

GODEC
*Green
Opportunities
for
Developing
Economy
Conference*



Sustainable Development and Principles of Circular Economy

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Partners:



Sponsor:



Project: Awareness Raising for Civil Engineers on Green Economy

Grant Program: EU Funded *INNOVATION AND CHANGE IN EDUCATION*

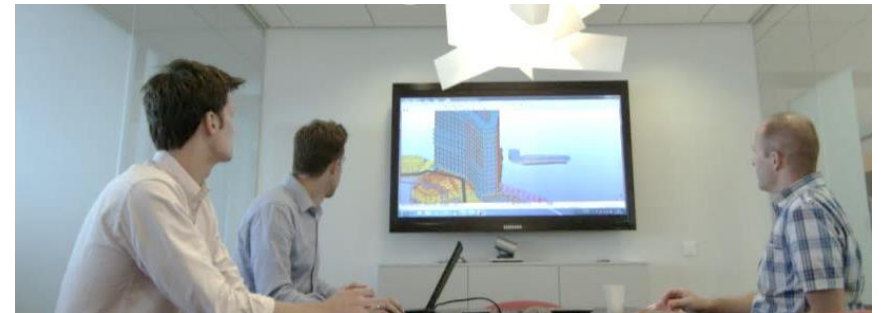
Grant Contract number: 2016/373-593

RAMBOLL IN BRIEF

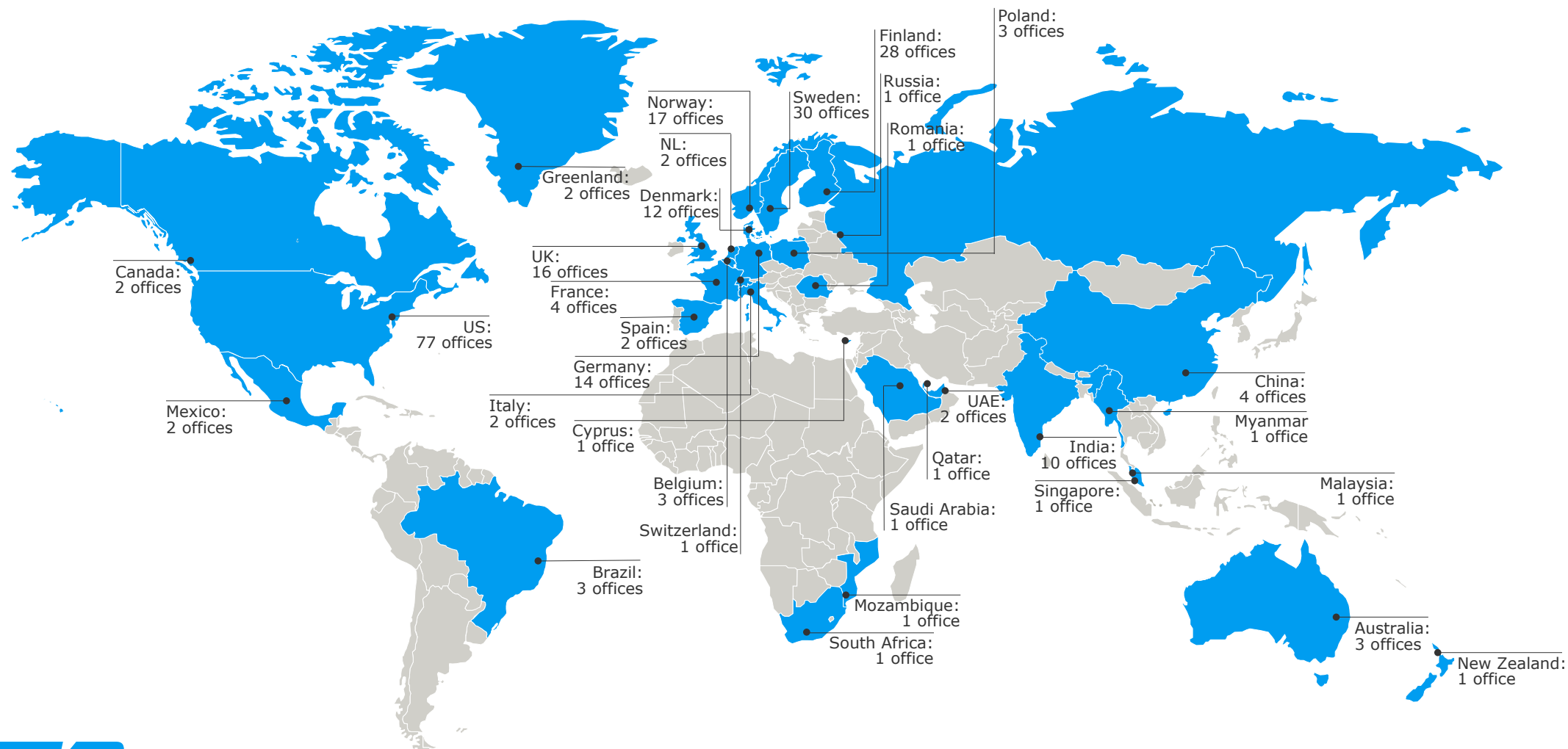
- Independent engineering and design consultancy and provider of management consultancy
- Founded 1945 in Denmark
- 15,000 experts
- Close to 300 offices in 35 countries
- Particularly strong presence in the Nordics, the UK, North America, Continental Europe, Middle East and Asia Pacific
- EUR 1.5 billion revenue
- Owned by Rambøll Fonden – The Ramboll Foundation

