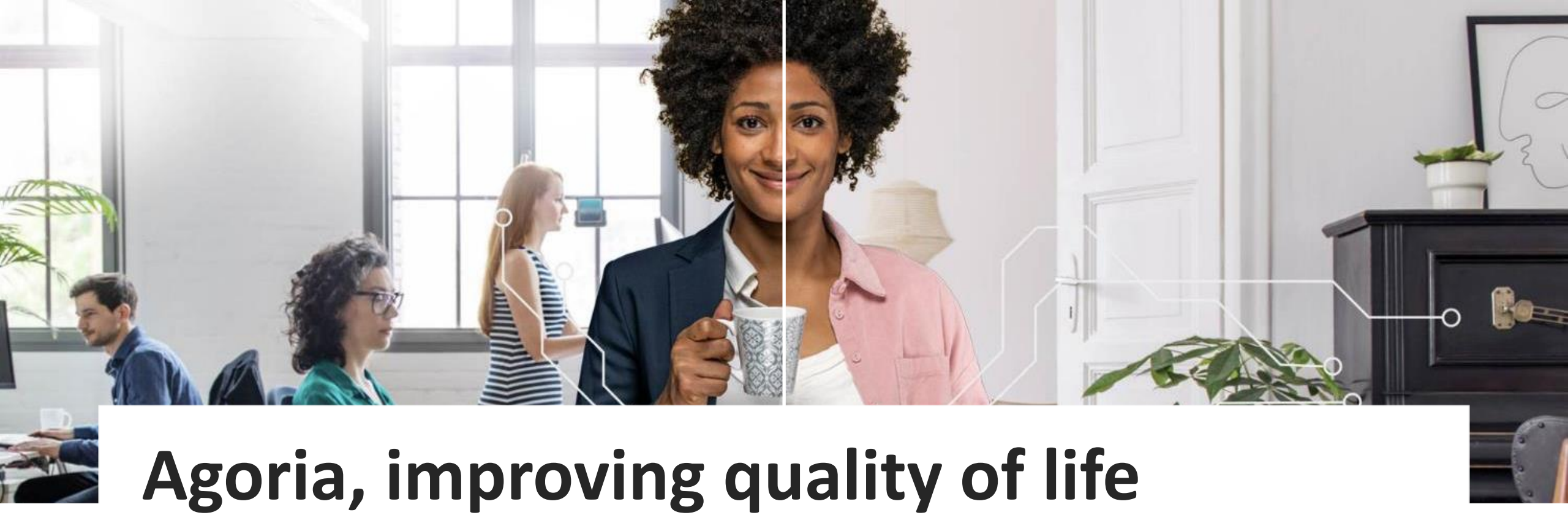
CEMEP

European Committee of Manufacturers of Electrical Machines and Power Electronics

02nd CEMEP CONFERENCE

7th and 8th July 2022 in Milan, Italy

CEMEP sustainable products, systems & services



Agoria, improving quality of life

by bringing companies technology & people together

Embracing technology
Embracing ambition

.AGORIA

.AGORIA

The bridge between the business of our members and technological progress

Our mission: **to inform**, **inspire** and **connect** people and companies

- **Connecting and creating partnerships** for the benefit of every sector individually and of society as a whole.
- **Providing expertise** tailored to the needs and specific requirements of each member company.
- Representing the **social and economic interests** to build an innovative and future-oriented Belgium together.

THE TECHNOLOGY INDUSTRY IN BELGIUM

Engine of our economy

...

2019

€ 132,5

billion
(turnover)

2020

€ 128

billion
(turnover
estimated)

9%
of the added value of the Belgian economy

28%
of Belgian companies' investments in R&D

52%
of turnover comes from exports

.AGORIA

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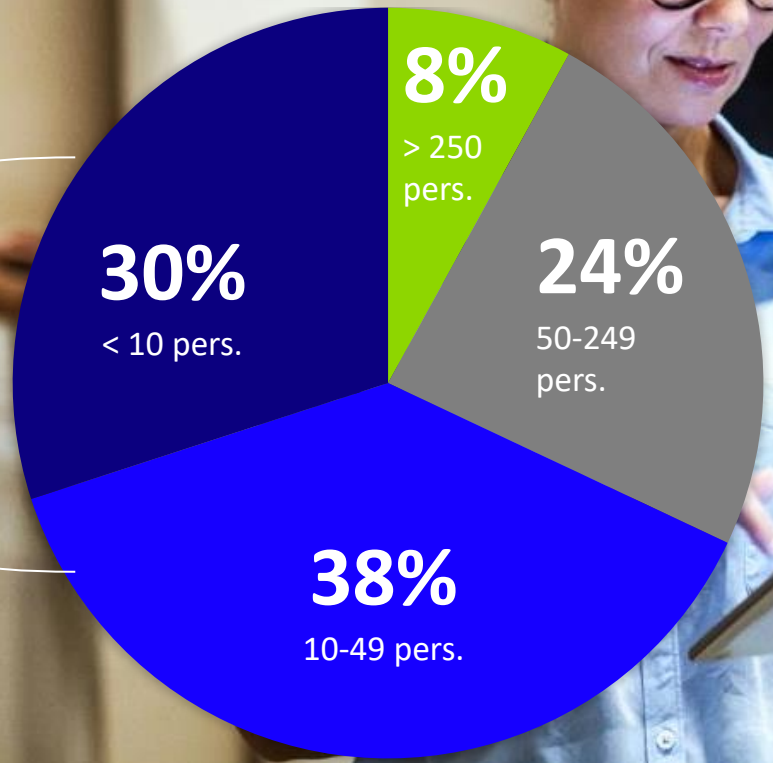
> 2.000

