

Welkom bij het webinar

**Duurzame IT in de praktijk
met het GreenOps raamwerk**



**Coalitie
Duurzame
Digitalisering**



ABN·AMRO



CONCLUSION

Belangrijk om te weten

- Microfoons van deelnemers zijn tijdens dit webinar uitgeschakeld
- Vragen kunnen in de chat worden gesteld en worden aan het eind behandeld
- Dit webinar wordt opgenomen



Programma **GreenOps Raamwerk**

- 11:00 Introductie NCDD
- 11:05 Waarom
- 11:15 Toelichting
- 11:25 Praktijkvoorbeelden
- 11:45 Vervolgstappen
- 11:50 Vraag & Antwoord
- 12:00 Einde



Programma **GreenOps Raamwerk**

- 11:00 Introductie NCDD
- 11:05 Waarom
- 11:15 Toelichting
- 11:25 Praktijkvoorbeelden
- 11:45 Vervolgstappen
- 11:50 Vraag & Antwoord
- 12:00 Einde



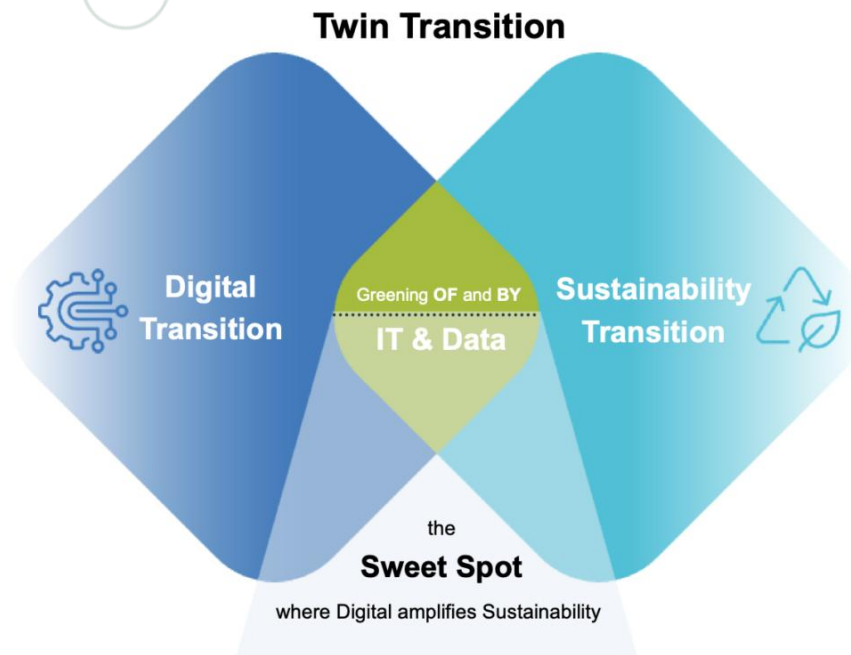
Twin transition

Een concurrerende duurzaamheidstransitie

&

Een duurzame, soevereine en

veilige digitale transitie

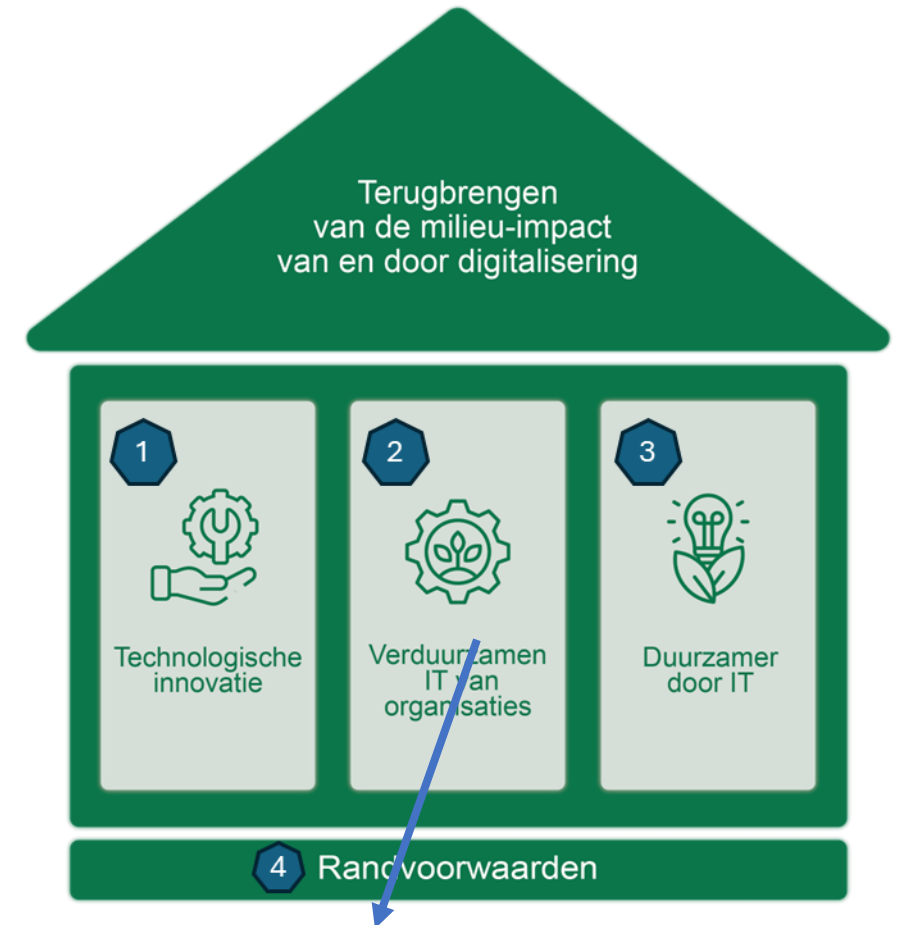


NCDD en programmalijn 2

NCDD werkt via 4 programmalijnen in werkgroepen om tot concrete resultaten te komen

Met als ambitie: Nederland koploper duurzame digitalisering

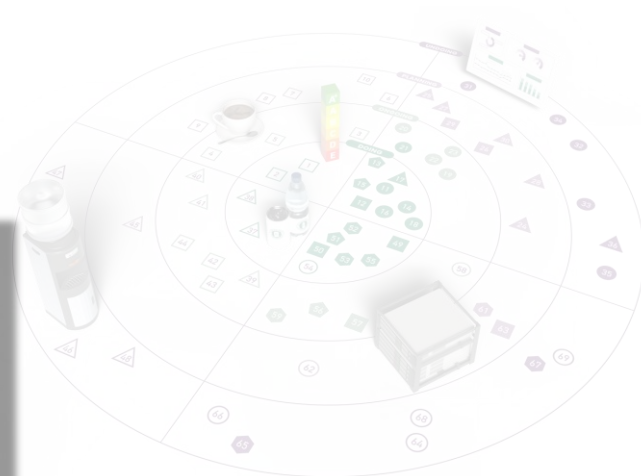
Programmalijn 2 richt zich op het verduurzamen van IT van organisaties



Publicatie: Sustainable IT Impact Assessment (SIIA)



SIIA Gids
NL & ENG



Radar

Hét startpunt voor het verduurzamen van IT en het inzetten van IT voor een duurzame organisatie.





