
Bead Technologies Company Presentation
Your building is more than space.
BEAD
TECHNOLOGIES

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To empower sustainability through data and AI.

Bead Technologies Proposition

Our **Internet of Things** ("**IoT**") solution uses hardware application sensors to integrate into buildings' **heating, ventilating, and air-conditioning** equipment ("**HVAC**").

Artificial intelligence ("AI") algorithm recognize real-time behavioral and climate patterns inside the building to autonomously and intelligently manage a buildings automation system.

We develop proprietary technology solutions pairing a buildings' overall occupancy and in-door climate patterns with continuous **self-learning inference algorithms** to reduce human error in **BEMS**.

Bead sensors utilize **data of buildings** such as occupancy levels to determine behavioral insights that can be used by its customers for smarter product integration and brand placement.

Our proprietary hardware technology is pending for **international patent application approval** ("**PCT**") since 2016 and is expected to be approved in 2019 (PCT/TR2016/050286, Appendix).

BEAD shows Real-Estate Industry insider information from buildings

BEAD creates digital models of buildings by using real-time data in order to understand human behavior and occupancy patterns of buildings and use the analytics to create Autonomous Digital Buildings.
With the integration of real-time data into the operations, energy consumption, claims process using blockchain, we help optimize the process and resolution, reduce the risk and fraud.

OPTIMIZE OPERATIONS
and
REDUCE RISKS
THROUGH
DATA AND AI

Buildings are dynamic ecosystems and the circumstances are changing so fast in every part of the building that we can not rely on humans, facilities managers, technical managers, and engineers to operate the buildings.

TODAY

- Depend on Human input.
- Apsence of real-time data from differnt zones.
- Fixed schedules/Set points of BMS.
- Analysis system focused on consumption

TOMORROW

- Digital data centric operations.
- Real-time data from every 500ft2 of the building.
- Adaptive, Active and dynamic controlling.
- Analysing human behavior and usage trends in order to optimize the facilities' systems.

THE PROBLEM

We solve a real problem in Real-Estate Industry

100 Million buildings in the world are way INEFFICIENT in 1 way

We don't have enough DATA from the buildings inorder to undertands how the usage trends and indoor circumstances change.

Those industries are effected because of the lack of real-time data from differnt parts,zones,floors of the facilities…

INSURANCE $ 170b annual loss in Claims

FACILITIES MANAGEMENT $ 100b annual loss in Operations

HVAC/BMS SYSTEMS $ 80b annual loss by using those systems inefficient

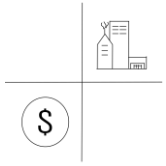
ENERGY CONTRACTING/MONITORING %30 inefficiency in process

We solve a real problem (1)

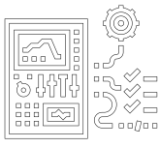
Commercial buildings' energy management systems are **outdated and operate on fixed schedules.**

No real-time monitoring takes place after initial installment of equipment and buildings energy management system is left on its own.

HVAC equipment is installed but **not dynamically integrated** in the buildings energy management system resulting in hyper-ventilation and hyper-illumination.



Approx. **USD 50 bn[1] is wasted annually** through operational inefficiencies in commercial buildings.

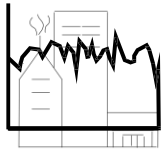


No day-cycle analysis takes place after initial installment of equipment and buildings become over-cooled or over-heated.

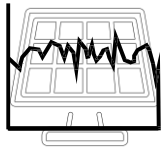
We create a fully-automated energy management system based on cutting-edge **artificial intelligence** and **data analytics software frameworks.**

(1) Navigant Research

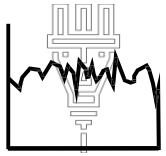
We solve a real problem (2)



AI learning and inference algorithms used for **real-time optimization** of energy system.



Continuous monitoring provided through **desktop and mobile dashboard** solutions.



Fully automated light and ventilation systems significantly reduce energy consumption in winter and summer times.

The installation of Bead sensors reduce **energy consumption of buildings by approx. 20%[1].**

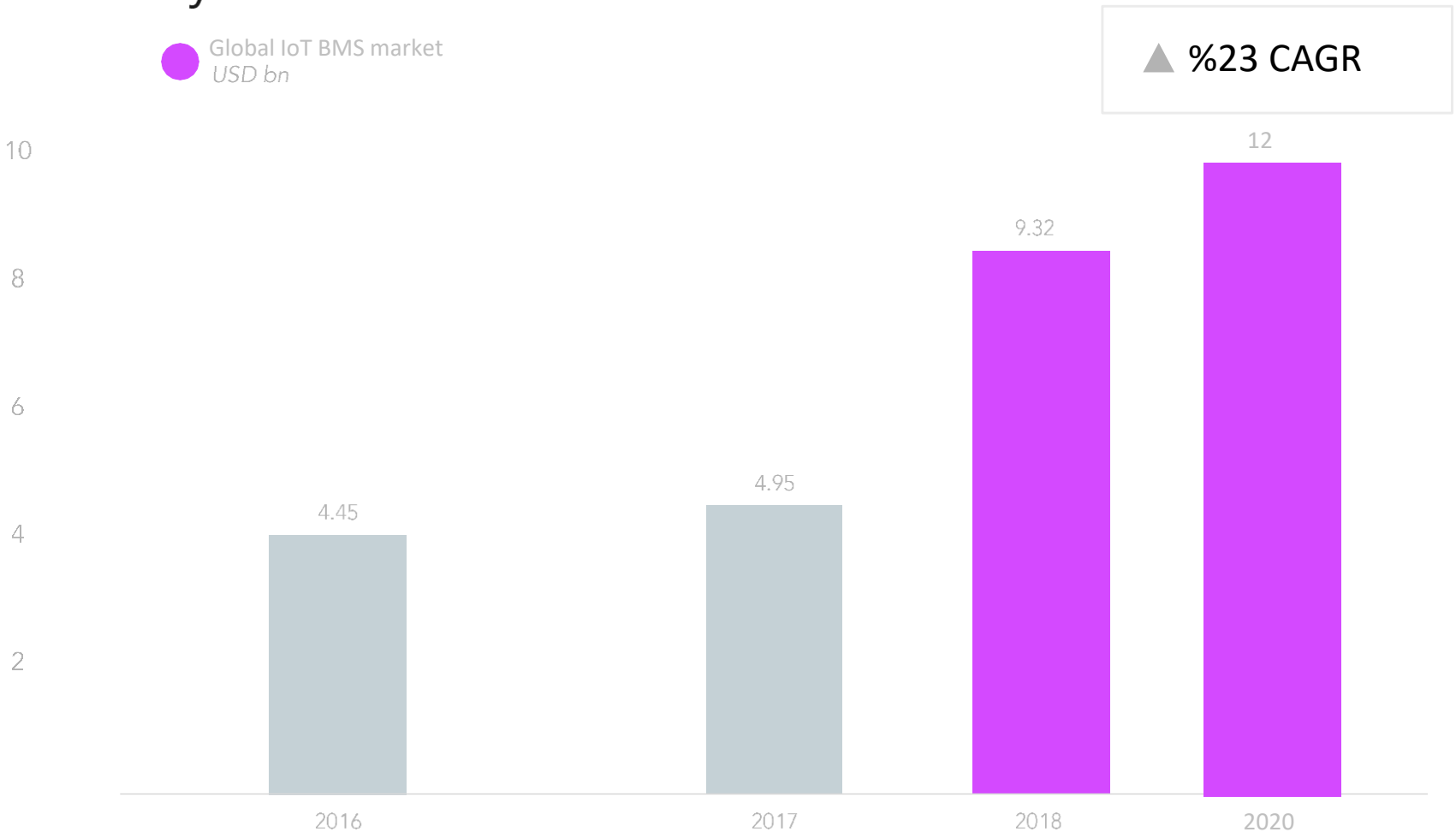
Predictive analysis of time series data pre-empts possible spikes through sudden energy consumption increase.