member companies active in

the digital and manufacturing industry

… represented by Agoria



68%
Sme's < 50

Size of the member Companies of Agoria

310.000
people
Work in the technology industry

310.000
Direct jobs

Divided into **59** business groups

BUILDING TECHNOLOGIES

Office & warehouse equipment
Windows, doors and facades
Lifts
Lighting
Home Automation
Individual Heating (CIV)
Heating, ventilation & cooling
Smart Building

ENERGY TECHNOLOGY

Multi-Energy

MANUFACTURING & PROCESS TECHNOLOGY

Gears and Transmissions
Compressors
Textile Machinery
Machine Construction & Components
Pumps & Valves
Industrial Ovens
Industrial Cooling
Food Equipment
Machines for the food industry, packaging and pharmaceutical industries
Industrial Automatisation
Metal-Alliance.be

SAFETY, SECURITY & DEFENCE

Defence technology
Defence Equipment & Services
Agoria Fire Technologies
Agoria Security Technology & Solutions

CO-CREATION, CONTACTING & MATERIALS

Material Solutions
Non ferrous metals
Foundries
Metal Oroducts
Plastics Processing
Composites
Subcontracting
Additive Manufacturing
Contracting & maintenance
Technical Project Management and Assistance
Innovation, Design & Engineering Services
Assembly and Cranes

TRANSPORT & MOBILITY TECHNOLOGIES & SOLUTIONS

Commercial Vehicles & automotive suppliers
Smart Railway Solutions
Shipping Technologies
Smart & Sustainable Mobility
Bicycles and accessories
Agricultural & horticultural machinery and breeding equipment
Civil engineering machinery

AEROSPACE TECHNOLOGIES & SOLUTIONS

Aerospace
Agoria FLAG (Flemish Aerospace Group)
Aeronautic platform technologies
Space assemblies and technologies

MANUFACTURING

DIGITAL

DIGITAL INDUSTRIES

Data centers
Digital Public Sector
Analytics & Information Management
Cloud & Datacenters
Geo Business & Drones
Mobile business
Information Security
Smart Cities
Digital Value and Agility
Digital Skills & HR
Reprobel/Auvibel, POS-systems

TELECOM INDUSTRIES

Investissements et infrastructures
Telecom et consommateur
Économie et société digitales

Digital4Climate

How digital technologies can contribute to reduce carbon emissions in Belgium

02nd CEMEP CONFERENCE

7th and 8th July 2022 in Milan, Italy

Embracing technology
Embracing ambition

Conducted by

accenture

.AGORIA

Why this Digital4Climate study ?

- Climate change & Fit for 55
- Digital : Friend or Foe for climate objectives ?
- Net carbon saving potential of digital technologies
- Success factors for adoption and recommendations

Methodology

The study is conducted by Accenture. The methodology is based on the global GeSI study "SMARTer2030", which Accenture conducted in 2015 in preparation of the 21st UN Climate Conference in Paris.

FOUR SECTORS

15 applications of digital technologies selected across the **four most carbon-intensive sectors (83%)**

Manufacturing

Mobility

Energy

Buildings

TWO SCENARIOS

Digital adoption: The pace of digital technology adoption in Belgium is progressing as expected, which entails a sharp increase in adoption

Accelerated digital adoption: The pace of adoption, dissemination and use of digital technologies in Belgium is picking up significantly with appropriate policy incentives

CALCULATION METHODOLOGY (Ex: telework)

BASELINE (CO2 EMISSIONS)	X	ADOPTION RATE INCREASE	X	IMPACT POTENTIAL
Total Passenger Commute C02e 16.49 Mt CO2e in 2030		Share of teleworkers – pre-covid 42% -12%		reduced fuel consumption 16%

=> Total CO2e reduction potential in 2030 = 0,78 less MT CO2e

Methodology

CARBON REDUCTION IN 4 SECTORS
(selection of 15 applications of digital technologies