Vincent van Vliet

Strategy Consultant
Sustainable IT

ABN AMRO



Claudia Hovius

Business Consultant
Sustainability & IT

Conclusion Consulting



Rutger van Ijzendoorn

Managing Consultant
Sustainability

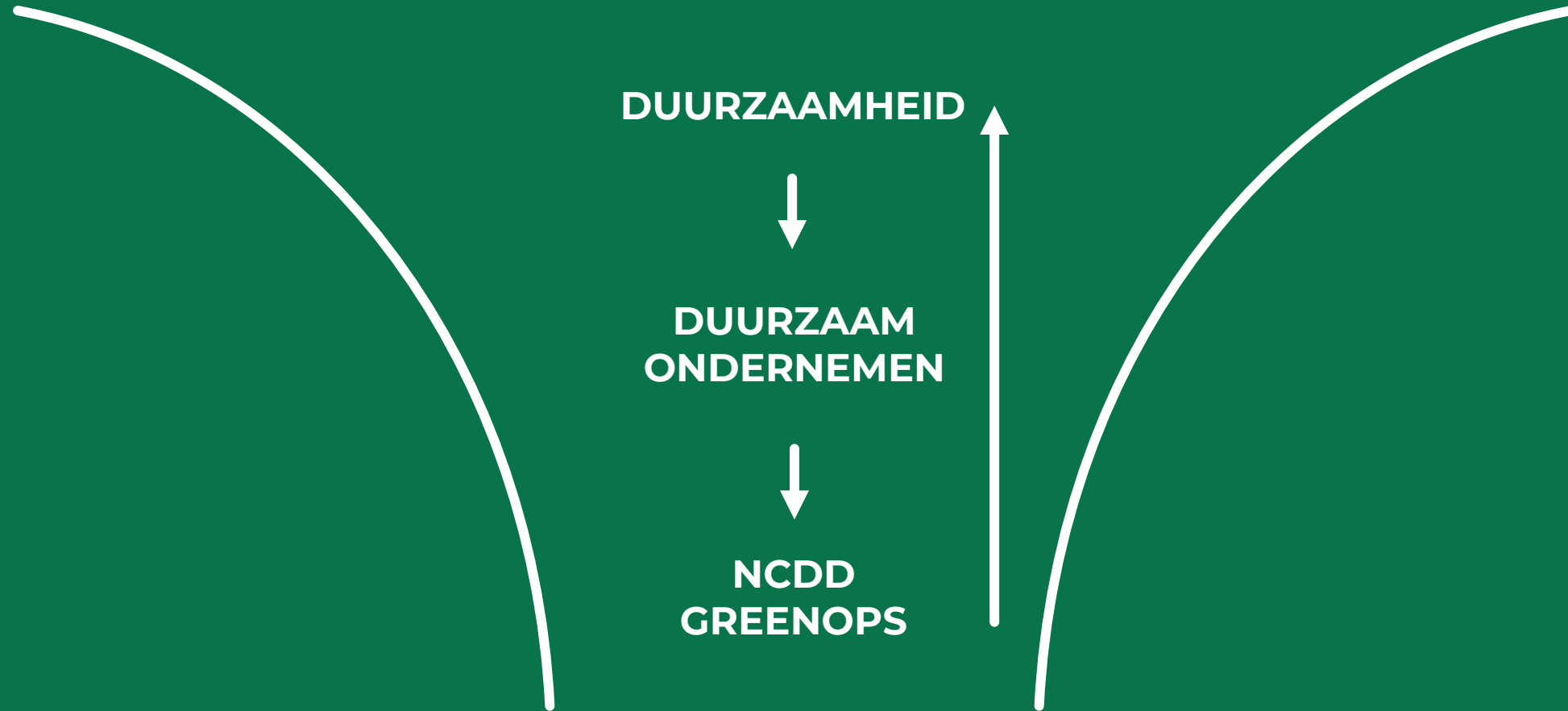
Conclusion Consulting



Programma **GreenOps Raamwerk**

- 11:00 Introductie NCDD
- 11:05 Waarom
- 11:15 Toelichting
- 11:25 Praktijkvoorbeelden
- 11:45 Vervolgstappen
- 11:50 Vraag & Antwoord
- 12:00 Einde







Klimaat-
verandering



Productie &
consumptie



Stedelijke groei,
polarisatie &
sociale
bewegingen



Ongelijkheid &
breder sociale
uitdagingen



Figure 2.1 | World SDG Dashboard 2025

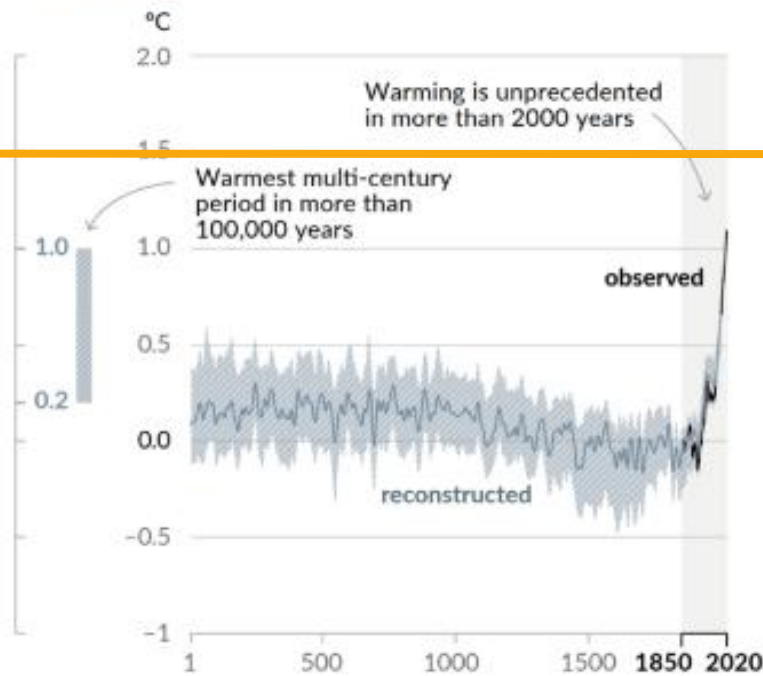


■ Major challenges
 ■ Significant challenges
 ■ Challenges remain
 ■ SDG achieved
 ● Data not available
↓ Decreasing
 → Stagnating
 ↗ Moderately improving
 ↑ On track or maintaining SDG achievement