We create a fully-automated energy management system based on cutting-edge **artificial intelligence** and **data analytics software frameworks.**

(1) Own research – based on case studies

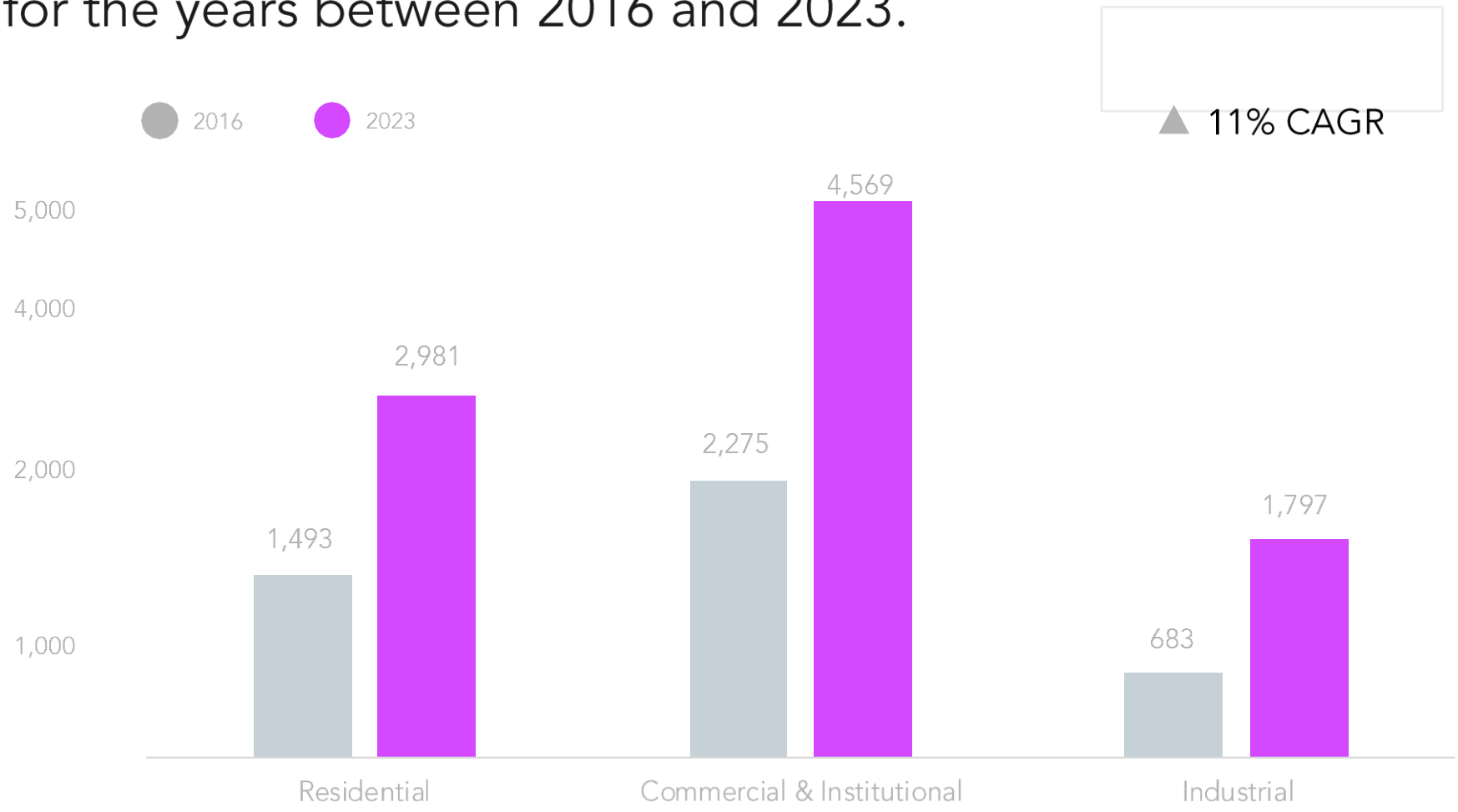
THE MARKET

With a CAGR of %23 in IoT BMS business and a rapidly growth for the next 5 years mainly driven by regulatory incentives, new commercial building construction and industry focus.



Source: Statista Research

The Commercial & Institutional sector is the strongest current and future global demand driver for BEMS with a 10% CAGR for the years between 2016 and 2023.



Source: Statista Research

Target Customer Profile

Commercial Buildings

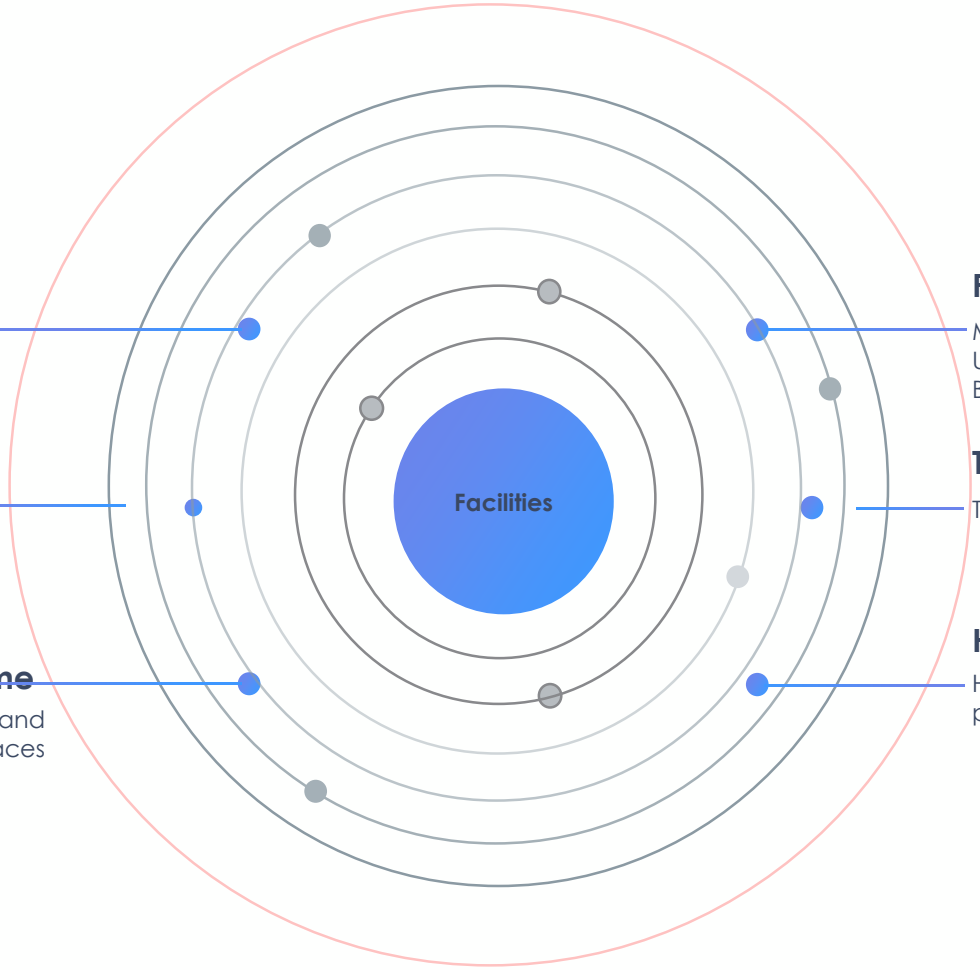
Retail chains, Supermarkets & Restourant chains, Office buildings, Hotels, Shoping Malls

Industrial Buildings

Factories, Wharehouses, Construction sites

Maritime

Shipping ports, Docking and Container wharehouse spaces



Public Buildings

Municipalities, Schools, Universities, Goverment Buildings

Transportation

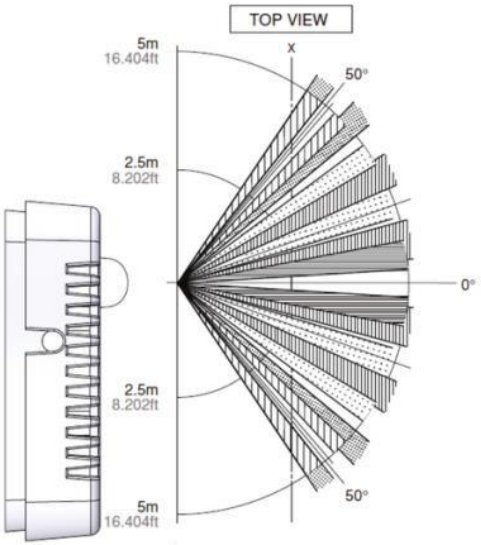
Train and Bus stations, Airports

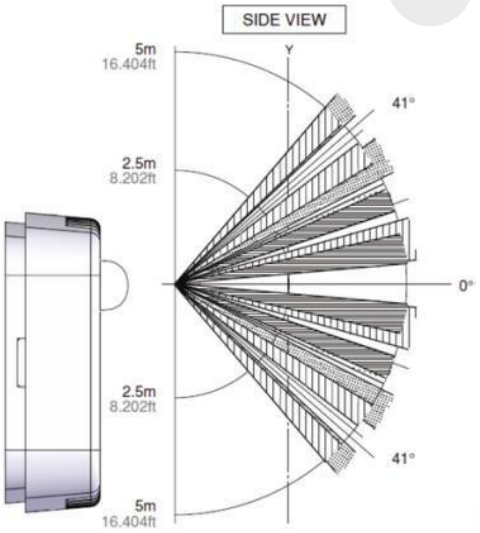
Healthcare Facilities

Hospitals, Senior care facilities, policlinics

Product & Services

The Product specs[1]





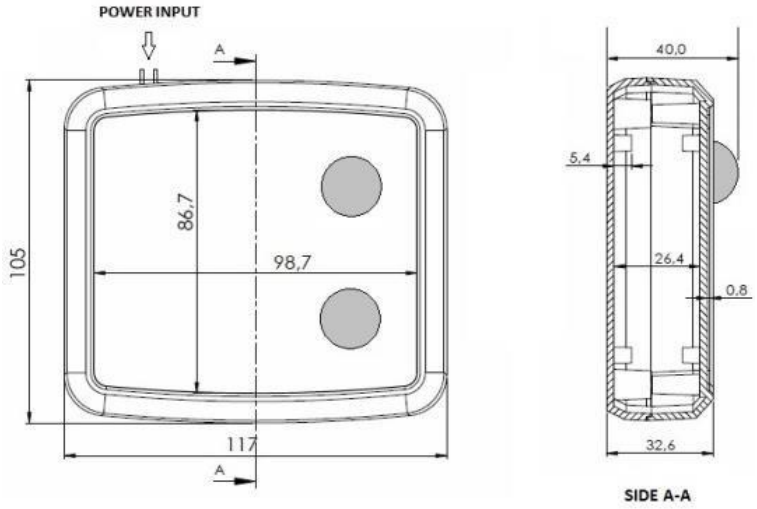
Battery operated with 2 year life-time

1

The infra-red sensor measures the surrounding area to up to 50 degrees and has a distance reach of over 5 meters

2

The sensor in itself which measures 105 mm in height and 117 mm in width, fits easily into a pocket



(1) See Appendix for technical details

The Bead sensor prototype measures all major variables through infra-red technology.