BUILDINGS

- **Smart homes**
- **Smart commercial buildings**
- **Smart construction**

MOBILITY & LOGISTICS

- Virtualisation
- Traffic control & optimisation
- Smart logistics

MANUFACTURING

- Digital design & Production
- Smart manufacturing

ENERGY

- Digitally enabled efficiency
- Flexible grids

MODELING THE NET EFFECT OF DIGITAL TECHNOLOGIES ON CARBON REDUCTION IN TWO SCENARIO'S

DIGITAL CARBON FOOTPRINT

GHG FOOTPRINT OF DIGITAL TECHNOLOGIES

- **END USER & IOT DEVICES**
- **NETWORKS**
- **DATA CENTERS**

WHOLE LIFE CYCLE

Manufacturing → Distribution → Use → End-of-life

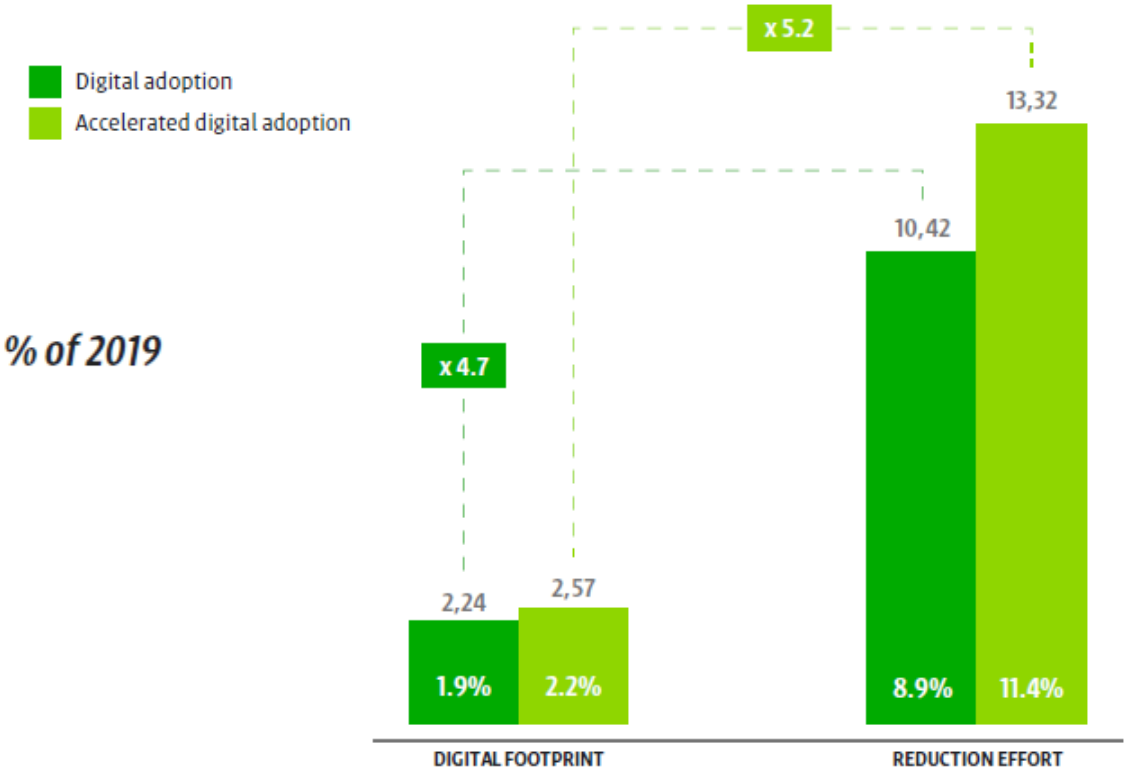
SUPPLEMENTED WITH RECOMMENDATIONS BASED ON 20 CORPORATE INTERVIEWS

SECTOR	USE CASE	LEVER (15)	BASELINE (MT CO2e, 2030)	ADOPTION RATE			IMPACT POTENTIAL (emission reduction)	CARBON REDUCTION POTENTIAL (MTCO2e, by 2030)	
				2020	2030 dig adopt	2030 accel dig adopt		Digital adopt.	Accelerated dig adoption
BUILDING	Smart homes	BMS residential	17,27	17%	61%	86%	11%	**0,81**	**1,27**
		Behavioral impact of smart meters	17,27	3%	78%	100%	3%	**0,39**	**0,50**
	Smart commercial buildings	BMS commercial	7,67	20%	54%	60%	28%	**0,73**	**0,84**
	Construction	BIM	35,11	40%	81%	89%	7%	**0,98**	**1,18**
MOBILITY	Virtualization	E-Work	16,49	12%	42%	49%	16%	**0,77**	**0,96**
	Traffic control & optimization	Smart traffic lights & signs	6,32	35%	100%	112%	16%	**0,63**	**0,75**
	Smart logistics	Route and freight optimization	9,97	9%	25%	37%	37%	**0,58**	**1,03**
		Rail freight modal substitution and digitalization	9,97	0%	74%	90%	8%	**0,55**	**0,68**
		Inland navigation modal substitution and automation	9,97	0%	57%	74%	6%	**0,36**	**0,46**
ENERGY	Digitally enabled efficiency	Efficiency of renewable energy production	9,94	0%	61%	74%	7%	**0,44**	**0,53**
	Flexible grid	Storage & flexible consumption	9,94	27%	70%	79%	18%	**0,76**	**0,92**
MANUFACTURING	Digital design and production	Process simulation (process industry)	28,3	6%	51%	62%	9%	**1,15**	**1,44**
		Virtual prototyping and twinning (product industry)	6,03	2%	56%	67%	9%	**0,28**	**0,34**
	Smart manufacturing	Manufacturing automation	13,81	53%	95%	100%	25%	**1,46**	**1,64**
		Predictive maintenance	13,81	15%	60%	80%	9%	**0,55**	**0,80**