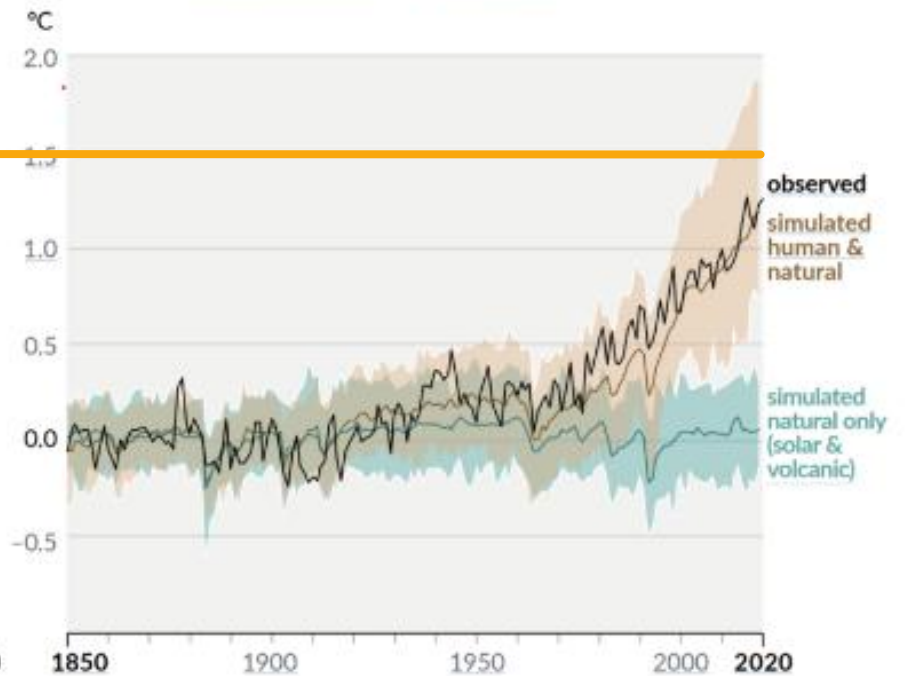


Changes in global surface temperature relative to 1850-1900

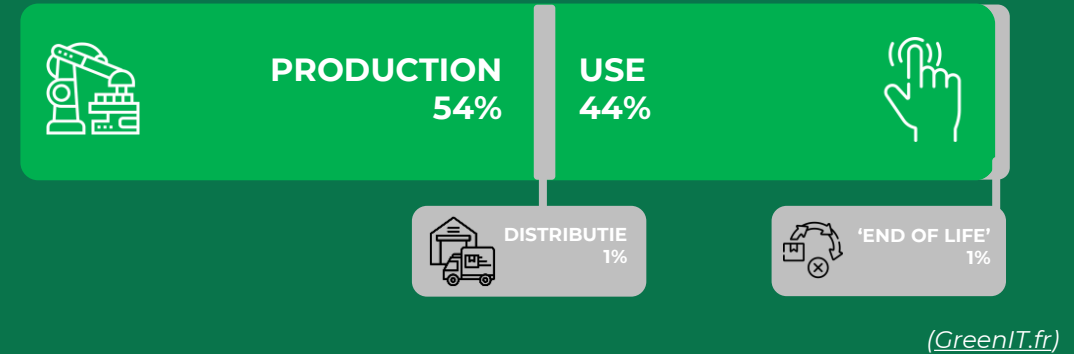
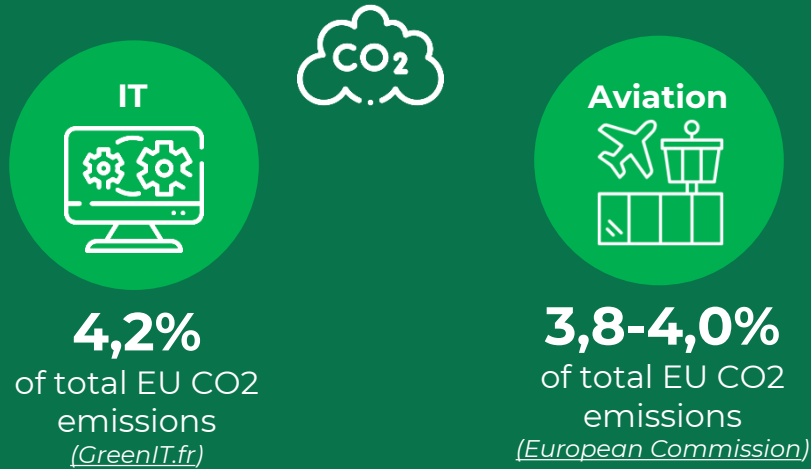
(a) Change in global surface temperature (decadal average) as reconstructed (1-2000) and **observed** (1850-2020)



(b) Change in global surface temperature (annual average) as **observed** and simulated using **human & natural** and only **natural** factors (both 1850-2020)



Source: Intergovernmental Panel on Climate Change (IPCC)

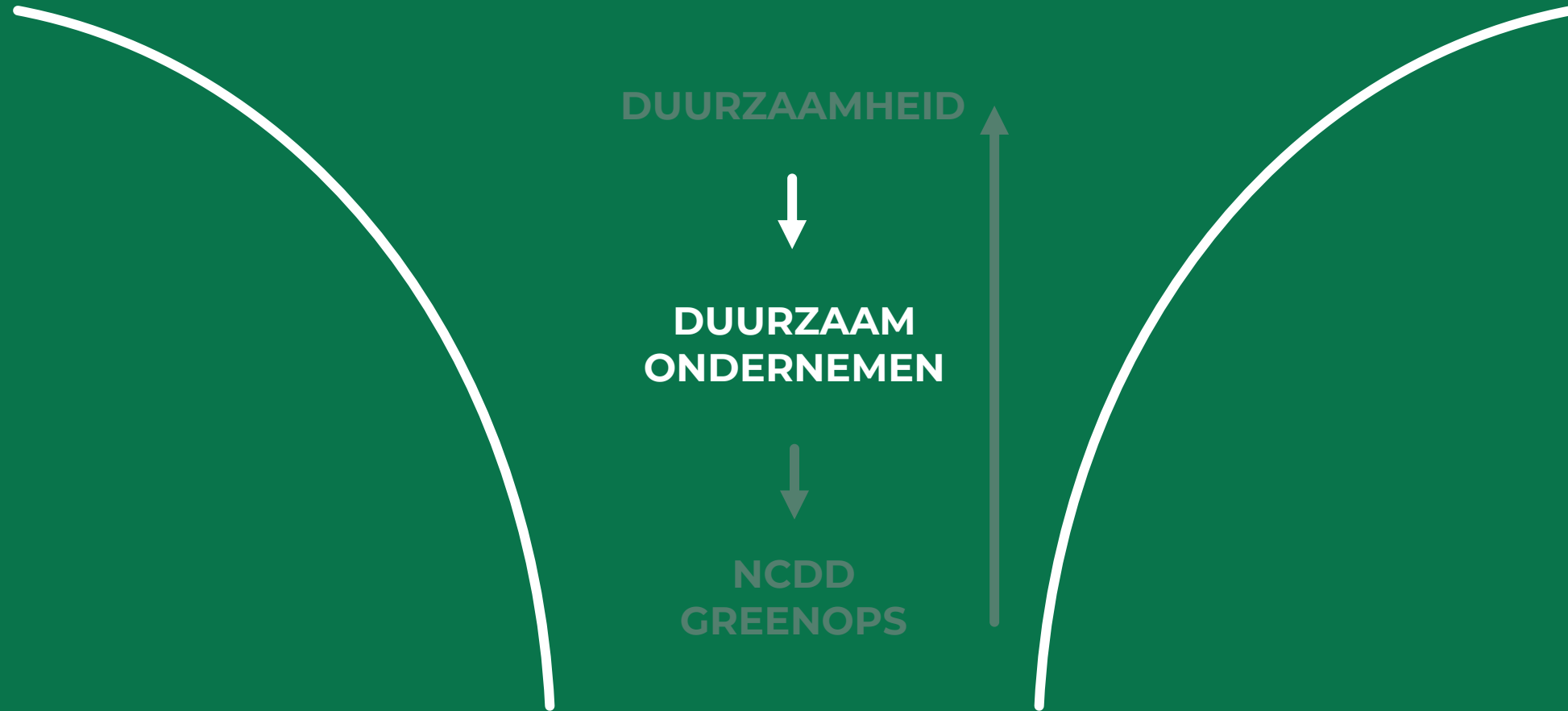


Electricity consumption
per year (EU)
=
9.3% of total EU
consumption
(GreenIT.fr)



Dataopslag (1 jaar)	CO2-uitstoot	Aantal bomen om te compenseren
100 GB*	0.2 ton	10
1 TB	2 ton	100
1000 TB (1 PB)	2000 ton	100.000