Operating range -40˚C to +125˚C

Light range 0.1 – 40k+ Lux

Pressure range 50kPA – 115kPa

Humidity range 0 – 100 RH

LORA

Wifi

Connection

Heat

Humidity

CO2

Light

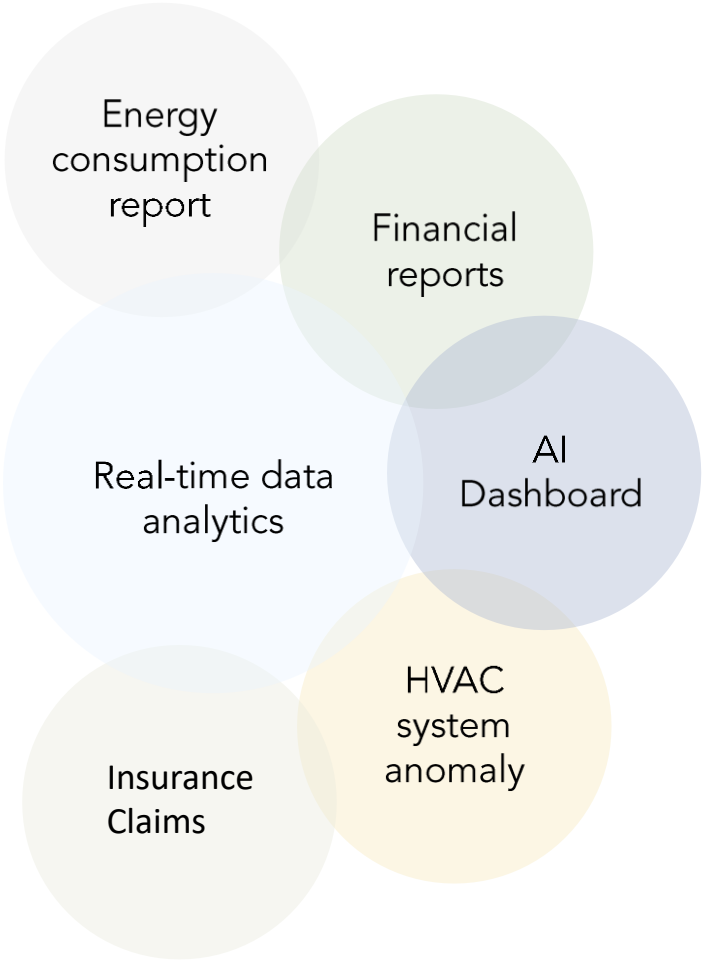
Pressure

Infra-red sensor

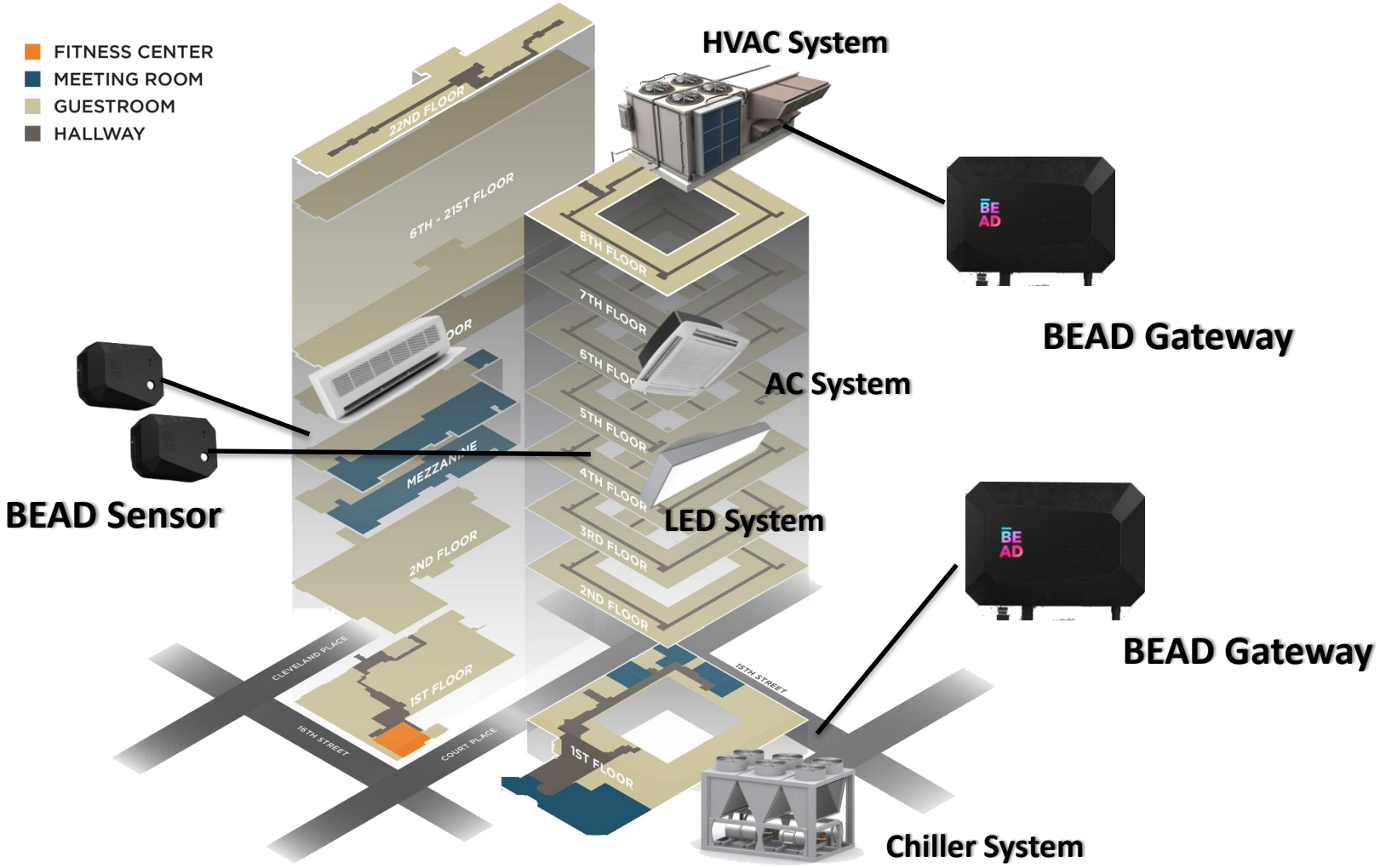
Analytics

Bead sensors use AI and machine learning to provide real-time data input to a dashboard with pattern analysis and trends.

- Indoor/outdoor temperature changes
- Indoor air quality management
- Energy profile assessment
- Financial expense analysis
- Occupancy trend analyis
- Multiple facilities comparison



How BEAD Works?



BEAD Integrated SYSTEM

"Patented AI and analytics platform which analyzes data in real-time from BEAD hardware"