Key results

CARBON REDUCTION

(MT carbon savings in 2030, % of 2019 sector emissions)*



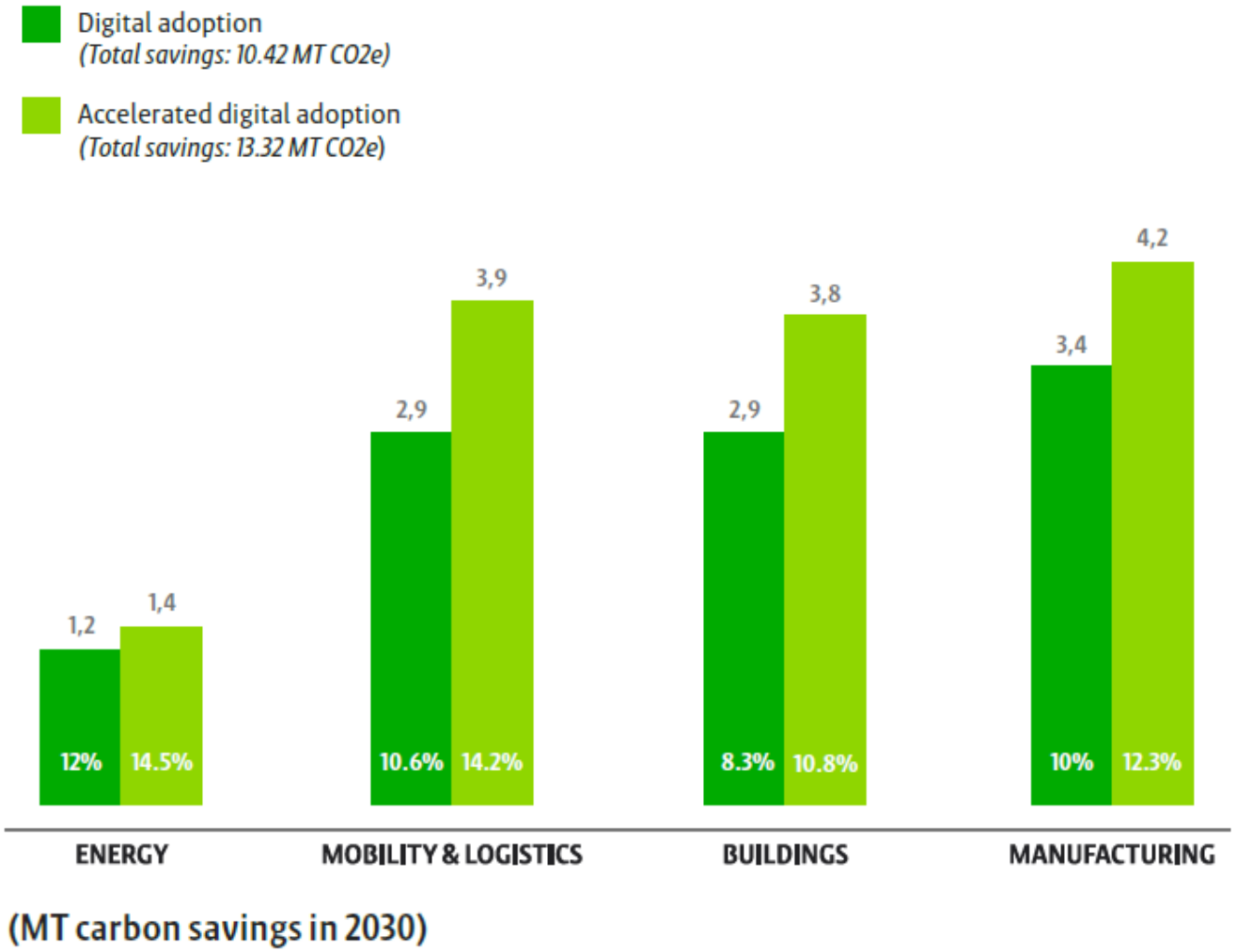
*Belgian 2019 emissions amounted to 116.5 MT CO2e

5 – 10

The carbon savings potential enabled by digital is about 5 x larger than the digital footprint (by 2030).

The carbon savings amount for 10 % of the total CO2e emissions (or about 30% of 2030 Belgian climate objectives)

Carbon reduction potential per sector



- **Digital technologies that unlock process efficiency**
- **The key technologies considered are Building Management System and Building Information Modeling.**
- **The key drivers are reducing the need for transport and optimizing the existing modalities.**
- **Digital technologies catalyzing the shift to renewables in the energy sector**

