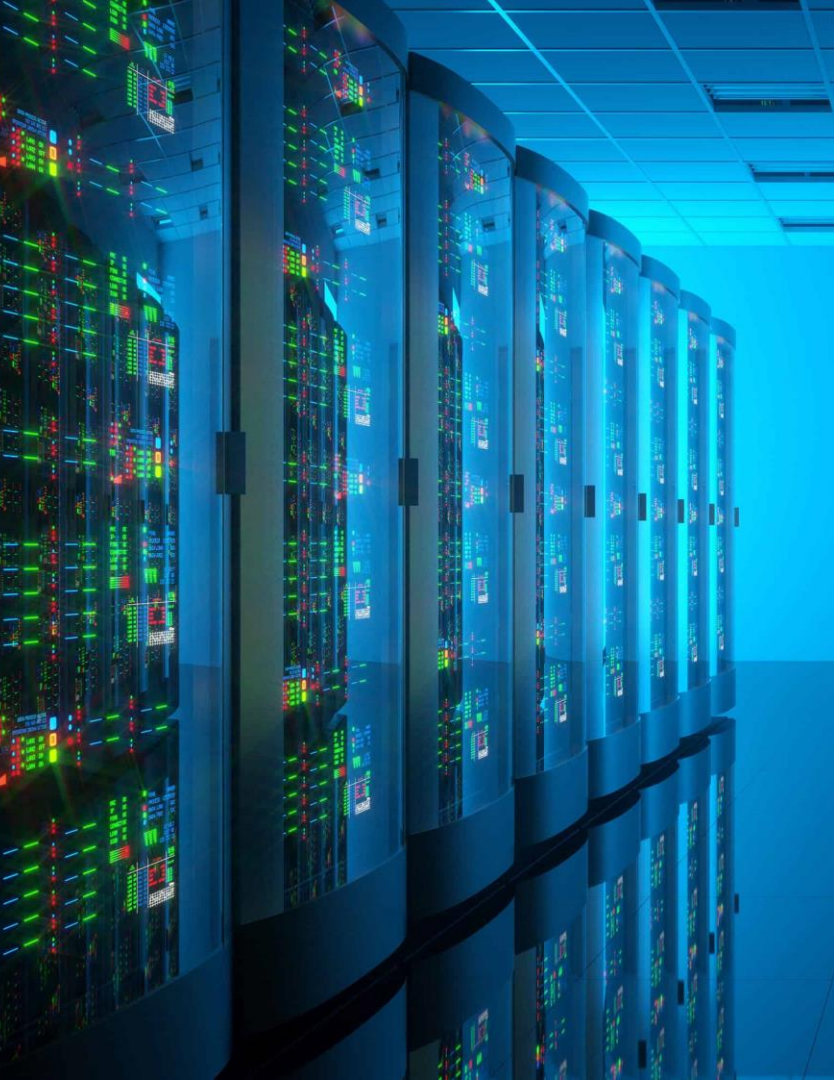
One Eneco

Powering the cloud with clean energy

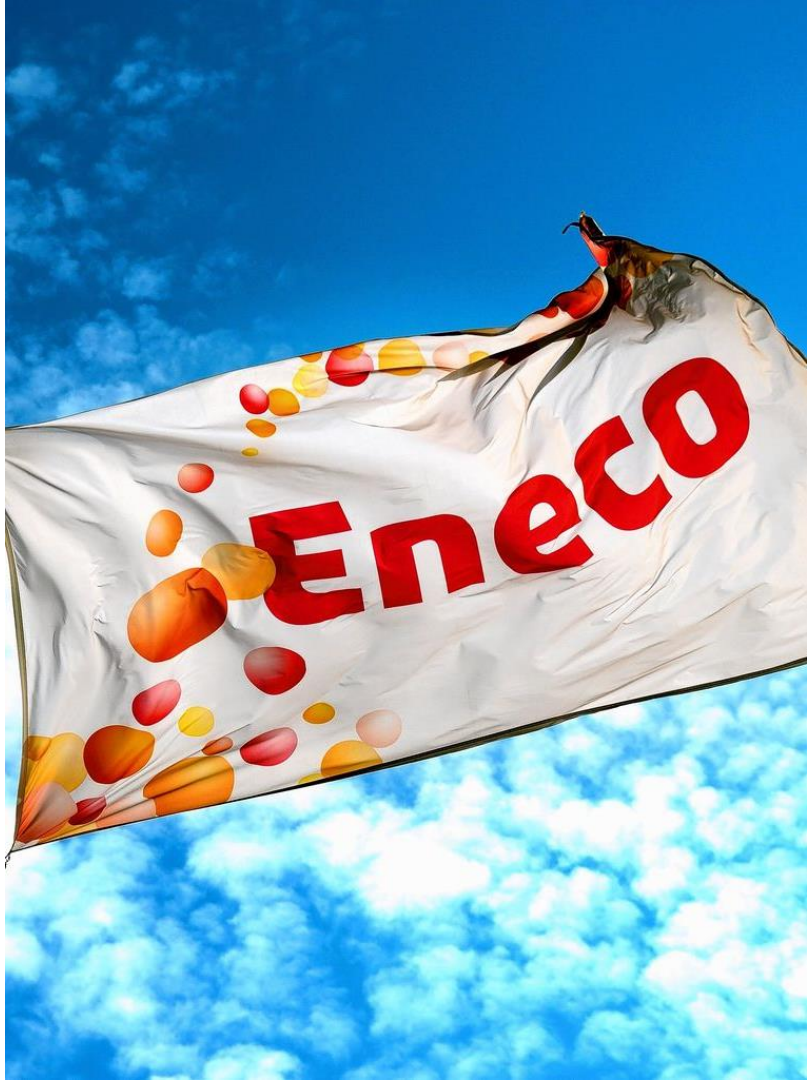
Jacco Scheper
June 2019

Eneco Group

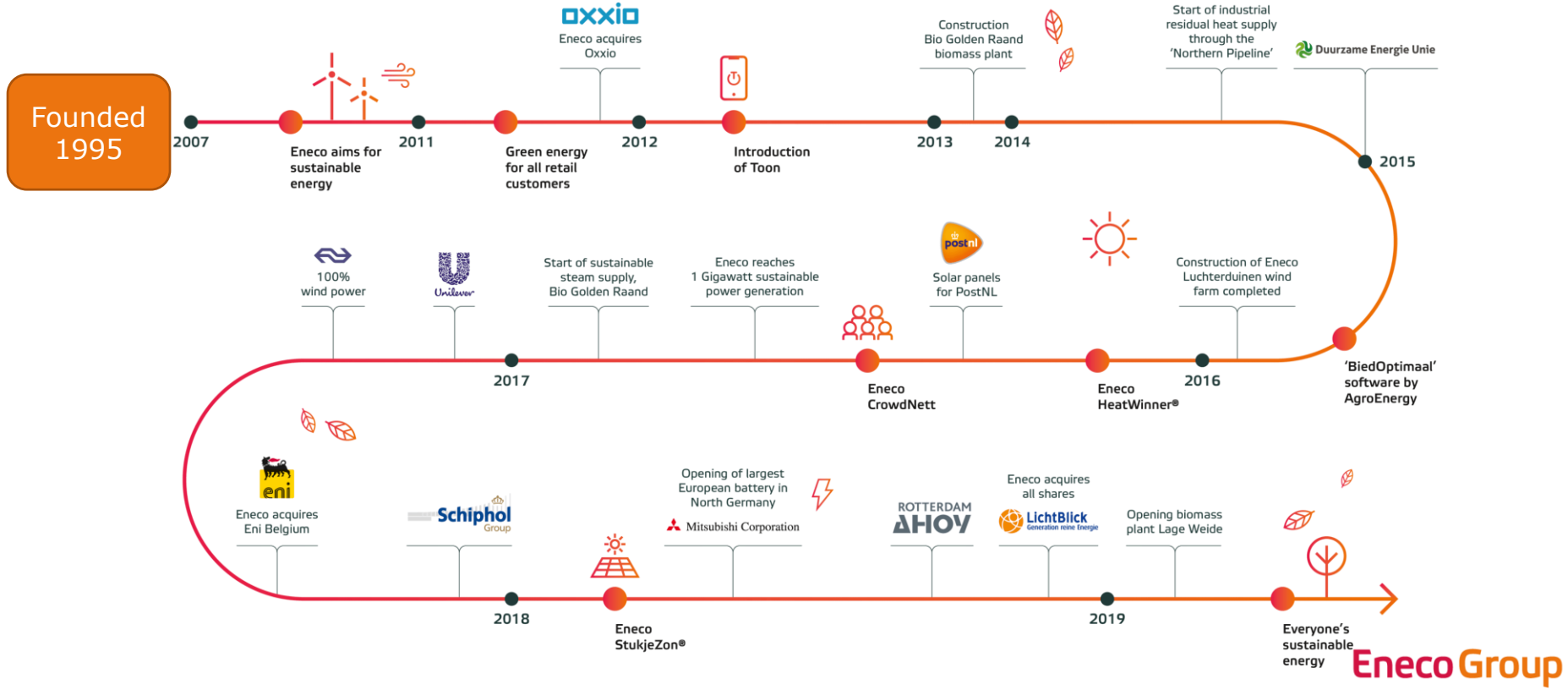


Content

About Eneco



Our Journey


Founded 1995
2007
Eneco aims for sustainable energy
2011
Green energy for all retail customers
2012
Eneco acquires Oxxio
Introduction of Toon
2013
Construction Bio Golden Raand biomass plant
2014
Start of industrial residual heat supply through the 'Northern Pipeline'
2015
Duurzame Energie Unie
'BiedOptimaal' software by AgroEnergy
2016
Construction of Eneco Luchterduinen wind farm completed
Eneco HeatWinner®
Solar panels for PostNL
Eneco CrowdNett
2017
Eneco reaches 1 Gigawatt sustainable power generation
Start of sustainable steam supply, Bio Golden Raand
100% wind power
Eneco acquires Eni Belgium
2018
Eneco StukjeZon®
Opening of largest European battery in North Germany
Mitsubishi Corporation
2019
Eneco acquires all shares
Opening biomass plant Lage Weide
Everyone's sustainable energy
Eneco Group

