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DIPARTIMENTO DI SCIENZE
ECONOMICHE E AZIENDALI
"MARCO FANNO"



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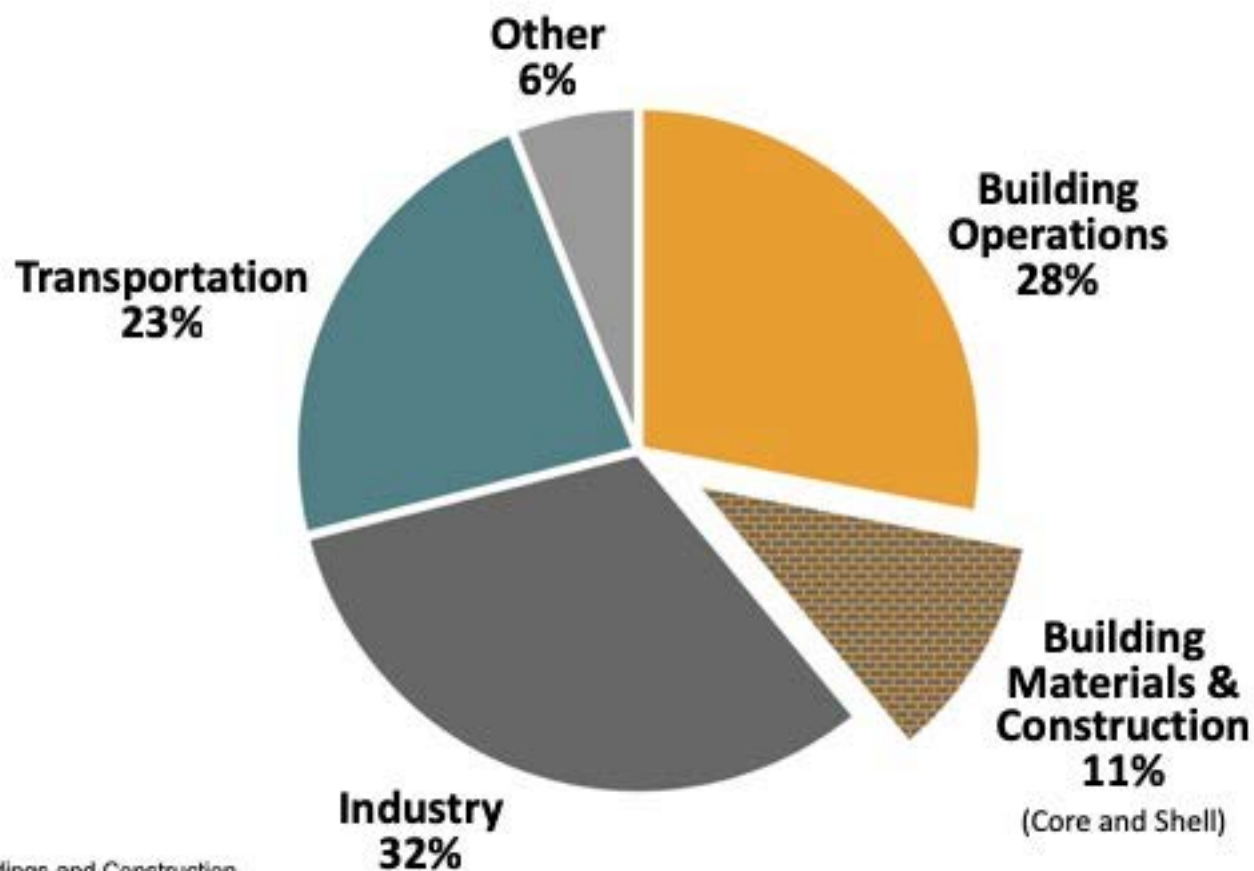
The economic impact of sustainable building in modern economy

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Sustainable Construction Sector Group
Venice - February, 18th 2020



Global CO₂ Emissions by Sector



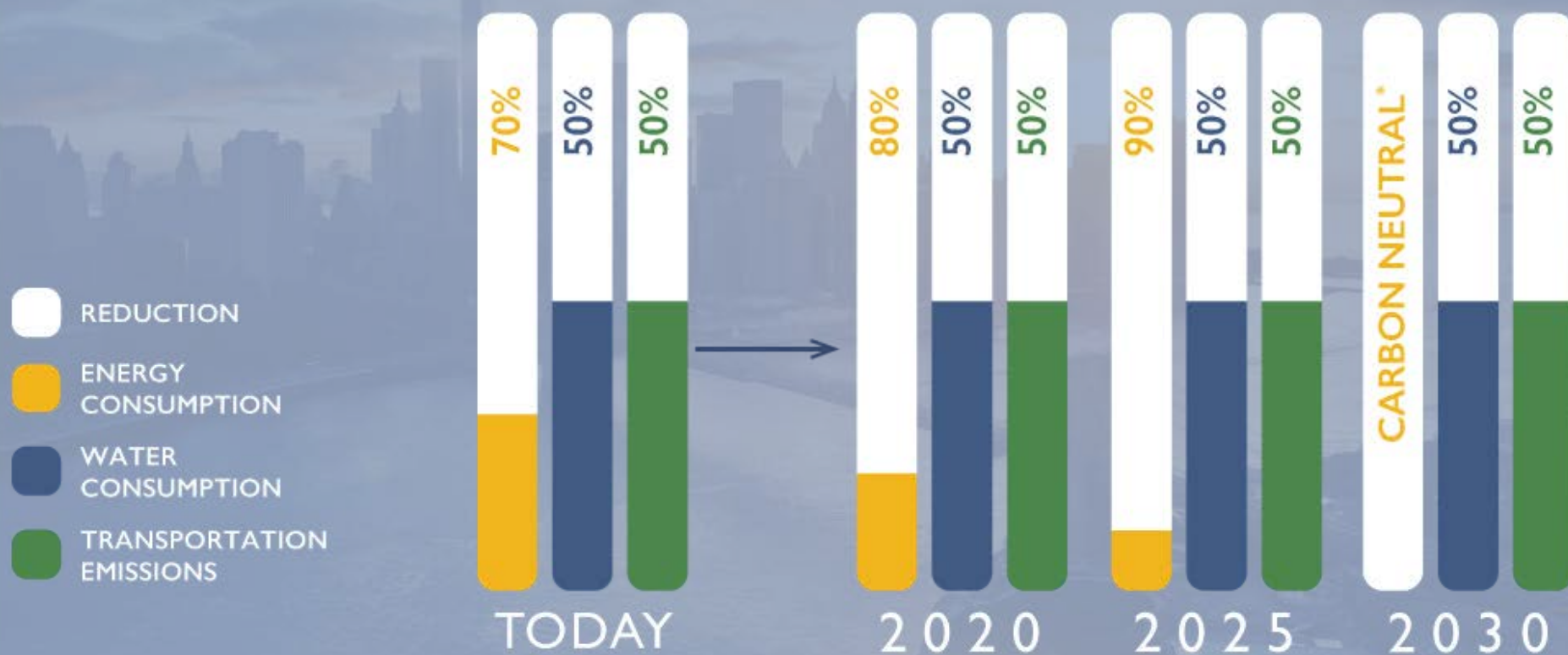
Source:
Global Alliance for Buildings and Construction.
2018 GLOBAL STATUS REPORT.



