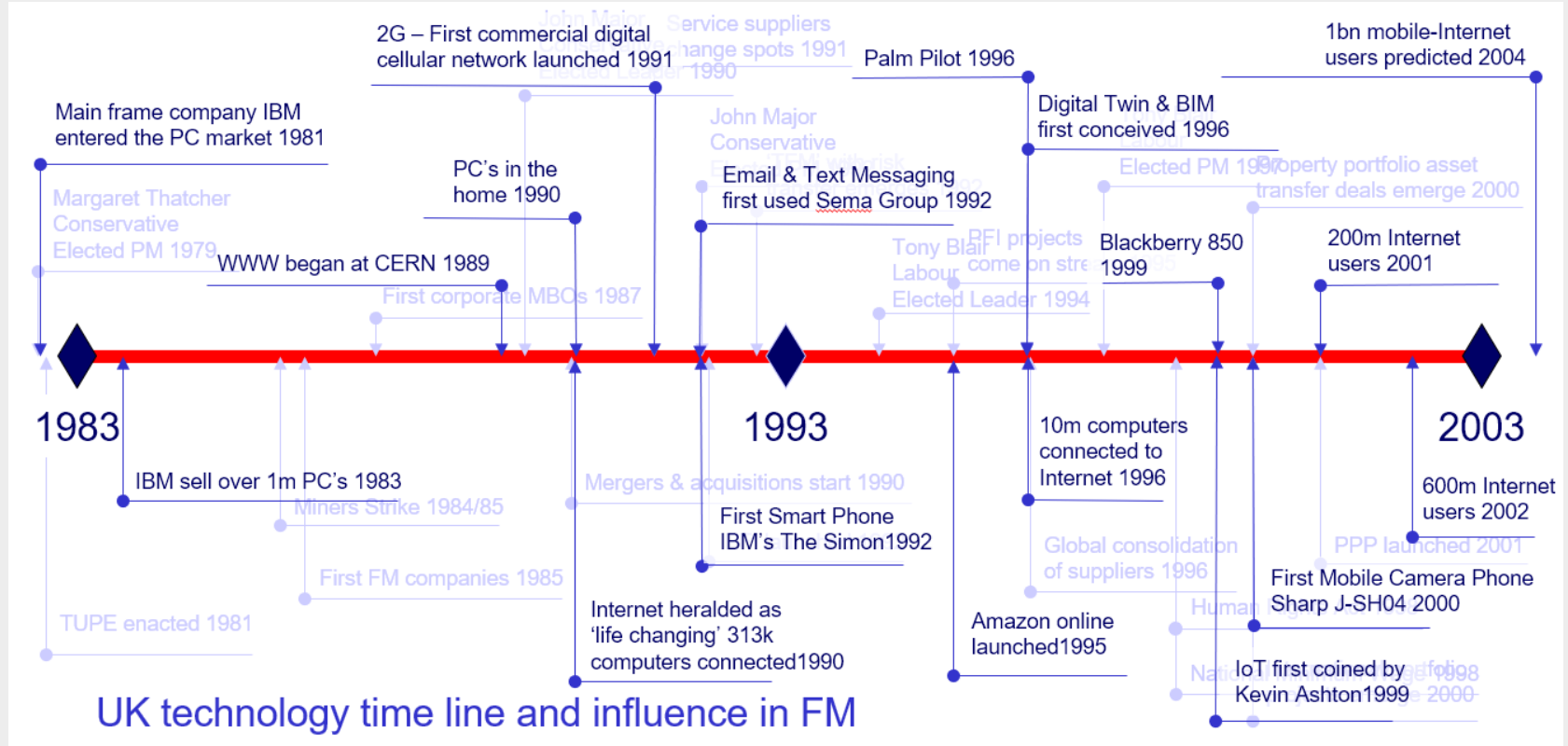
EuroFM Conference - Budapest 2003



EuroFM Conference - Budapest 2003



EuroFM Conference - Budapest 2003



Inventions relating to facilities and the built environment

Glass	- 2500 _{BC}	Phoenicians	Lebanon
Vending machine	- 100 _{BC}	Hero of Alexandria	Egypt
Flush Toilet	- 1591	Sir John Harington	UK
Thermostat	- 1830	Andrew Ure	UK
Elevator (passenger)	- 1852	Elisha Graves Otis	USA
Reinforced concrete	- 1867	Joseph Monier	France
Light bulb	- 1879	Thomas Alva Edison	USA
Sky scraper (steel frame)	- 1884	William Le Baron Jenney	USA
Revolving door	- 1888	Theophilus von Kannel	USA