Key Figures Eneco

As of 31 December 2018

FTE average
2,990

Total revenues
€ 4,183 million

Customers contracts
5.3 million

EBIT
€ 162 million

Active in 4 countries
The Netherlands, Belgium, Germany and United Kingdom

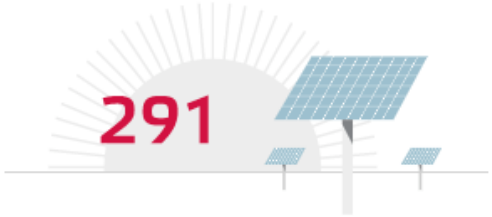
Eneco Group

Production Capacity (MW)

Wind onshore

Wind offshore

Solar



Biomass

Conventional

Eneco Group

Our Strategy

Strategy Eneco Group 2018-2022

Our company

What do we stand for?

Mission

Everyone's sustainable energy

Cultural Values

Customer First

Together

Trust & Responsibility

Positioning

Frontrunner in the energy transition

Strategic Goals

What do we want to achieve?

Together with our customers and partners we realize the energy transition, growing in:

Renewable Sources

Energy supply

Innovative services

Strategic Choices

How will we achieve this?

Realize renewable sources without subsidy

Accelerate heat transition ('no longer dependent on gas')

Transform to digital services

Scale-up integrated services

Expand in NL, B, D

Result

How will we benefit from it?

For society

Significant reduction in CO2 emissions

For customers

Affordable clean energy and greater comfort

For employees

Meaningful work and development opportunities

For shareholders

Returns from a financially healthy company

Strategic KPI's

How do we make strategy measurable?

Renewable Sources

- Grow in renewable power and heat
- Grow renewable power production as a share of total supply

Energy supply

- Increase customer value
- Retain value heat customers
- Grow number of customers

Innovative services

- Grow number of paid services per customer
- Lead in Smart Home
- Grow in charging services for electric mobility
- Grow energy management

Strategic Priorities

What do we now need to realise?

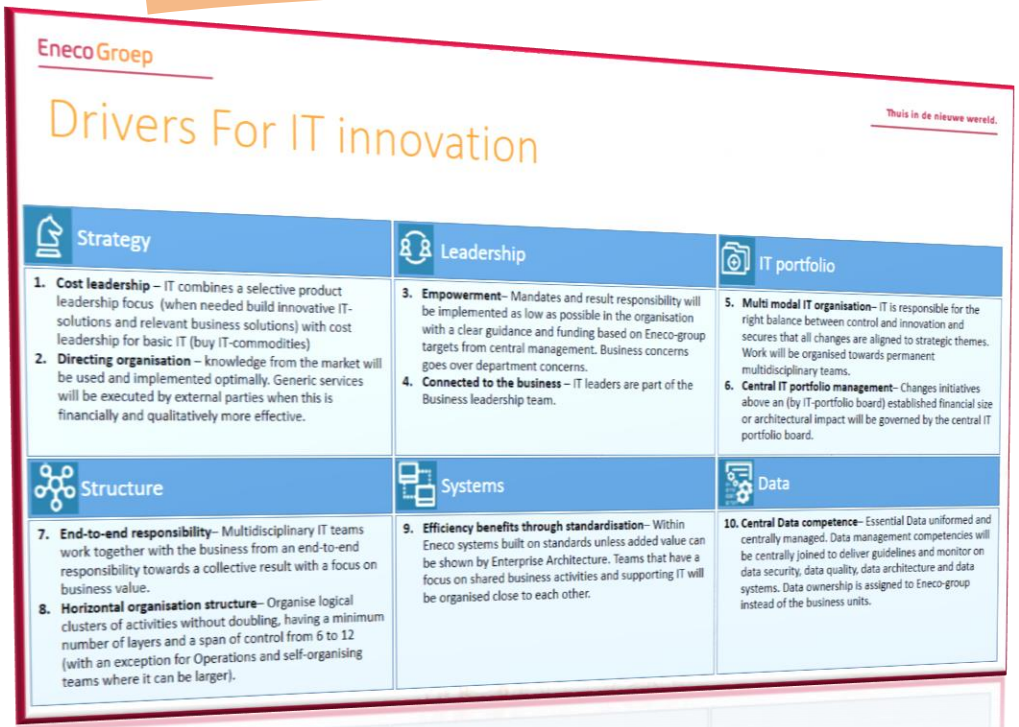
2018-2019

- Result improvement of €100 million
- Customer-oriented digital organisation
- Focus on innovation portfolio and upscaling

Eneco Group

Strategy requires modern IT facilities

Agility Flexibility Low Cost to Serve Innovation Quality



Eneco Groep

Drivers For IT innovation

Thuis in de nieuwe wereld.

Strategy

1. **Cost leadership** – IT combines a selective product leadership focus (when needed build innovative IT-solutions and relevant business solutions) with cost leadership for basic IT (buy IT-commodities)
2. **Directing organisation** – knowledge from the market will be used and implemented optimally. Generic services will be executed by external parties when this is financially and qualitatively more effective.