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THE 2030 CHALLENGE FOR PLANNING

NEW CONSTRUCTION & MAJOR RENOVATIONS



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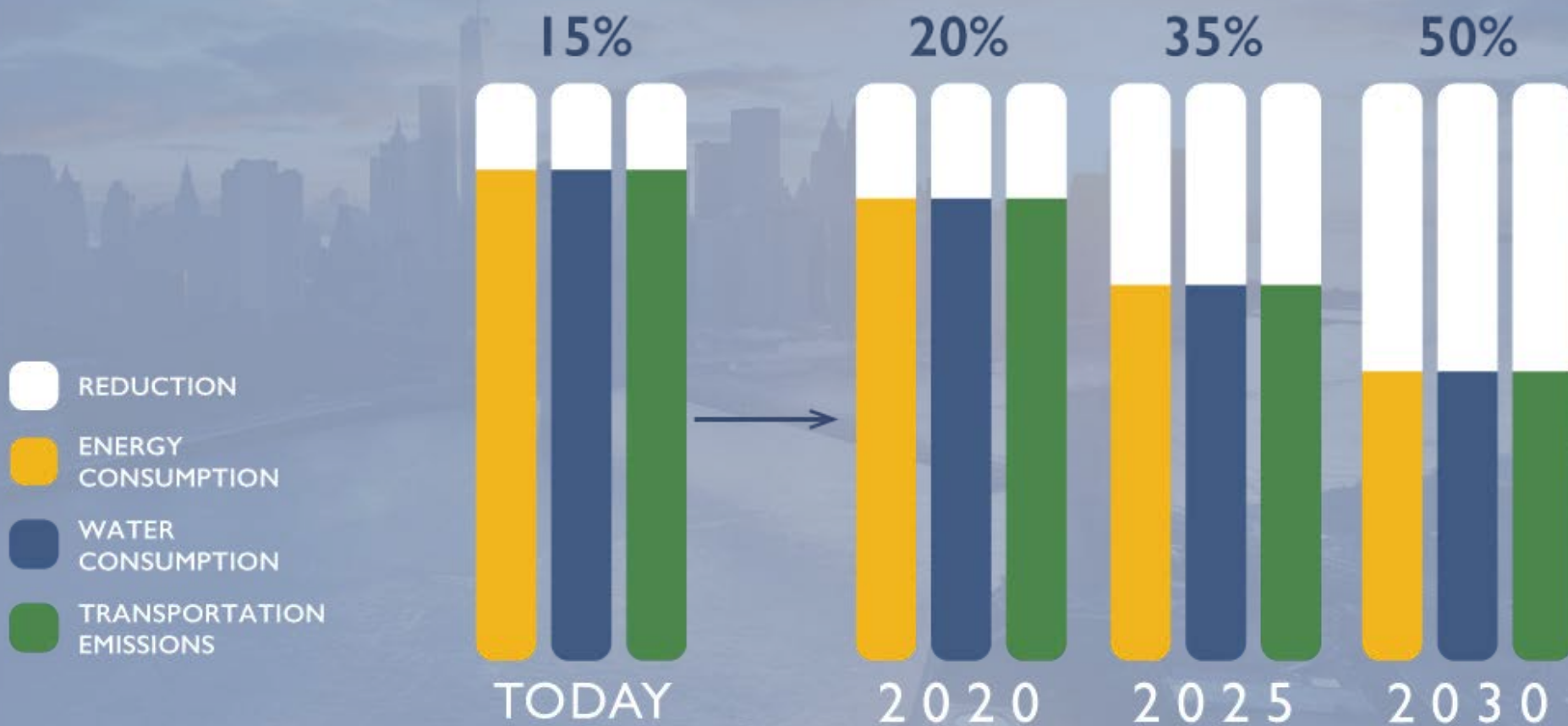
*Using no fossil fuel GHG-emitting energy to operate.



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THE 2030 CHALLENGE FOR PLANNING

EXISTING BUILDINGS



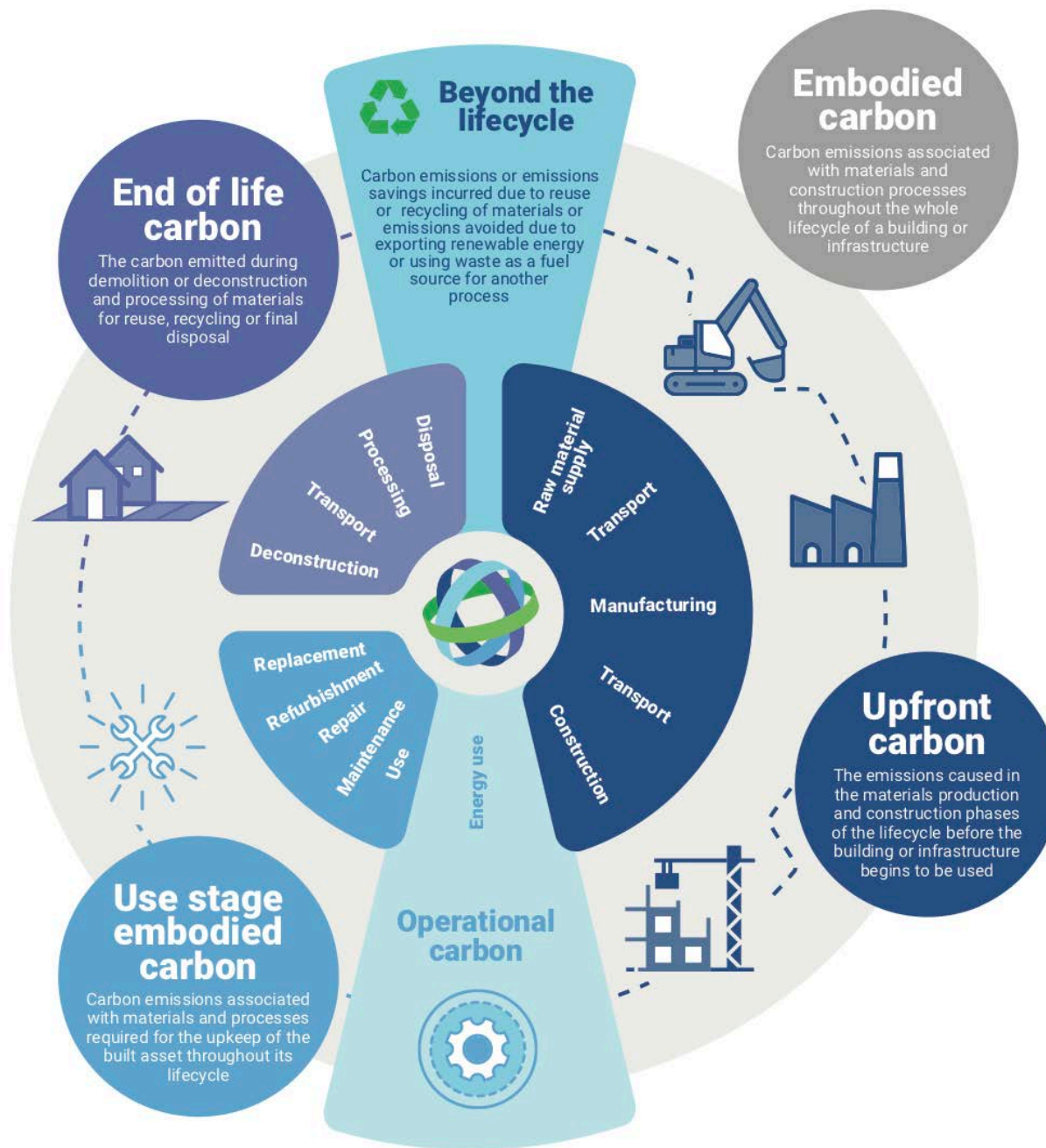
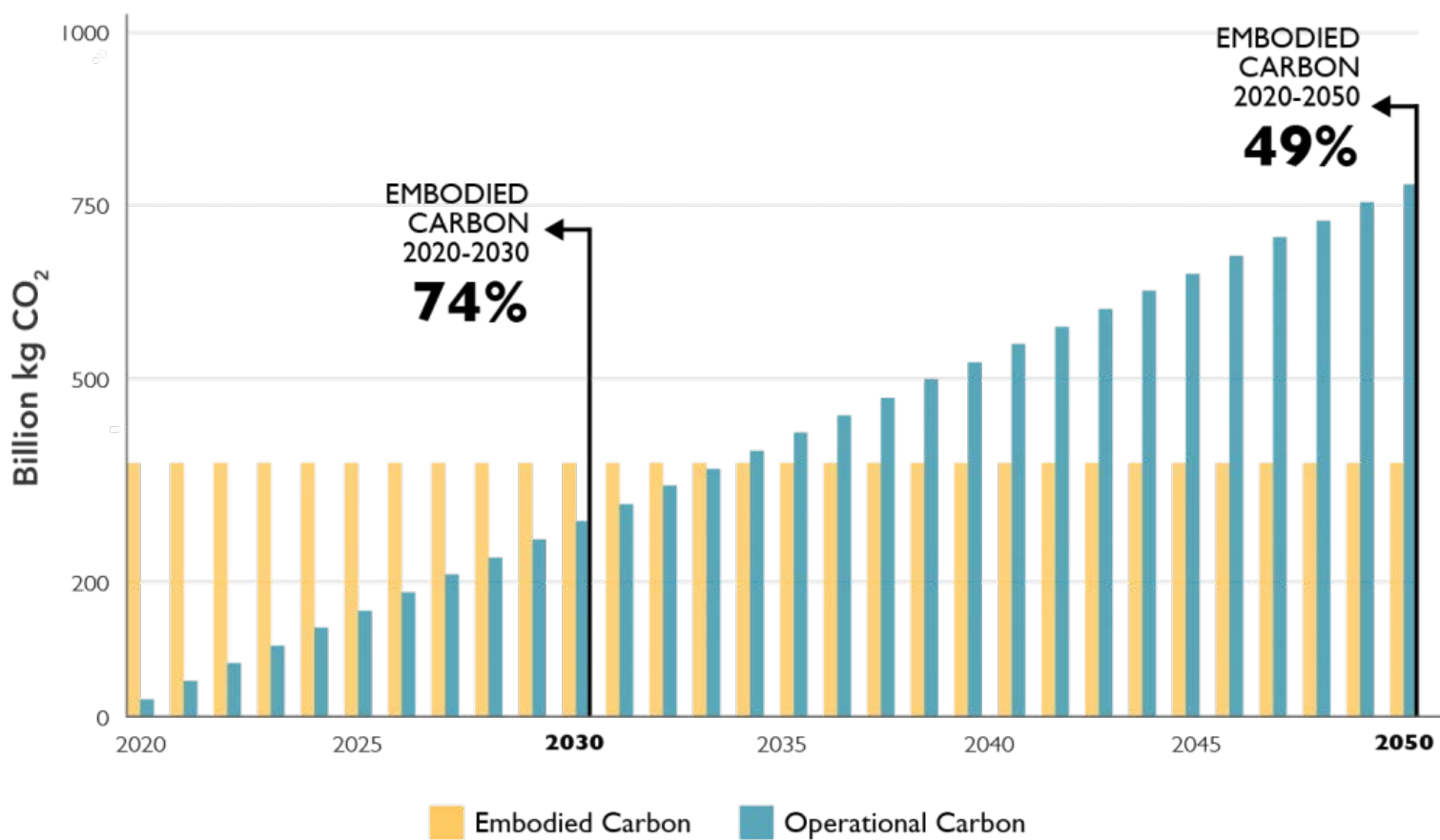


