



Corporate presentation

23-02-2023

Name

Brussels, Belgium



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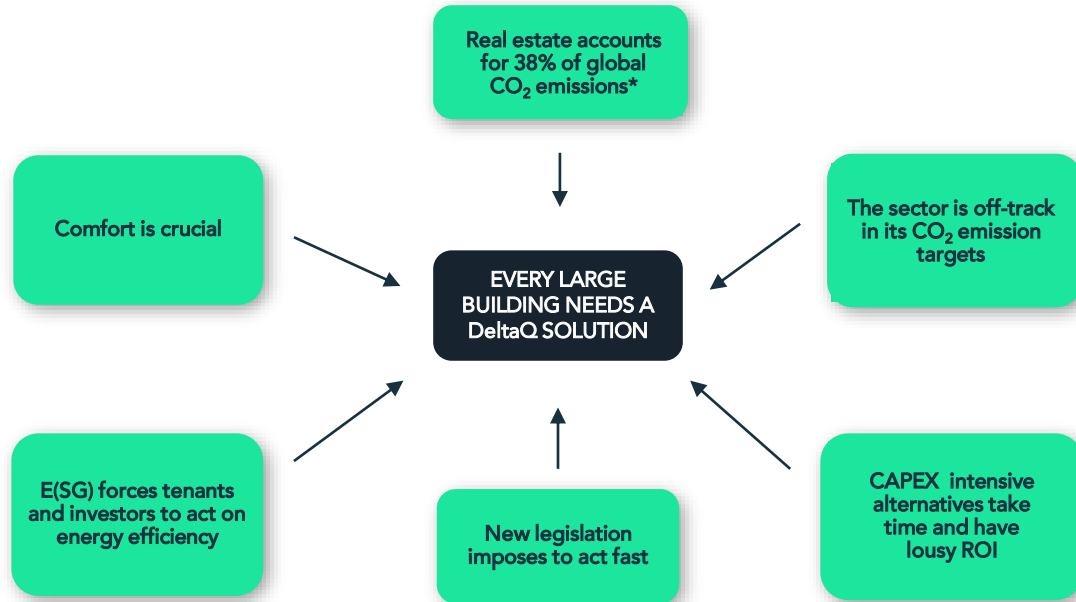
1. Executive summary
2. Company profile
3. Our solution in 3 steps
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5. Our results

1. Executive summary

1. Executive summary

The perfect storm in commercial real estate requires a DeltaQ-like solution to act on CO₂

