



uncovering the value of existing real estate assets



Daniel Tabacaru - AIC, Founder

www.againx.ai



BERGEN
KOMMUNE



Asker
kommune

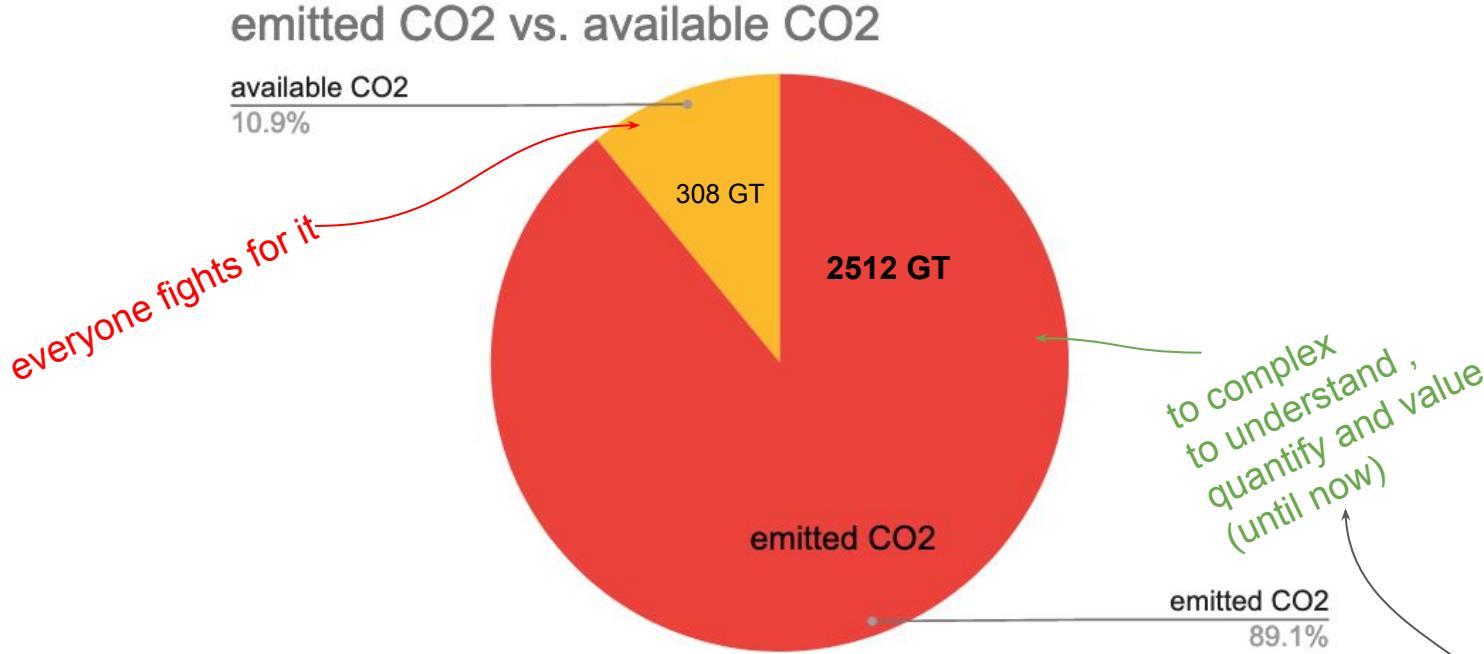


BÆRUM
KOMMUNE

ansatt eller konsulent for de over nevnte langs tiden

Det “usynlige problem”

Det CO2 budsjett



source: IPCC rapport 2017, updated 2022.march

Den “håndterbart problem”

Den “håndterbart problem”

BIM manager, 2017-2019

Kommunegården, Bærum
30000 kvm



1992



2020

risk
kostnad
tid



2023

The problem

Kommunegården, Bærum
30000 kvm



2020

Avfall fra byggeaktivitet

Oppdatert: 9. desember 2021

Neste oppdatering: Foreløpig ikke fastsatt

Avfall fra byggeaktivitet

2020

2 135 747 tonn

Genererte mengder avfall fra nybygging, rehabilitering og riving. Tonn. Hovedgrupper.

	Tonn	Andel	Endring i prosent
			2019 - 2020
2020			
Byggeaktivitet i alt	2 135 747	100,0	9,6
Nybygging	646 742	30,3	-1,7
Rehabilitering	510 806	23,9	3,3
Riving	978 200	45,8	22,9

Rettet 31. mars 2021.

