

Energy Flow

A smart and sustainable data
center ecosystem



Presentation to investors

Cédric Prieels
Nicolò Trevisani
Veronika Furhaupter

Problem description

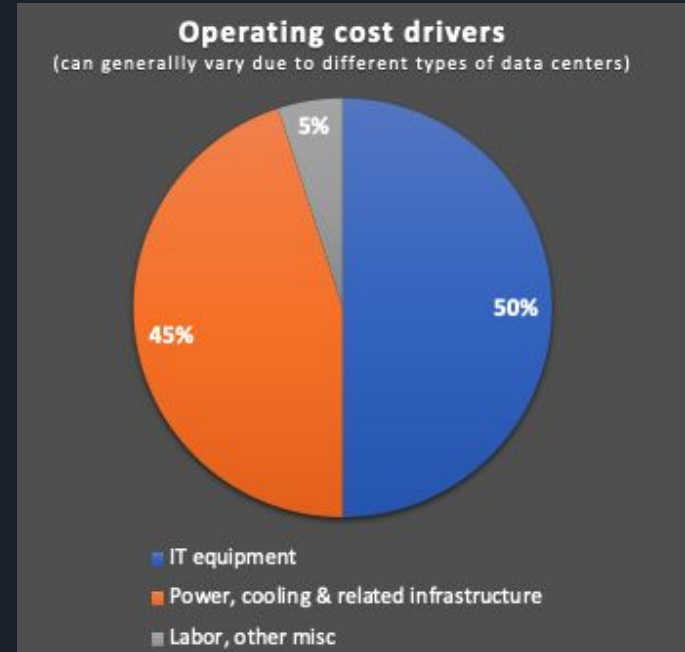


What should a data centre provide?

- Fast accessible data
- High availability with no dead time
- Free storage capacity whenever needed
- Data security and regular backups
- OS and hardware upgrades
- Emergency planning, technical support

Cost reduction is a key point for competitiveness and profit

- Power and cooling can sum up to 50% of the data center cost



Value Proposition



Energy efficiency: a key aspect for Data Centers

Everybody looks for

- Cost reduction and energy savings
- Environmental friendly image

Our solution makes it possible through

- Intelligent cooling management system
- Smart reuse of heat by combining thermoelectric generators with smart grids

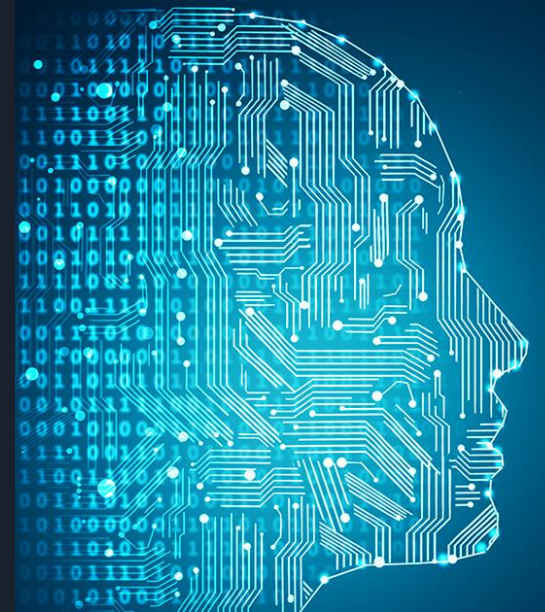


Our Solution



Machine learning algorithm to manage the cooling system of the data center

- Trained to foresee when more accesses will take place
- Depending on the moment of the day or the day of the week
- But also depending on the real-time access situation
- **Anticipating and reacting in real time**
- Working at the optimal technical parameters
- Collecting warm air for thermoelectric generation
- **Using dedicated sensors and custom solutions**



Target Clients and Channels to Get to Them

We aim to reach data centers owners and managers

- Starting close to Santander
- **To provide in-person support**
- IFCA, Banco Santander, ...

We would start at IFCA for testing

- Website for general information
- Connecting with the “scene” through conferences, talks, symposia
- IFCA testing energy saving results as driving results to show
- Direct distribution





Our main competitor



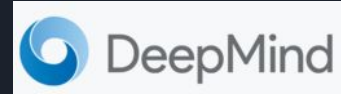
Google DeepMind, aiming to build advanced AI – to expand knowledge and find new answers

- Diagnose of disease
- Predict 3D shapes of proteins
- **Save 30% of the energy used to cool down the data centers**

In cooperation with the Google's data centre team using an ensemble of neural networks

- Trained on operating scenarios and parameters within the data centres
- Parameters from sensors like temperature, power, pump speeds etc.
- Algorithm addresses to understand how the equipment is operated and its environmental interaction, to adapt to environmental changes and understand the general data centre's interactions
- Control mechanism of the algorithm is measured by the PUE

However, large scale company (> 100.000 persons) with lack of person-to-person direct support, not focused on this subject and already bought by Google