CONSULTANCY AND EXPERIENCE FOR THE PLANNING AND EXECUTION OF PROJECTS

- Holistic analyses and multidisciplinary deliveries
- Technical details to processes
- Combine technical consultancy and socio-economic competences
- World class technical expertise
- Large and small scale project management
- Process management
- Stakeholder management



GEOGRAPHICAL FOOTPRINT



KEY FIGURES 2018

Revenue
million EUR

1,523

EBITA million
EUR

80.1

Profit before tax
million EUR

48.4

Profit for the year
million EUR

31.9

Cash conversion
ratio ¹

116%

The figures in EUR have been translated from DKK using an average exchange rate of 7.45.

¹ Defined as (EBITA + Change in working capital) / EBITA *100

MARKETS

BUILDINGS	TRANSPORT	WATER	ENVIRONMENT & HEALTH	ENERGY	MANAGEMENT CONSULTING
Revenue '18: 496.6 m€	Revenue '18: 351.4 m€	Revenue '18: 84.4 m€	Revenue '18: 365.7 m€	Revenue '18: 162.9 m€	Revenue '18: 62.7 m€
Employees: (FTEE) 4,499	Employees: (FTEE) 2,853	Employees (Jan '19): (FTEE) 940	Employees (Jan '19): (FTEE) 2,443	Employees (Jan '19): (FTEE) 1,821	Employees: (FTEE) 436
		PLANNING & URBAN DESIGN			
		Revenue and employee numbers included in the other markets			

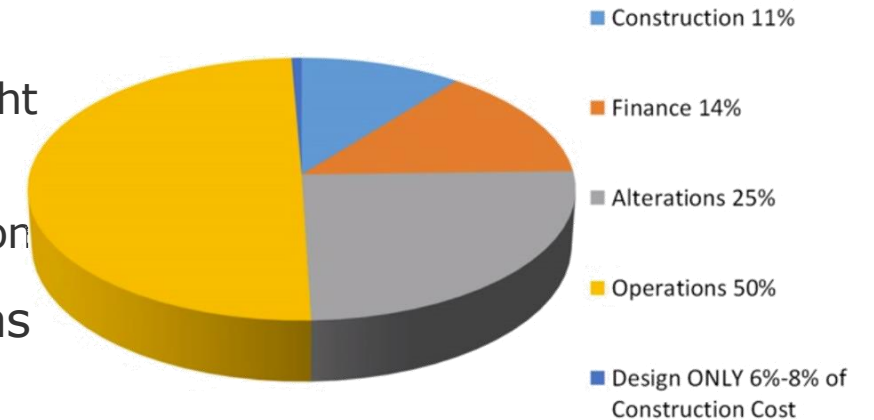
IT'S NOT JUST ABOUT SAVING THE PLANET . . .