Forces at work in the built environment

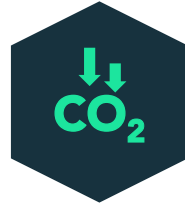


1. Executive summary

Our promise

We facilitate your journey towards your net-zero goals

On average
20% energy
savings



On average
20% CO₂
reduction

Unified and
clear
situation
view



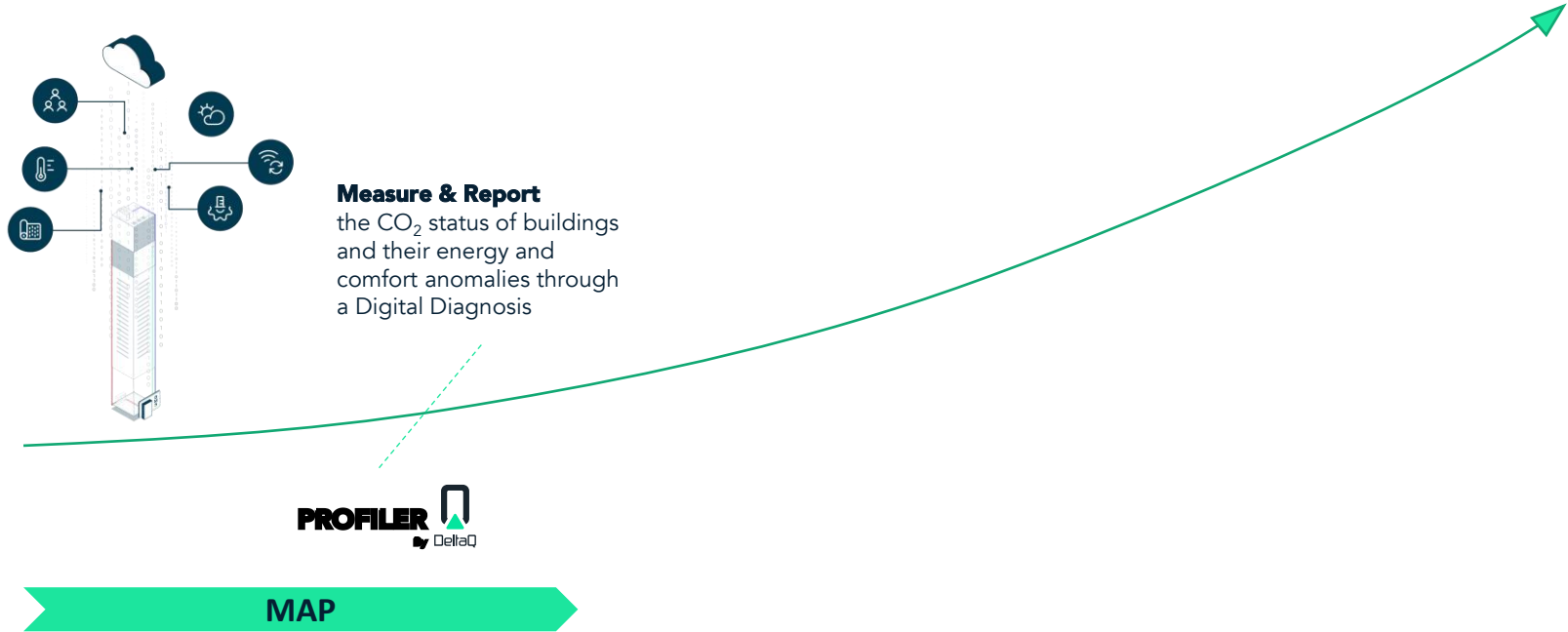
An actionable
Carbon
Reduction
Plan

Innovation
Roadmap



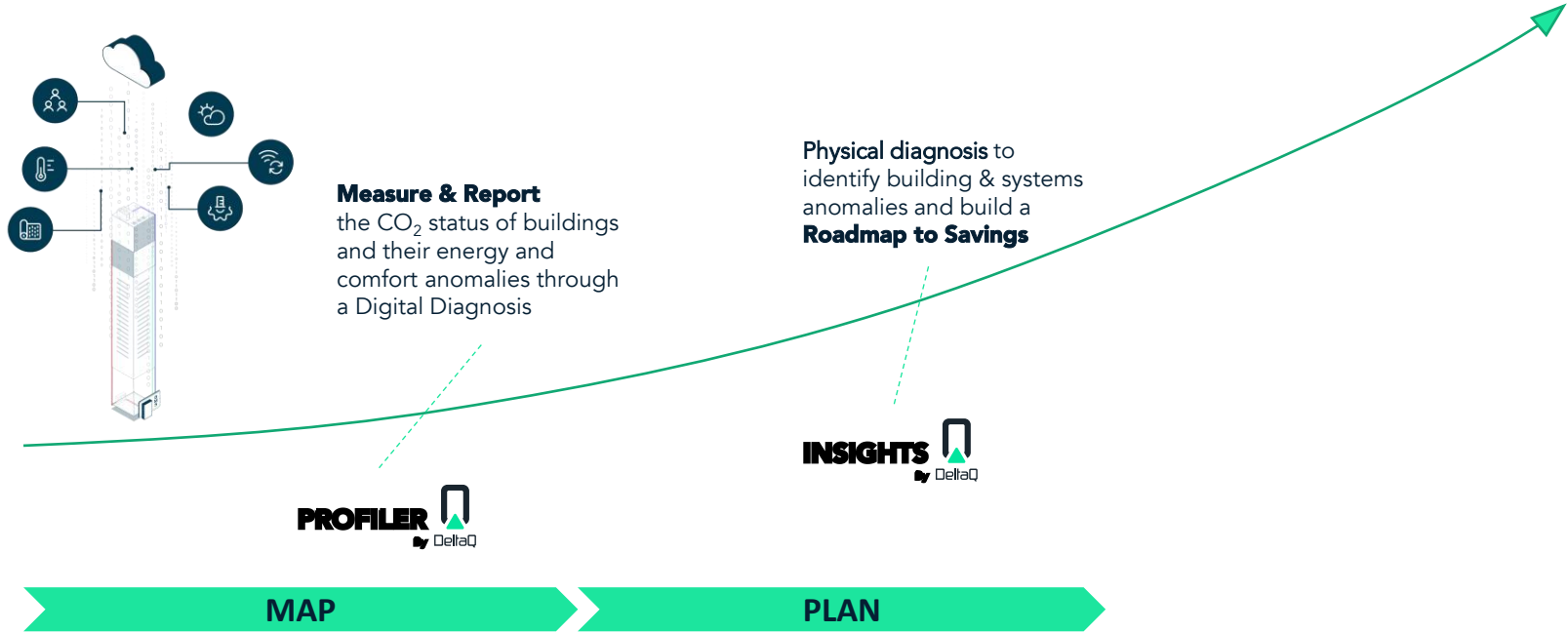
1. Executive summary

Three data-driven steps towards your ESG targets



1. Executive summary

Three data-driven steps towards your ESG targets



1. Executive summary

Three data-driven steps towards your ESG targets



1. Executive summary

Some of our references:



sodexo

Floor area: 9,732 m²

Savings:

- Gas 1,452 MWh 45%
- Electricity 745 MWh 23%
- CO₂ 614 tons 30%



EY

Floor area: 14,000 m²

Savings:

- Gas 349 MWh 38.1%
- Electricity 262 MWh 23.2%
- CO₂ 151 tons 20.4%



Canon

Floor area: 8,000 m²

Savings:

- Gas 99 MWh 38%
- Electricity 280 MWh 39.5%
- CO₂ 132 tons 38%



Leasinvest
REAL ESTATE

Floor area: 14,000 m²

Savings:

- Gas 135 MWh 6%
- Electricity 1,049 MWh 31.4%
- CO₂ 444 tons 20%



2. Company profile

2. Company presentation

Our history

Founding projects at the origin of our company



Xant
Brussels, Belgium



BNP Headquarters
Brussels, Belgium



**Princess Elisabeth
Station** Antarctica



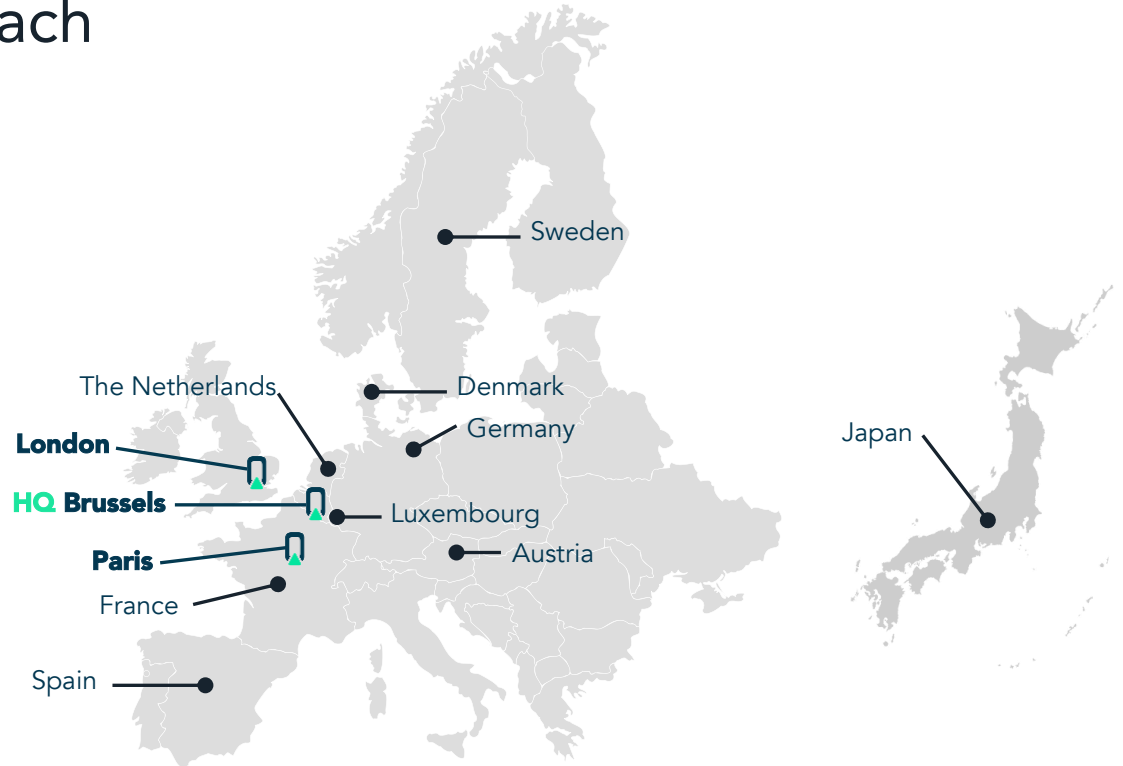
**Flidar ship
Wind Sentinel**

2. Company presentation

Our locations and reach

Area Contracted
+1,5mi M²

Present in
10 countries



2. Company presentation

Our customers

Building strong partnerships with our customers is key to our mutual success and is supported through our commitment to operational excellence and customer satisfaction



3. Our solution in 3 steps

- 3.1 **Map** - PROFILER
- 3.2 **Plan** - INSIGHTS
- 3.3 **Act** - AUTOPILOT

3. Our solution in 3 steps

Three data-driven steps towards your ESG targets



3. Our solution in 3 steps

Three data-driven steps towards your ESG targets



Digital HVAC diagnosis of the building

- Real-time dashboard for comfort and systems
- Monthly Comfort-Energy-Systems trends a patterns
- 3-Monthly Comfort-Energy-Systems anomalies spotting

Prerequisites:

- Read-only remote access to BMS or BOS
- Access to sensors and metering readings



Physical HVAC diagnosis of the building

- Site visit by HVAC expert
- Systems, Data, Building, Demand anomalies spotting
- Actionable Carbon Reduction Plan

Prerequisites:

- **PROFILER** for 3 months
- Access to the premises with facility manager and O&M



Smart, automated and repetitive savings

- Active AI steering
- Automation of savings measures
- Continued monitoring and reporting