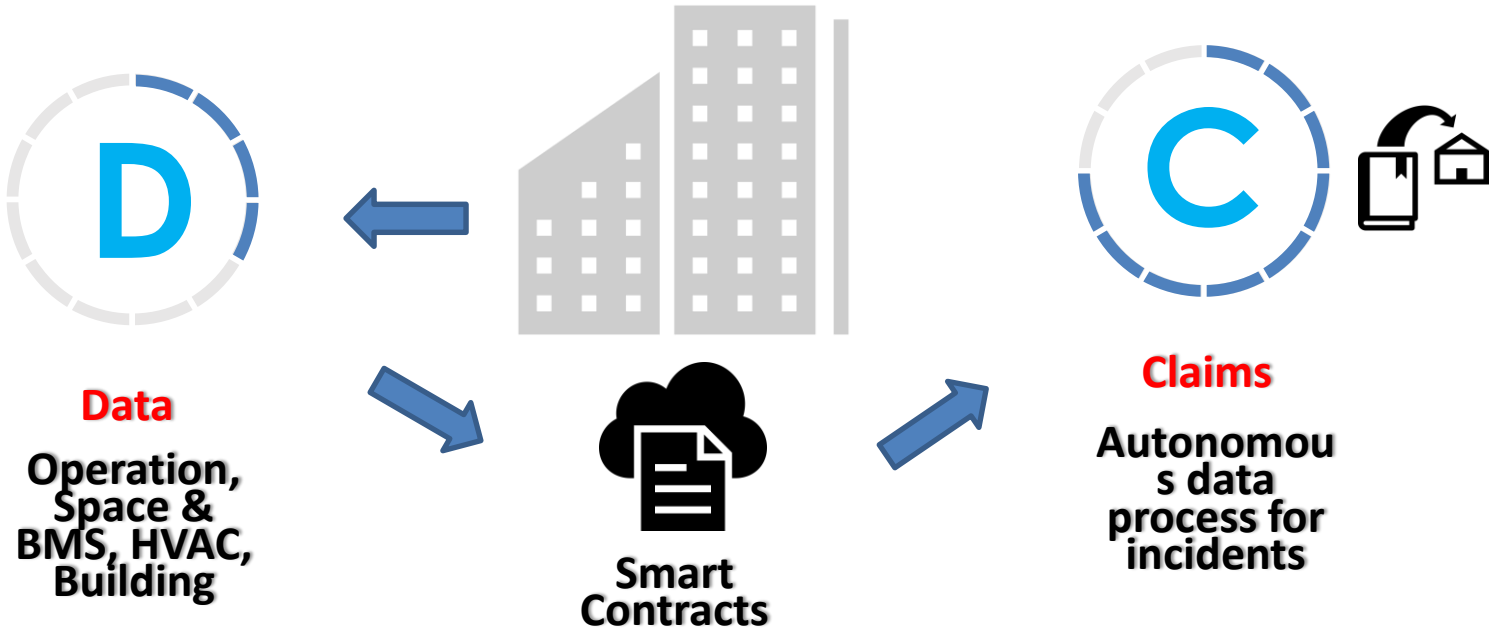
A **Analyse**

L **Learn**

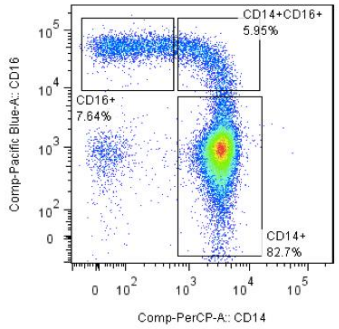
O **Operate**

ACTIVE ADAPTIVE DYNAMIC

CLAIMS PROCESS

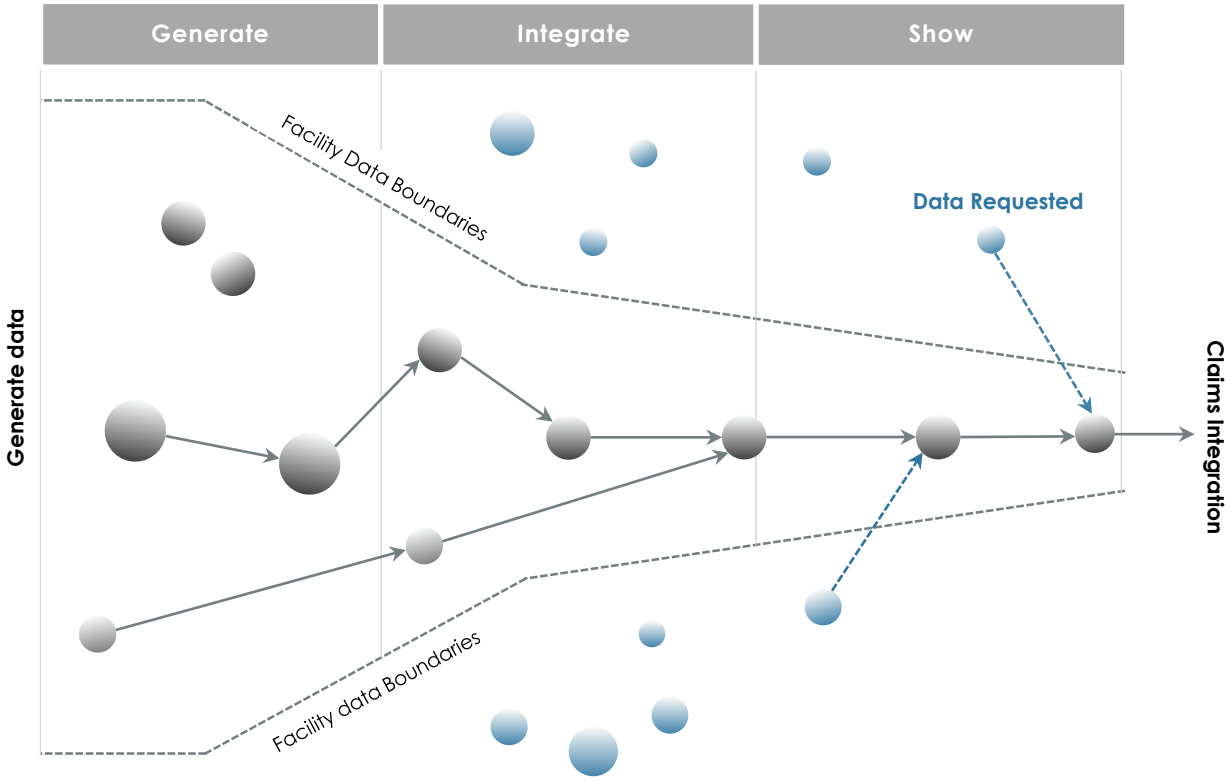


Occupancy Flow Analysis



Occupancy flow direction, for reducing RISKS in your building

BEAData Innovation



BEAData gives insurers Access to real-time, actionable, and observable data on assets in building's and facilitie's risk of loss.

This data is directly actionable to integrate into the claims process and for risk pricing and mitigation.

Our Data Mix

Data 1 – System & Machines

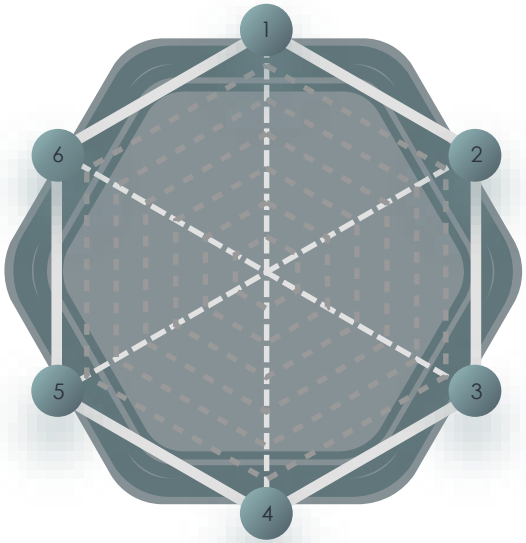
Real-time information about the working status of HVAC, BMS, Boiler, Lighting, fridges, Generator, UPS, Machines

Data 2 – Human & Space

Real-time information on usage trends, human behavior, occupancy patterns, space usage patterns in different zones of the facilities

Data 3 - Enviorement

Real-time information about indoor circumstances regarding Temperature, humidity, lighting levels, CO2, VOC, Air-pressure, energy consumption, water leakage



Data 4 - Alarms & Logs

Logs and alarms about anomalies in facilities and the relation of usage trends to those alarms.

Data 5 - Blockchain

Integration the whole data process into smart contracts and creating a decentralized structure for claims.

Data 6 - API

The data BEAD creates can be used and integrated into different analytics platform in order to optimize data analytics.

Strategy

BEAD creates a data which was not there before. That data is created from inside of buildings without interfering privacy of the people. That data is the data of the building which shows us how the real day-cycle of the building changes during the day according to human behavior.