Figure 3: Project lifecycle showing both the scope of the definition and need for whole life consideration.



Total Carbon Emissions of Global New Construction from 2020-2050 Business as Usual Projection



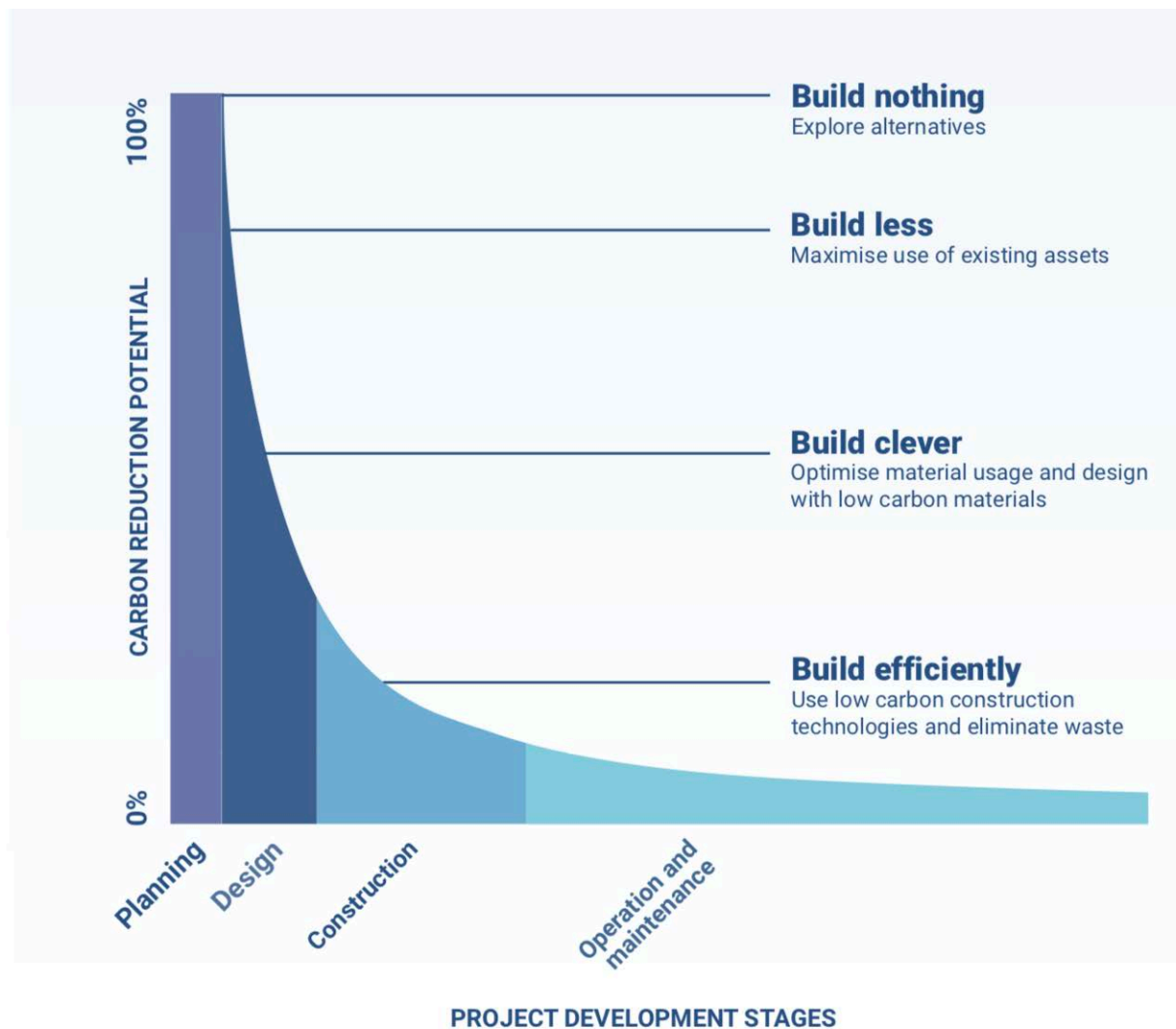


Figure 4: Opportunities to reduce embodied carbon from stage of design process.
Source: HM Treasury: Infrastructure Carbon Review, 2013



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SDGs and building





Business Benefits Expected from Green Building Investments

Business Benefits Expected From Green Building Investments

(Medians Reported in 2012, 2015 and 2018)

	New Green Building		
	2012	2015	2018
Decreased 12-Month Operating Costs	8%	9%	8%
Decreased 5-Year Operating Costs	15%	14%	14%
Increased Asset Value (According to Owners)	5%	7%	7%
Payback Time for Green Investments	8 Years	8 Years	7 Years

	Green Retrofit		
	2012	2015	2018
Decreased 12-Month Operating Costs	9%	9%	9%
Decreased 5-Year Operating Costs	13%	13%	13%
Increased Asset Value (According to Owners)	4%	7%	5%
Payback Time for Green Investments	7 Years	6 Years	6 Years



Motivations to invest in green products

Promotes Improved Occupant Health and Well-Being



NA



Encourage Sustainable Business Practices



Increases Worker Productivity



Creates a Sense of Community



Supports the Domestic Economy





Difficulties in investing in green building projects

- No real “insuperable” difficulties in investments (with respect to other difficulties)
- Relevancy of (higher) **cost factors is decreased** from 2012 to 2018 (from 76 to 49% interviewees)
- Main relevance assigned to **lack of supporting policies** (incentives), **market awareness and accessibility** (beyond high-end products)