Leadership

3. **Empowerment**– Mandates and result responsibility will be implemented as low as possible in the organisation with a clear guidance and funding based on Eneco-group targets from central management. Business concerns goes over department concerns.
4. **Connected to the business** – IT leaders are part of the Business leadership team.

IT portfolio

5. **Multi modal IT organisation**– IT is responsible for the right balance between control and innovation and secures that all changes are aligned to strategic themes. Work will be organised towards permanent multidisciplinary teams.
6. **Central IT portfolio management**– Changes initiatives above an (by IT-portfolio board) established financial size or architectural impact will be governed by the central IT portfolio board.

Structure

7. **End-to-end responsibility**– Multidisciplinary IT teams work together with the business from an end-to-end responsibility towards a collective result with a focus on business value.
8. **Horizontal organisation structure**– Organise logical clusters of activities without doubling, having a minimum number of layers and a span of control from 6 to 12 (with an exception for Operations and self-organising teams where it can be larger).

Systems

9. **Efficiency benefits through standardisation**– Within Eneco systems built on standards unless added value can be shown by Enterprise Architecture. Teams that have a focus on shared business activities and supporting IT will be organised close to each other.

Data

10. **Central Data competence**– Essential Data uniformed and centrally managed. Data management competencies will be centrally joined to deliver guidelines and monitor on data security, data quality, data architecture and data systems. Data ownership is assigned to Eneco-group instead of the business units.

Focus on

- **Customer Value**
- **TCO reduction**
- **Excelleration**
- **Innovation**

Connected changes

- **Centralisation of IT Departments**
- **Eneco Cloud = Cloud Foundation**
- **TCO reduction by Application Consolidation and Rationalisation**
- **Standaardisation and guidelines Cloud (ECRA)**

Eneco Group

Our CIO and Partner explain

Eneco Group

Eneco Cloud

=

Cloud Foundation

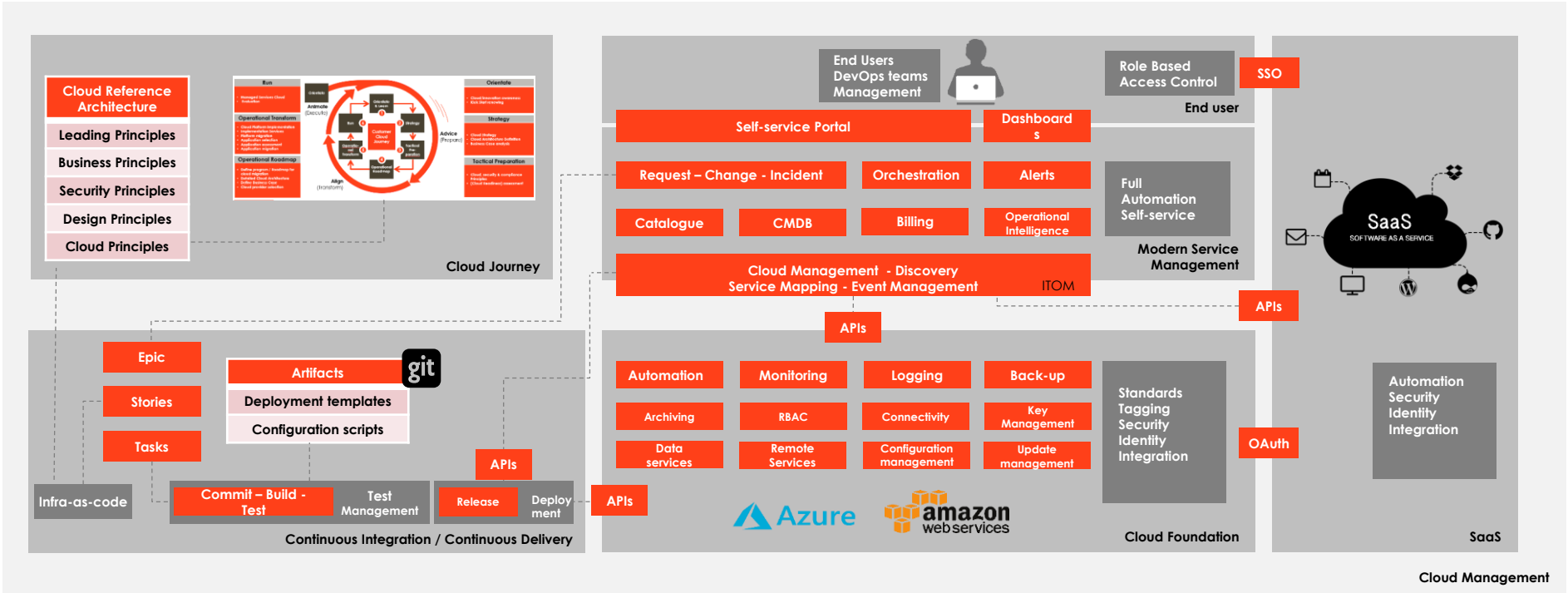
(Hybrid Multi Cloud Landing Zone)

=

ECRA

(principle based Cloud Reference Architecture)

Cloud Foundation (CF)