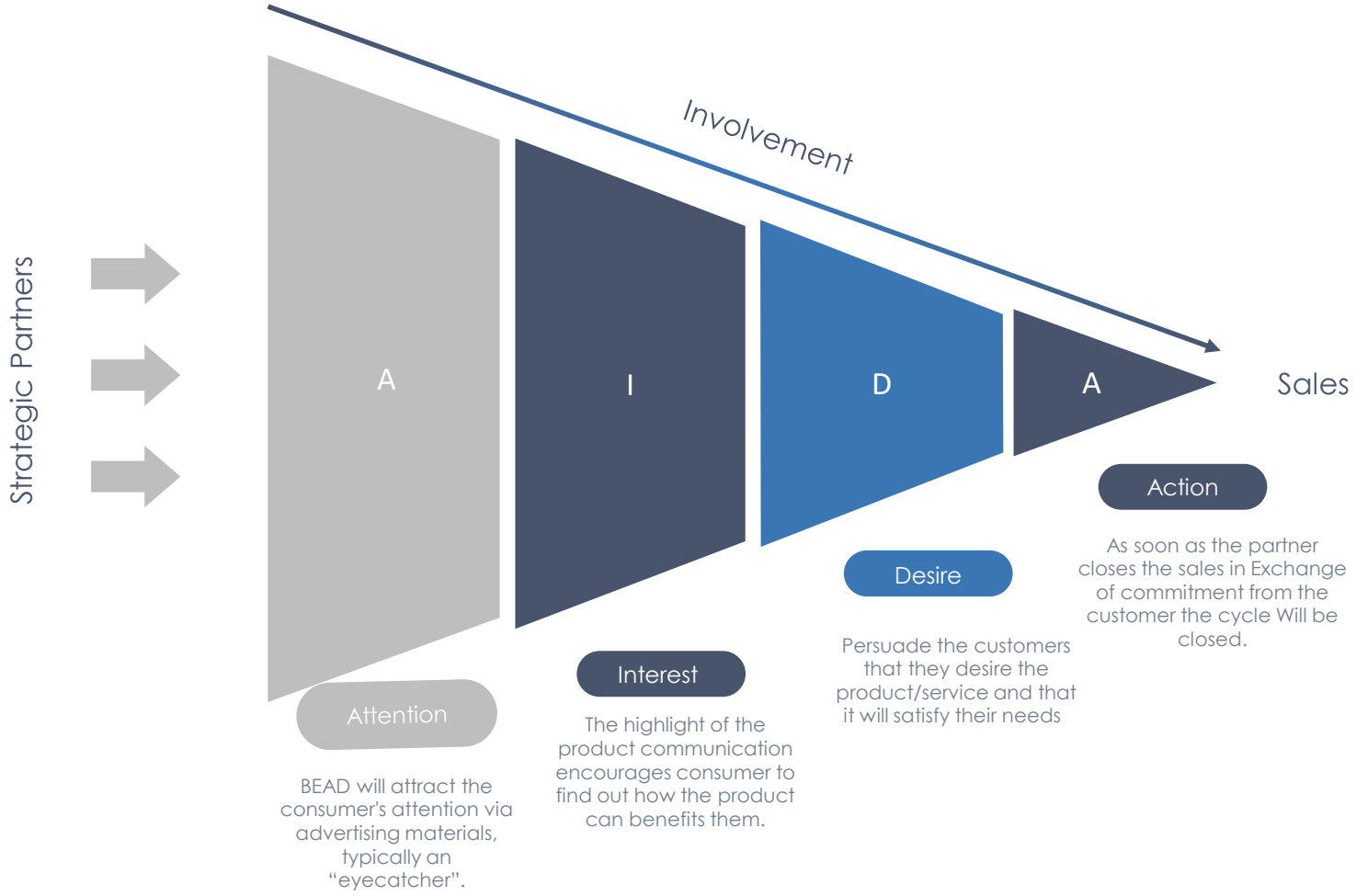
That data can be used for optimizing

- Public transport
- Marketing strategies
- Operations
- Energy Management
- Indoor comfort levels
- Lighting levels
- Investments on Renewable energy
- Security and Rescue
- Predictive maintenance
- Sustainable future goals

BEAD is not just reporting and energy management tool. It is your one-stop solution for digitizing your buildings.

Go-to Market Strategy

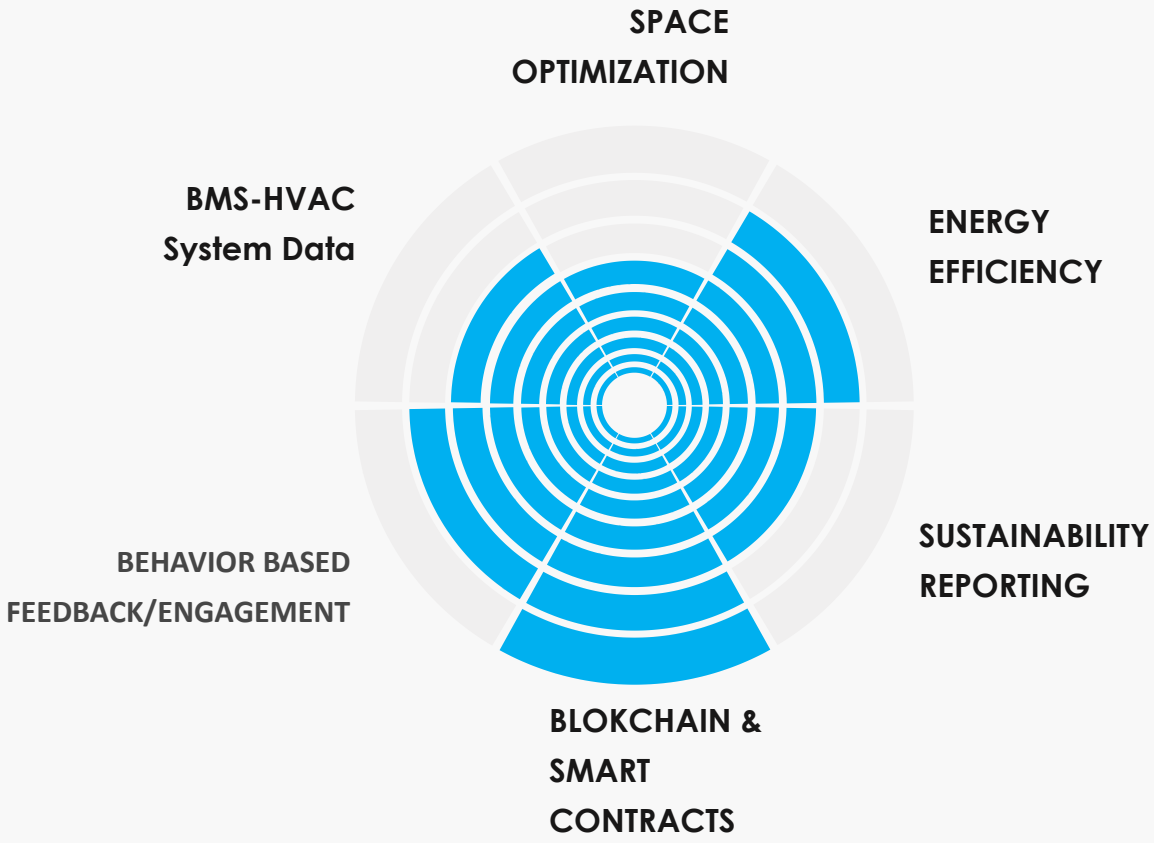
In order to reach out to more customers and scale faster, we are partnering with Insurance,Telecom, Facility Management, HVAC manufacturers, ESCO companies and Energy Utilities. BEAD is becoming their partner at Proptech with its AI Technology so that they can offer their clients new solutions instead of doing discounts.



BEAData is the data source from digital buildings to different verticals and sectors İn Real-Estate Industry

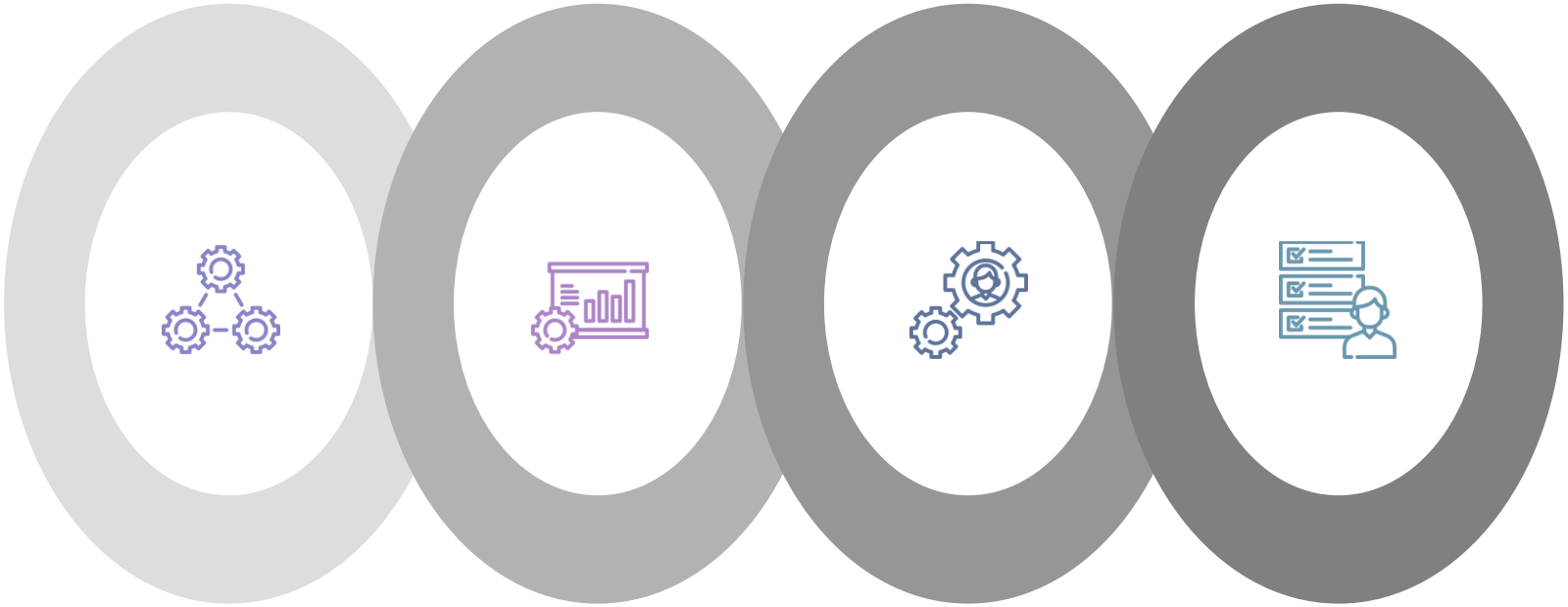
1 System

6 Solution



Whom We Serve & Partner With

By creating Real-Time data from Real-Estate and Properties we provide insides to the following Industries.