- ≈90% of our time is indoors
 - Levels of pollutants could be 2-5 times higher than outdoor
- Investors and end-users awareness results in:
 - Green Buildings increasingly attracting tenants, with premium/higher rents and sale prices
 - Enhanced daylighting, better thermal comfort, improved views, reduced glare . . .
 - Increased employee retention, reduced absenteeism
 - Enhanced occupant morale, health, well-being & productivity
 - **Brown Discounts** are emerging

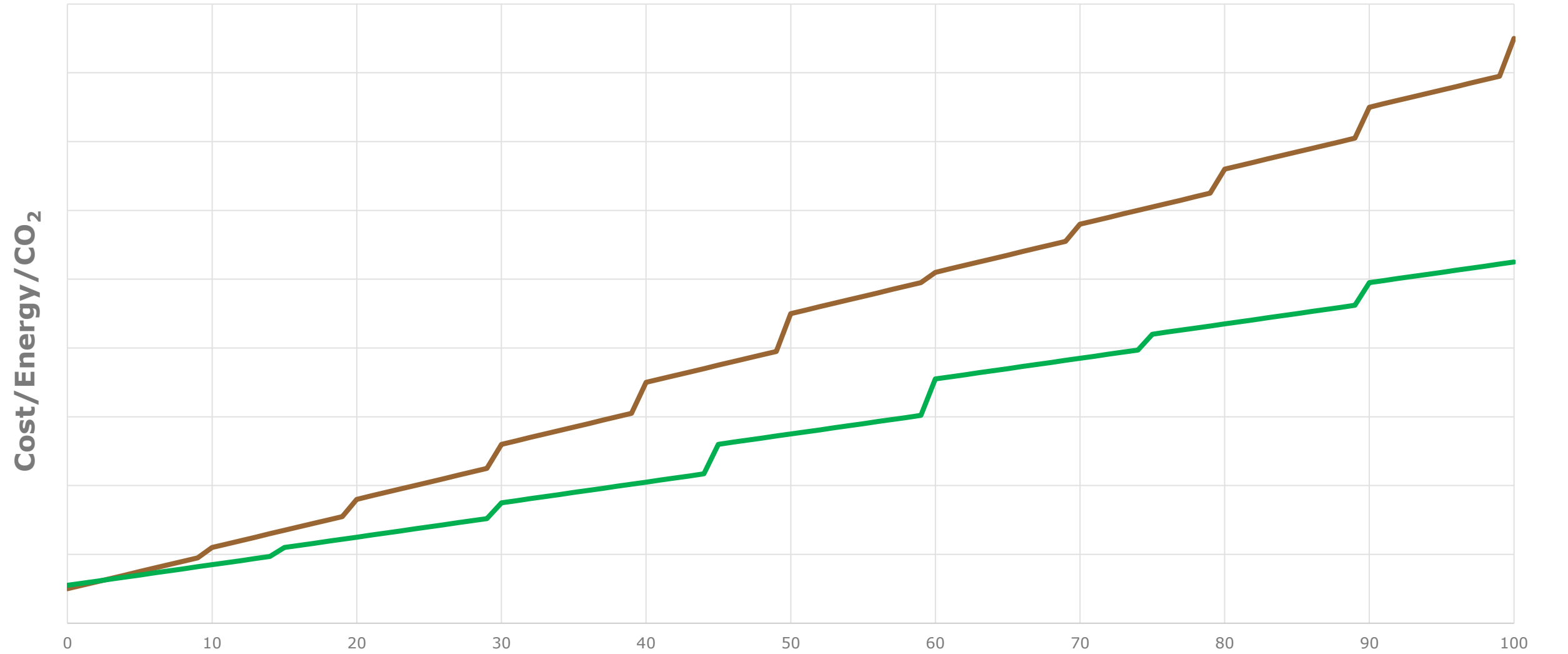


ENHANCED EFFICIENCY & VE

- Building green does not necessarily cost more
 - Sustainability requirements to be considered and planned for right from the beginning
 - Optimised/VE design typically results in reduced embodied carbon
- Where additional costs envisaged, it is typically not as high as is perceived by the development industry
- Green buildings save money through reduced energy & water consumption and lower long-term operations and maintenance costs.
- Energy savings in green buildings typically exceed design & construction cost premiums within a reasonable ROI period.
 - good commissioning, effective management, and collaboration between owners and occupiers.