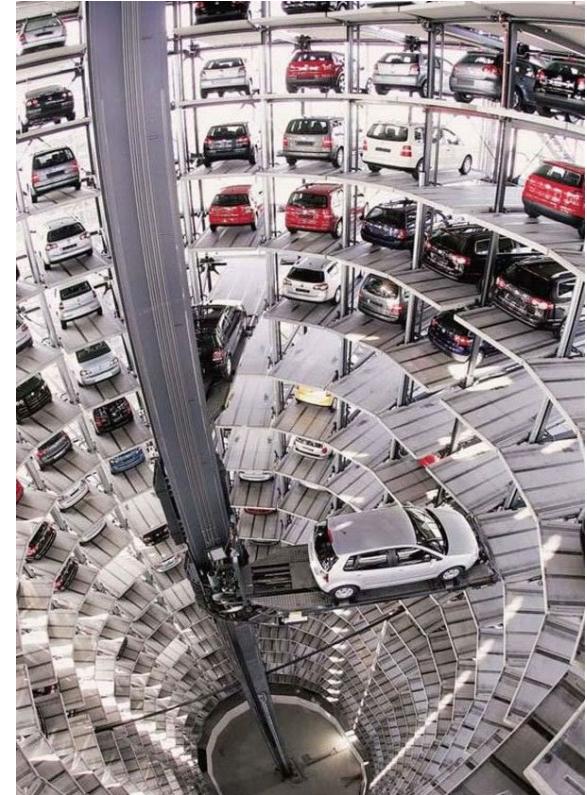
Inventions relating to facilities and the built environment

Vacuum cleaner	- 1901	Herbert Cecil Booth	UK
Air conditioning	- 1902	Willis Hallivand Carrier	USA
Fibre optics	- 1955	Narinder S Kapany	India
Laser	- 1960	Hughes Research	USA
Light emitting diode (LED)	- 1962	Nick Holonyak (GE)	USA
Email	- 1971	Ray Tomlinson	USA
Radio Frequency ID (RFID)	- 1973	Mario Cardullo	USA
Mobile phone	- 1977	Bell Laboratories	USA
World wide web	- 1989	Tim Berners-Lee	UK
Global Positioning System	- 1993	Department of Defense	USA

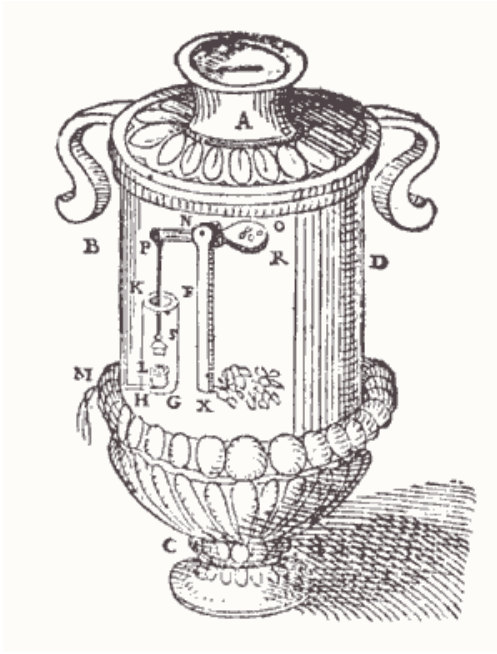
Innovation in elevators...



Multi-level automated car parking –
Sarojini, Nagar, Delhi



Innovation in vending...