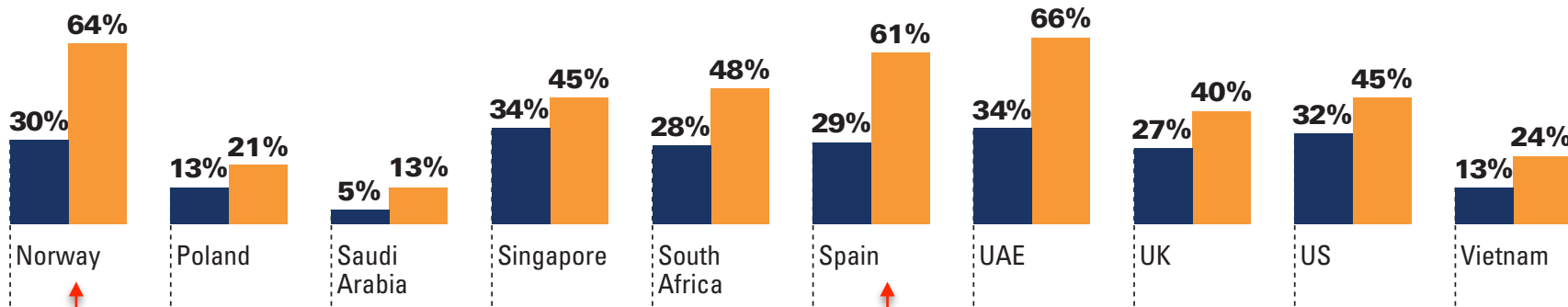
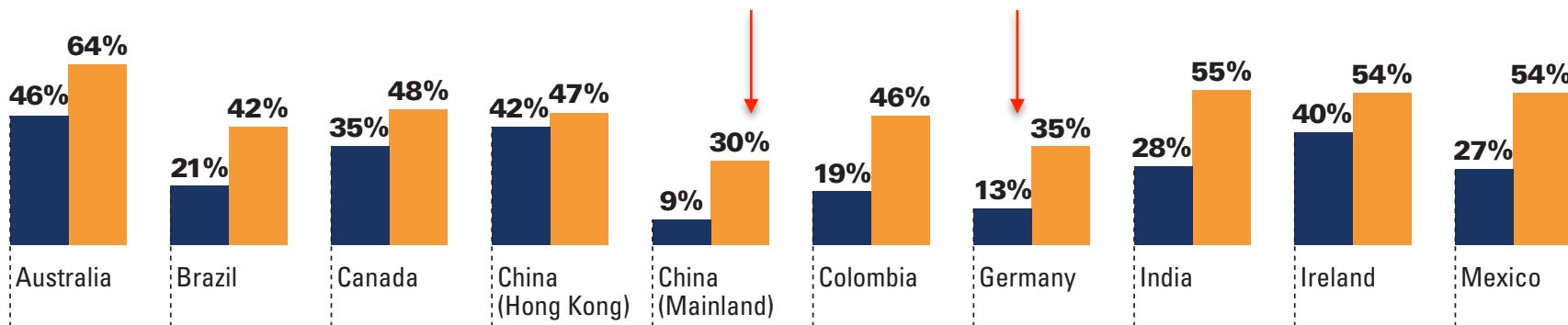


Sustainable projects: an international comparison

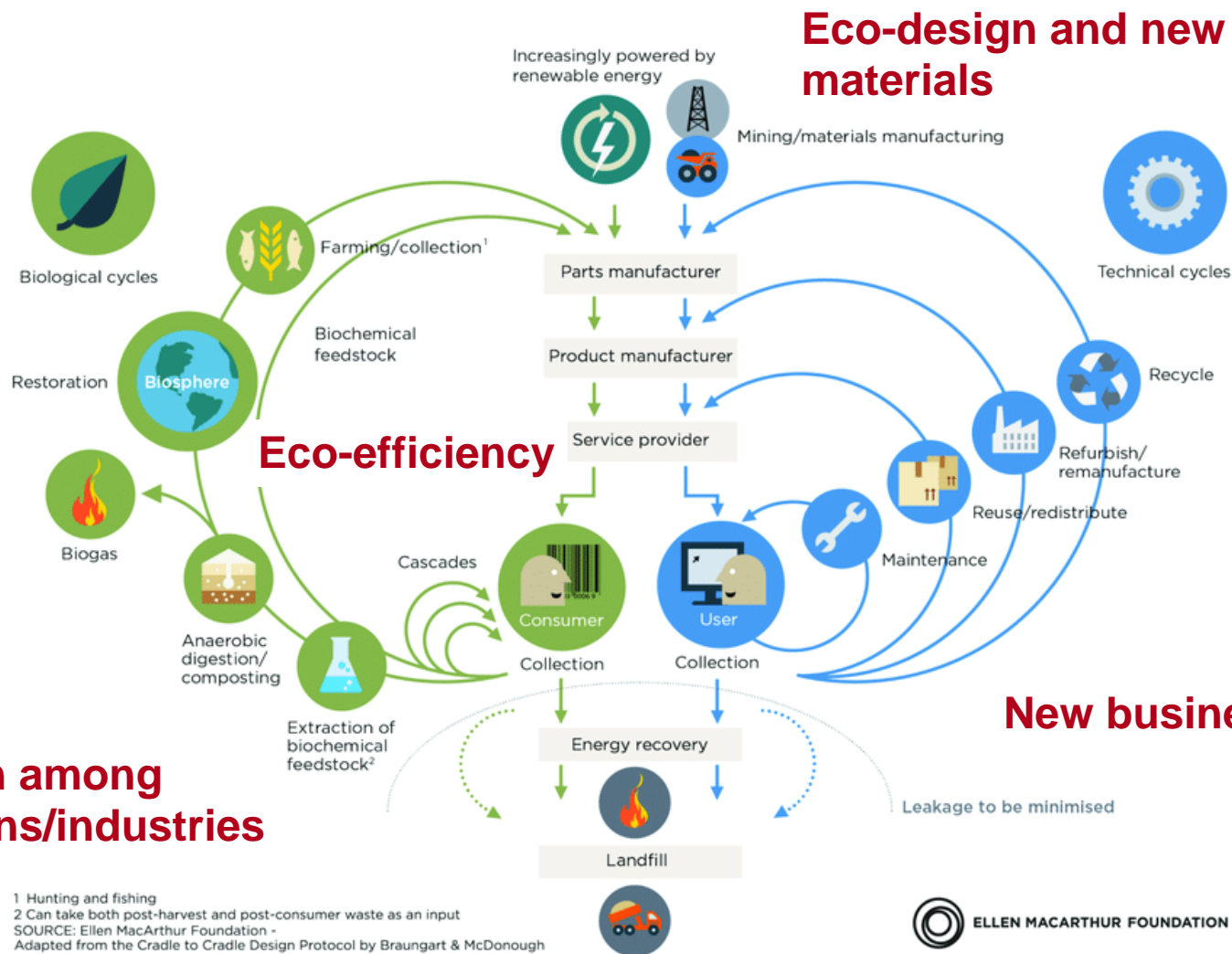
Percentage of Firms That Are Doing/Will Do More Than 60% Green Projects (2018 and Expected for 2021)