Competitive advantage



Smart reuse of heat

Combining thermoelectric generators with smart grids

- Reuse of waste heat
- Smart distribution and storage of electricity
 - Using newest batteries to store energy
 - Potential consumers: buildings, cars, neighborhood
- Core competence staying in the fields of AI and IoT with smart grids

Reaching out to strategic partners

- Research alliances
- Companies
- University Startups





Our 3 steps plan



Phase I

Initial project setup
and market study

Starting as soon as possible

- Budget model definition, cash flow analysis with experts
- Complete our team by hiring experienced people
- Market study to buy first working sensors
- Study design and first prototypes installation at IFCA
- Reaching out to strategic partners for co-development of smart-grid solution

Phase II

Models development
and prediction testing

Scheduled in 2021

- Advanced prototypes set up at IFCA, based on first results
- Machine Learning models development using sensors data
- Prediction and generalization testing on different datasets

Phase III

Actual set up,
monitoring and maintenance

Scheduled in 2022

- Actual set up in a data center
- Monitoring and maintenance
- Models improvements based on actual collected data
- First source income, quick positive cash flow expected due to low operation costs

Our Team



Our team

- Existing cosmopolitan existing team of 3 people from Italy, Germany and Belgium
- Strong technical background in physics, computing, big data and engineering
- Lack of in-field experience to be compensated by hiring one marketing and sales expert



CEO
(Physicist)



Technical expert
(Engineer)



AI expert
(Physicist)

Our initial needs



We need some funding to:

Buy sensors (temperature, electrical consumption, flow of data)	Computing resources	Website development and advertisements	Travels and conferences	Salaries	Total
2.000€	2.000€	20.000€	20.000€	150.000€	~200.000€

But we promise in return:

- Low initial investment expected and high return due to the growing demand
- Gradual increase of funding needed over time, possibility to withdraw at any time
- Cost reduction by free access to a working data center for models development (IFCA)
- All further maintenance and running cost to be assumed by the interested company itself



Our offer to you



Low initial investment, low risk, possible high return but in several years from now
Team already mostly set up, access to existing development area

We are ready to invest 75.000€ to get this project started and cover our salary for the first year.

You would get 20% of our total income until your investment is fully repaid plus 100%, once we get our first contract.

Sources of revenues

- Offered business models: take 5% of the total energy savings made, no fixed price (up to 100.000€/year expected)
- Percentage to be discussed depending on the size of the interested company

Investment expected to be repaid fully in 2023, depending on the contracts, interests coming shortly later.



Thanks for the attention!
Any questions?

Business Model Canvas



Key Partners - Sensors producers - Heat converters producers	Key Activities - Sensors deployment - Machine learning algorithm training	Value Proposition - Automatic energy and cooling management system - Easily operable - Smart reuse of warm air for building heating - Custom solutions	Customer Relationship - Automated service - Online support	Customer Segments - Data centers owners or managers
	Key Resources - Sensors - Algorithm - Data		Channels - Website - Conferences - Seminars - Direct contact	
Cost Structure - Sensors acquisition - Platform development			Revenue Streams - Customers fee	

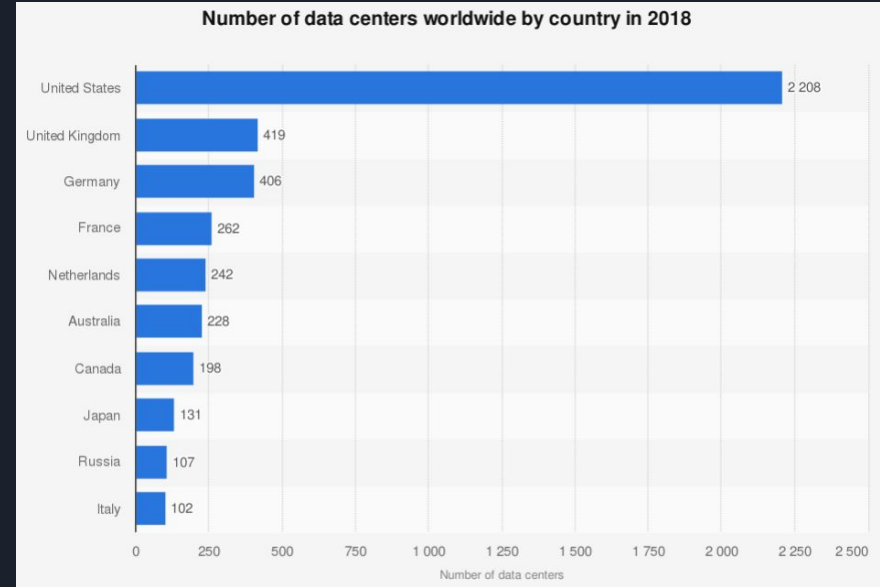
Target Clients and Channels to Get to Them

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Potential market, source:
<https://www.statista.com/statistics/920741/distribution-of-data-centers-in-the-united-states-by-location/>