*(*Stanford Magazine)*



GreenOps Raamwerk

Waarom



2015

2020

2023

2024

2027

2028

CSRD
Eerste bedrijven over boekjaar 2024 ESG-rapporteren in 2025

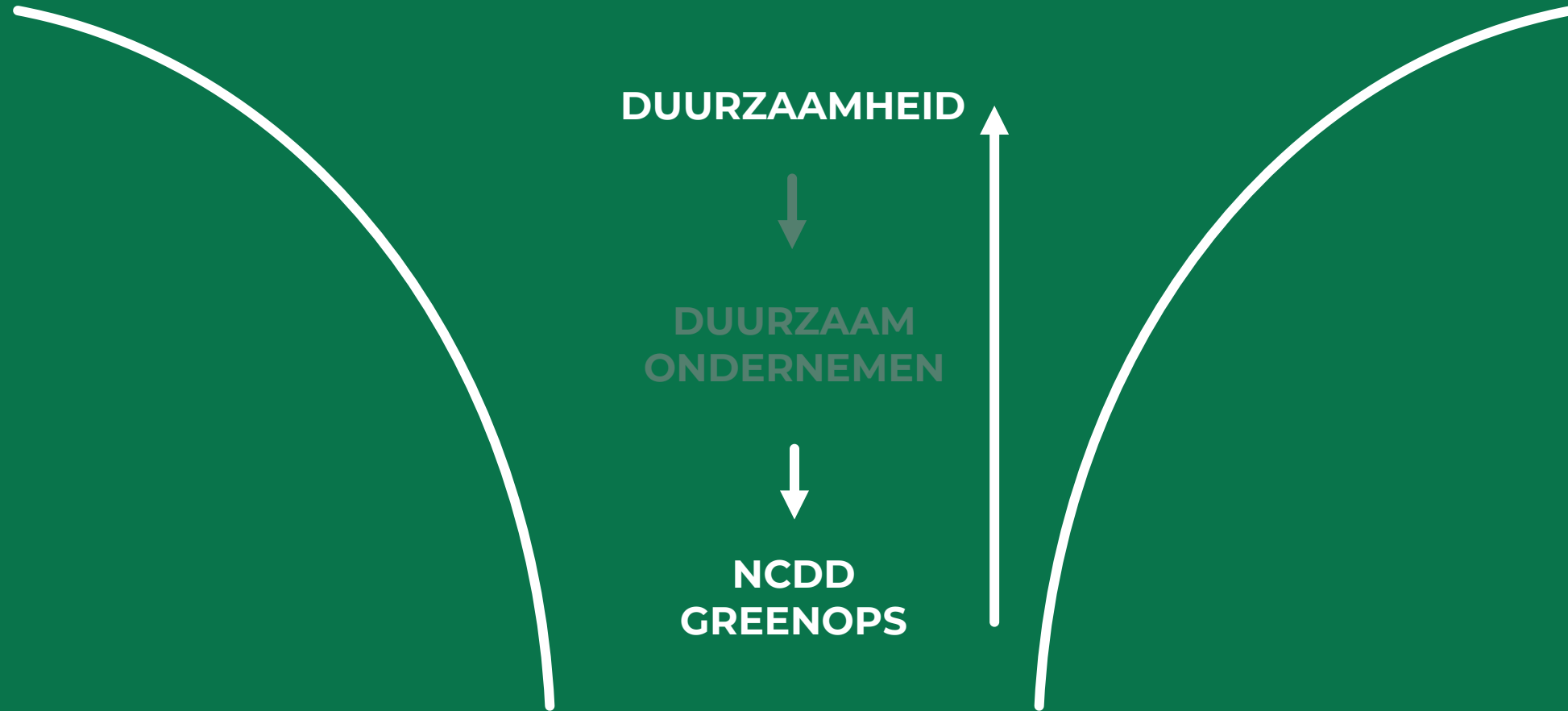
CSRD
Bedrijven $\geq 1\,000$ werknemers en $\geq \text{EUR } 450\text{ m}$ omzet rapporteren boekjaar 2027

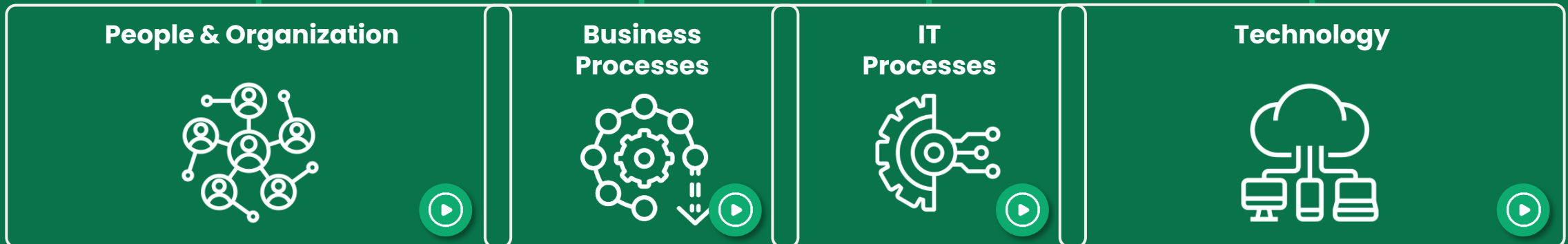
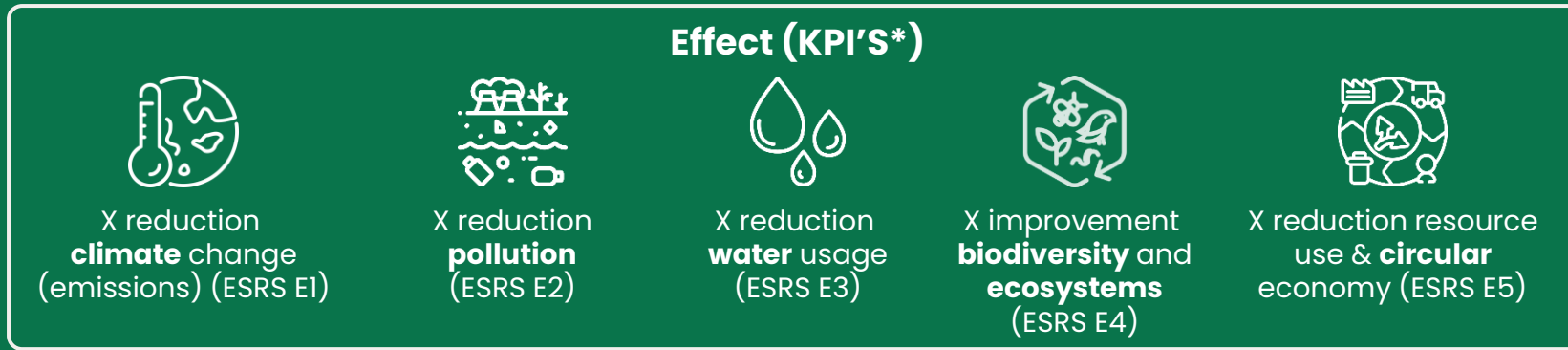
CSDDD
Bedrijven $\geq 5\,000$ werknemers en $\geq \text{€}1,5$ mld omzet: ketenverantwoordelijk en aansprakelijk

E	 Klimaatverandering (ESRS E1)	 Verontreiniging (ESRS E2)	 Water & Mariene Hulpbronnen (ESRS E3)	 Biodiversiteit & Ecosystemen (ESRS E4)	 Circulaire Economie (ESRS E5)
	S	Eigen personeel (ESRS S1)	Werknemers in de waardeketen (ESRS S2)	Getroffen gemeenschappen (ESRS S3)	Consumenten en Eindgebruikers (ESRS S4)

Zakelijk gedrag

G





Programma **GreenOps Raamwerk**

- 11:00 Introductie NCDD
- 11:05 Waarom
- 11:15 Toelichting
- 11:25 Praktijkvoorbeelden
- 11:45 Vervolgstappen
- 11:50 Vraag & Antwoord
- 12:00 Einde