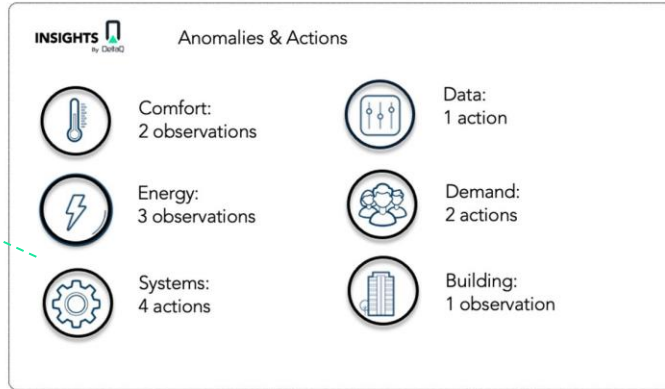
Prerequisites:

- **PROFILER** and **INSIGHTS**
- Write access to BMS or BOS
- Submetering for HVAC
- Execution of Carbon Reduction Plan

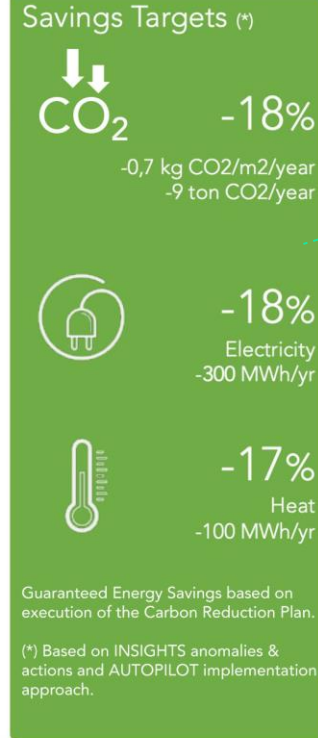
3. Our solution in 3 steps

A Carbon Reduction Plan, specific for your building

Items to address



Enabling AUTOPILOT



Impact of the plan

3. Our solution in 3 steps

Apply map-plan-act in your journey

- Reduce the carbon footprint of your portfolio through AUTOPILOT
- Screen new buildings on AUTOPILOT applicability - as part of your due diligence
- Augment retro-fitting decisions – assure compatibility with AUTOPILOT

3.1 Map



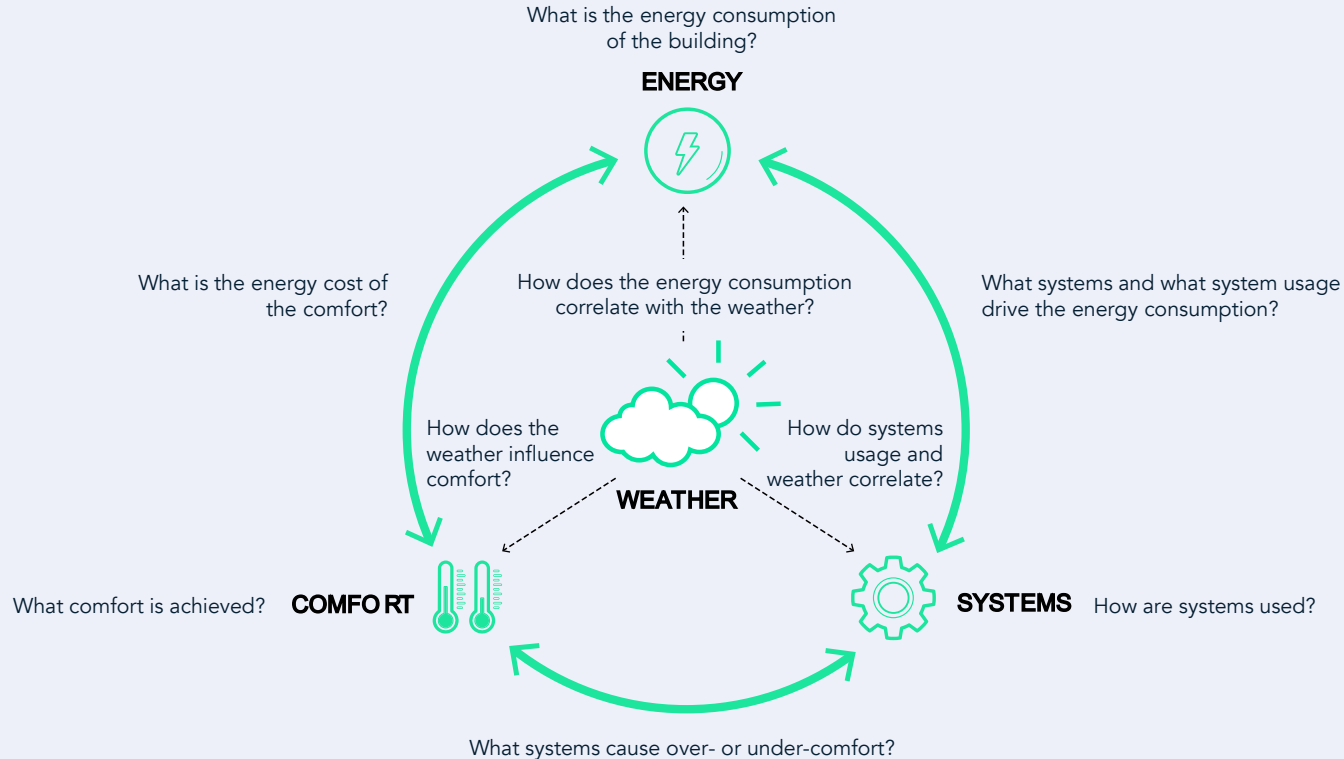
3. Our solution in 3 steps

Three data-driven steps towards your ESG targets



3. Our solution in 3 steps

Then, focus on the right questions



3. Our solution in 3 steps

Let your data speak

Trends & Patterns
(E.g. Energy use evolution,
Weather effects)

Comfort anomalies
(E.g. Discomfort)

Systems observations
(E.g. preconditioning time,
operating hours)



Energy anomalies
(E.g. Schedules, Comfort
bounds, Energy destruction)

3. Our solution in 3 steps

Makes your ESG strategy actionable

Current situation:

- No clear unified view of the energy performance of buildings.
- Fragmented data, often only snapshots, often siloed. Data sets are either partial or overwhelming.
- Operators are often in the dark when it comes to assessing the impact of their actions.



With PROFILER:

- Decision makers have a clear unified view on the actual and potential energy performance of their buildings, feeding their strategic decisions*.
- Time-series data selected, combined, presented and commented for transparency for all parties involved.
- Time-series data, trends and patterns show the impact of actions**.

(*) For a full view on the actual and potential performance, PROFILER should be complemented with INSIGHTS.

(**) Maximum impact is realised when AUTOPILOT is implemented.

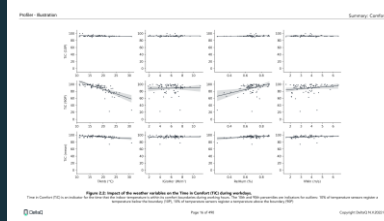
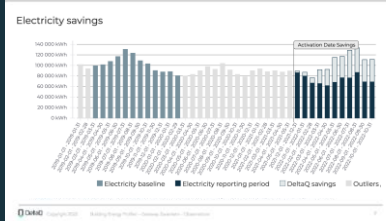
3. Our solution in 3 steps

DeltaQ

PROFILER

Specimen Building

Period: January to April 2022
Report Date: 15/5/2022



ENERGY

YEARLY HEAT PROJECTION*
29,81 kWh/m²/year

YEARLY ELECTRICITY PROJECTION*
103,08 kWh/m²/year

*The projection is calculated based on the current consumption data, reference consumption data and heating/cooling degree days.