FM

Facilities Management
HVAC/BMS
Maintenance

Insurance

Insurance Carriers
Agents
Consultance Companies

Energy

Energy Utilities
Energy Contracting
Energy Monitoring&Analysis Companies

Analytics

Data Analytics
Data Platforms
Data Analysis companeis

We are focusing on B2B customers with operations in highly dynamic building environments. The BEAD software creates a digital twin of the building to understand control patterns and system trends.

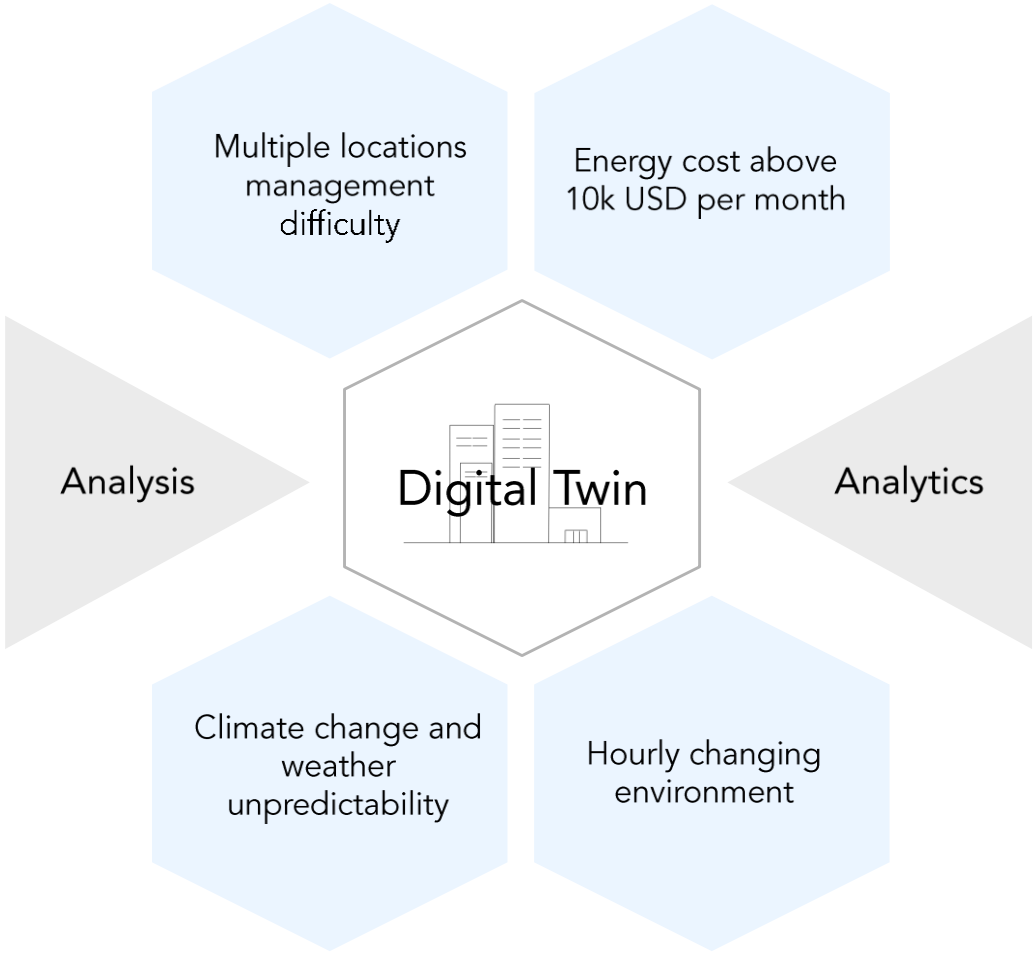
Daily use-cycle

User behavior

Occupant behavior and comfort

Automated controlling and reporting

Around-the-clock Intelligent Virtual Energy Agent (IVEA)



Bead combines Artificial Intelligence algorithms and real-time sensor feedback to achieve energy optimization

Data gathered in buildings are analyzed and provided through Blockchain and Smart Contracts for use in different verticals

Bead goes beyond energy consumption optimization and provides intelligent insights and fully-automated responses to a buildings problem

THE FUTURE OF BEAD

BEAD is creating data from buildings which was not known before. That data shows how the real life is changing in buildings. That is very important because we spend 90% of our lives inside buildings. The data which is produced by BEAD will be integrated to Smart City Applications like smart Transportation, Operational optimization, Marketing for Municipalities.

Marketing Strategy

Marketing is not only important for cooperates but also for Municipalities.

With BEAD data the municipalities will have the opportunity to see how the people flow is in Libraries, Museums, Schools or Social places. They can develop strategies for better understanding the needs of people.

Public Transport

With the occupancy data Of BEAD taxi drivers, UBER drivers or even Driverless cars will have The opportunity to see which part of the city is more occupied so that they can be linked to the most crowded part of the city.
That will help to save energy but also reduce CO2 emissions and optimize public transport.

Use case scenarios and fields of applications include the analysis of behavioral patterns to improve customer experience and create financial and operational efficiencies for building owners.

BE AD

Marketing

Optimizing usage of building through analysis of indoor circumstances on customers e.g. lighting, heating, ventilation

Optimizing hourly marketing strategies through real-time trend-analysis of location data

Optimizing rental fees of isles

Optimizing location strategies based on real-time weather data

Optimizing density and occupancy trends

Finance & Investment

Optimizing financial strategy through occupancy analysis

Optimizing budget allocation by pre-empting any potential problem in HVAC equipment

Optimizing energy expenses through analysis of peak energy consumption time slots

Optimizing expenses through reduction in overhead

Security

Location applications for security systems include Airports, Tradeshows, Train Stations, Governmental buildings, Museums, Justice Halls

Providing real-time snapshots for Search&Rescue missions

Optimizing insurance fees through risk reduction

Renewables & Energy Storage

Optimizing the renewable energy profile through weather pattern analysis

Optimizing stored energy for use at best time and location to offset peak energy consumption

Smart Cities & Smart Grid

Optimizing peak energy demand time through buildings' energy consumption forecasts

Optimizing public transportation and traffic through real-time transport scheduling based on buildings' occupancy

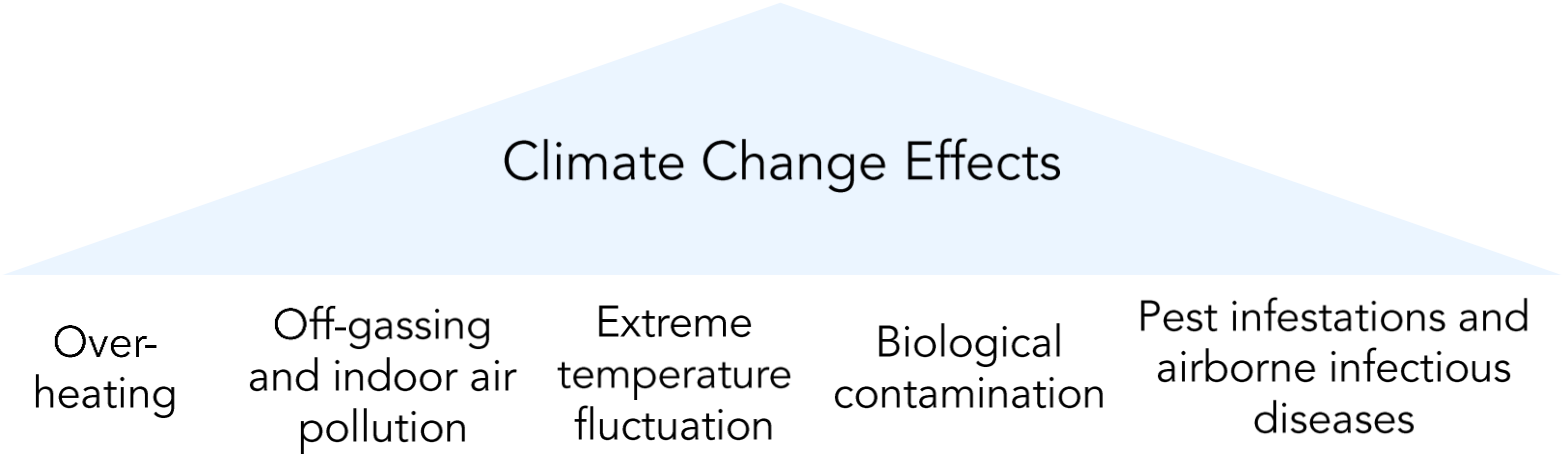
Optimizing routing of mobile charging stations based on traffic congestion

Bead automates the control of large-spaced habitat to increase the overall well-being of inhabitants and prevent physical and mental stress factors.

90% of people in high-income countries spent their time in buildings

45% energy saved through keeping low temperatures in buildings

15% increase in productivity at work if indoor climate is healthy in European countries



Source: European Commission Research

Channel partners provide direct scaling opportunities through seamless integration into Bead's sales process.