GreenOps Raamwerk Toelichting



Jan Schraivesande



Vincent van Vliet



Rutger van IJendoorn

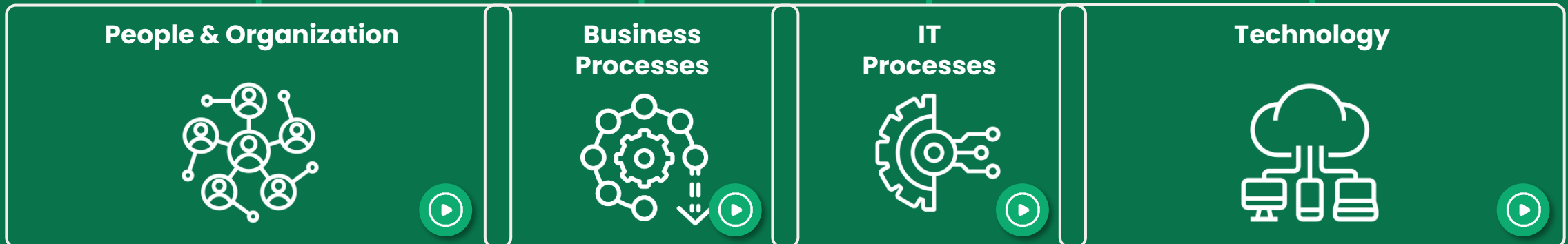
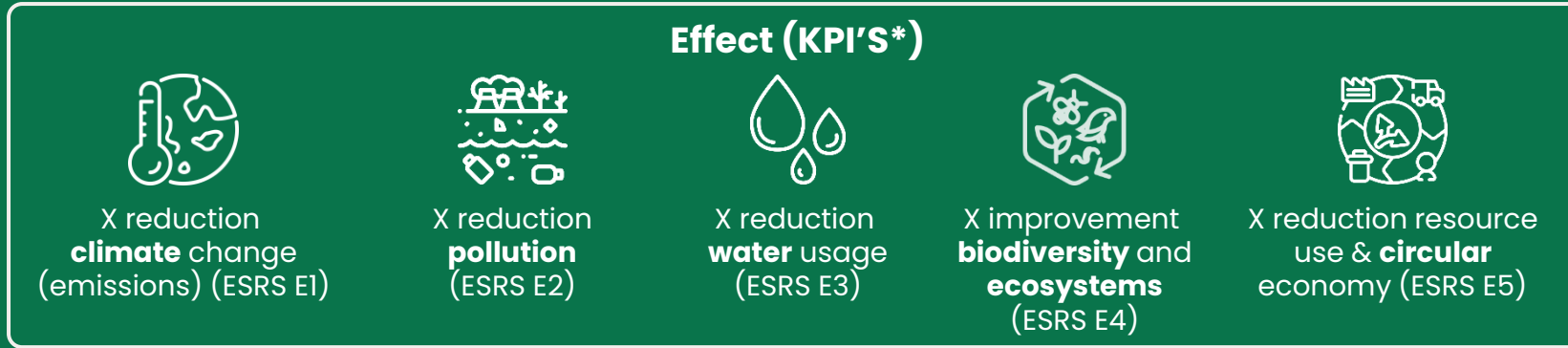


Claudia Hovius



Maaike Maranus – van
de Vrande





GreenOps
Technology



Technology Component

- Application (Software)
- Middleware services
- Data
- (IoT) Device
- Network / Telecom
- (Cloud) Data Center Infrastr.

GreenOps IT Processes



IT Processes & Practices

ITIL	Capacity and performance management	Data Management	DevOps (& Agile) Continuous Development
<ul style="list-style-type: none"> General management practices Strategy management Portfolio management Application rationalization Architecture management Service Request management Workforce and talent management (People management) Continuous Improvement Measurement and reporting Risk management Information & cyber security management Knowledge management Organizational change management Project management Relationship management Supplier management Service management practice Business analysis Service catalogue management Service design Service level management Availability management 	<ul style="list-style-type: none"> Service continuity management Monitoring and event management Service desk Incident management Service request management Problem management Release management Change enablement Service validation and testing Service optimization management IT asset management Deployment management Infrastructure and platform management Software development and management 	<ul style="list-style-type: none"> Database, Data warehouse & Data Lakehouse Data architecture Data modelling Data pipelines Data quality management Data integration and sync Data Analytics Data Governance Metadata management Data privacy Data security Data observability Data Lifecycle management Self-Service Master Data management Augmented data marts Generative AI 	<ul style="list-style-type: none"> Continuous Development

GreenOps Business Processes



Core Business Processes

Customer oriented

- Marketing Processes**
 - Market research
 - Campaign development
 - Customer journey
 - Content Development
 - Content production
 - Digital Media management
 - Branding
 - Website management
 - SEO
 - Sales Processes
 - Sales management
 - Lead management
 - Pricing
 - Customer service
 - CRM
 - Distribution management
 - Inventory management
 - Customer Onboarding Processes
 - Customer Problem Solving Process
 - Customer Success feedback
 - Customer relationship management

- Innovation management**
 - Innovation & Technology radar
 - Mechanisms to feed and support internal bottom-up initiatives
 - Embed sustainability success factors in Innovations and experiments -NEW
 - Facilitate Innovation via hackathons & incubators (beta)
 - Involve material stakeholders in MVP development process -NEW
 - Train transition: tap in innovative technology and data to boost sustainability goals -NEW
 - Enable sustainable business models & platforms with emerging technology -NEW
- Research & (product) Development**
 - Product development
 - Delivery management
 - Quality management

Supporting Business Processes

Organization oriented

- Human Resources Processes**
 - Human resources planning (HRP)
 - Recruitment
 - Employee Hiring & Onboarding
 - Performance Manager
 - Learning, Training & Development
 - Employee Devs.
 - HR Compliance
 - Reliefs & Absences
 - Rewards
 - Succession Planning
 - Employee Offboarding
- Procurement & Contract Management**
 - Supplier / Vendor management
 - Product User experience
 - Value chain management
- Energy & Resource management**
 - Facilities Management
 - Workplace management
 - Digital workplace tools
 - Project management
 - Event management
 - Building maintenance management
 - Asset management
 - Space planning
 - Facility
 - Energy management
 - Climate control
 - HR: environment, health & building security

GreenOps People & Organization



People (Individual) Management

- Leadership**
 - Vision
 - Inspiration
 - Lead by example
- Culture management**
 - New sustainable IT adoption process -NEW
- People change management**
 - Awareness
 - Why change?
 - Communication & interaction
 - Motivation
 - Internal: beliefs, optimism, intentions & values
 - External: roles & responsibilities, identity, goals, recognition & reward
 - Capabilities
 - Attention & memory
 - Knowledge & decision processes
 - Skills & proficiency through practice
 - Cognitive capacity
 - Opportunity
 - Availability of Resources, like time & tools
 - Insights in possibilities
 - Cultural norms & social comparison
 - Peer collaboration
 - Anchoring
 - Policy integration
 - Conducts individual monitoring & feedback
 - Decision processes

Organization Management

- Strategy Management***
 - Strategy
 - Alignment Sustainable IT with Corporate & Business Strategy
 - Goals, KPI's & O&E's
 - Decision making
 - Reporting
- Organizational structure and design**
- Governance**
 - Policy management
 - Include Sustainability by Design in existing policies
- Organizational Change management**
- Performance measurement and evaluation**
 - Measure sustainability performance based on fact-based & qualitative ESG insights
- Risk management***
- Continuous Improvement***
- Project management***
- Portfolio management***
- Sustainability Impact & Maturity Assessments -NEW**
- Reporting**
 - ESG
 - CDSD
 - ESG
 - Include ESG data fundement in ERP-system -NEW
- Controlling & audit**
 - Monitoring, dashboards, analytics & Insights
 - ESG metrics
 - Energy -NEW
 - CO2eq -NEW
 - Water -NEW
- Sustainable IT via lean-start up and MVP development process -NEW**
- Risk determination**
 - Business A.T. changes