COMFORT DURING COMFORT WINDOW

TIME IN COMFORT
62,71%

TIME IN COMFORT (10P)
61,90%

TIME IN COMFORT (90P)
60,79%

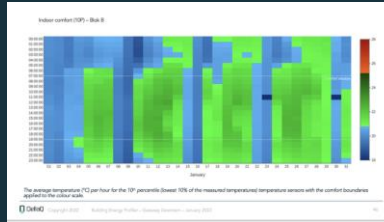
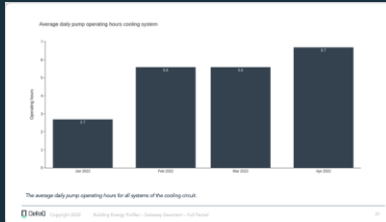
AVERAGE DAILY OPERATING HOURS PER SYSTEM

HEATING PER DAY
MON-FRI 8h SAT-SUN 2h

COOLING PER DAY
MON-FRI 7h SAT-SUN 0h

AHU PER DAY
MON-FRI 10h SAT-SUN 1h

SUMMARY: JANUARY 2022 – AUGUST 2022



PROFILER Output Summary

HEAT QUALITY (HEATING AND COOLING)	HEATING	COOLING	VENTILATION
<p>ENERGY AVAILABLE</p>	<p>Report: see Q1 (Heat) use (GJ)</p> <p>Part of the building use (during comfort) is not covered by the heating system.</p>	<p>Report: see Q1 (Cool) use (GJ)</p> <p>Chiller use (operation) in the building system.</p>	<p>2022 year to date: currently</p>
<p>COMFORT (PER BUILDING)</p>	<p>Report: see Q1 (Heat) use (GJ)</p> <p>100% of demand is provided (Heat is not used completely because the heating system is not sized).</p>	<p>The data</p>	<p>The observations</p>
<p>SYSTEMS OPERATING</p>	<p>Report: see Q1 (Heat) use (GJ)</p> <p>Currently, the heating system is not operating.</p>	<p>The data</p>	<p>Information is used as thermal comfort input.</p>

Observation period: 1/10/2022 to 31/10/2022

3.2 Plan



3. Our solution in 3 steps

Three data-driven steps towards your ESG targets



3. Our solution in 3 steps

Data and expertise adding up to a clear Carbon Reduction Plan

Prior reports

Reports from energy consultants or other (when available)

Profiler data

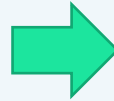
Understanding of the Energy-Comfort-Systems profile of the building and cues for further investigation.

Remote BMS check

Through remote access to the BMS, build an understanding of the current functioning and steering of the HVAC.

On-site visit

Visit of DeltaQ HVAC expert to the building



Carbon Reduction Plan

Observations and recommendations made actionable, including **AUTOPILOT** readiness.

3. Our solution in 3 steps

Reconcile digital and physical views of your building

Demand anomalies
(E.g. usage patterns,
unrealistic temperature
demands)

Systems anomalies
(E.g. Steerability, capacity,
maintenance debt)



Carbon Reduction Plan
(Recommendations and
expected impact)

Data anomalies
(E.g. configuration, sensor
problems)

Building anomalies
(E.g. Insulation, conceptual
errors, refurbishments)

3. Our solution in 3 steps

INSIGHTS
Specimen Building

Period: January to April 2022
Report Date: 15/5/2022

Recommendation
Reconsider 24/7 comfort requirement on floor 4

Observation: Current operating conditions require 24/7 comfort on floor 4 for 24/7 occupancy and operation.

Conclusion: The requirement to have 24/7 comfort on floor 4 impacts the whole building.

Financial parameters:	The cost of this measure will depend on the chosen solution.					
Full cost range (per m ²)	\$	+1,500	+15,000	+120,000	+150,000	160

Recommendation: See area this requirement, either by accepting the pre-conditioning time or by installing a hot water tank.

Comments: See area this requirement, either by accepting the pre-conditioning time or by installing a hot water tank.

Basin Actions: Check and Amend (PA, Texas, SDG)

Recommendation
Reconnect boiler valves

Observation: Two valves of the boiler are disconnected - observed during visit.

Conclusion: The boiler can perform better during start-up cycles. This may lead to less consumption of the boiler and pressure distribution of the equipment.

Financial parameters:	The cost of this measure will depend on the amount of full load demand required for the space impacted.					
Full cost range (per m ²)	\$	+1,500	+15,000	+150,000	+150,000	160

Recommendation: Full load demand based on knowledge of the floor's operation and purpose.

Recommendation: Reconnect valves to the BMS and check and validate their correct operation.

Comments:

Recommendation
Group occupancy on a reduced surface

Observation: The occupancy on floor 4 is spread across the entire floor area.

Conclusion: The occupancy on floor 4 is spread across the entire floor area.

Financial parameters:	The cost of this measure will depend on the amount of full load demand required for the space impacted.					
Full cost range (per m ²)	\$	+1,500	+15,000	+150,000	+150,000	160

Recommendation: See area this requirement, either by accepting the pre-conditioning time or by installing a hot water tank.

Comments:

Recommendation
Reduce demand temperature spread

Observation: A temperature spread of 1.5°C is observed during the day.

Conclusion: A temperature spread of 1.5°C is observed during the day.

Financial parameters:	The cost of this measure will depend on the amount of full load demand required for the space impacted.					
Full cost range (per m ²)	\$	+1,500	+15,000	+150,000	+150,000	160

Recommendation: See area this requirement, either by accepting the pre-conditioning time or by installing a hot water tank.

Comments:

Recommendation
Add pump control to BMS

Observation: The pump is not controlled by the BMS.

Conclusion: The pump is not controlled by the BMS.

Financial parameters:	The cost of this measure will depend on the amount of full load demand required for the space impacted.					
Full cost range (per m ²)	\$	+1,500	+15,000	+150,000	+150,000	160

Recommendation: See area this requirement, either by accepting the pre-conditioning time or by installing a hot water tank.

Comments:

Recommendation
Review control panel of switch connections

Observation: The control panel of the switch connections is not reviewed.

Conclusion: The control panel of the switch connections is not reviewed.

Financial parameters:	The cost of this measure will depend on the amount of full load demand required for the space impacted.					
Full cost range (per m ²)	\$	+1,500	+15,000	+150,000	+150,000	160

Recommendation: See area this requirement, either by accepting the pre-conditioning time or by installing a hot water tank.

Comments:

Action plan

Measure	Priority	Status	Start Date	End Date	Responsible
Reconnect boiler valves	High	Completed	2022-01-15	2022-01-15	John Doe
Review control panel of switch connections	Medium	In Progress	2022-02-01	2022-02-15	Jane Smith
Reduce demand temperature spread	Low	Not Started	2022-03-01	2022-03-31	John Doe

INSIGHTS Anomalies & Actions

Comfort: 2 observations	Data: 1 action
Energy: 3 observations	Demand: 2 actions
Systems: 4 actions	Building: 1 observation

Savings Targets m

- CO₂ -18%**
-0.7 kg CO₂/m²/year
-9 ton CO₂/year
- Electricity -18%**
300 MWh/yr
- Heat -17%**
100 MWh/yr

Guaranteed Energy Savings based on reduction of the Carbon Reduction Plan.


Based on INSIGHTS anomalies & actions and AUTOPILOT implementation approach.