Eneco Group

Who can manage what? Services 'menu card'

Everything

No production data or workloads allowed

Application Development

Application Management

Operations Management for everything above the OS layer (Local Admin)

Performance & Usage

Business – IT alignment

Eneco (DevOps) teams

Sandbox	Basic level	Fully Managed
Networking, Fire-walls and Connectivity On request: Back-up, patching and Monitoring Support and Guidance	Networking, Firewalls en Connectivity Services to support IaaS workloads: Back-up, patching and Monitoring Operations Management up to the OS layer Support & Guidance to DevOps teams SIEM ServiceNow Additional services can be requested by DevOps teams. Examples: Managed CI/CD Environment and Managed PaaS services	All services included in Basic level Application Development and/or Management Brokerage Support & Guidance for Managed Services

Cloud Foundation Team

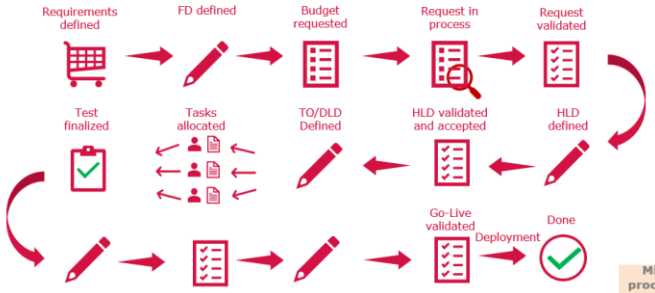
Eneco Group

When accelerating, standards are essential

Process time, 6 weeks or more → **Process time, 1 day ?**

Traditional IT process workflow

Example: validation process change

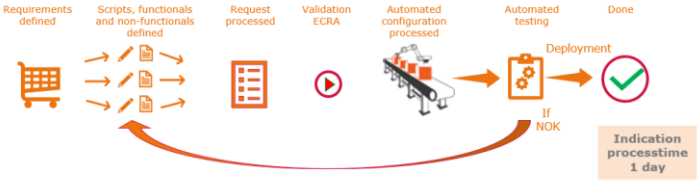


Eneco Group

Many tollgates, manual processes, huge variety and redundancy in tools and services.

Automated CI/CD pipeline workflow

Voorbeeld: Aanvraagproces ICT diensten gebruikmakend van centrale geautomatiseerde Foundation.



Eneco Group

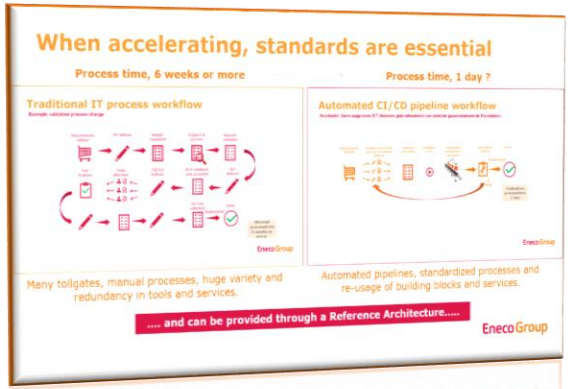
Automated pipelines, standardized processes and re-usage of building blocks and services.

…. and can be provided through a Reference Architecture…..