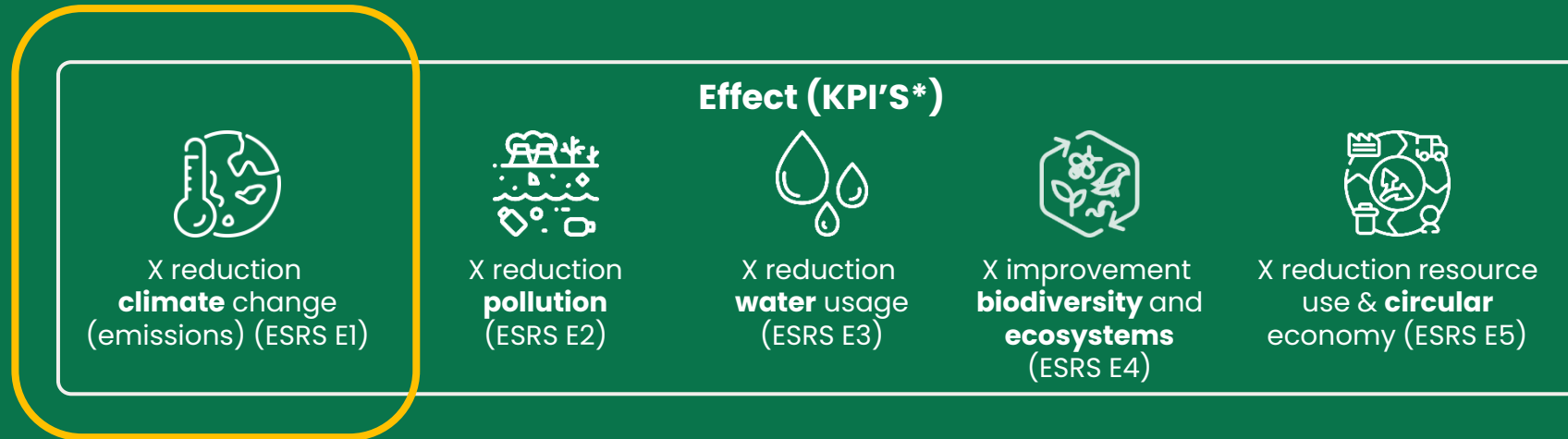


Legend
Supported by business and/or IT process

Programma **GreenOps Raamwerk**

- 11:00 Introductie NCDD
- 11:05 Waarom
- 11:15 Toelichting
- 11:25 **Praktijkvoorbeelden**
- 11:45 Vervolgstappen
- 11:50 Vraag & Antwoord
- 12:00 Einde





- **Reduction of CO2 emissions** of AAB IT applications to contribute to ABN AMRO Sustainability goals
 - **Consume less energy**
 - **Increase Energy & Carbon Sufficiency** of software, data & hardware
 - **Increase Energy & Carbon Efficiency** of software, data & hardware
 - **Consume green energy**
 - **Decrease Carbon Intensity** of energy used by software, data & hardware. E.g. by choosing best time and place.



GreenOps Technology



Technology Component



Application (Software)

middleware services

Data

(IoT) Device

Network / Telecom

(Cloud) Data Center Infrastructure

IT Processes & Practices



ITIL4

- general management practices:
 - **Strategy management**
 - **Portfolio management**
 - Application rationalisation
 - **Architecture management**
 - **Service financial management**
 - **workforce and talent management (People management)**
 - **Continuous improvement**
 - **Measurement and reporting**
 - **Risk management**
 - **Information & cyber security**
- management
 - **Knowledge management**
 - **(Organizational) change management**
 - **Project management**
 - **Relationship management**
 - **Supplier management**
- Service management practices:
 - **Business analysis**
 - **Service catalogue management**
 - **Service design**
 - **Service level management**
 - **Availability management**

- **Capacity and performance management**
- **Service continuity management**
- **Monitoring and event management**
- **Service desk**
- **Incident management**
- **Service request management**
- **Problem management**
- **Release management**
- **Change enablement**
- **Service validation and testing**
- **Service configuration management**
- **IT asset management**
- Technical management practices:
 - **Deployment management**
 - ❖ Fit for purpose
 - **Infrastructure and platform management**
 - **Software development and management**

Data Management

- **Database, Data warehouse & Data Lakehouse management**
- **Data Architecture**
- **Data modelling**
- **Data Pipelines**
- **Data quality management**
- **Data integration and processing**
- **Data Analytics**
- **Data Governance**
- **Metadata management**
- **Data privacy**
- **Data security**
- **Data observability**
- **Data Lifecycle management**
 - ❖ Rationalisation
- **Master Data management**
- **Augmented data management**
- **Generative AI**

DevOps (S. Agile)

- **Continuous Development**
- **Continuous Testing**
- **Continuous Integration (CI)**
- **Continuous Delivery**
- **Continuous Deployment (CD)**
- **Continuous Monitoring**
- **Application Lifecycle management**

(Hybrid) Platform and Cloud management (incl. strategy)

AI/OPS <NEW>

People (Individual) Management



- **Leadership**
 - Vision
 - Inspiration
 - Lead by example
- **Culture management**
 - ❖ New sustainable IT adaption process <NEW>
- **People change management**
 - **Awareness**
 - "Why" change?
 - Communication & interaction
 - **Motivation**
 - Internal: beliefs, optimism, intentions & values
 - External: Roles & responsibilities, Identity, Goals, recognition & reward
 - **Capabilities**
 - Attention & memory
 - Knowledge & decision processes
 - Skills & proficiency through practice
 - Cognitive capacity
 - **Opportunity**
 - Availability of Resources, like time & tools
 - Insights in possibilities
 - Cultural norms & Social comparison
 - Peer collaboration
 - **Anchoring**
 - Policy integration
 - Continues individual monitoring & feedback
 - Decision processes

Organization Management



- **Strategy management***
 - Strategy
 - Alignment Sustainable IT with Corporate & Business Strategy
 - Goals, KPI's & OKR's
 - Decision-making
 - Planning
- **Organizational structure and design**
- **Governance**
- **Policy management**
 - ❖ Include Sustainability by Design in existing policies
- **Organizational Change management**
- **Performance measurement and evaluation**
 - ❖ Improve Sustainability performance based on fact-based & actionable ESG insights
- **Risk management***
- **Continuous improvement***
- **Project management***
- **Portfolio management***
- **Sustainability Impact & Maturity Assessments <NEW>**
- **Reporting***
 - CSRD
 - CSDDD
 - ESG
 - ❖ Include ESG data fundament in ERP-system <NEW>
- **Controlling & audits**
- **Monitoring, dashboards, analytics & insights**
 - ERSR <NEW>
 - Energy <NEW>
 - CO2eq <NEW>
 - Circularity <NEW>
- **Sustainable IT via lean-start up and MVP development process <NEW>**
- **Stakeholdermanagement**
 - Business & IT dialogue

Legenda

* Supported by Business and/or IT process

Core Business Processes Customer oriented 		Supporting Business Processes Organization oriented 	
<ul style="list-style-type: none"> • Marketing Processes <ul style="list-style-type: none"> • Market Research • Campaign Development • Customer Journey • Content Development • Content promotion • (Social) Media management • Branding • Website management • SEO • Sales Processes <ul style="list-style-type: none"> • Sales management • Lead Management • Pricing • Customer service • CRM • Distribution management • Inventory management • Customer Success Processes <ul style="list-style-type: none"> • Customer Onboarding Process • Customer Problem-Solving Process • Customer Success Feedback • Customer relationship management 	<ul style="list-style-type: none"> • Innovation management <ul style="list-style-type: none"> • Innovation & technology radar • Mechanism to find and support internal bootom-up initiatives ❖ Embed sustainability success factors in innovations and experiments <NEW> ❖ Excel innovation via hackathons & incubators <NEW> ❖ Involve material stakeholders in MVP development process <NEW> ❖ Twin transition: tap in innovative technology and data to boost sustainability goals <NEW> ❖ Enable sustainable business models & platforms with emerging technology <NEW> • Research & (product) Development • Manufacturing • Operations • Delivery management • Quality management 	<ul style="list-style-type: none"> • Human Resources Processes <ul style="list-style-type: none"> • Human resources planning (HRP) • Recruitment • Employee Hiring & Onboarding • Performance Management • Learning, Training & Development • Employee Leave • HR Compliance • Policies & Procedures • Rewards • Succession Planning • Employees Offboarding • Procurement & Contract Management • Supplier / Vendor management • Product Lifecycle management <NEW> • Value chain management <NEW> • Energy & Resource management <NEW> • Facilities Management <ul style="list-style-type: none"> • Workplace management • Digital workplace management • Property management • Event management • Building maintenance & management • Asset management • Space planning • Parking • Energy management • Cleaning services • EHS: environment, health and safety • Building security 	<ul style="list-style-type: none"> • Business Operational Processes <ul style="list-style-type: none"> • Performance management • Business Strategy • Quality of Product/Service • Policy management • Business Development • Market research and strategy • Asset management • Business Communication • Legal & Compliance • Risk Management • Communications • Business Finance & Accounting Processes <ul style="list-style-type: none"> • Business Budget • Funding • Financial Analysis • Financial Reporting • Equity management • Strategic Business Planning • Expense Management • Invoice & Billing • Payroll • Taxation • Debt Recovery • Administration • Reporting and Analytics Process <ul style="list-style-type: none"> • ESG Reporting <NEW> • CSRD • Audit