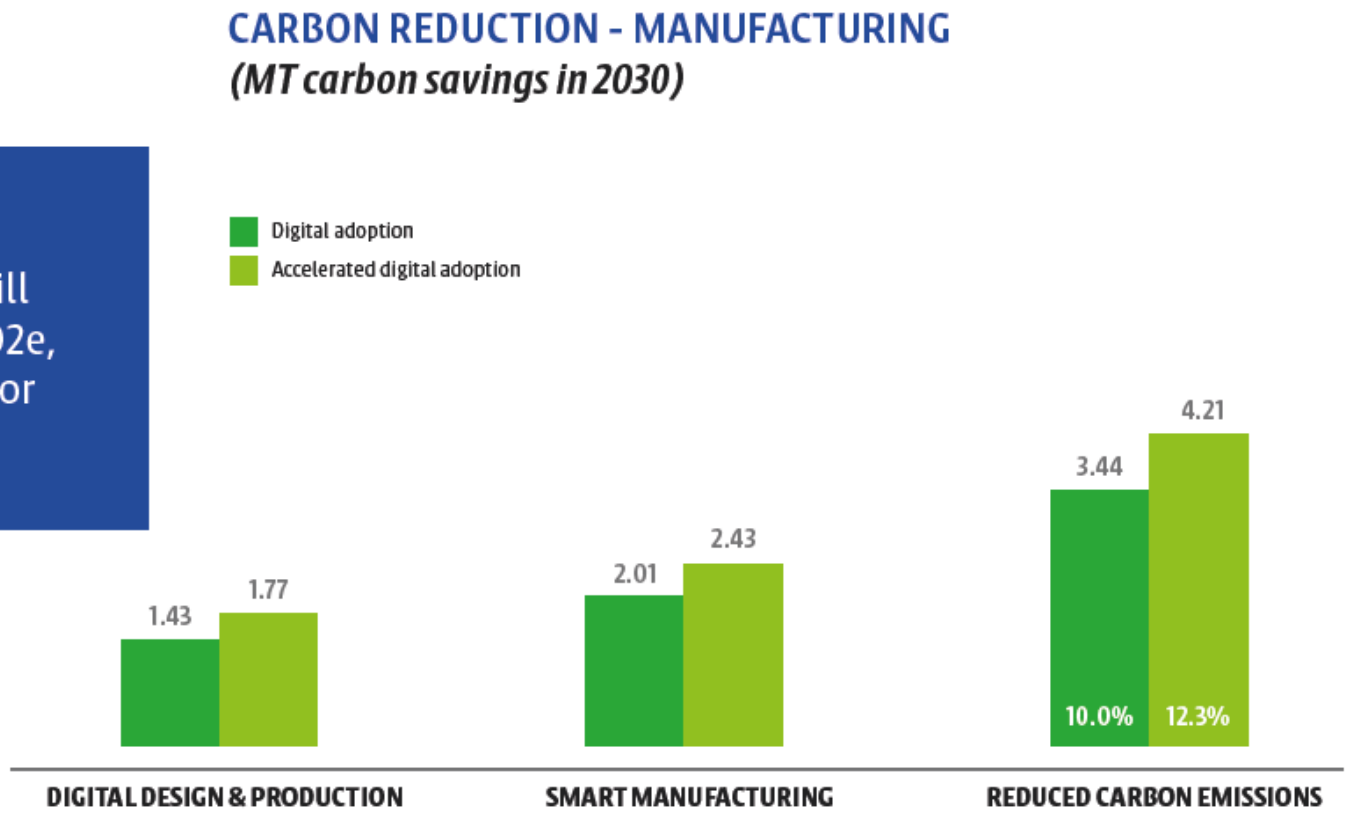
Manufacturing: a critical sector for success

Highest CO2e reduction potential. 29% of Belgian CO2 emissions (33.5MT)

Highest socio-economic impact: 545.000 jobs & 12.5% Belgian GDP

Manufacturing

Digital technologies that unlock process efficiency will help saving 3.4 to 4.2 MT CO2e, or 10-12.3% of the total sector emissions.



Belgian 2030 baseline carbon emissions for the manufacturing sector are forecasted to amount to 34.32 MT CO2e

Digital is optimizing end-to-end manufacturing

INCREASE EFFICIENCY THROUGH SIMULATIONS/VIRTUAL PROTOTYPE

Digital Design & Production

- L 1.1: Process Simulation (process industry)
- L 1.2: Virtual prototyping and twinning (product industry)

REDUCE ENERGY CONSUMPTION THROUGH DIGITAL TECH AND IOT

Smart Manufacturing

- L 2.1: Manufacturing Automation
- L 2.2: Predictive Maintenance

Agoria programs
Factory of the Future & DigiCoach programs

Vintecc (CNHi) – Virtual prototyping and twinning

VINTECC 2021

CNH INDUSTRIAL

Field of expertise

- Virtual commissioning
- Matlab / Simulink
- Sensor technology
- Pointcloud processing
- Software middle layers
- Dual