Material content valuation



estimated demolition
costs

NOK 200.000.000



Total valuation of
materials (ex. VAT)
NOK 1.463.385.300

Data provided by Mustad Eiendom, Lendager Group



The following slides show, in a simplified form, the relation between **data** and **risk** assessment, and why Again X mission to uncover the data has important impacts both in investment and long term maintenance phase, by providing early data KPIs



10% data

90% risk



20% data

80% risk



40% data

60% risk



50% data

50% risk



60% data

40% risk



80% data

20% risk



20% data

80% risk

∞ AGAIN X



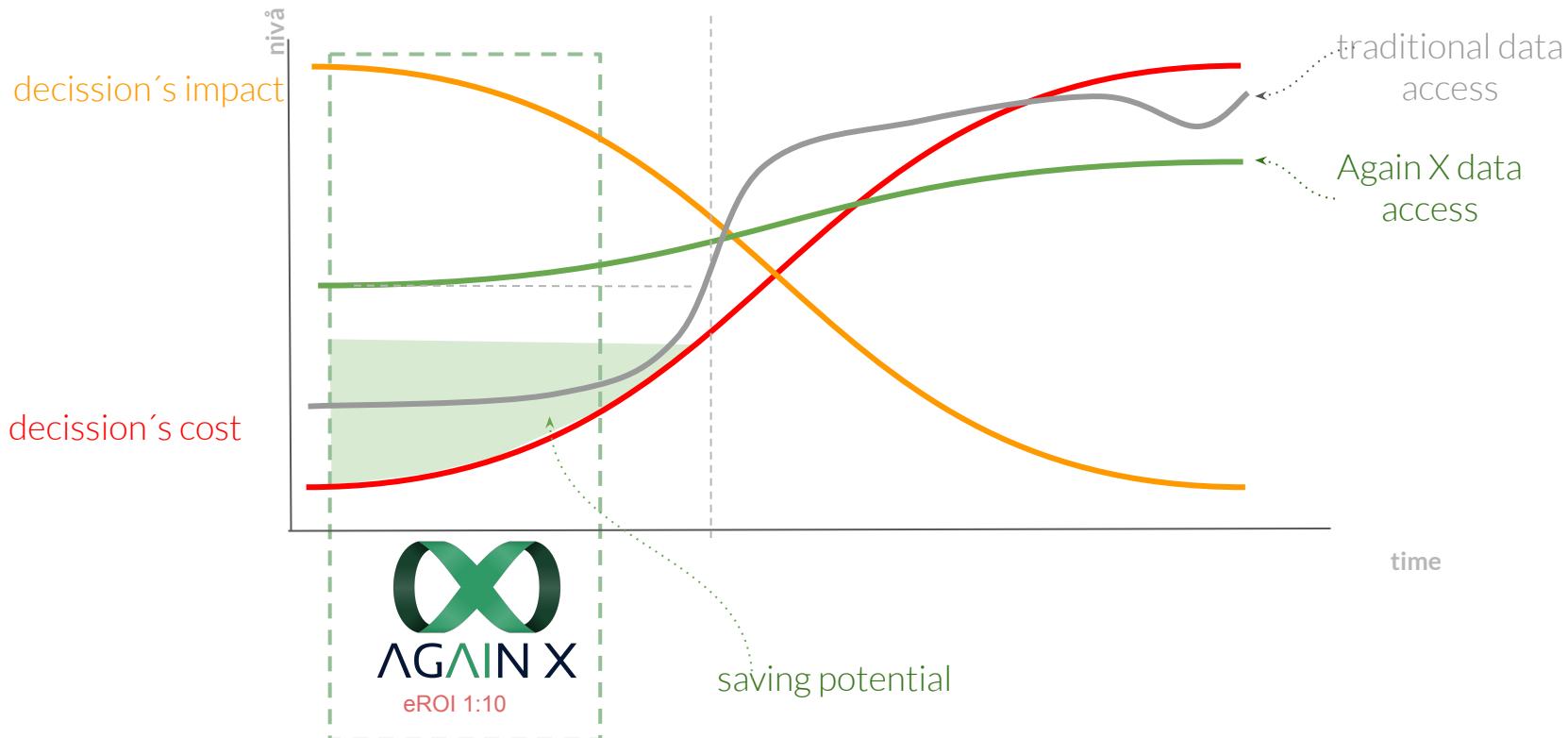
60% data

40% risk

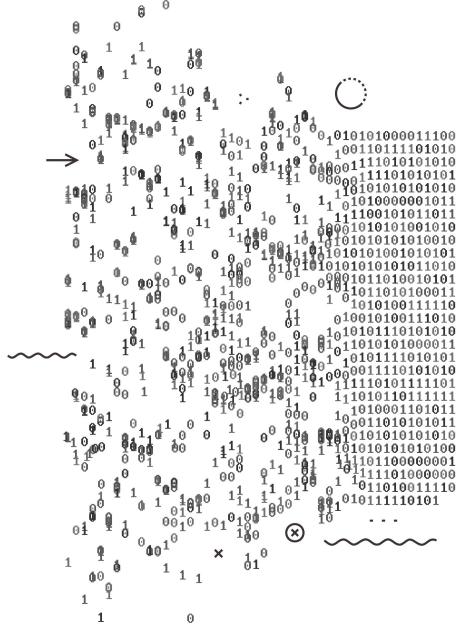
∞ AGAIN X

∞ AGAIN X

Early stage decisions data support



The Solution



Existing data sources

structure & classify

aggregate

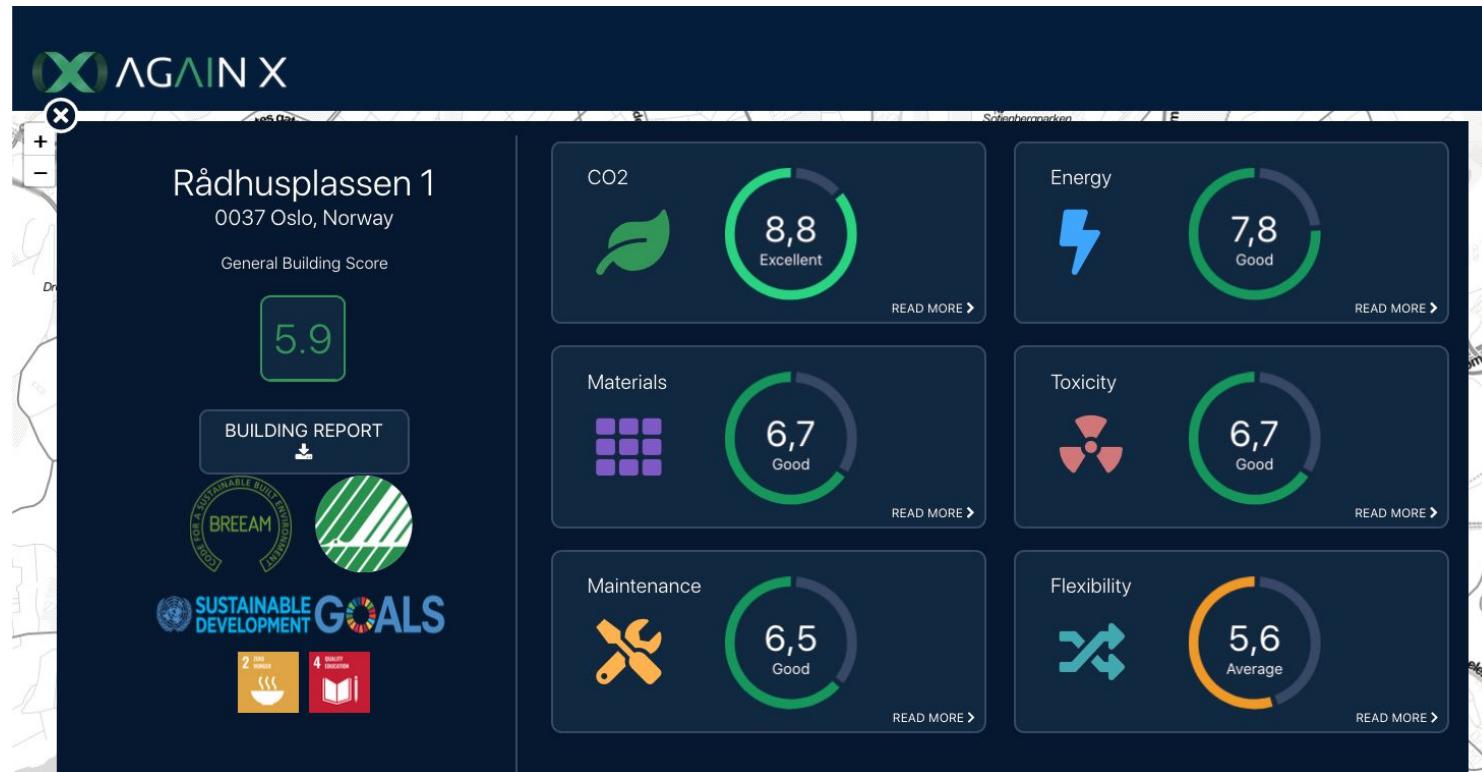
AI with human understanding and experience