Programma **GreenOps Raamwerk**

- 11:00 Introductie NCDD
- 11:05 Waarom
- 11:15 Toelichting
- 11:25 **Praktijkvoorbeelden**
- 11:45 Vervolgstappen
- 11:50 Vraag & Antwoord
- 12:00 Einde



CASUÏSTIEK BIJ KLANT CONCLUSION

- 1** Inzicht in de Impact van het energieverbruik van IT
- 2** Roadmap voor vermindering Impact energieverbruik van IT



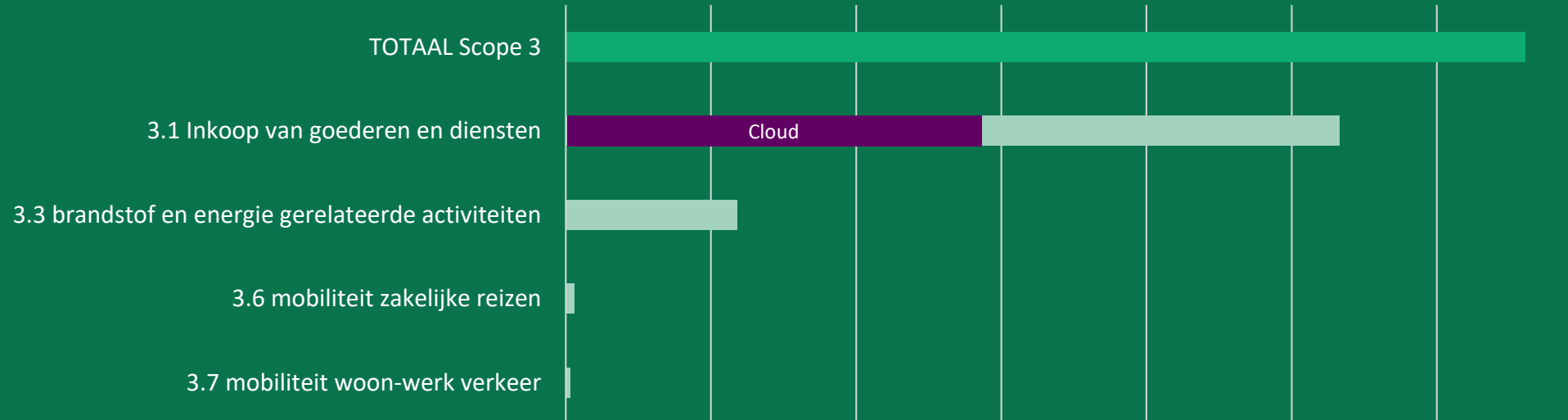
Top down
Vanuit totale dienstverlening
verduurzamen



Bottom up
Vanuit microservices
verduurzamen

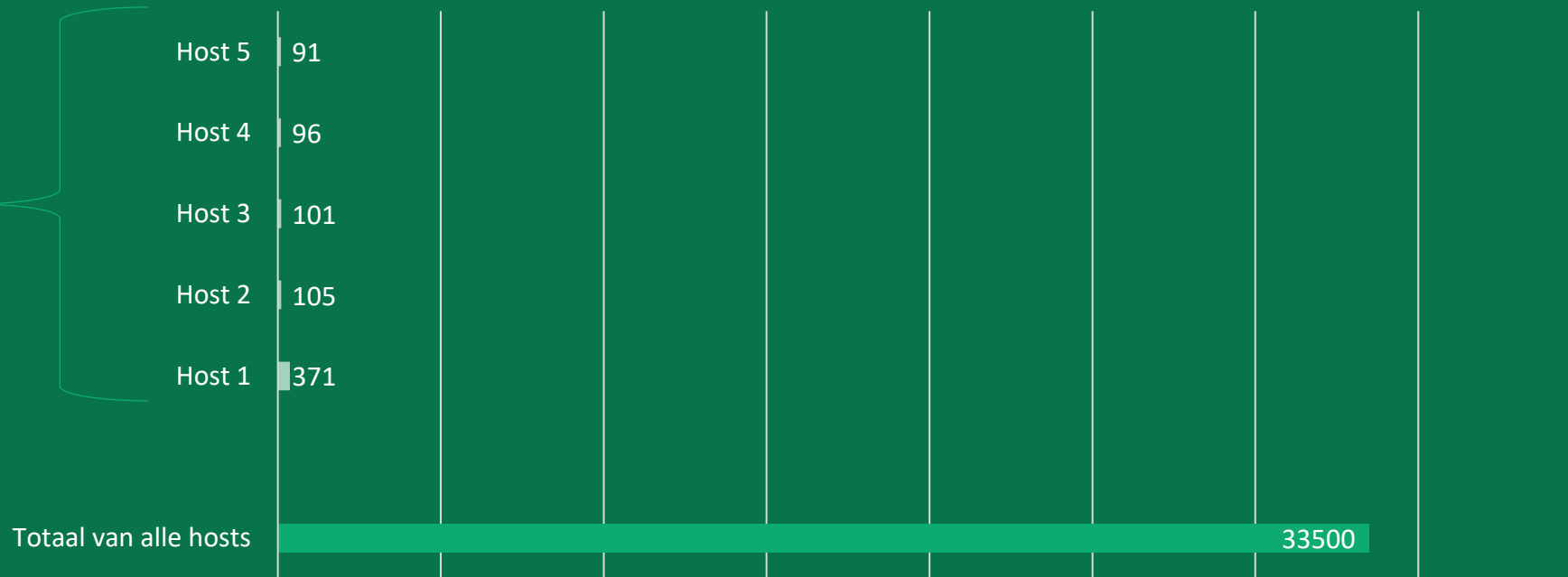


Toegewezen impact uitgedrukt in ton CO2-equivalenten



Toegewezen impact uitgedrukt in kg CO2 uitstoot

Top 5
grootgebruikers
2.28% van het
totaal





Technology

Application & Data Insights

Carbon & Energy Footprint

① kilograms CO₂e in selected time period

548

① kilograms CO₂e in previous time period

57

Emissions Change

↑ 491

① Watt-hours wasted energy in selected time period

949k

① Watt-hours wasted energy in previous time period

76.8k

Energy Change

↑ 872.2k

Publicly listed cloud costs

① \$ in selected time period

103.86

① \$ in previous time period

104.56

Change

↓ -0.7

Optimization recommendations

Observed idling Hosts

0

Identified for scaledown Hosts

13

Wasted energy/day (Wh)

0

Wasted energy/day (Wh)

13.14k

Cloud cost per day (\$)

0

Cloud cost per day (\$)