Innovation in cleaning



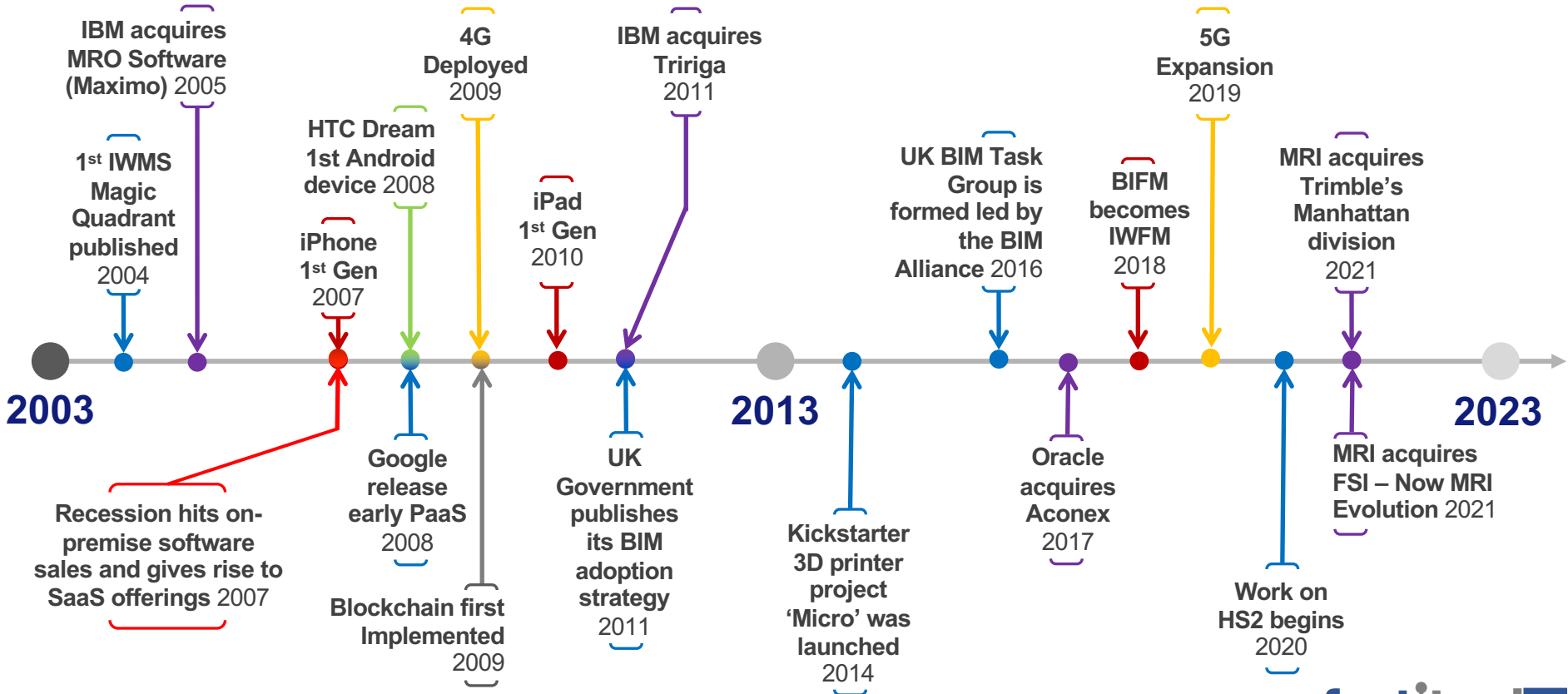
Street cleaning



Domestic bliss

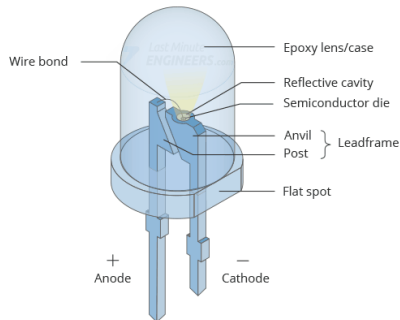
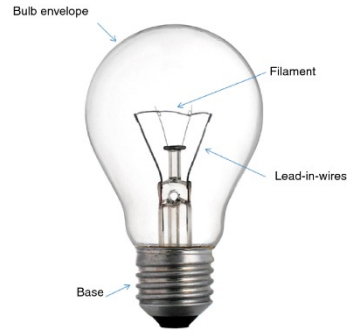


Snapshot of innovation and events in technology over the past 20 years



Innovation in lighting and energy...