CAPITAL VS LCA - CONCEPT

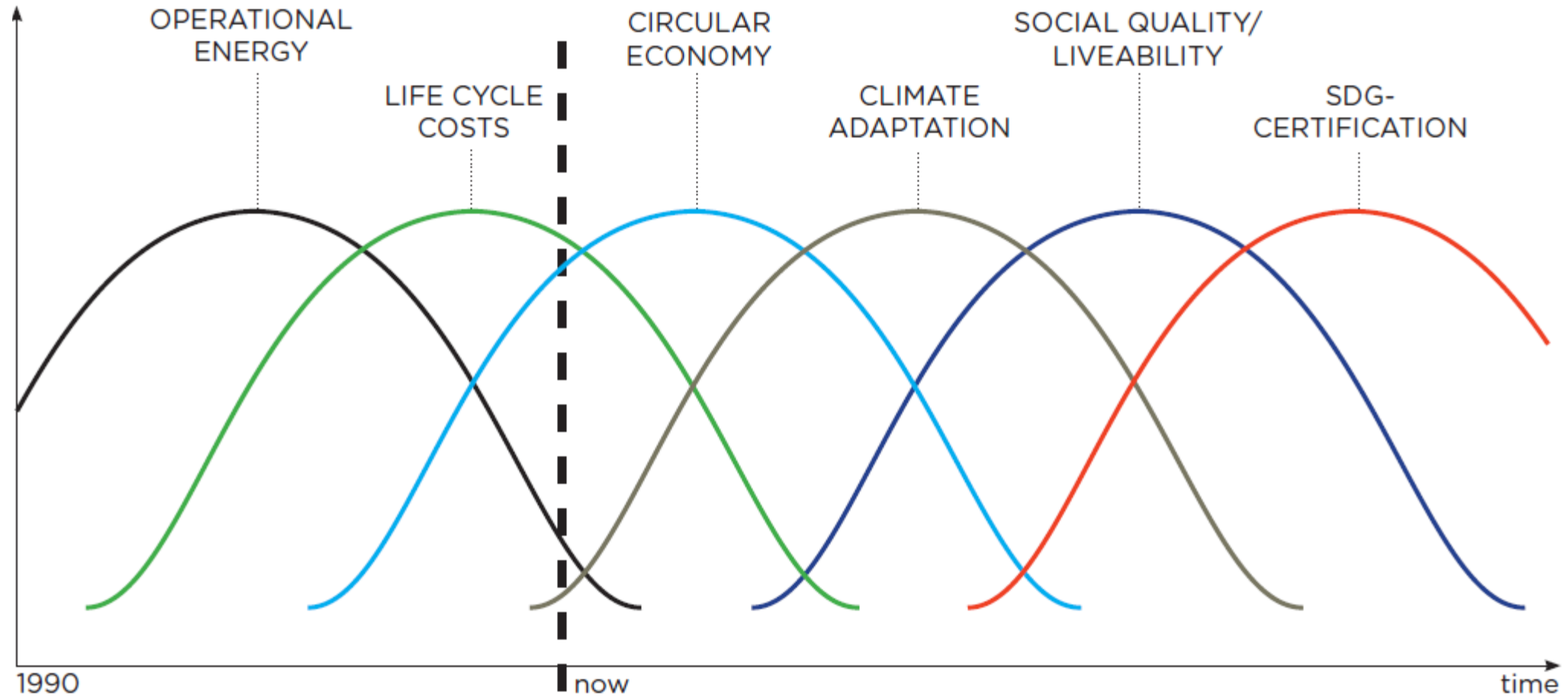


MITIGATING FUTURE RISKS TODAY

- Sustainability risk factors: significant impact on future rental income, value of buildings and ROIs.
 - Changing tenant preferences and investor risk screening may translate into risk of obsolescence for inefficient buildings.
- Regulatory risks: enforcing SDGs and national visions have become progressively apparent in countries and cities around the world and in the region, including laws banning inefficient buildings.
- Extreme weather events: change in weather patterns affect the insurability of assets (resilience of assets).