AUTOPILOT Implementation Approach


- Activate, then Adjust & Watch:** The design and state of the building are suitable for AUTOPILOT. Investments might be required for activation.
- Adjust, then Activate & Watch:** Adjustment actions defined for making the building suitable for AUTOPILOT. Investments might be required.
- Wait & Watch:** The state or design of the building is NOT suitable for AUTOPILOT.




3. Our solution in 3 steps

Carbon Reduction Plan


INSIGHTS  by DeltaQ Anomalies & Actions


 Comfort: 2 observations	 Data: 1 action
 Energy: 3 observations	 Demand: 2 actions
 Systems: 4 actions	 Building: 1 observation


AUTOPILOT  by DeltaQ Implementation Approach

- 
Activate, then Adjust & Watch: The design and state of the building are suitable for AUTOPILOT. Investments might be required for activation.
- 
Adjust, then Activate & Watch: Adjustment actions defined for making the building suitable for AUTOPILOT. Investments might be required.
- 
Wait & Watch: The state or design of the building is NOT suitable for AUTOPILOT.

Savings Targets (*)


-18%
 -0,7 kg CO2/m2/year
 -9 ton CO2/year


-18%
 Electricity
 -300 MWh/yr


-17%
 Heat
 -100 MWh/yr

Guaranteed Energy Savings based on execution of the Carbon Reduction Plan.

(*) Based on INSIGHTS anomalies & actions and AUTOPILOT implementation approach.

3. Our solution in 3 steps

Carbon Reduction Plan Example

Short Description	Observation & Recommendation	Financial comments	Est. Cost Range	Blocking	Energy Impact	Comfort Impact	Status	Budget Status	Lead	To Involve
Confirm presence of non-return valve	<ul style="list-style-type: none"> Readings on the cooling circuit of AHU 3 are not nominal. Check whether there is a non-return valve on the cooling circuit of AHU 3 		TBD	TBD	TBD	Neutral	Identified	Defining	O&M	O&M
Reduce demand temperature spread	<ul style="list-style-type: none"> Occupants can select a target room temperature of -3 to +3 °C. This creates a high risk of energy destruction and limits the reach of control optimisation. Reduce the range to -1 / +1 °C. A higher spread is an impediment for activating AUTOPILOT. 	<ul style="list-style-type: none"> The cost of this measure will depend on whether this can be adapted remotely. 	0	Yes	Positive	Negative to Neutral	Selected	Agreed	PM	PM; Tenant
Make BMS writable	<ul style="list-style-type: none"> The building's BMS system is not writable by DeltaQ Gateway. Install and activate a communication module. 	<ul style="list-style-type: none"> The cost of this measure will depend on the chosen solution. 	< 50.000	Yes	Neutral	Neutral	Selected	Agreed	PM	PM; Tenant
Reconfigure boiler cascade system	<ul style="list-style-type: none"> The cascade seems out of balance. Boiler 2 is OFF and temperature is higher than the setpoint. Diagnose problem with vendor. 	<ul style="list-style-type: none"> Cost will depend on diagnosis by vendor. 	TBD	Yes	Positive	Neutral	Doing	Defining	O&M	O&M
Find way to control FCU behaviour	<ul style="list-style-type: none"> FCUs are not connected to the BMS. They run 24/7. FCUs have own internal logic with own parameters, leading to energy destruction as some remain in summer mode during winter. Find an approach for reducing the schedule of the FCUs and ensuring they are put in the desired season mode. 	<ul style="list-style-type: none"> Cost will depend on selected approach. 	< 5.000	Yes	Positive	Neutral	Done	Done	O&M	O&M
Install additional temperature sensors	<ul style="list-style-type: none"> There are currently insufficient data about the room temperature in some parts of the building. This limits the reach of control optimisation. Install and activate 15 to 25 additional room temperature sensors. 	<ul style="list-style-type: none"> 15 to 25 sensors @ EUR 300 to EUR 800 pp = EUR 4.500 to EUR 20.000 	< 50.000	Yes	Positive	Higher	Doing	Defining	O&M	PM; Tenant
Group occupancy on a reduced surface	<ul style="list-style-type: none"> There are only 15 to 20 people present per floor. Regrouping them on one floor will allow to reduce the comfort requirements on half of the surface. 	<ul style="list-style-type: none"> The cost of this measure will depend on the amount of refurbishment required for the spaces impacted. 	N/A	No	Positive	Neutral	Rejected	Rejected	PM	PM; Tenant
Reconsider 24/7 comfort requirement on floor 7	<ul style="list-style-type: none"> The requirement to have 24/7 comfort on floor 7 impacts the whole circuit. Take away this requirement, either by accepting the preconditioning time or by installing a fast local device. 	<ul style="list-style-type: none"> The cost of this measure will depend on the chosen solution. 	< 50.000	No	Positive	Negative to Neutral	Doing	Processing	PM	PM; Tenant

3.3 Act



3. Our solution in 3 steps

Three data-driven steps towards your ESG targets

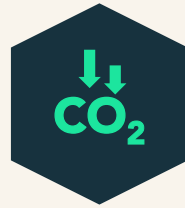


3. Our solution in 3 steps

Our promise

We facilitate your journey towards your net-zero goals

On average
20% energy
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An actionable
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Roadmap

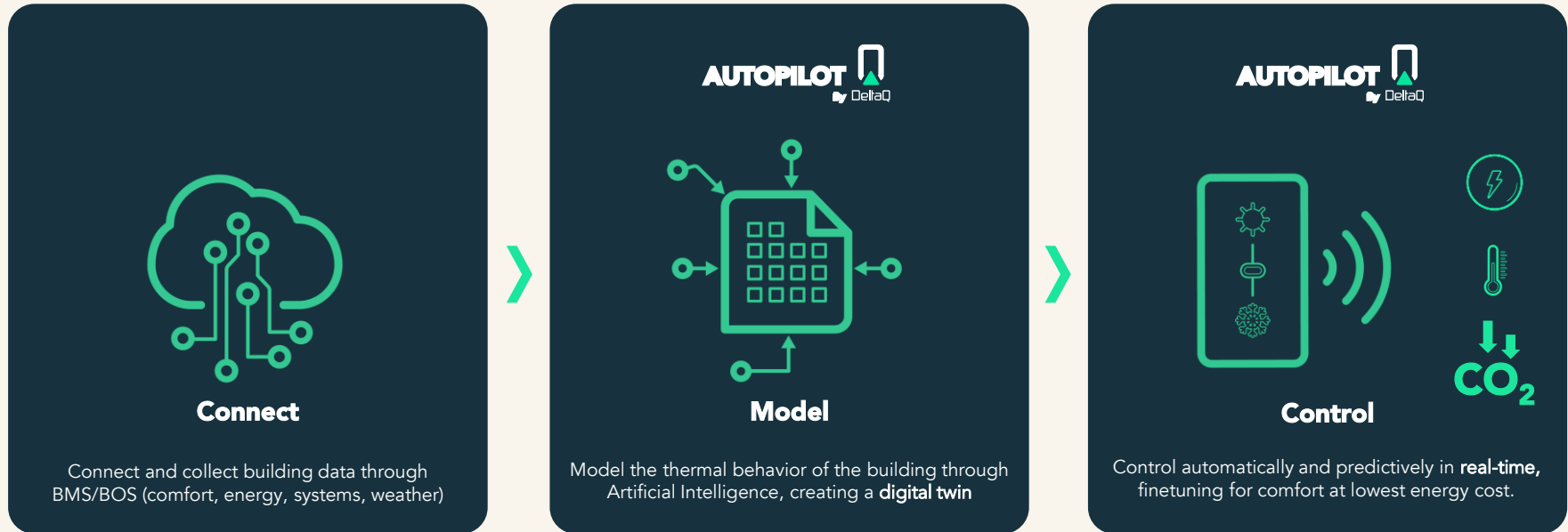


3. Our solution in 3 steps

Automated savings



AUTOPILOT applies predictive AI-powered real-time control to your building's HVAC. Active energy management, automated, straight to your buildings.