Tungsten filament vacuum lamp



Light-emitting Diode

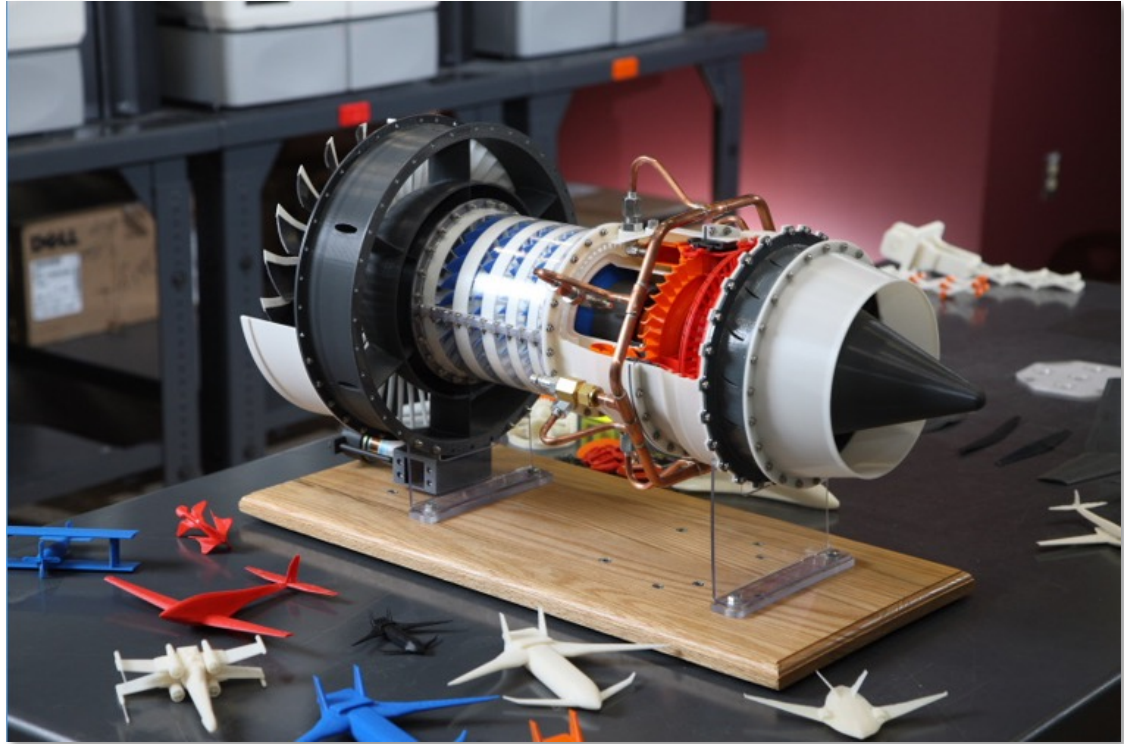


Doha, Qatar – night time skyline

Innovation in 3D Printing

Dr. Sheffler's class at the University of Virginia built a 1/4 scale, 3D-printed jet engine replica that was able to spin at 2,000 RPM.