vintecc
CREATING SMARTER MACHINES

The future of machines is

Smart Virtual Connected Artificial

Takeda – Process simulation

Alvance – Predictive maintenance

Link video

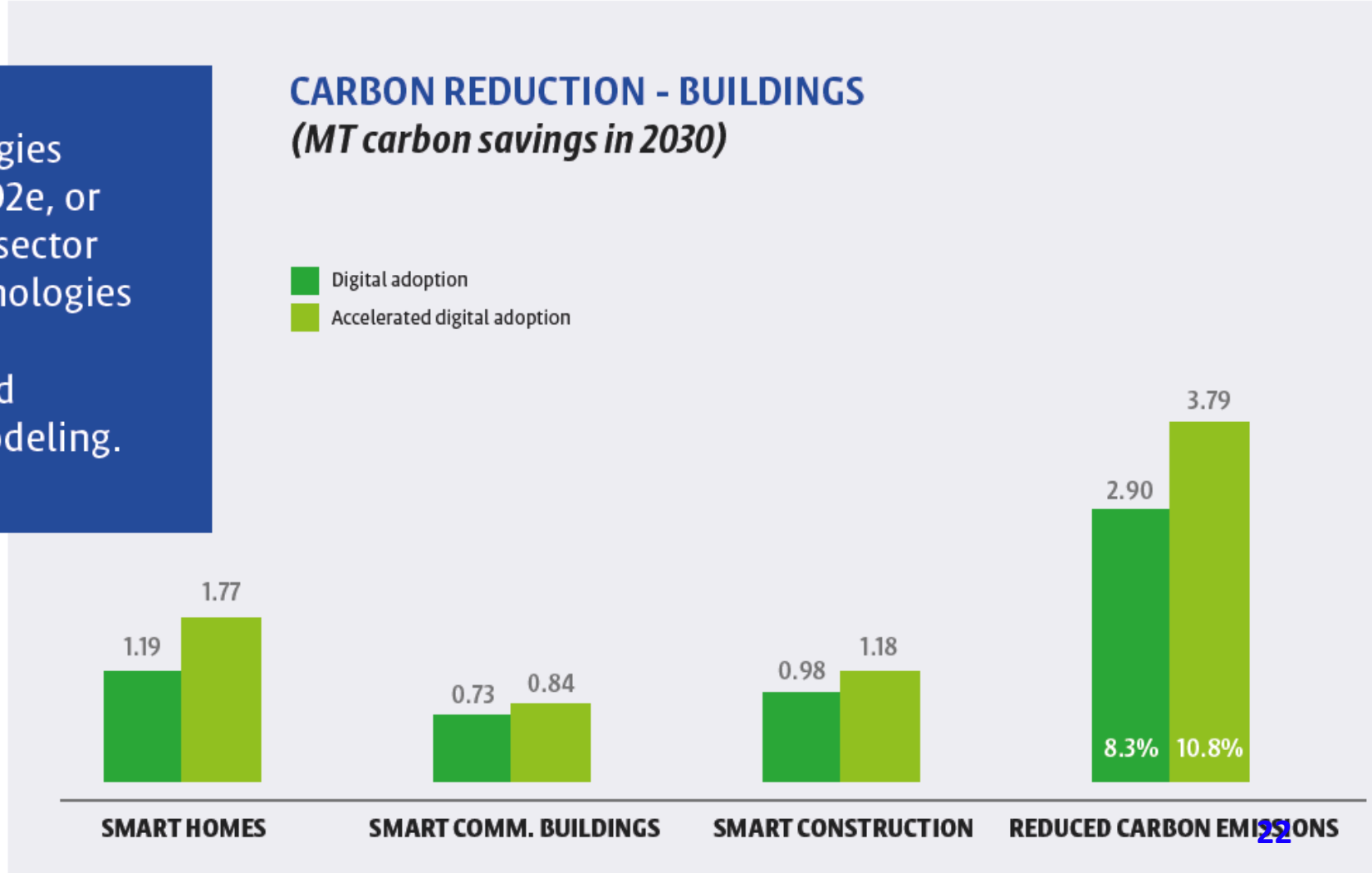
Buildings & construction: Highest climate impact

Highest climate impact: 33% of Belgian CO2 emissions (38.5MT)

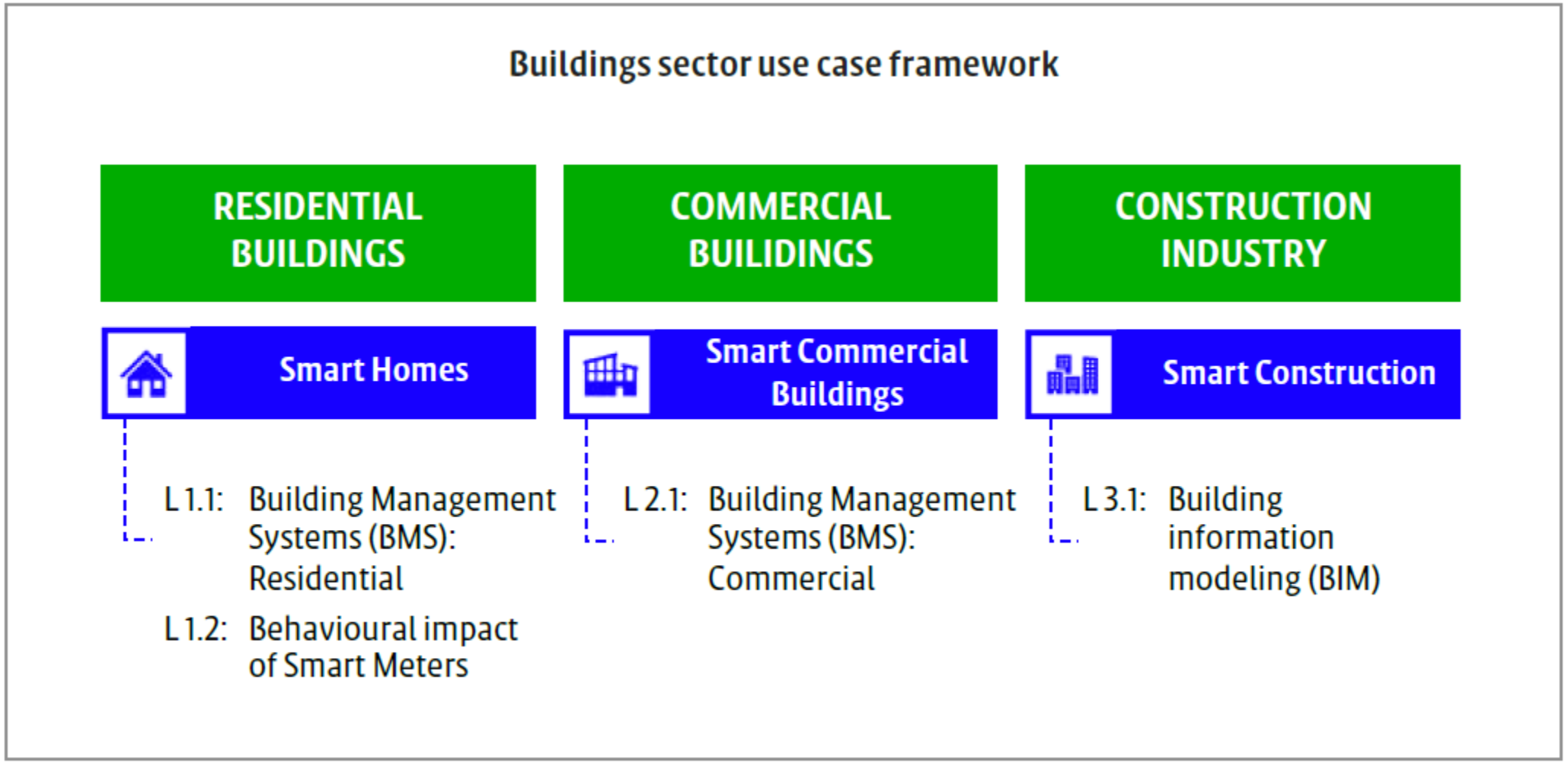
High socio-economic impact: 260.000 jobs & 5% Belgian GDP