BEAD

Leisure

hotels, public houses, restaurants, cafes, sports facilities

Retail

retail stores, shopping malls, shops

Office

office buildings, serviced offices

Industrial

Industrial property, office warehouses, garages, distribution centers

Healthcare

Medical centers, hospitals, nursing homes

Channel Partners

Product integration

Web integration

Sales integration

Sample POC: Audi HQ Ingolstadt, Germany

Audi - Problem

- Headquarters build in 2011 according to best-in-class architectural design standards including a smart building automation system
- Futuristic architecture with large-size floor spaces and green land areas built to enable communication and exchange among employees and guests
- Multi-storey open space with high daylight penetration and round roof openings
- Different departements are interconnected in continous spacing with direct accessiblity by cars which can be further ramped and lifted on all levels of the building including the roof
- Building has no intelligence about how building is used throughout the day

Sample POC: Audi HQ Ingolstadt, Germany

Audi - Results (E)

- Installed BEAD sensors which are tracking occupancy, indoor temperature and ventilation levels and trends
- Learning buildings' life cycle and usage throughout the day
- Facility managers of the building can track indoor comfort and CO2 levels
- BEAD system integration will be reported in the Audi sustainability program
- The System Will be used as Space Optimization, meeting room optimization and intagration of differnt BMS systems to one dashboard

Pricing

BUSINESS MODEL

1 Basic

- $ 0.15/ ft2-Month
- 500 ft2 one BEAD
- 36-60 Months

2 Enterprise

- Special offer according to the project size and number of the buildings
- Dedicated account manager.

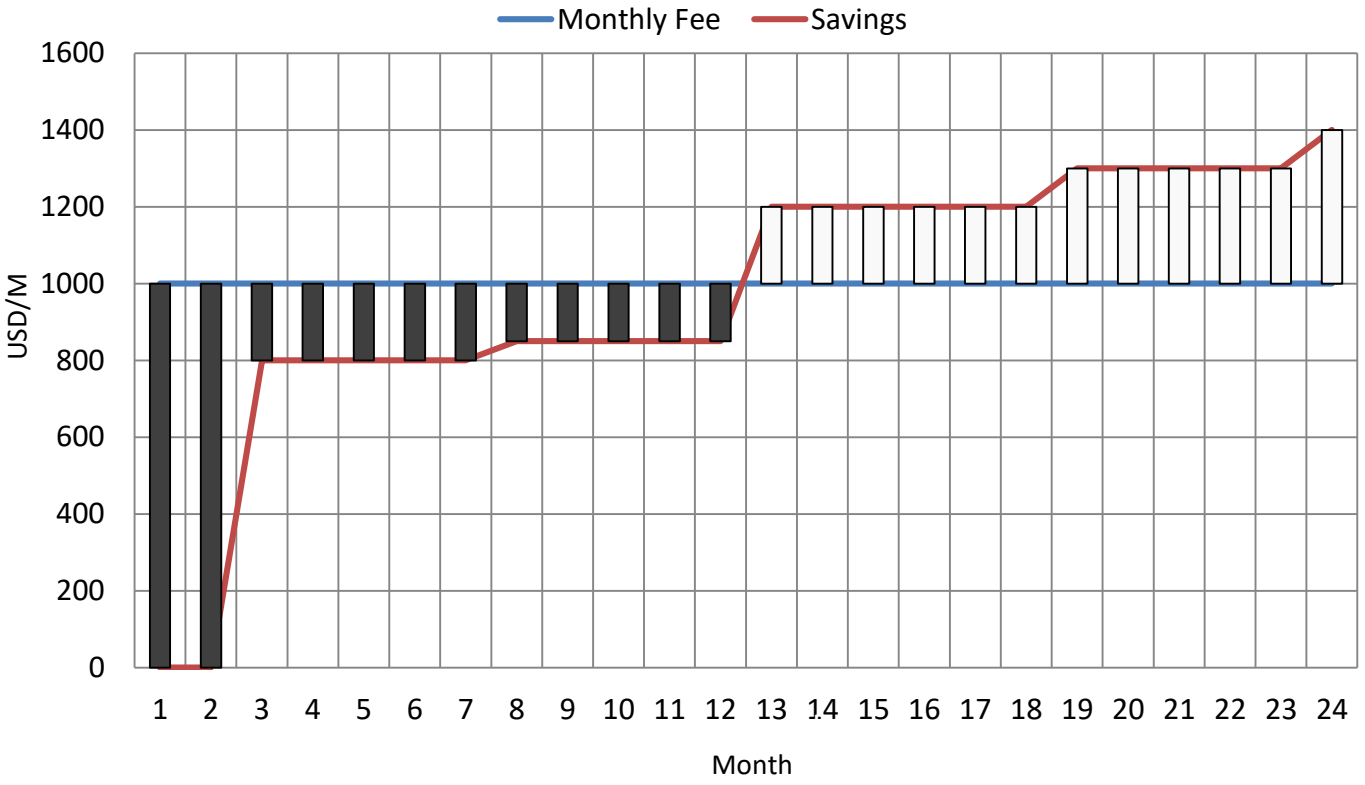
* First year Payments based on annual upfront payment/ Minimum contract duration is 1 year
** For a bigger size building please refer to Enterprise model

Sample RoI for an Office Building

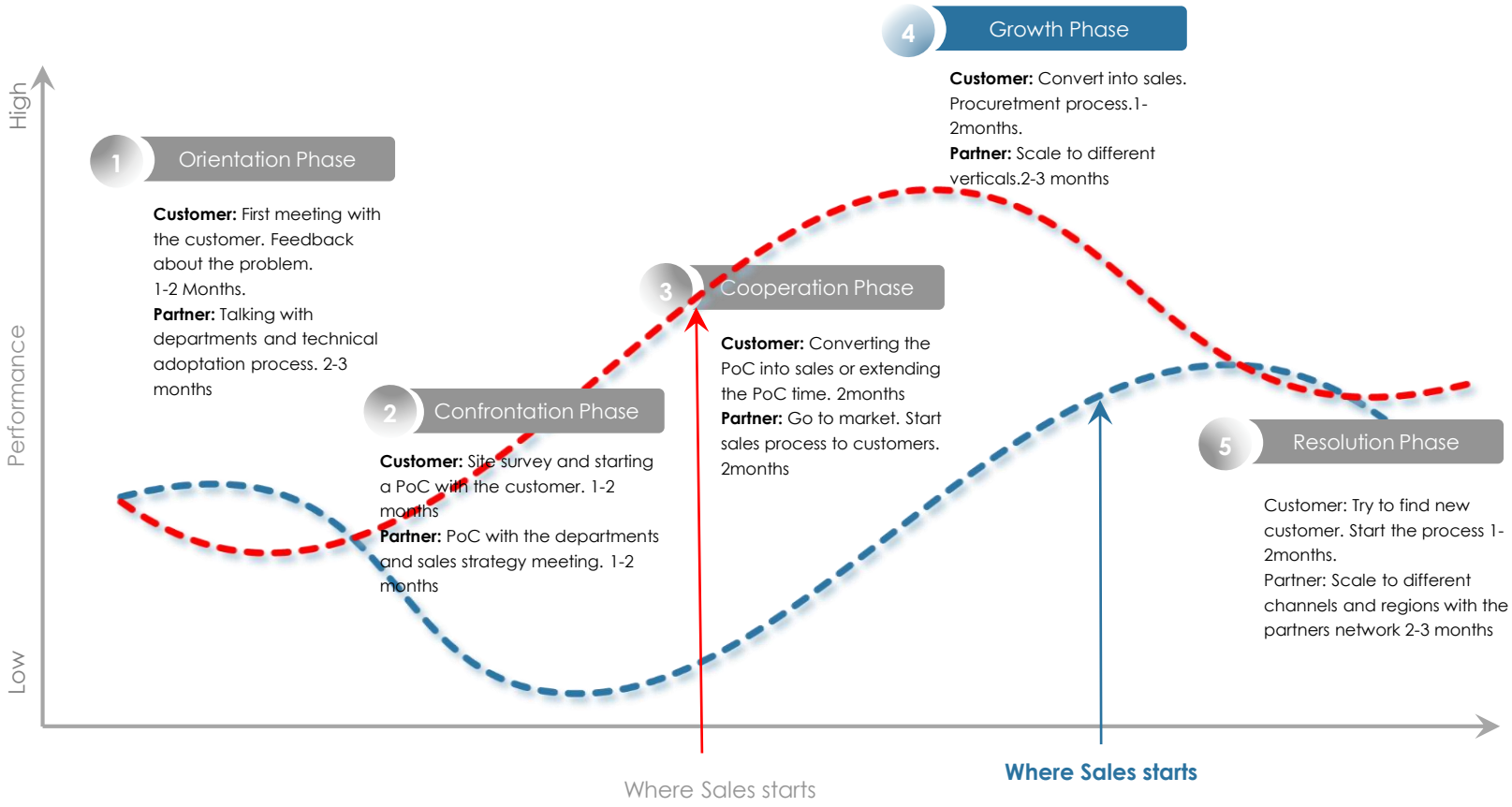
BEAD creates savings of 10% to 35% by optimizing B.M.S systems, Operations and Energy Management.
BEAD provides active, adaptive, and dynamic monitoring and controlling of building systems.