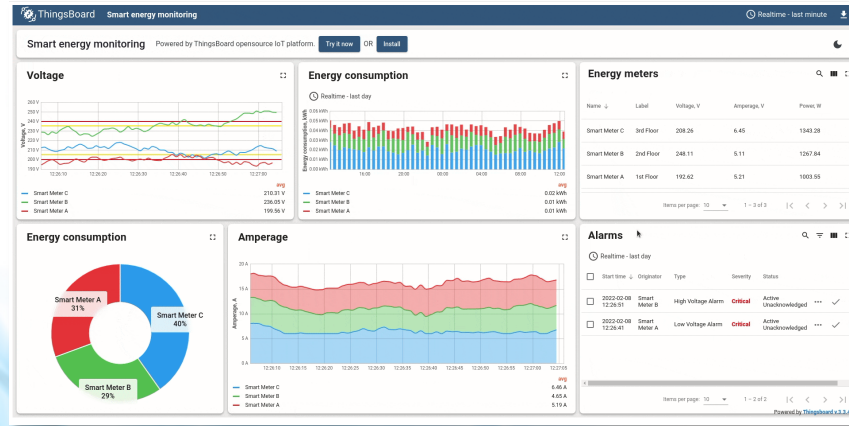
Photo courtesy of David Sheffler



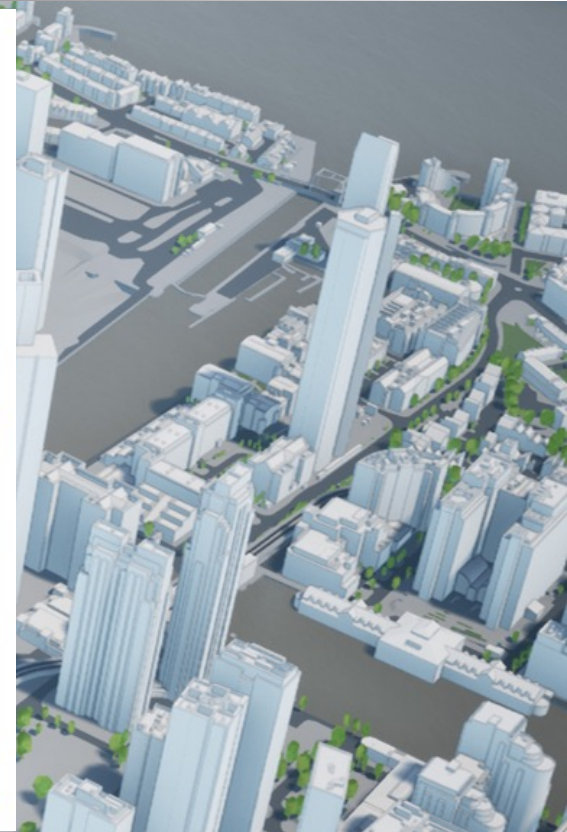
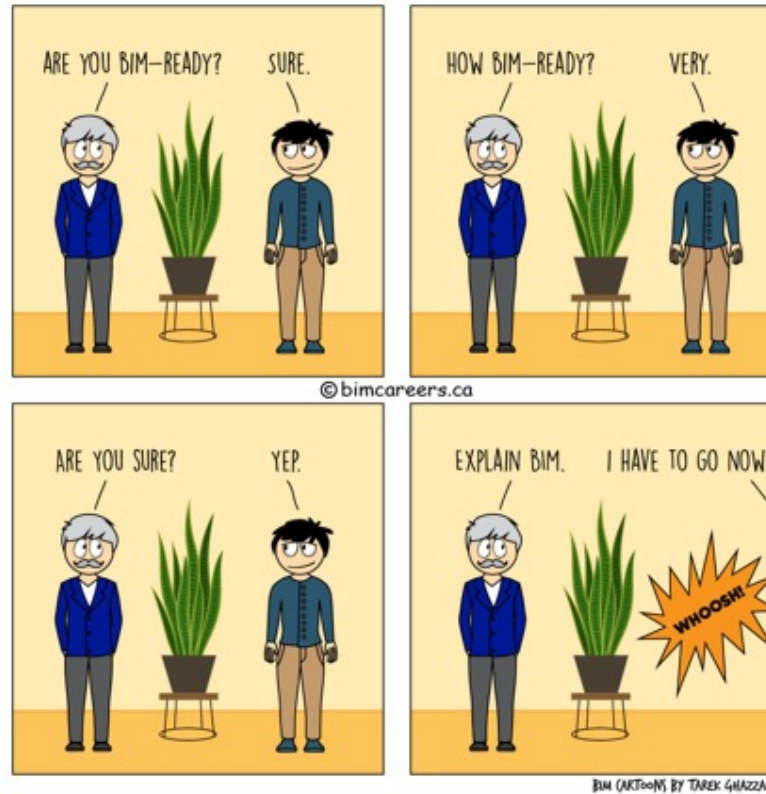
Innovation in Augmented Reality