Abu Dhabi Plan 2030	SDG	Pillars of Dubai Plan 2021	SDG
Social Development	  	The Preferred Place to Live, Work and Visit	  
Security, Justice and Safety	 	A Pivotal Hub in the Global Economy	 
Economic Development	 	A Pioneering and Excellent Government	 
Vital Sectors Contributing to Economic Diversity	 	City of Happy, Creative and Empowered People	
Vital Sectors Contributing to Economic Diversity		A Smart and Sustainable City	   
Pillars of Ajman Plan 2021	SDG	Pillars of Fujairah 2040 Plan	SDG
A Distinguished Government	  	Preserve Natural Resources and Celebrate Culture and Heritage	
A Green Economy	  	Building a Sustainable Environment	 
A Vibrant Community	 	Prosperous Economy	
Best Place to Live	   	Build a Community of Skilled and Active Citizens	
Pillars of RAK Strategic Framework 2015 - 2017	SDG	   delivered by bre	
Creative Talents	 		
Competitive Economy	   		
Quality of Life	  		
A Leading Government			
Integrated Environmental and Health System	   		

SUSTAINABILITY THEMES EVOLVE OVER TIME....



DESIGN PRINCIPLES OF CIRCULAR ECONOMY

- Design-out waste
- Design for resource efficiency and for deconstruction and disassembly
- Maximise use of renewable energy
- Reducing embodied carbon over the whole building lifecycle
- Have a strategy from concept stage, think about end of life options
- Integrated design and stakeholder engagement will facilitate circular processes
- Collaboration with the supply chain is key
- Iterative Circular Economy workshops and review of responsibility matrix/trackers are required as new designs, materials and service models are incorporated



Source: www.designingbuildings.co.uk

RESOLVE FRAMEWORK - TRANSITION TOWARDS CIRCULAR ECONOMY

REGENERATE



Shift to renewable energy and materials; reclaim, retain, and restore health of ecosystems; **reduce embodied energy and carbon**

SHARE



Maximising asset utilisation by pooling the usage of assets; reuse/secondhand; **prolong life through maintenance, design for durability, upgradability**, etc.

OPTIMISE



Increase performance/efficiency of the asset; **remove waste in production and supply chain; decrease resource usage; provide flexible design**

LOOP



Remanufacture products or components; **recycle materials** and **priorities circular materials**

VIRTUALISE



Replacing physical products, services and locations with virtual ones. **use of digital services such as BIM etc.**

EXCHANGE



Replace old with **advanced renewable materials; apply new technologies such as 3D printing**; enable optimized and user-focused designs.

CASE STUDY: The Makers' District – The Pixel

THE NEW DEVELOPMENT FEATURES RESIDENTIAL BUILDINGS, COMMERCIAL SPACES, VAST OPEN SPACES AND PERFORMANCE VENUES



WATER CONSERVATION

Water savings, reduced irrigation, condensate reuse



CERTIFICATION

Estidama 1 Pearl for Design achieved

ACCESS TO PUBLIC TRANSPORT AND WATER TAXI



PASSIVE FEATURES

DESIGN

Buildings are self shading through overhangs, balconies and pixelated shading devices. Superior building envelope

Public realm and open areas are well shaded through trees, pavilions and buildings



ECOLOGICAL ENHANCEMENT

Trees, shrubs and ground cover through out. Grand majority are native species



SUSTAINABLE CONSTRUCTION MATERIAL

Free of Asbestos and CCA

ACCESSIBLE, WALKABLE COMMUNITY FACILITIES

Open Spaces, Parks, walkways, playgrounds water and beach promenade. Pedestrian routes and cycling tracks provided through out. Grand majority are shaded and comfortable even during summer month



Bright ideas. Sustainable change.