12.35



IT Processes

Continuous Improvement & Release Management



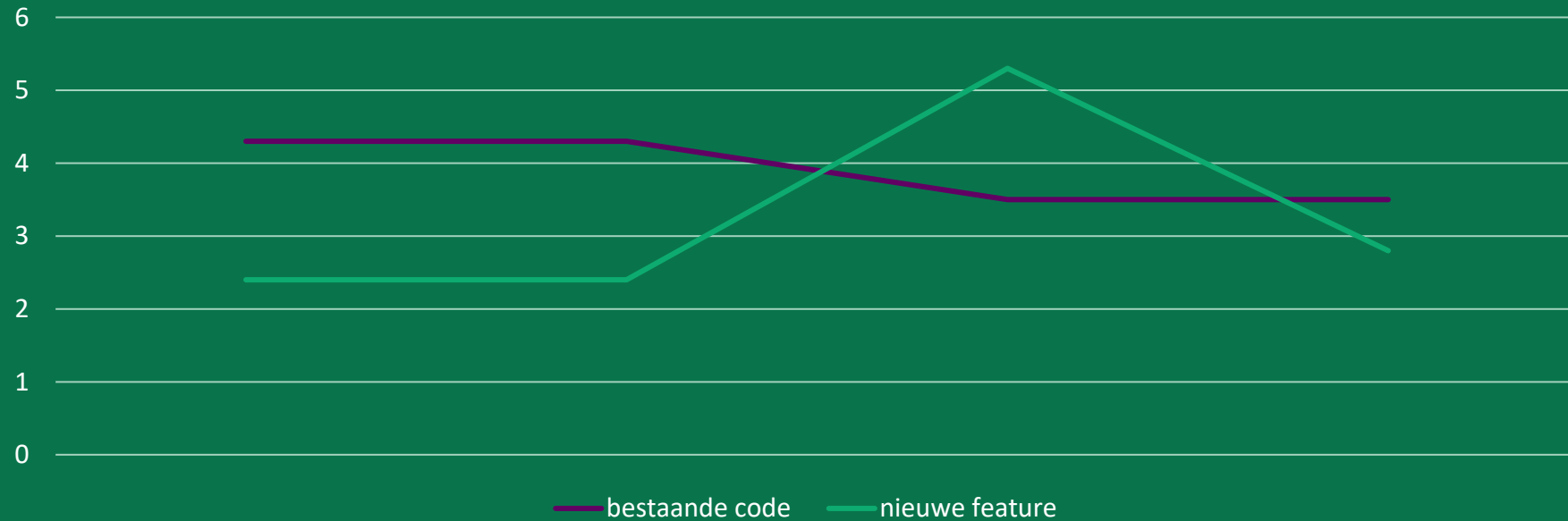
450 Watt
toename
op 350 Watt



People & Organization

Availability of Resources & Knowledge & decision processes

Emissies over tijd



TRAINING > BEGELEIDING > GAMIFICATION



Business Processes

Application & Data Insights

Communication

Energy
management

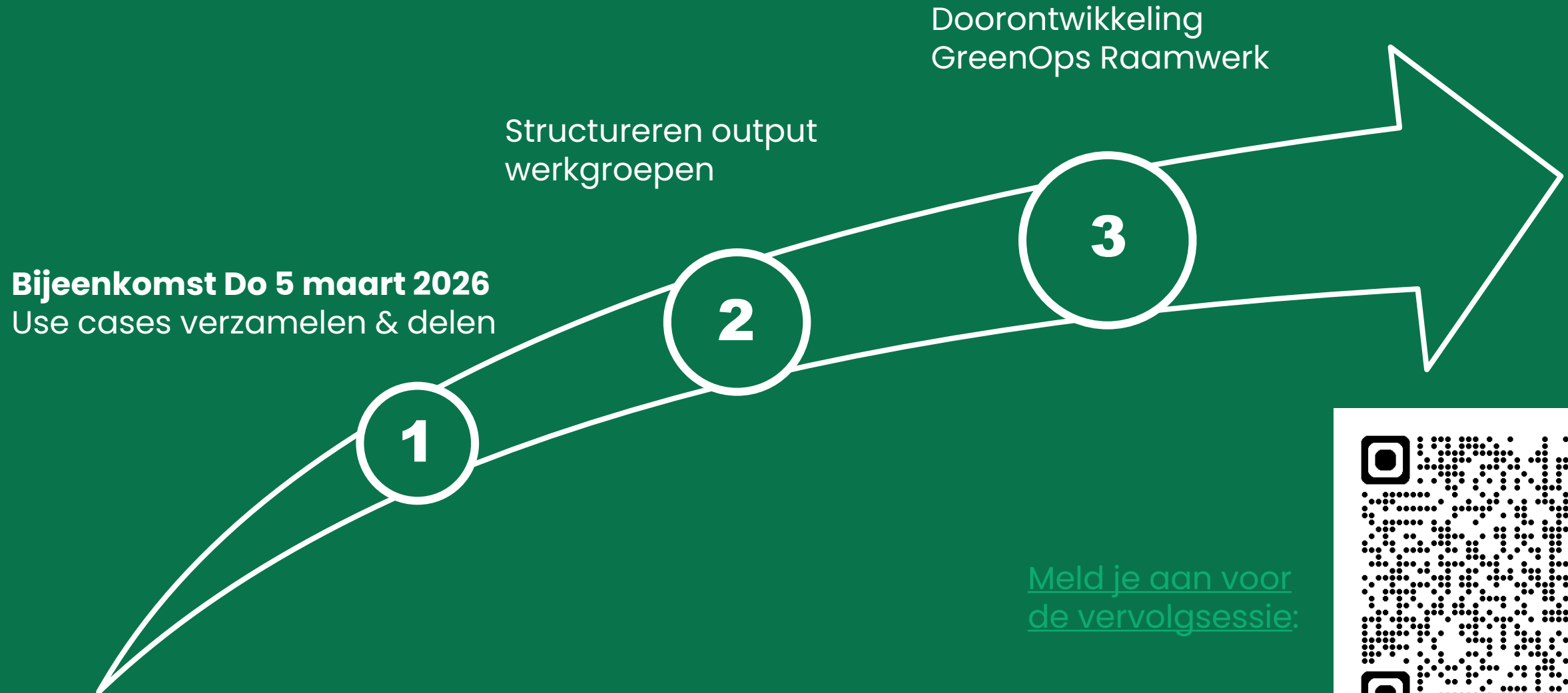
Resource
management

- Bij het opvoeren van een nieuwe feature kijken naar de toename van energieverbruik en emissies
- Het instellen van een threshold en koppeling alert
- Bij onrechtmatige toename van emissies wordt de code herzien
- Afname van energieverbruik duidelijk door inzicht in versiebeheer

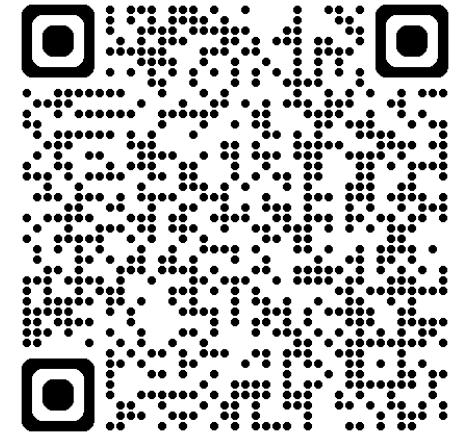
Programma **GreenOps Raamwerk**

- 11:00 Introductie NCDD
- 11:05 Waarom
- 11:15 Toelichting
- 11:25 Praktijkvoorbeelden
- 11:45 **Vervolgstappen**
- 11:50 Vraag & Antwoord
- 12:00 Einde





Meld je aan voor
de vervolgsessie:



Programma **GreenOps Raamwerk**

- 11:00 Introductie NCDD
- 11:05 Waarom
- 11:15 Toelichting
- 11:25 Praktijkvoorbeelden
- 11:45 Vervolgstappen
- 11:50 Vraag & Antwoord
- 12:00 Einde





Samen maken we duurzame
IT echt werkbaar. Wat wil jij
weten om de volgende stap
te kunnen zetten?

Programma **GreenOps Raamwerk**

- 11:00 Introductie NCDD
- 11:05 Waarom
- 11:15 Toelichting
- 11:25 Praktijkvoorbeelden
- 11:45 Vervolgstappen
- 11:50 Vraag & Antwoord
- 12:00 Einde