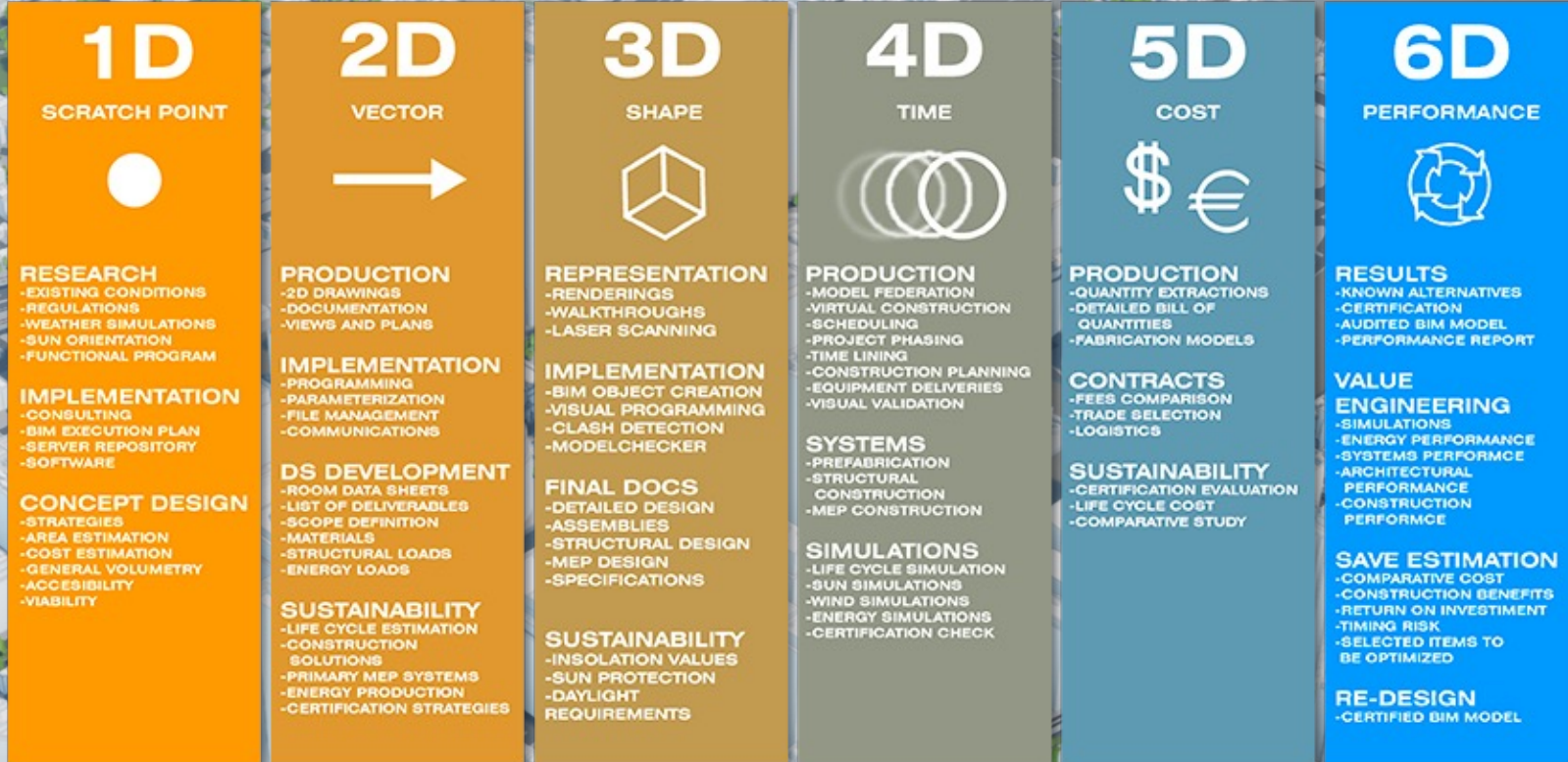
Innovation in monitoring - IoT



Innovation in design – Building Information Modelling (BIM)