Buildings & construction

The key digital technologies can save 2.9 to 3.8 MT CO2e, or 8.3 to 10.8% of the total sector emissions. The key technologies considered are Building Management System and Building Information Modeling.



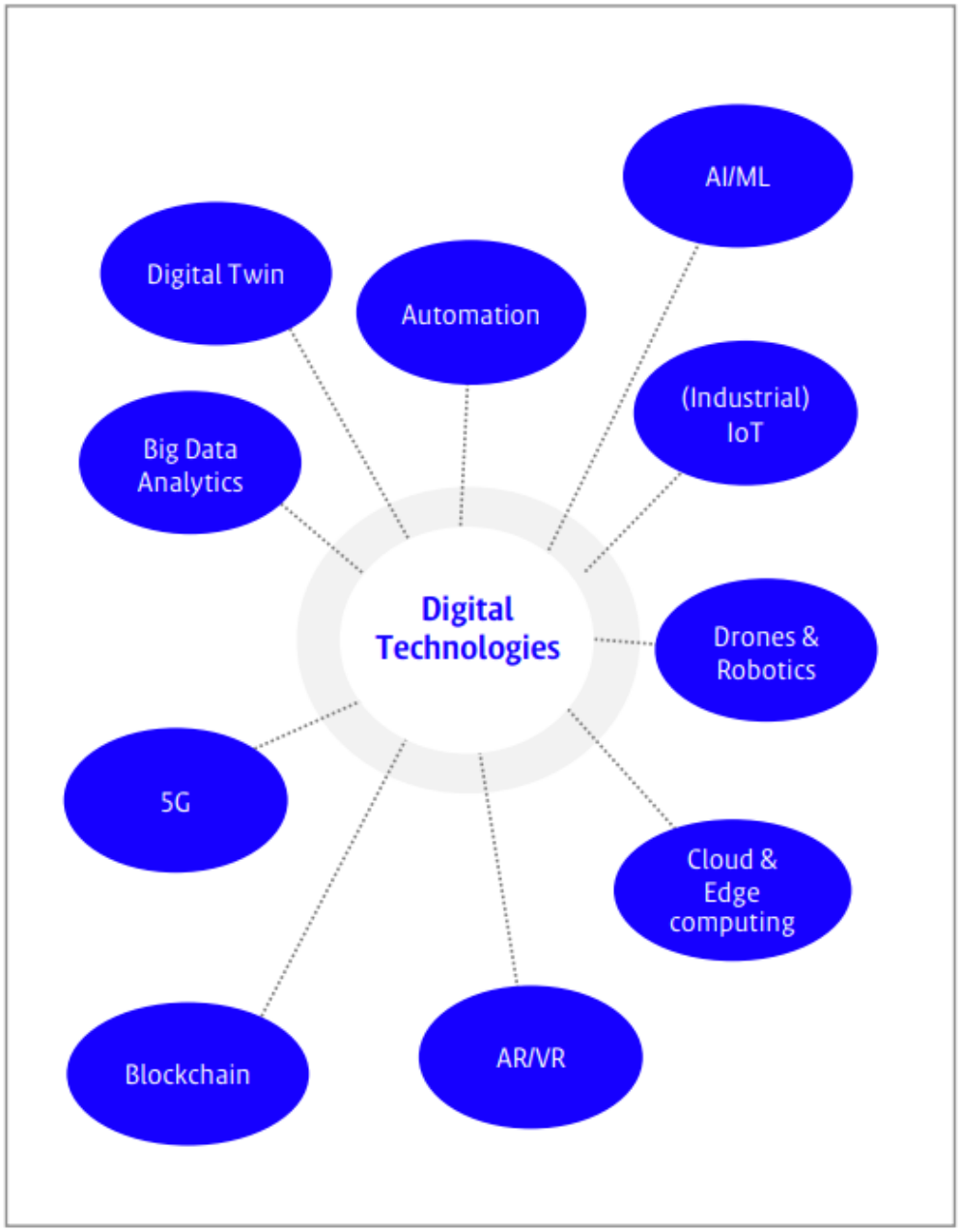
Use case framework for Buildings & construction