Dodge Data & Analytics, 2018

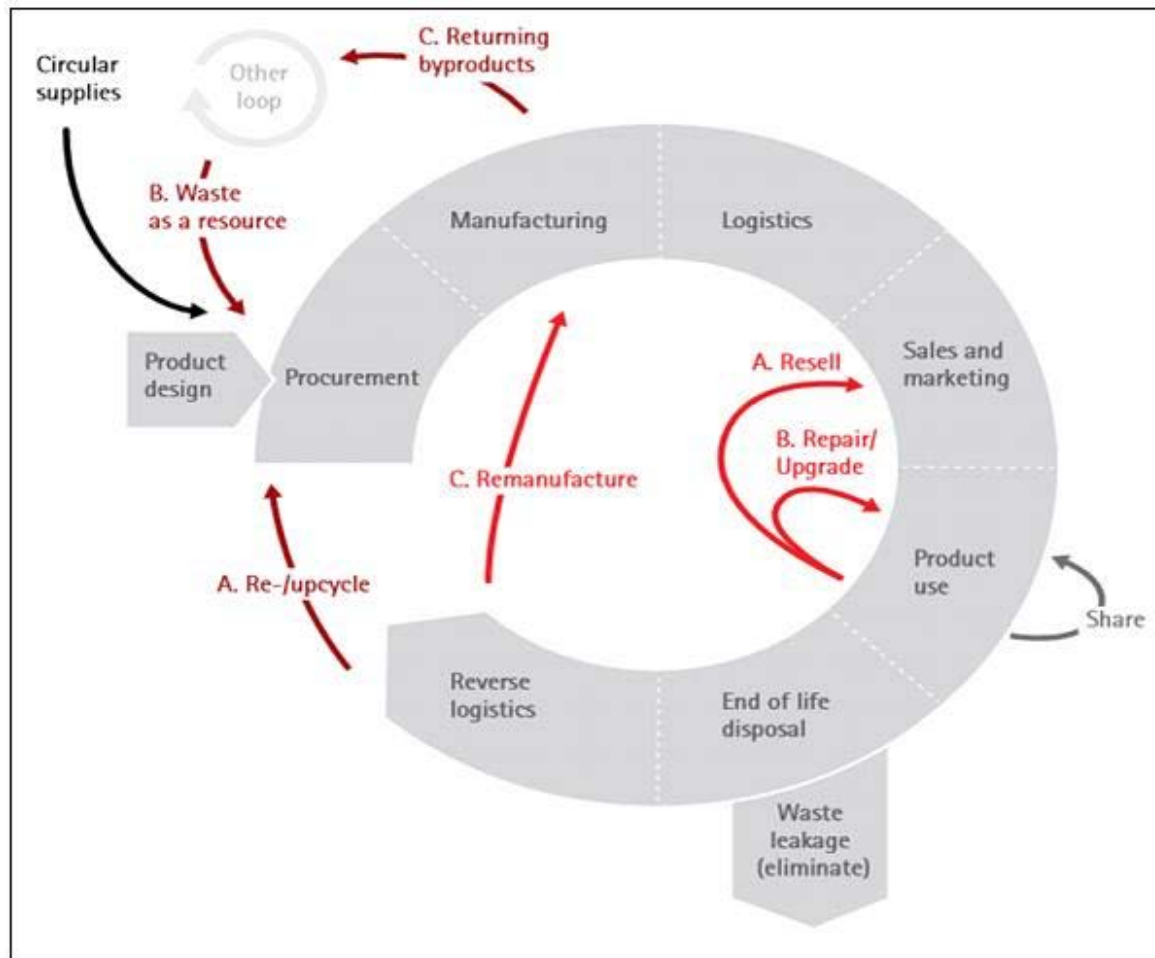
■ 2018 ■ 2021



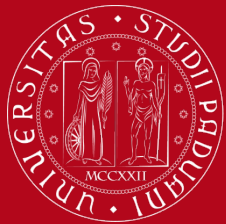
Circular economy=innovation



Sustainable business models

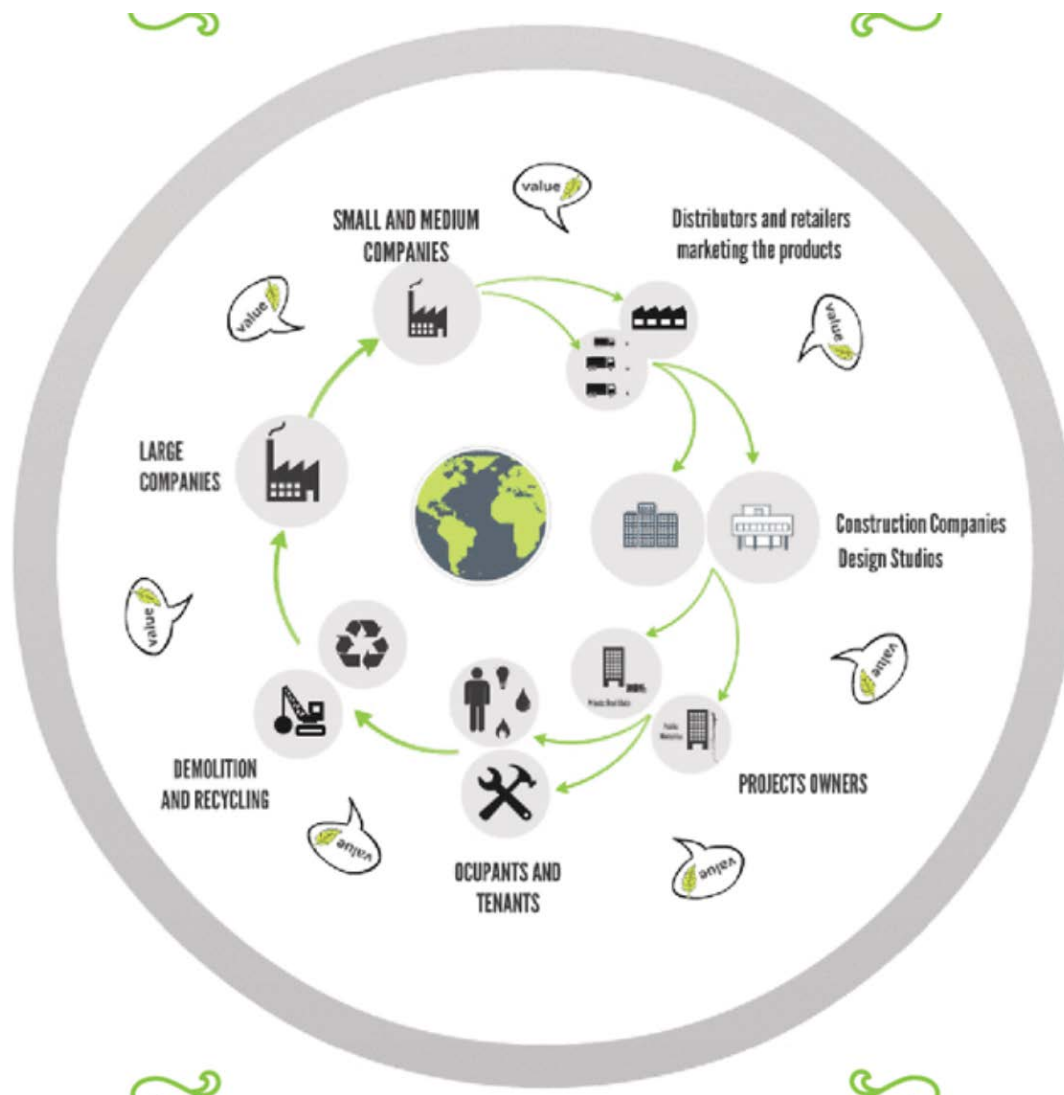


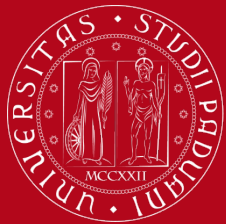
Accenture, 2014



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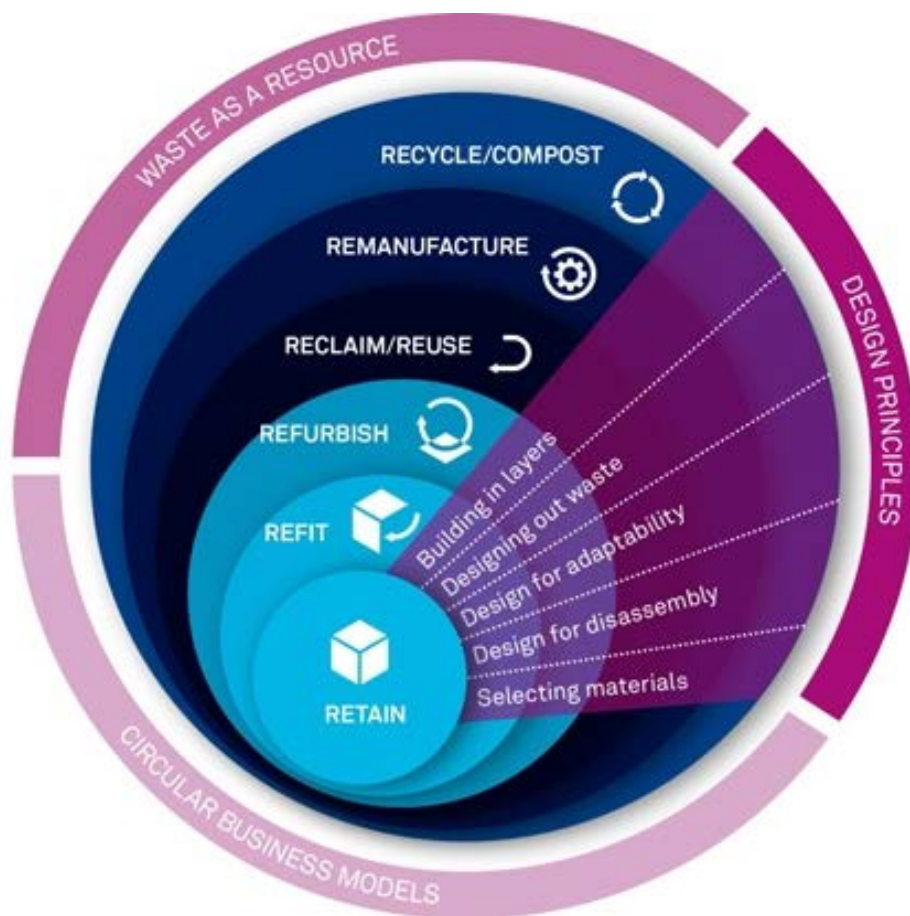
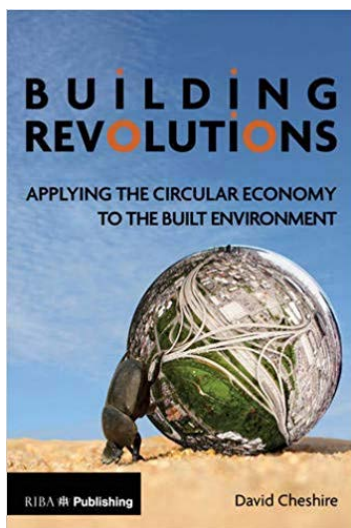
“Building circular building value chain”