3. Our solution in 3 steps

Fonctionnement

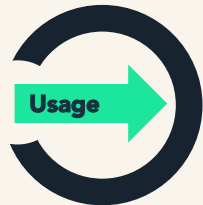
DeltaQ AUTOPILOT agit sur l'ensemble des systèmes CVC pilotables par la GTB, ajoutant un pilotage intelligent pour un confort au moindre coût énergétique



La technologie de DeltaQ modélise le comportement thermique du bâtiment. Ceci lui permet d'anticiper les effets de la météo, dont les prédictions sont intégrées en continu.



Les algorithmes de DeltaQ ont pour mission d'atteindre une température de consigne convenue – un mesurage objectif du confort.



DeltaQ respecte les plages horaires d'utilisation de votre bâtiment afin d'offrir une solution sur mesure pour chaque actif.



4. Implementation

4. Implementation

The implementation trap

Why many AI-based energy savings initiatives fail?

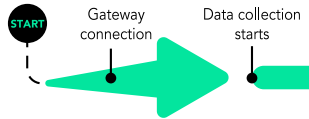
- Buildings have been managed for comfort at the lowest maintenance cost rather than energy efficiency. There are hidden flaws that can undermine comfort when steering on energy.
- The digitally available data often does not match the physical reality of the building, leading to blind spots for AI models.
- Pure software companies do not grasp the importance of the physical/hardware part of the problem and lack expertise.
- Many stakeholders, with their own perceptions and goals, need to find a new alignment towards a novel goal of energy efficiency.



Many attempts for AI-based energy savings in commercial real estate fail.

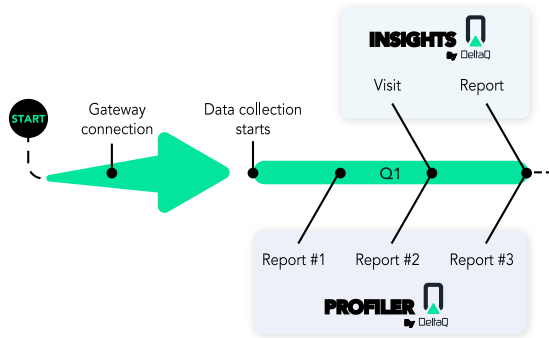
4. Implementation

We connect our gateway in a few minutes and start collecting the data



4. Implementation

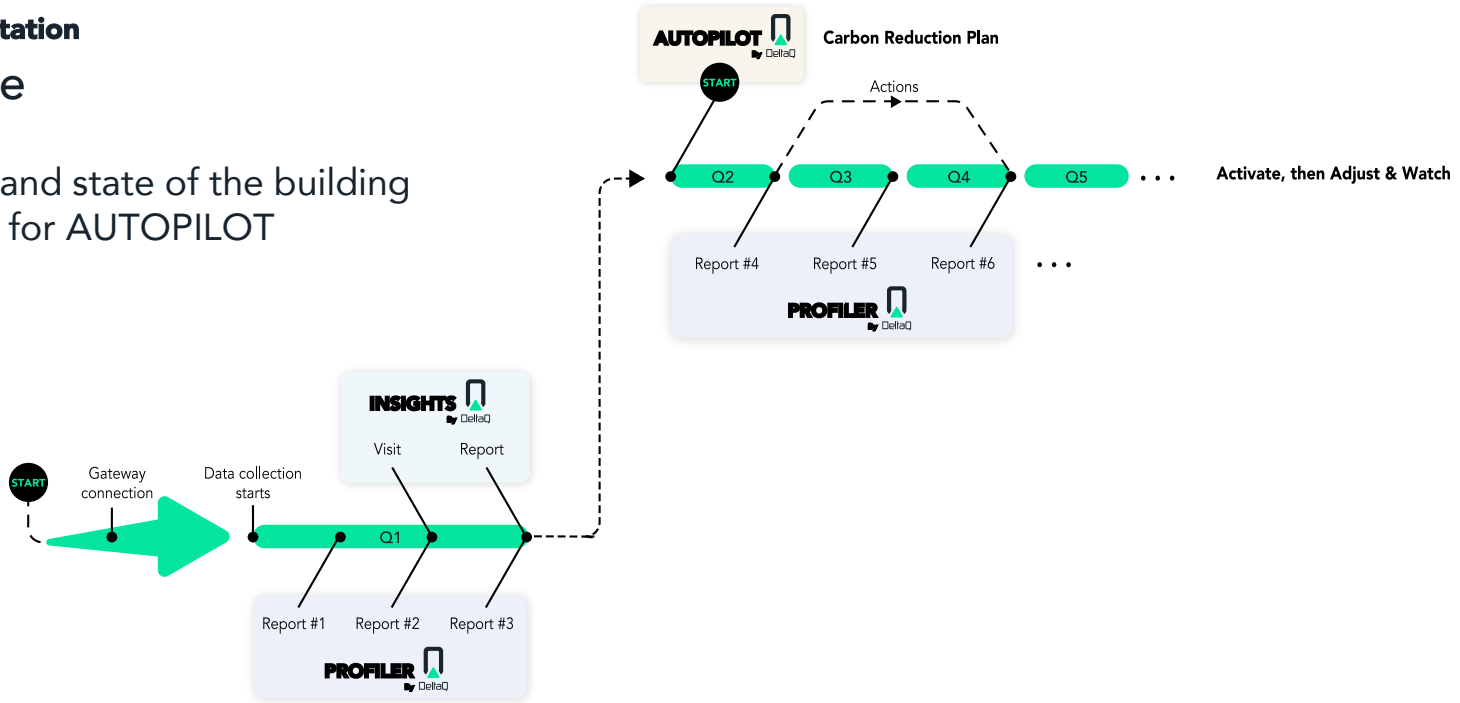
You receive your reports about the digital and physical state of your building with our PROFILER and INSIGHTS