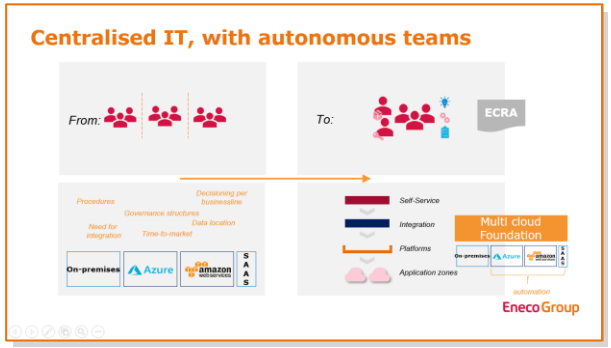
Eneco Group

The context of the ECRA is…

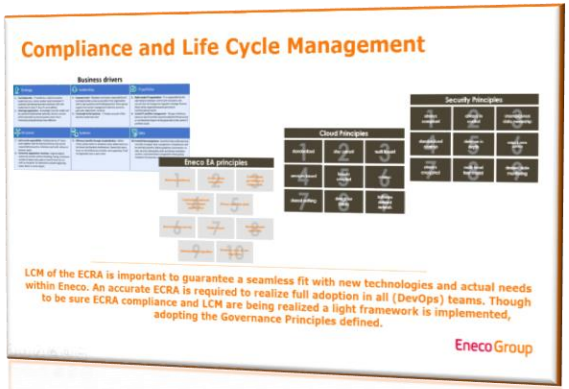
To achieve benefits,



with an Agile approach,



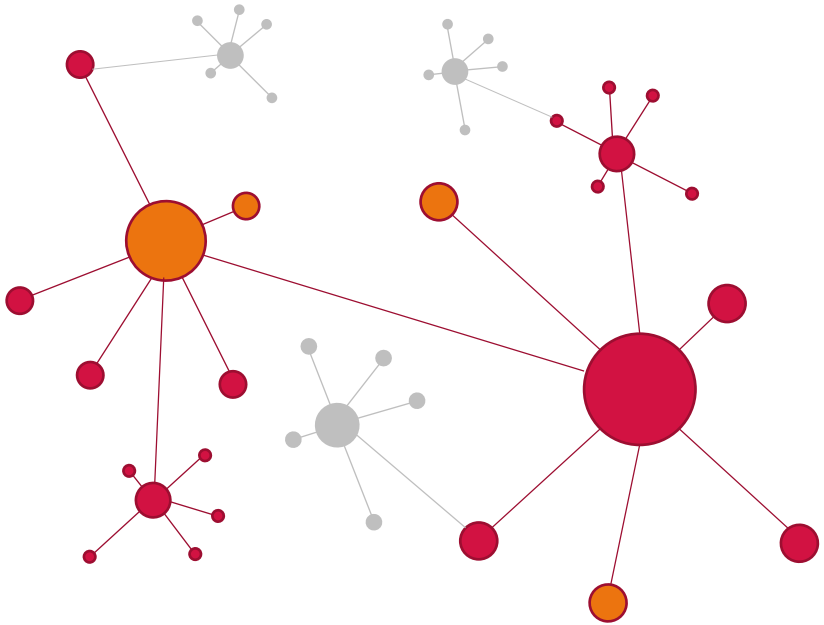
adopting guiding principles.



The Eneco Cloud Reference Architecture, the ECRA, is a balanced set of Principles and Standards which empowers (DevOps) teams to act in an autonomous way. Adopting the responsibility of ECRA compliant acting by the Teams, enables the Eneco – IT organization (BTO) to reduce bureaucracy, reduce TCO, accelerate processes and to improve quality!

Eneco Group

The ECRA enables the Platform organisation



On-Demand and fungibility are Characteristics of a Platform Organization *(with an Organic Architecture)* **and are the conditions of being Agile and Flexible and to adopt innovations fast and easy.**

Fungibility might appear at any level within Eneco, like:

- **Business Functions / Value streams**
- **Applications (and providers)**
- **(Micro) services**
- **Technical Building Blocks**

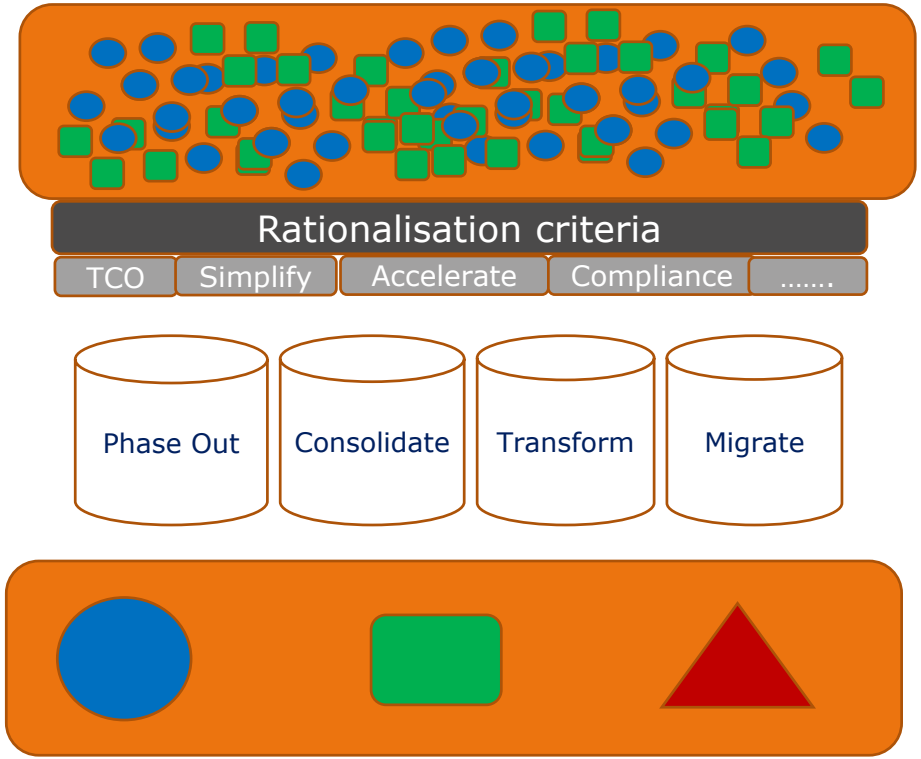
So a Platform Organization is a dynamic composition of loosely coupled functions, assets and services thanks to Principles and Standards participants agreed upon.