ARCTIC
INNOVATION
WEEK

LUP

∞ AGAIN X

Dashboard and results



The Team



Daniel Tabacaru

CEO / founder
Architect BIM / Engineer (ue)
circular economy expert



Eirik Rudi Wærner

Expert materials / toxicology
shareholder
Multiconsult, leder NHP4, RIF



Edvard Clausen

Sales VP
shareholder
Atea, Tryg, Danica, Xerox



Gry Miriam Olser

Director of the Board
Bybanen, Keolis,, Resoil



Margrethe Snekkerabakken

Board member
Første bærekraftig sjef for Avinor
Bergfeld miljørådgivere

Behind the scene (wizards)

Petros Choidis, Cand Phd

Akriti Sharma, PhD

OceanoBe, Romania

Alexander Andries

Knut Høie

Jørgen Hernæs Grødem

Ugo Dimini

Omer Greenberg

Materials modelling wizard

AI, visual analysis, CNN

Architect/DB/BE

DevOps

Backend developer

visual development

DB / French market

CRM / SoMe /BI

projects

Research partners



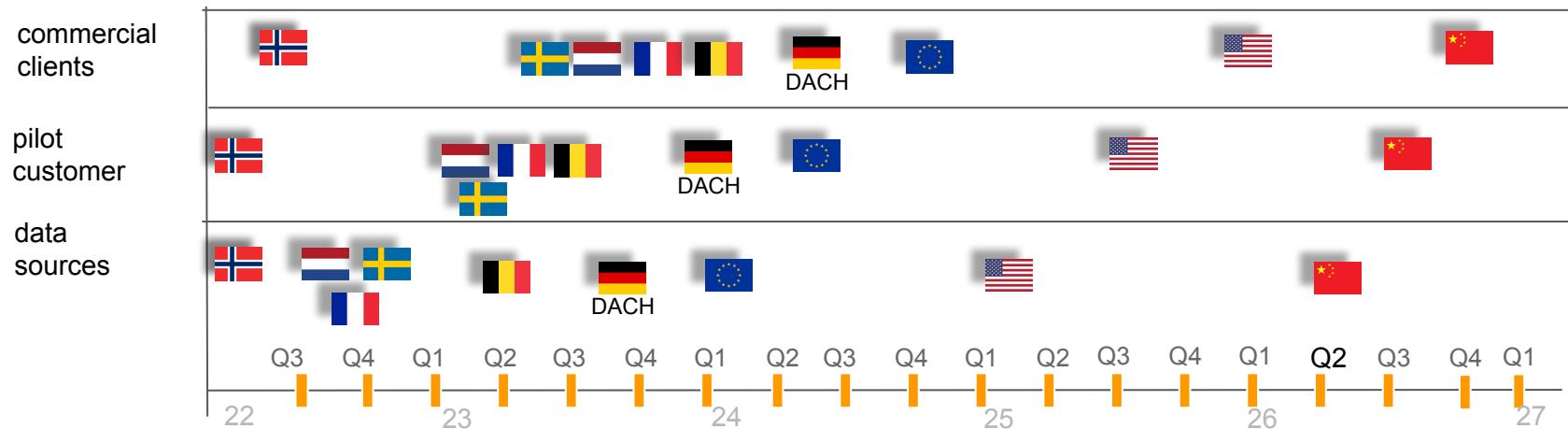
Funding partners

890 000 USD



Funding partners





Pilot projects



ENOVA



ENOVA

HP HALDEN KOMMUNALE
PENSJONSKASSE

2 samarbeidsprosjekter:

1. forskningsprosjekt hvor vi trenger en partner med variert bygningsmasse

- **50%** av kostnadene dekket
- mulig oppstart fra Mandag 24 oktober, ferdigstillelse januar 2023