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Building and circular economy



Fonte: Building revolution



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ICEhouse (Innovation for the Circular Economy house)



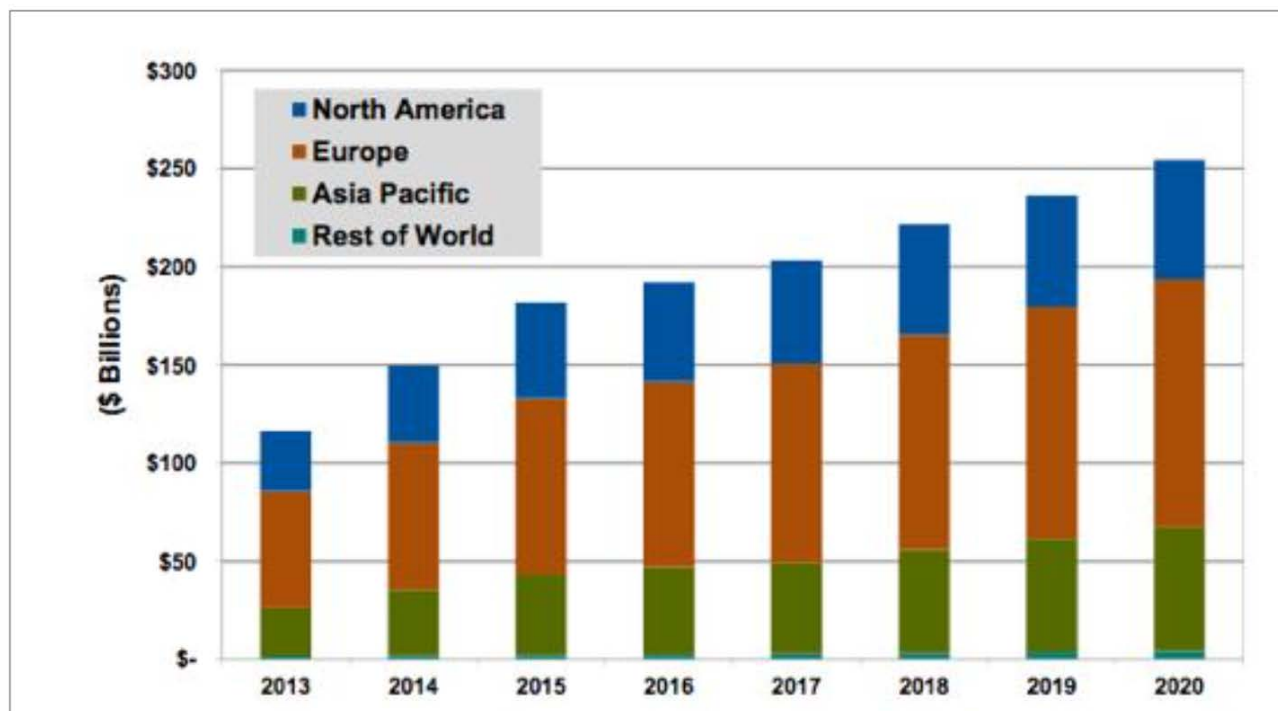


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Circularity in building and business opportunities



Figure 1: Market value of green construction materials by region, World Markets: 2013–2020



Source: Navigant Research, 2013, Materials in Green Buildings



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New materials



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to jumpstart your next
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Reuse, recycle, and new materials



Circular Construction Challenge
— Rethink Waste

Realdania



The winners of Circular Construction Challenge

Three convincing and innovative ideas has been selected among the six finalists.



From waste to biomaterial: Developing mycelium and waste-based materials for the building industry

Imagine a world where building no longer leaves a massive impact on



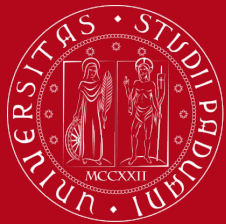
GENTRÆ: Circular Alternative - Introducing reused building materials in large-scale retail sale

Every year an estimated 50,000 tons of timber used for temporary construction measures at building



ReSkur: The next generations shed is build from previous generations building waste

Millions of tons of high quality building materials such as clay pantiles and wood rafters are



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New places (and business models)