The ECRA empowers Eneco to grow future sustainability

Eneco Group

Application Rationalization

Job to be done



Eneco Currently has 570+ Application (On-premises, at Cloud managed by Cap, at Cloud managed by others, Saas, KA)

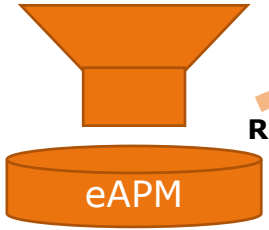
Drivers for Rationalization: Lower TCO, Simplify Application Landscape, Reduce Complexity Compliancy

Application Strategy

Simplified, Lower TCO, Compliant Application Landscape

Milestones

Raw data gathered



Result

- All raw data gathered
- Info Gap-clear
- First indication target

- Fase(d) out
- (temp) on-premises
- SaaS
- Migrate to CF
- To be defined

Appl. Catagorized

Run Cloud-

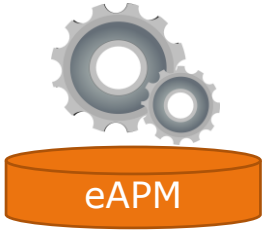
Scape

Result

- Application categorized

A. Eneco Differentiator
B. Maintaining Differentiators
C. Commodity
D. Middleware/It4IT tool
E. KA/office autom.
F. SW-4-HW

eAPM Finalized



Result

- Full insights
- No information Gaps

Appl. rationalized

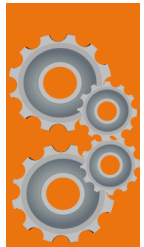
Decision

Result

- Full insights
- No information Gaps

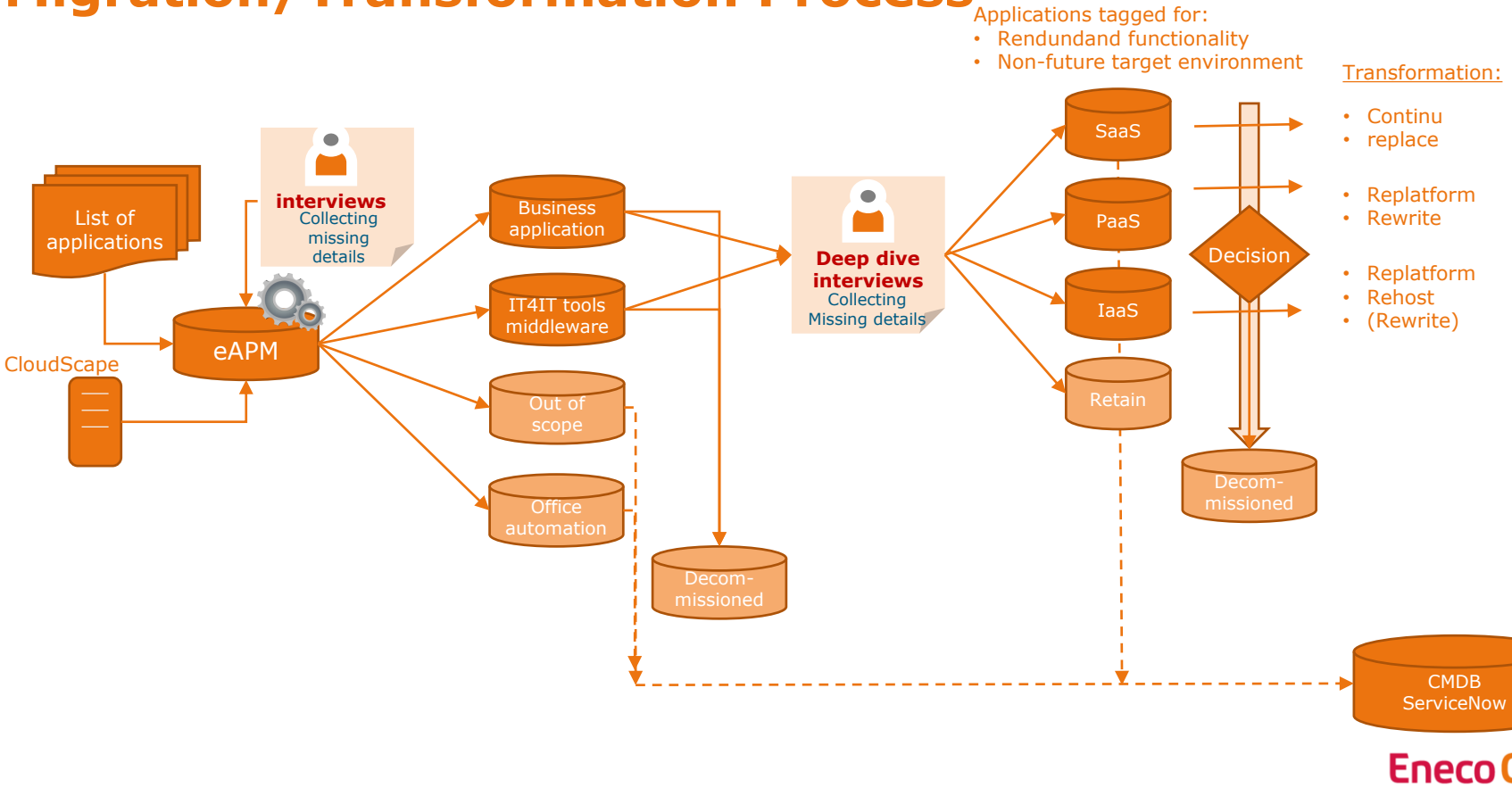
1. Phase out {A/B/C/D}
2. Continue {A/B/C/D}
3. Migrate to SaaS {B/C/D}
4. Source Out {C}
5. Migrate to CF {A/B/C/D}

Appl. migrated



- SaaS
- CF

Migration/Transformation Process



Eneco Group

Transformation & Cost to Serve

1 Rehost

i.e. **Redeploy** applications to a different (newer) hardware environment. **Rehosting/L&S** an application without making changes to its architecture can provide a fast cloud migration solution.