2. mulighetsstudie for ombruk

Enova dekker opp til **50%** av prosjektkostnadene



ENOVA



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Daniel Tabacaru

CEO / Founder

daniel@againx.ai



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Market feedback

“we understand our income streams but maintenance costs are a big unknown”

Fredensborg investment team

“Daniel, if you solve the early KPI’s and what type of data we need in the early stage in refurbishing projects, then you have work for the next 30 years

VDC director, Sweco



“we would love to have you do for refurbishments what Spacemaker is doing for greenfield projects. Give us early, corroborated data and we pay for it”

Jakob Krupka, Møller Eiendom

Developing work AI/ ML



-report financed by Forskningsrådet
delivered des.15.2020



SINTEF

Report

AgainX KPI

Sustainability and investment KPIs in non-residential real estate using ML algorithms and big data

Author(s)
Natalia Latorre
Daniela Tabacaru-Katina Seel, Klaudia Grajeda, Knut Vilør Skjærli



SINTEF Community
Materials and Structures

Report ID: AgainX_KPI_1

Report Date: 2020-12-04

Report Version: 1.0

Keywords: [Sustainability](#), [Real Estate](#), [Machine Learning](#), [Big Data](#)

Abstract: This report presents the results of the AgainX KPI project, which aims to develop sustainability and investment KPIs for non-residential real estate using machine learning (ML) algorithms and big data. The project has been divided into three phases: Phase 1 (data model), Phase 2 (data analysis), and Phase 3 (application). In Phase 1, we collected data from various sources and performed data integration. In Phase 2, we conducted a detailed analysis of the data, identifying patterns and trends. In Phase 3, we developed a web-based application that allows users to input specific parameters and receive personalized KPIs. The report includes a summary of the project, a detailed description of each phase, and a conclusion.

Report Structure

- Report Overview
- Project Summary
- Phase 1: Data Model
- Phase 2: Data Analysis
- Phase 3: Application
- Conclusion
- Appendices

Phase 1: Data Model

This phase involved collecting data from various sources and performing data integration. The data was then used to develop a data model for real estate investors.

Data Sources

Source Type	Description	Level of Integration	Impact
Internal Data	Historical sales data, building performance metrics, and maintenance logs.	High	Medium
External Data	Market reports, economic indicators, and environmental data.	Medium	Medium
Public Data	Geographic information systems (GIS) data, zoning regulations, and local government records.	Low	Medium

Project Phases

Phase	Activities	Start Date	End Date
Phase 1: Data Model	Collecting data, Data integration, Data cleaning, Data modeling.	2020-01-01	2020-06-30
Phase 2: Data Analysis	Data analysis, Model development, Model validation, Model deployment.	2020-07-01	2020-11-30
Phase 3: Application	Application development, User testing, Deployment, Maintenance.	2020-12-01	Ongoing

Key Findings

- The data model successfully integrated data from multiple sources, providing a comprehensive view of the real estate market.
- The analysis identified several key factors that impact real estate values, such as location, building age, and energy efficiency.
- The application provides users with personalized KPIs, helping them make informed investment decisions.

Phase 2: Data Analysis

This phase involved conducting a detailed analysis of the data, identifying patterns and trends. The analysis was divided into two main steps: data processing and model development.

Data Processing

The data was processed using a two-step approach. First, raw data was cleaned and integrated. Second, the data was aggregated and transformed into a format suitable for machine learning models.

Model Development

The analysis focused on developing a machine learning model to predict real estate values. The model was trained on historical data and tested on a separate validation set. The results showed a high level of accuracy, with an R-squared value of approximately 0.85.

Phase 3: Application

This phase involved developing a web-based application that allows users to input specific parameters and receive personalized KPIs. The application includes a user interface, a database, and a machine learning engine.

User Interface

The application features a clean, modern design with a navigation menu, search bar, and data entry fields. The user can input information such as address, building type, and ownership status.

Database

The database stores all the data collected during the project, including historical sales, building performance metrics, and maintenance logs. The data is organized into tables and indexed for quick retrieval.

Machine Learning Engine

The machine learning engine uses a combination of regression and classification models to predict real estate values. The engine also identifies trends and anomalies in the data, providing users with valuable insights.

Conclusion

The AgainX KPI project has successfully developed a data model, conducted a detailed analysis, and created a web-based application. The application provides users with personalized KPIs, helping them make informed investment decisions. The project has demonstrated the potential of machine learning and big data in the real estate industry.

Uncovering the value in your real estate assets.

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