Vinci Energies – BMS commercial

Link video

Befimmo - BIM



Exploiting the full potential of Digital

STUDY

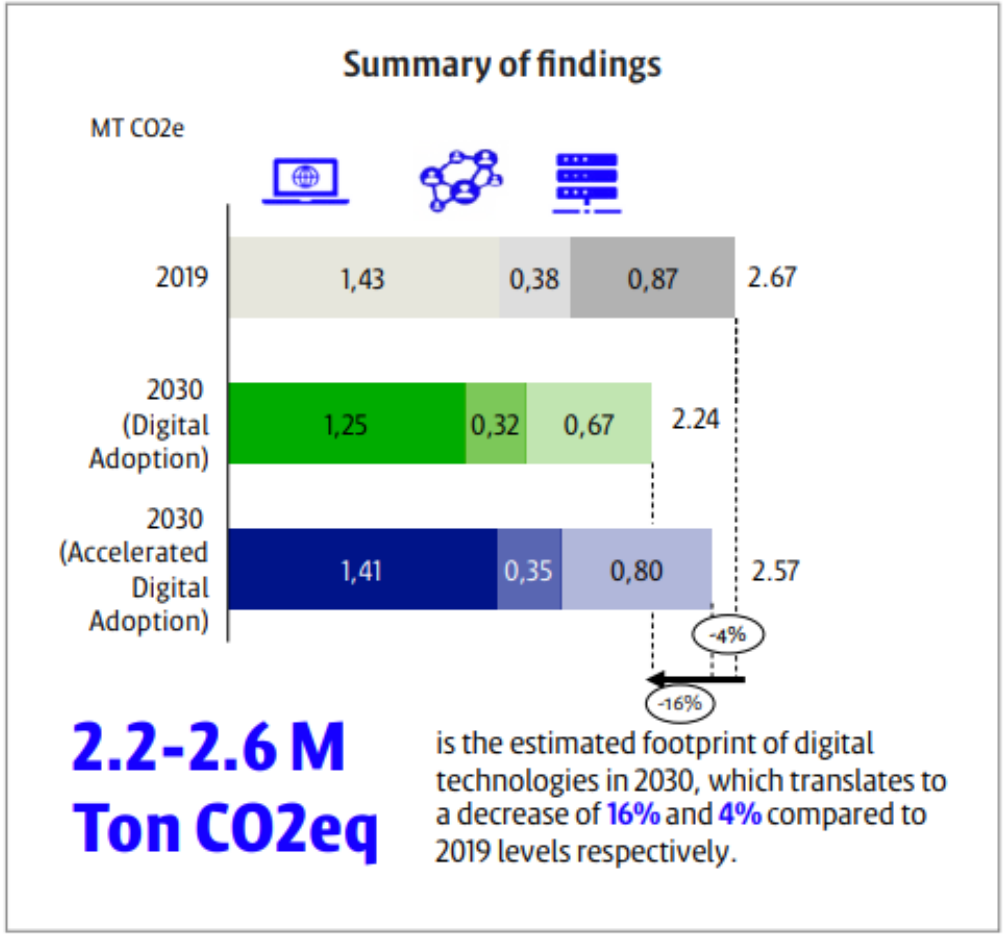
Focus on optimization through proven technology

NEW BUSINESS MODELS

- **SHARING economy**
- **CIRCULAR ecosystems**
- **As a SERVICE business models**

Digital Footprint

(macro-economic calculation)



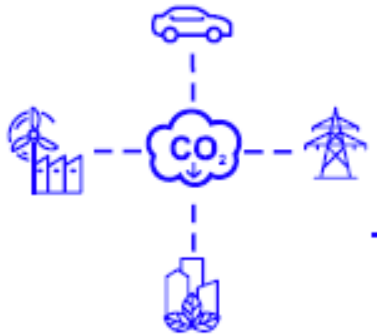
Green ICT

- Devices: 30% device lifespan ⇗ brings 18% CO2e ⇘
- Networks: 5G is 10x more energy efficient than 4G
- Cloud adoption by enterprise: 65% energy ⇘ 84% CO2e ⇘

Conclusions

x5

The carbon savings enabled by 15 applications of digital technologies is about 5 x larger than the total digital footprint by 2030.



10%

The total carbon reduction in 4 sectors represents roughly 10% or more of Belgian carbon emissions over the next 10 years or about 30% of the climate target.

An accelerated adoption of digital technologies will lead to more than proportional carbon savings.

As evidenced by the 20 best practices, companies embracing this twin transition – digital & green – are adopting digital solutions with proven impact.

Policy Recommendations

A Digital 4 Climate Innovation Program
Stimulate technology adoption & new business models

An investment friendly regulation environment
Ex: dynamic pricing energy system; data spaces for energy & mobility

Governments leading by example
Ex: Intelligent transport systems for mobility, Building Management System for public offices

Boost digital skills for the green transition
Ex: Twin transition part of training for unemployed, higher education or lifelong learning upskilling

Read the full study here: www.agoria.be/digital4climate

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Thanks for the attention!

Alain Wayenberg

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