Cost to Serve (total)

- no significat reduction, when utilisation is already at a high level.

2 Revise

i.e. modify or extend the existing code base to support modernization requirements, then use rehost or refactor options to deploy to cloud.

Cost to Serve (total)

- Reduced infra-cost due to down-sizing*
- Reduced infra-cost due to down-scaling and reduce over-capacity
- Reduced Outage-cost due to less manual mistakes

3 Refactor

i.e. run applications on a cloud provider's infrastructure. Applications / workloads may need to be modified slightly to run on the cloud provider's platform.

Cost to Serve (total)

- All Revise benefits without restriction
- Stronger reduction of manual mistakes resulting in higher availability
- Higher efficiency of DevOps-teams (10-30%)
- Reduced maintenance cost

4 Replace

i.e. discard an existing application (or set of applications) and use commercial software delivered as a service **(SaaS)**

Cost to Serve (total)

- Strong influence of pay-per-use assignment
- Only additional cost for integration and for back-up data and for exit-scenatrio's.

5 Rebuild

i.e. rearchitect the solution. Discard code of existing application/solution and leverage newer

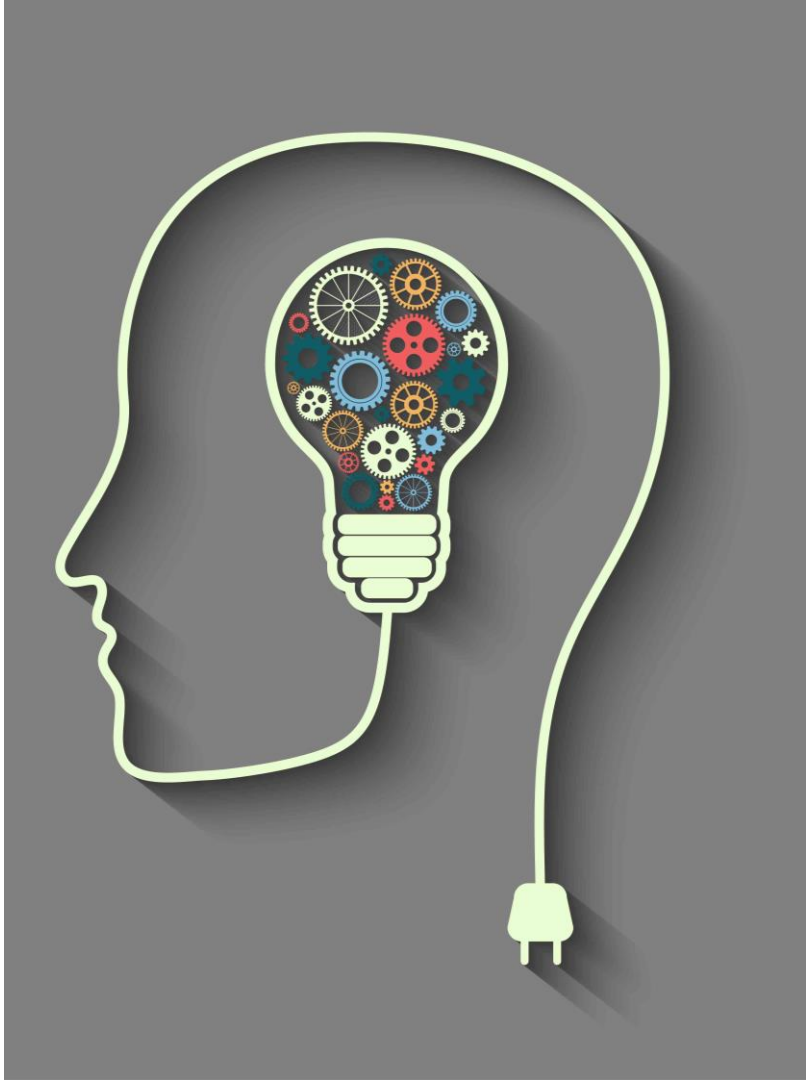
Cost to Serve (total)

- All Refactor benefits
- Increased reduction of maintenance
- Increased reduction of operational cost
- Optimized cost reduction) due to characteristics of application usage

** = depending application*

So in 2018 we ……

1. Changed our IT organisation
2. Updated the Cloud Reference Architecture
   - principles and guidelines
3. Created the Cloud Foundation in 4 months
   - MS Azure based, with ServiceNow integration
   - Hybrid, Multi Cloud
   - Presenting Infra-as-Code
   - Supporting DevOps teams with full CI/CD
4. Started implementing a new Way-of-Working
   - Data driven and Customer focussed
   - With maximalised Automation
   - Compliant with internal standards & rules
   - Considering People, Process and Technology
5. *Started Rationalizing Application Landscape*



Eneco Group

www.enecogroup.com