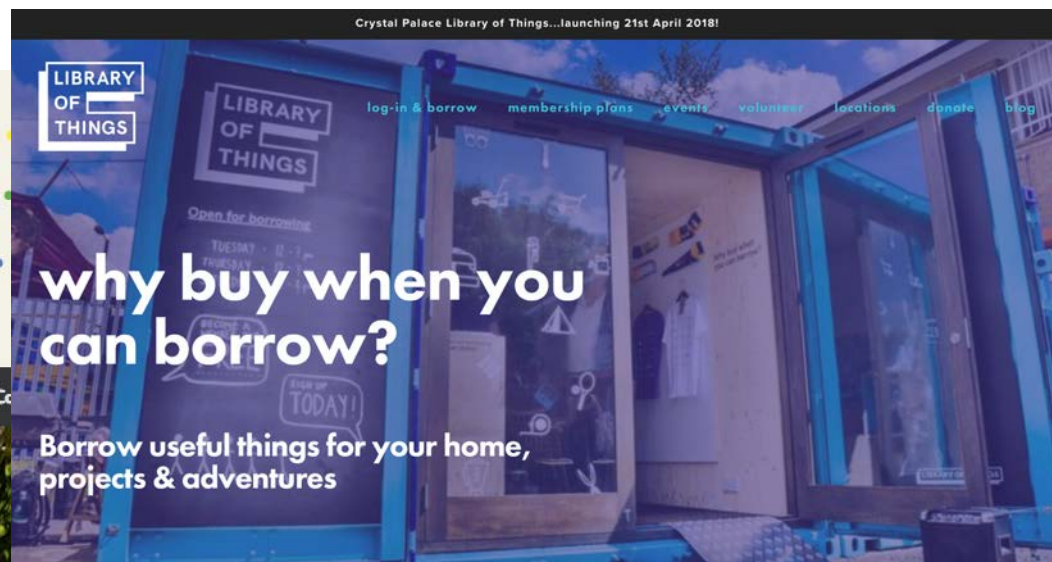
Home

About

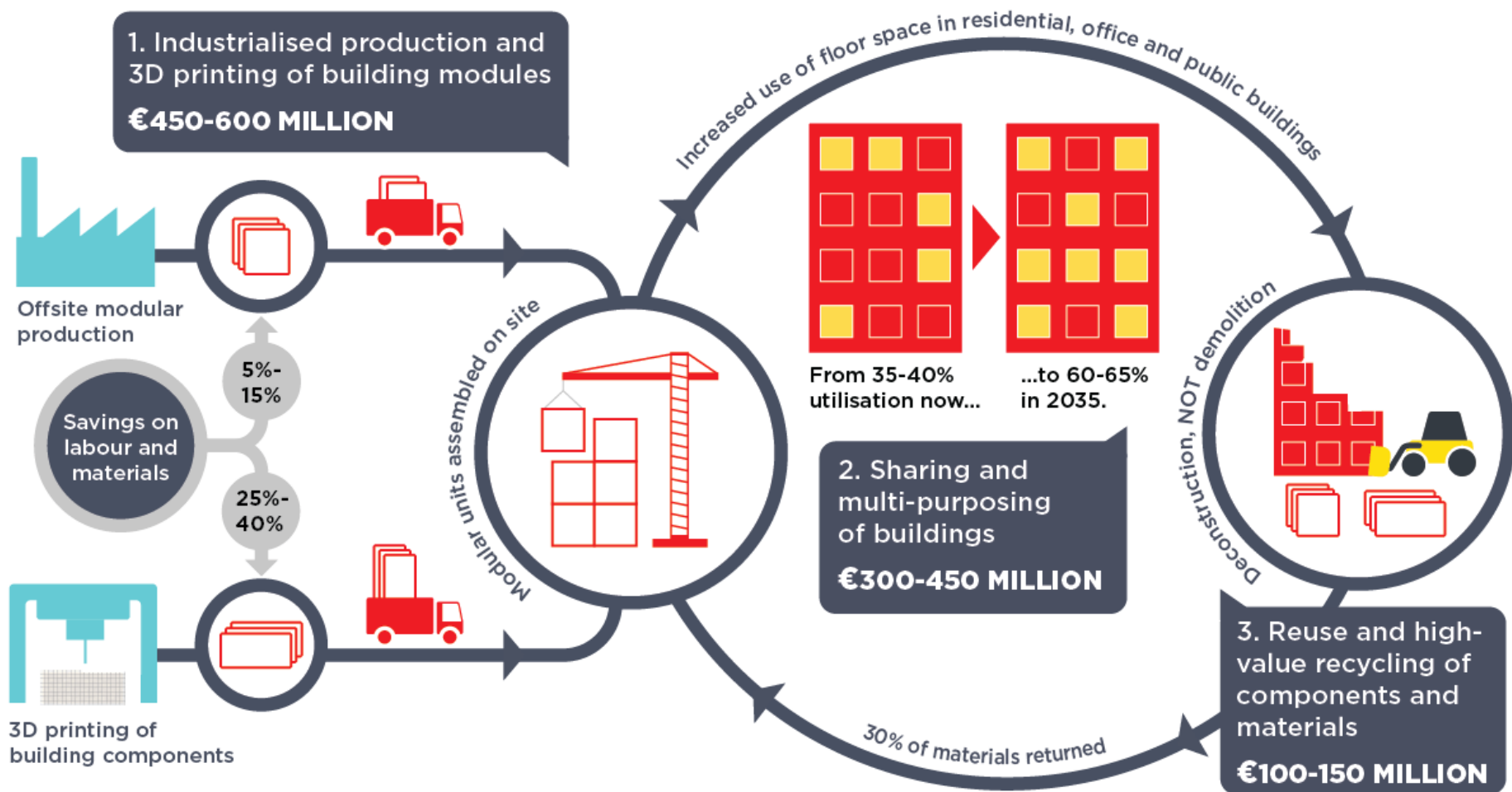
Join

What's On

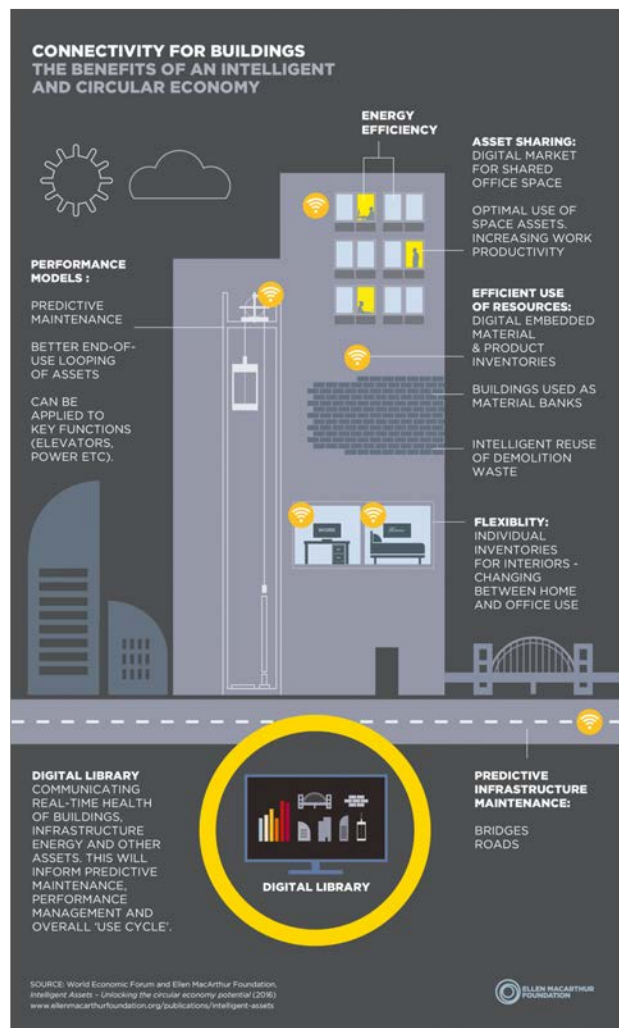
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CONSTRUCTION & REAL ESTATE OPPORTUNITIES IN DENMARK



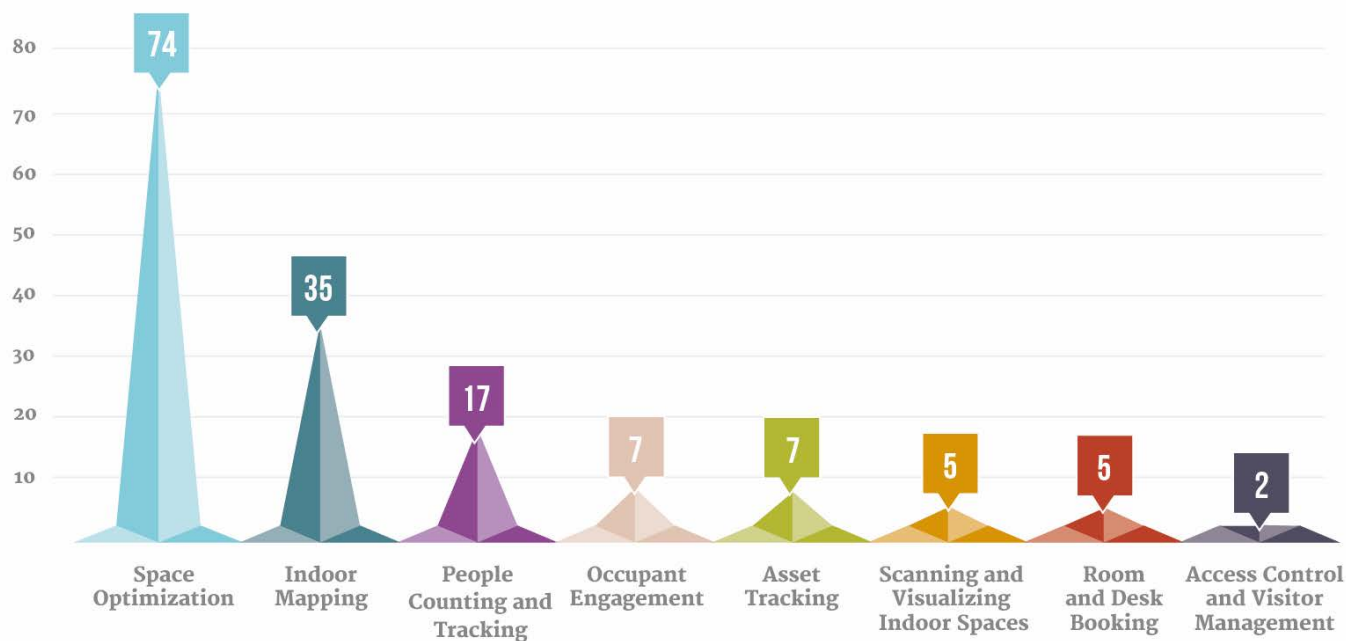
Building and smart cities

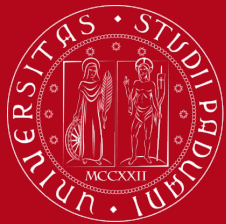


380 Million Euros of turnover in 2018 (+52% on 2017) related to devices and solutions focused on smart, connected home (source: Osservatorio IoT Polimi)