4. Implementation

Track One

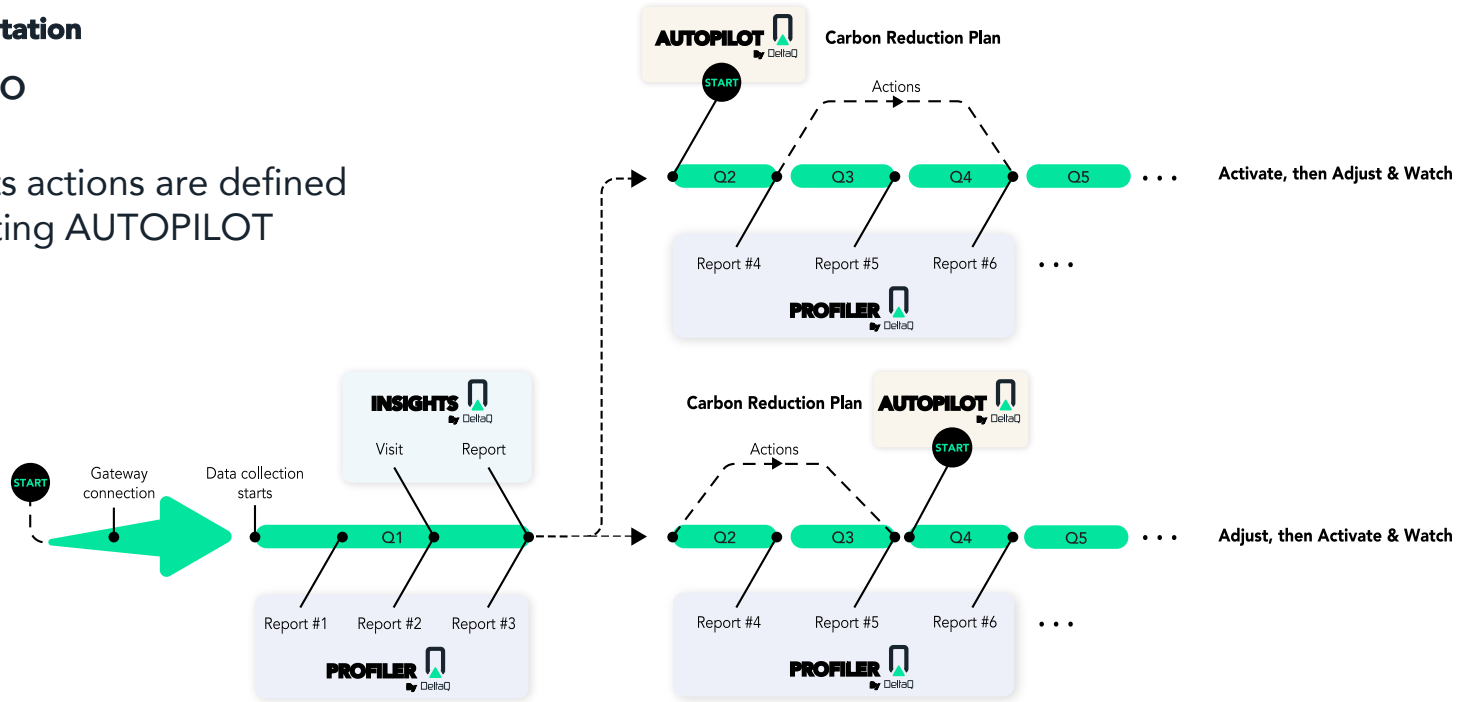
The design and state of the building are suitable for AUTOPILOT



4. Implementation

Track Two

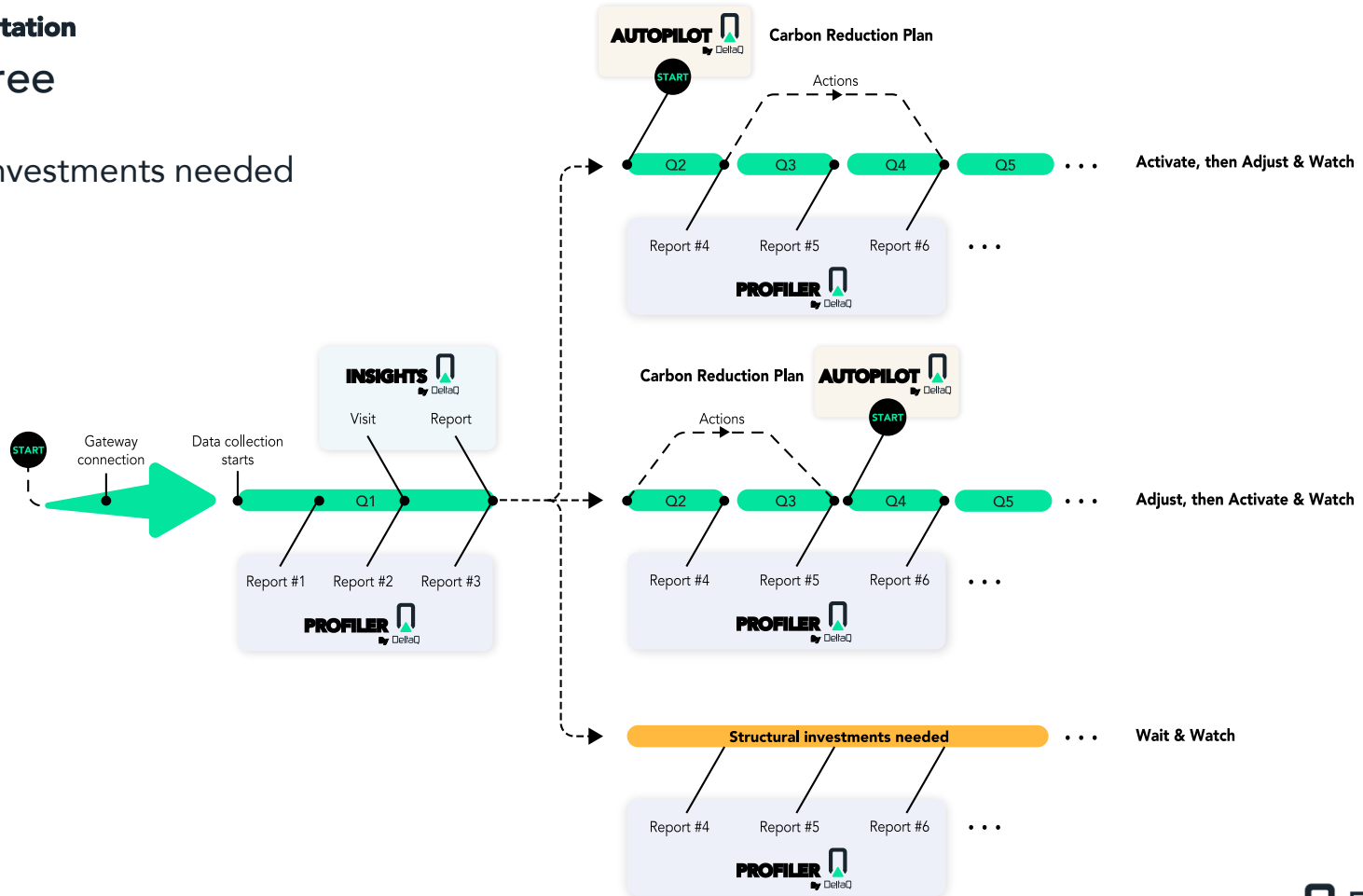
Adjustments actions are defined before starting AUTOPILOT