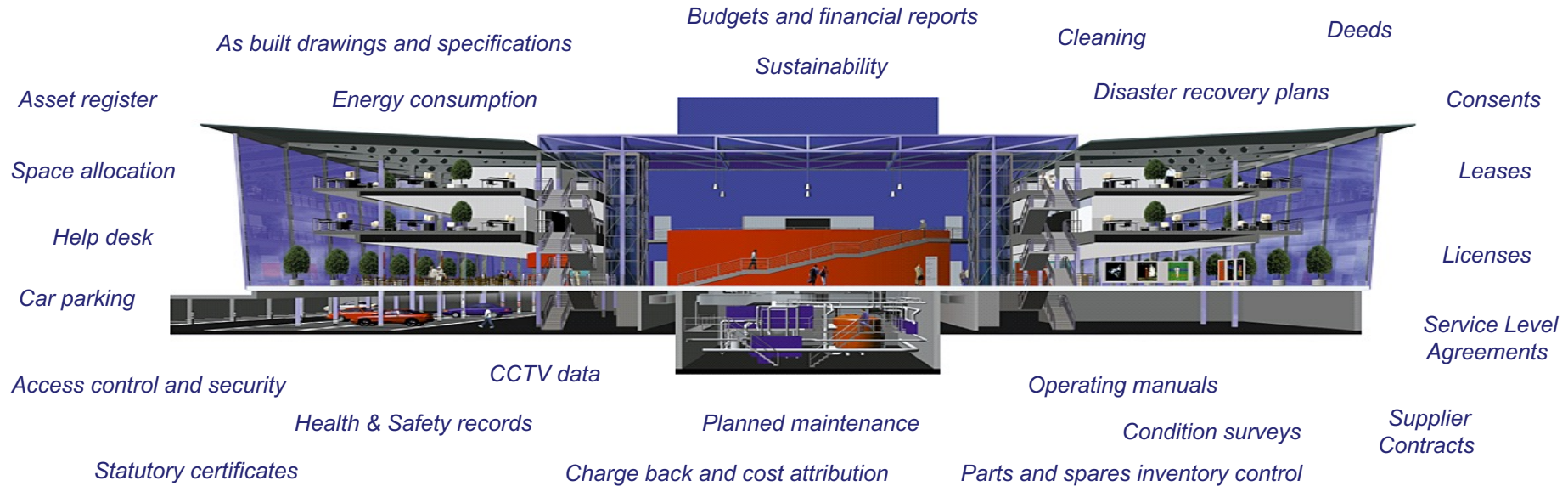


Innovation in design - BIM

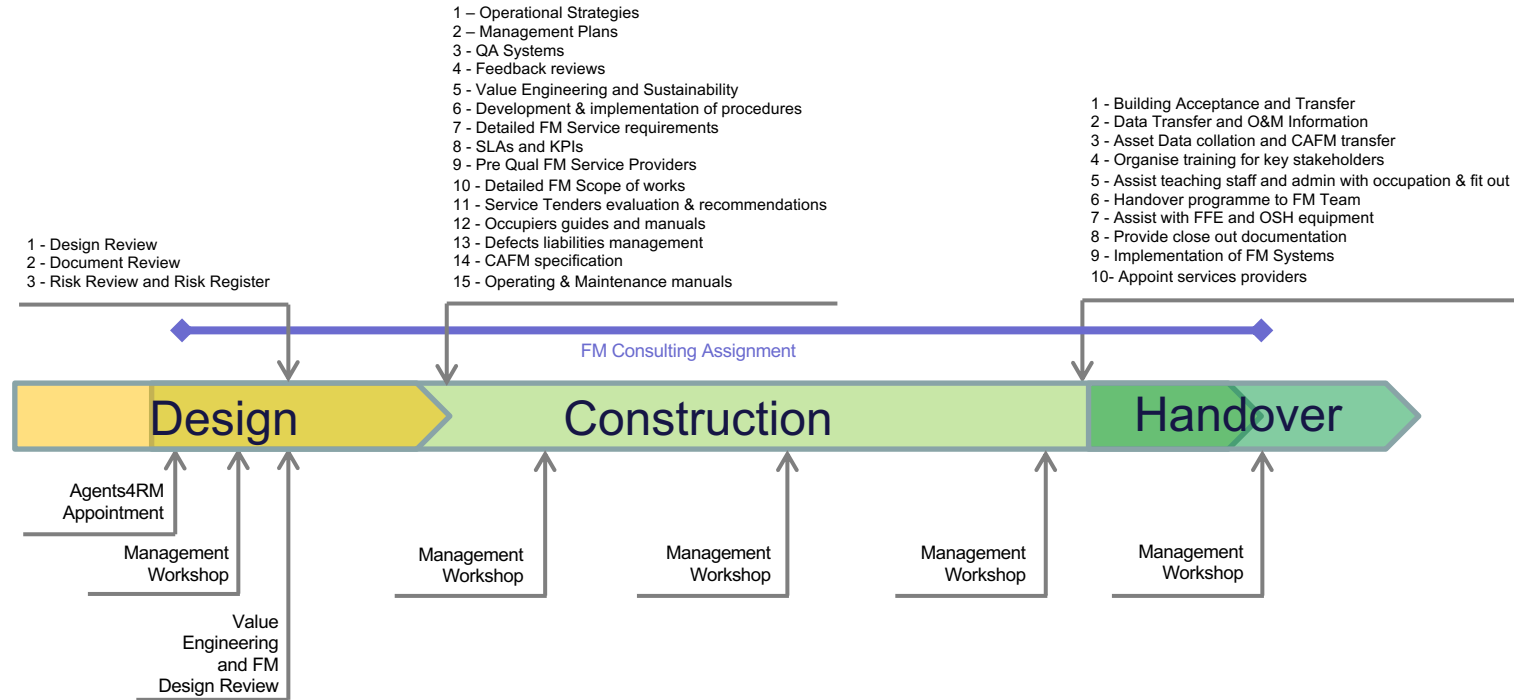


Operational perspective of FM

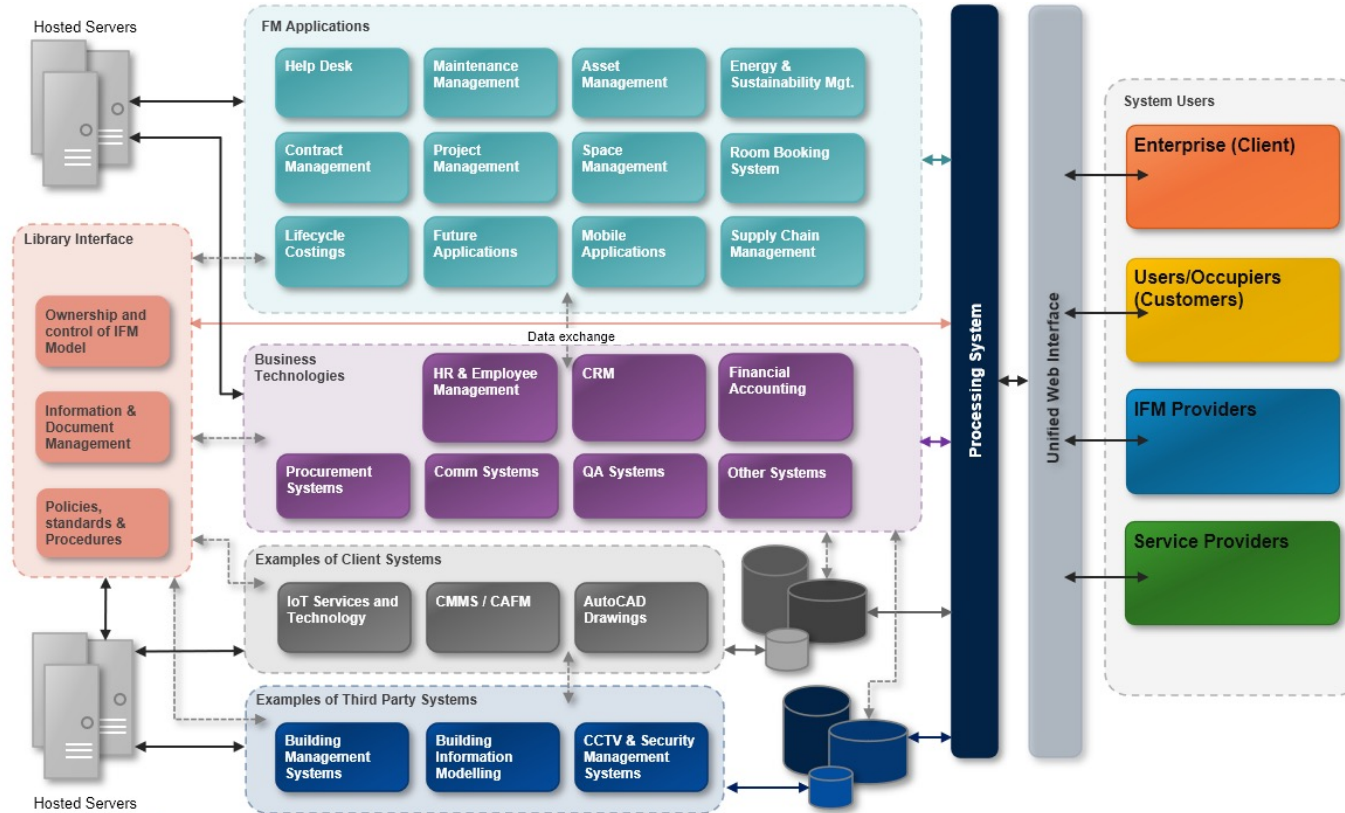
Managing information is a key component of operations and maintenance...



Whole life cycle perspective of FM



Agents4RM Integrated FM Model - Technology Schematic



More to come – today – and in the future...