Fig 3.1

Use Cases for Occupancy Analytics and In-Building Location Based Services





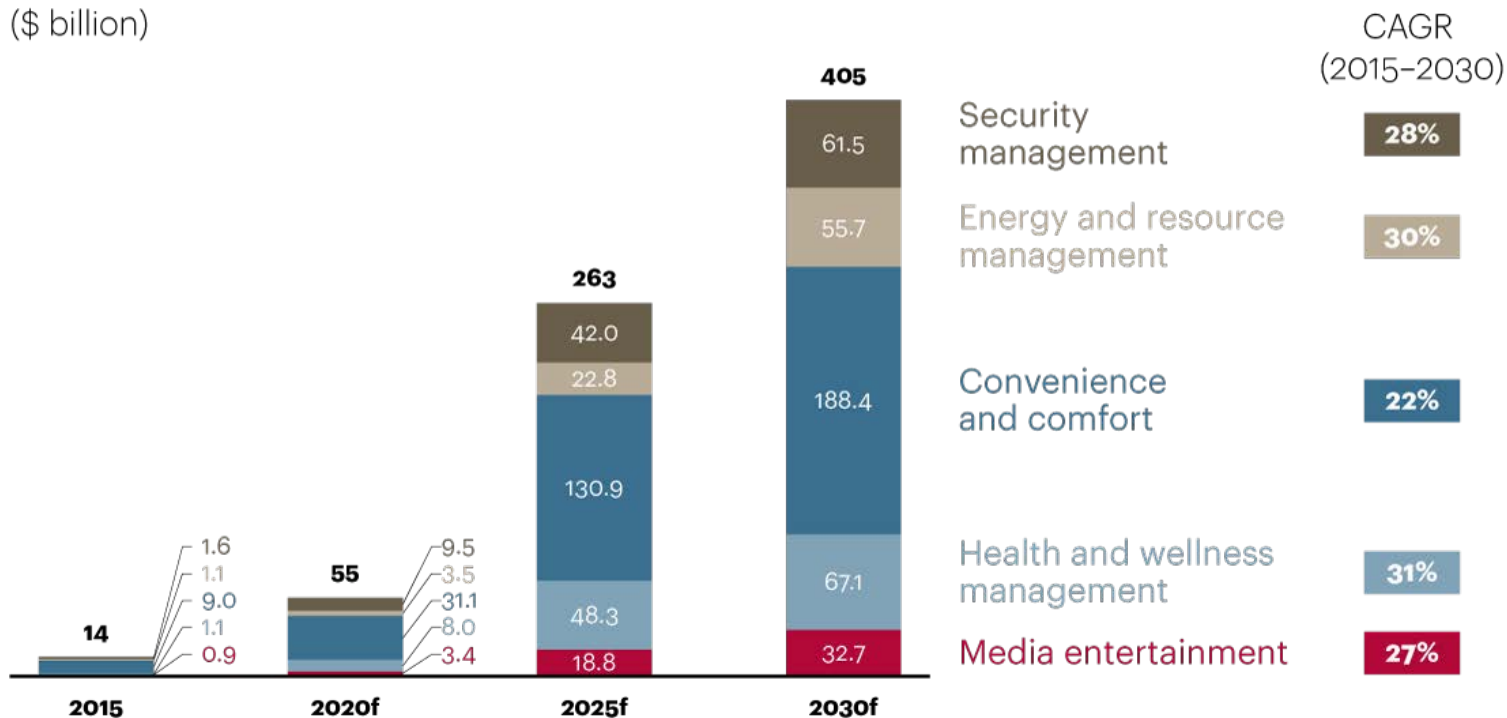
Products and services for the smart home

Figure 2

Smart home market growth will explode after 2020

Smart home market size by application category

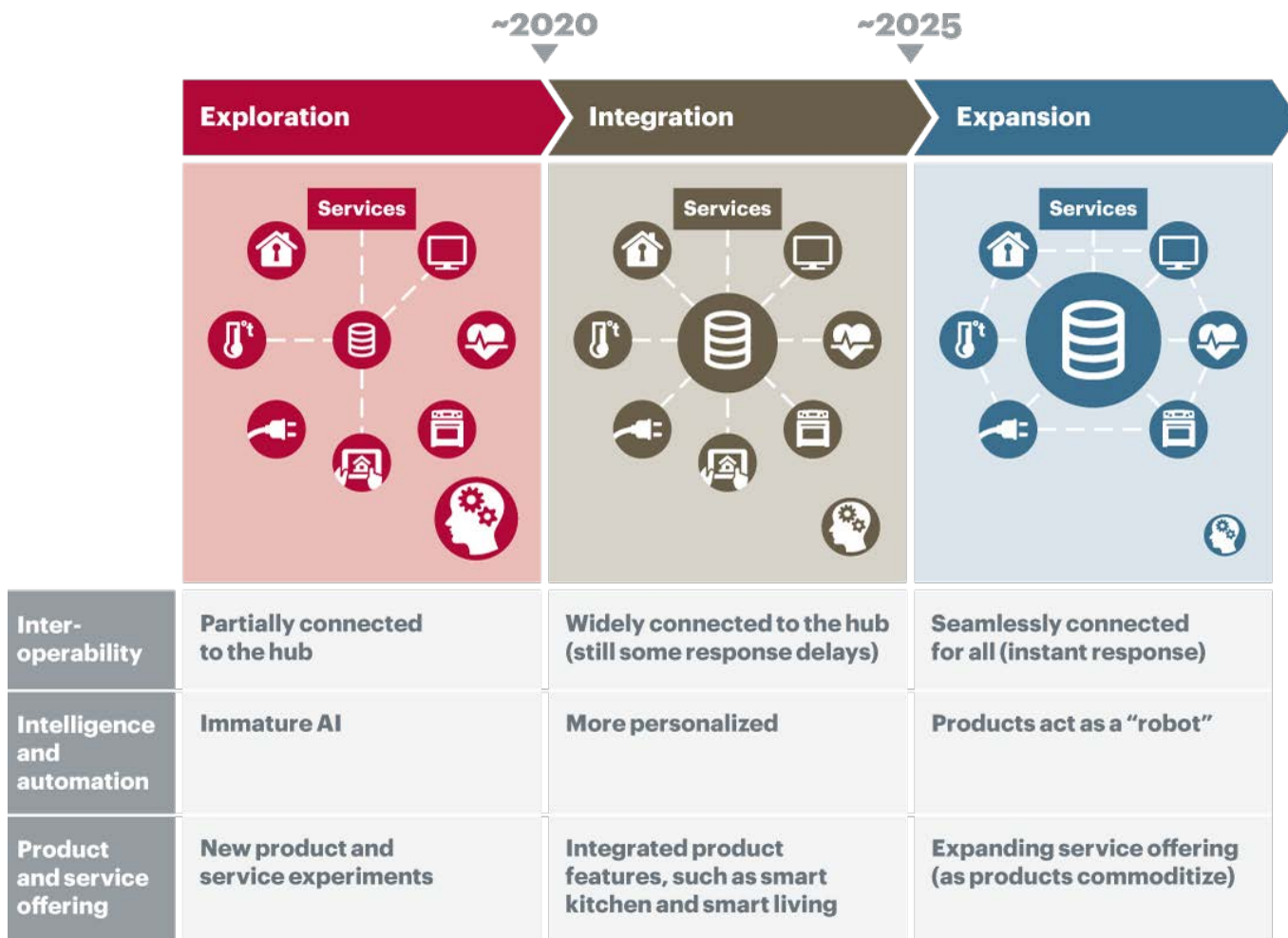
(\$ billion)



Source: A.T. Kearney analysis



Smart home evolution



Accumulated user data size and data processing capacity size



User effort required to handle products and services



- **Eco-design as necessary condition**
- **Circularity in materials:** opportunities (and threats) in connecting market opportunities and *urban regeneration*
- **Digital innovation** (industry 4.0) as enabling factor towards new business models
- Open issues: **regulation, competences, partnership**



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