4. Implementation

Track Three




Structural investments needed

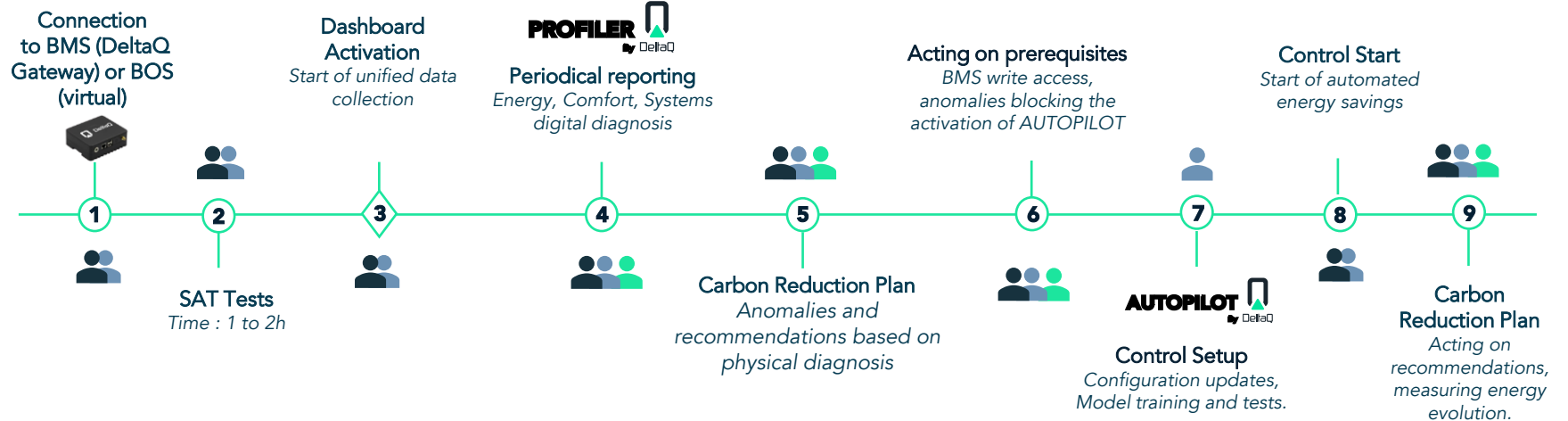


4. Implementation

Example of implementation process

Recognized quality of the DeltaQ teams, our processes are fast and carried out in close collaboration with all the stakeholders.

-  Client: OWNER / Tenant / Asset or Property Manager
-  Maintenance
-  DeltaQ



4. Implementation

Map – Plan – Act addresses the implementation trap

- **PROFILER** and **INSIGHTS** create transparency on the state of the building, revealing hidden flaws to address.
- **INSIGHTS** verifies the digital/physical gaps and identifies actions needed to take away the digital blind spots.
- **PROFILER**, **INSIGHTS** and **AUTOPILOT** are combined with a Carbon Reduction Plan that addresses all aspects of a building's HVAC, including 'hardware' and users.
- The transparency created by the tools combined with the active implication of all stakeholders facilitates alignment towards energy efficiency.



Our unique approach de-risks your AI-supported energy savings efforts

Our transparency-creating tools create a shared understanding for stakeholders to remain aligned on energy savings.

5. Our results

5. Our results

BP Building – 10 560 m²

- Dashboard activated 14/06/2021
- Autopilot activated 26/11/2021
- Learning time: 5 months

Carbon footprint



-32,1%
-218t CO₂/y

Savings



Electricity: -24,7%
Gas: -44%
Savings: -63,7k €/y
Energy: -687 MWh/y

Comfort



Comfort maintained

Return on investment



<6 months



5. Our results

EY Diegem – 14 566 m²

- Dashboard activated 24/04/2020
- Autopilot activated 02/06/2020
- Learning time: 6 weeks
- BMS: Johnson Controls

Carbon footprint



-28,3%
-260t CO₂/y

Savings



Electricity: -28,3%
Gas: -27,4%
Savings: -71k €/y
Energy: -940 MWh/y

Comfort



95% time in comfort

Return on investment



<6 months



5. Our results

EY Gent – 4 616 m²

- Dashboard activated 20/04/2020
- Autopilot activated 08/06/2020
- Learning time: 7 weeks
- New BMS (2018)

Carbon footprint



-32,4 %
-81t CO₂/y

Savings



Electricity: -32,4%
Gas: N/A
Savings: -24k €/y
Energy: -257 MWh/y

Comfort



92% time in comfort

Return on investment



<6 months



5. Our results

Empereur – 10 727 m²

- Dashboard activated 06/08/2021
- Autopilot activated 30/08/2021
- Learning time: 4 weeks
- BMS: Siemens

Carbon footprint



-17,3%
-39t CO₂/an

Savings



Electricity: -24%
Gas: -1%
Savings: -38k €/y
Energy: -286 MWh/y

Comfort

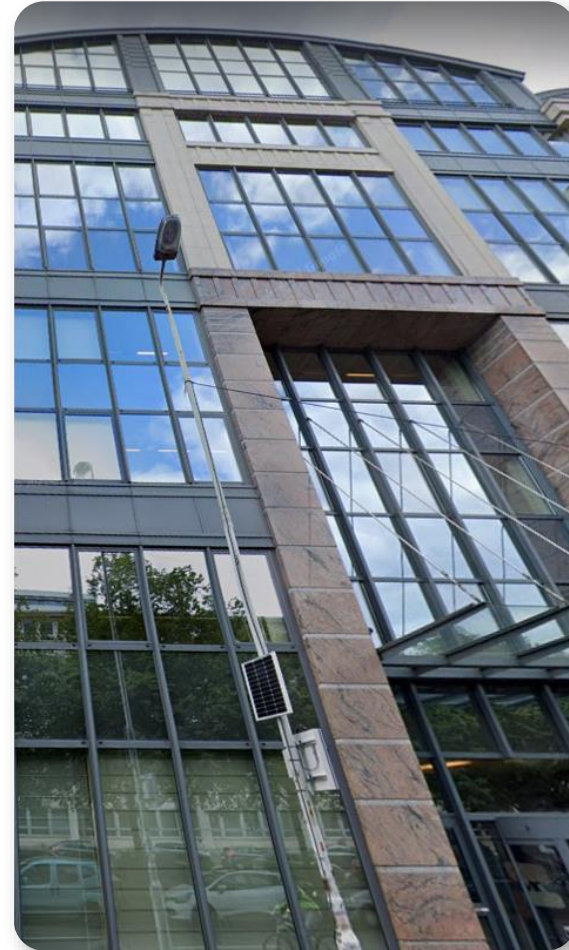


98% time in comfort

Return on investment



<9 months



5. Our results

Canon – 5 333 m²

- Dashboard activated 17/06/2019
- Autopilote activated 10/01/2020
- Learning time: 6 months
- BMS: Johnson Controls (1998)

Carbon footprint



-34,9 %
-103t CO₂/an

Savings



Electricity: -36,4%
Gas: -23%
Savings: -32,3k €/y
Energy: -275 MWh/y

Comfort



Comfort maintained

Return on investment



<5 months



5. Our results

ISS HQ – 4 281 m²

- Dashboard activated 24/11/2020
- Autopilote activated 27/05/2021
- Learning time: 6 months
- BMS : Siemens

Carbon footprint



-19,4 %
-32t CO₂/an

Savings



Electricity: -26,1%
Gas: -12,2%
Savings: -16,6k €/y
Energy: -83 MWh/y

Comfort



Comfort maintained

Return on investment



<5 months



5. Our results

The Lighthouse – 11 961 m²

- Dashboard activated 01/12/2018
- Autopilot activated 01/05/2019
- Learning time: 5 months

Carbon footprint



-17,4 %
-199t CO₂/an

Savings



Electricity: -17%
Gas: -22,7%
Savings: -47,2k €/y
Energy: -389 MWh/y

Comfort



Comfort maintained

Return on investment



<7 months



5. Our results

Tour&Taxis – 44 603 m²

- Dashboard activated 07/05/2021
- Autopilote activated 01/07/2021
- Learning time: 2 months
- New BMS Honeywell EBI (2021)

Carbon footprint



-8,3 %
-242t CO₂/an

Savings



Electricity: -12,2%
Gas: -4,5%
Savings: -60,8k €/y
Energy: -605 MWh/y

Comfort



Comfort maintained

Return on investment



<7 months



Corporate presentation

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