Office Building
10k ft2
10 BEADs
Annual USD 100k
Energy and Maintenance costs

Savings %15
Annual Subscription Fee USD 12k
Annual Savings first year USD 15k



Direct Sales vs Channel Partner Sales Cycle



Team

TEAM

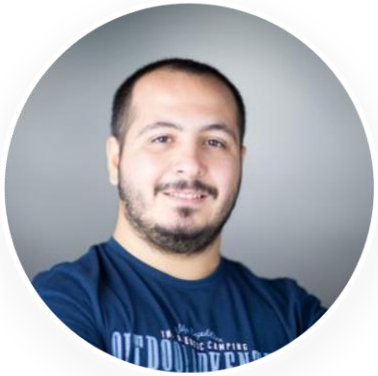
Over 30 years experience in Enterprise solutions, Building technologies and Machine Learning System
10 FTE in R&D and Operations team

Soner HACI

CEO / Co-founder
15+ years experience in Building Technologies (Siemens, e-on)
BSc Computer Eng, MBA

SIEMENS

e·on



Hay ERTURK

CTO / Co-founder
10+ years experience in Machine Learning and IoT technologies, (Bosh, BBVA)
MSc in control engineering

BOSCH

BBVA

A seasoned team of experienced investment bankers, lawyers and technologists provide advise on product and business scaling.

Bernhard Raberger
Business Development/Strategy
(Former CFO e-on, Verbund)

Rumman Chowdhury

Advisor
Technology
Accenture AI

Sean Percival
Advisor
Growth
Katapult Accelerator

Rajan Kasetty

Technology & Business Development

Awards & Partnerships

International awards and recognitions for Bead's sensor technology.

DISRUPTOR DAILY

«Best IoT Cleantech company to watch» 2017

ACCELERATE2030 Scaling Impact Globally

2017 BUSINESSGROWTH AWARDS Best Cyber Security Firm - 2017

«Business Growth Award Energy» 2017

المجلس الأعلى للطاقة Supreme Council of Energy

«Emirates Energy Award» 2017

White Bull

«Bully Awards Barcelona» 2017

European Utility Week

«Best International Project EUW Barcelona» 2016

CorporateLiveWire GLOBAL AWARDS 2016

«Innovation & Excellence Award» 2016

ATKearney

«Inovalig Award» 2016

GCIP Global Cleantech Innovation Programme

«United Nations GCIP Cleantech» 2016

İSO İSTANBUL SANAYİ ODASI

2019 Best Innovation

Our research and channel partners include best-in-class technology institutions and firms in the private and public sector.

Research Partners

Fraunhofer

Fraunhofer Institute Munich, 2018

Schneider Electric

Technical Research Partnership, 2017

UNIDO

Industrial Development Organization, 2017

Channel Partners

alfanar

Saudi Arabia-based conglomerate in construction and energy

CAT5 CONTRACTING GENERAL CONTRACTORS

Serbia-based construction company

denkstatt ENERGIE

Austria-based energy services company

Bead received a total angel investment of 320k USD by the Nordic Impact Investment, the VC arm of Katapult and participates at the Hubraum Accelerator Program of Deutsche Telekom.

Katapult Accelerator

September 2017

hub:raum

powered by Deutsche Telekom

June 2018

BEAD is now becoming Strategic Partner of well known Building Technologies companies and Telekom Companies. Basically BEAD will provide its IoT and AI solution to those traditional companies in order to scale with their existing customer portfolio and beyond.

Schneider Electric

July 2018

Deutsche Telekom

Sept. 2018

As of 2019 BEAD has been established in the US and partnering with Plug&Play, Nassau Re and Upward Labs in order to expand in the US market

PLUG AND PLAY

UPWARD LABS
IDEAS START HERE

NASSAU RE

Installed 30 BEAD Sensors and system in 4 Buildings in 2019

The target is to activate 10.000 BEAD by the end of October 2020

The buildings are in
Connecticut
Boston
Ohio
New York
San Francisco (2020 June)

STRATEGIC CHANNEL PARTNERS

In order to reach out more customers and scale faster we partner with Insurance, Telecom, Facility Management, HVAC manufacturers, ESCO companies and Energy Utilities.

3800 BEADs in 170 Buildings

Bank & Insurance

Hospitality & Office

Retail & Industry

Municipality

Roadmap

Market entrance strategies are driven by regulatory focus on climate change and commercial buildings

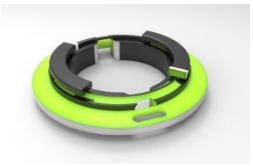
Bead sensors are built based on international design and technical standards open for 3rd party API.

BEAD
Smart Sensor

BEAD
Smart City

BEAD
Smart Living

BEAD
Smart Integration



BEAD Data

2018

- BEAD Wi-Fi
- BEAD LoRA
- BEAD Battery
- BEAD AI GW

2018

- BEAD B2C Prototype
- BEAD Mobile App
- Big Data Analytics Platform
- BEAD LoRA Network

2019

- BEAD Meeting Room Module
- BEAD Connected Buildings Feature

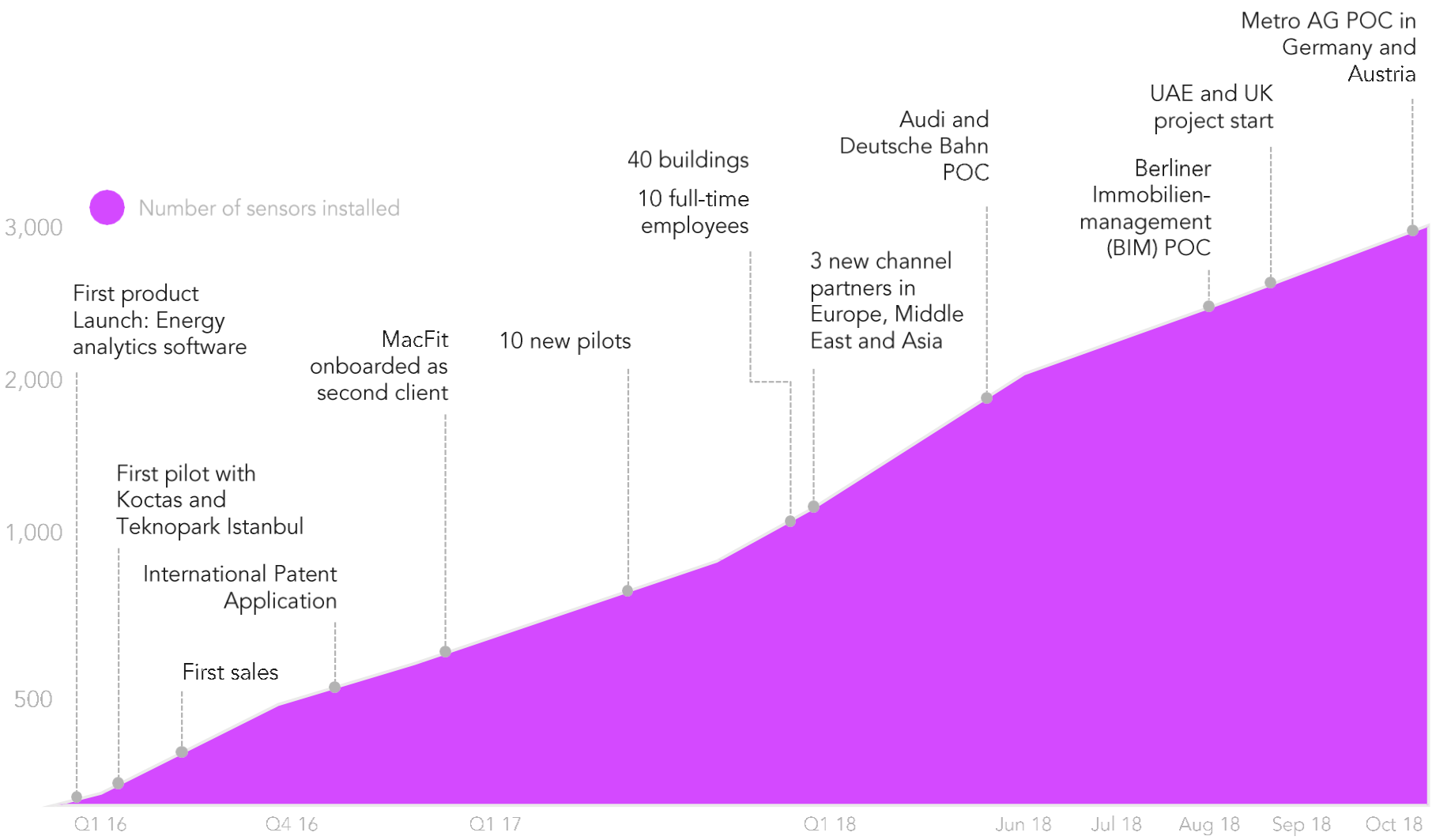
2019

- Insurance Platform
- Smart Transportation Integration
- Data Trading Platform

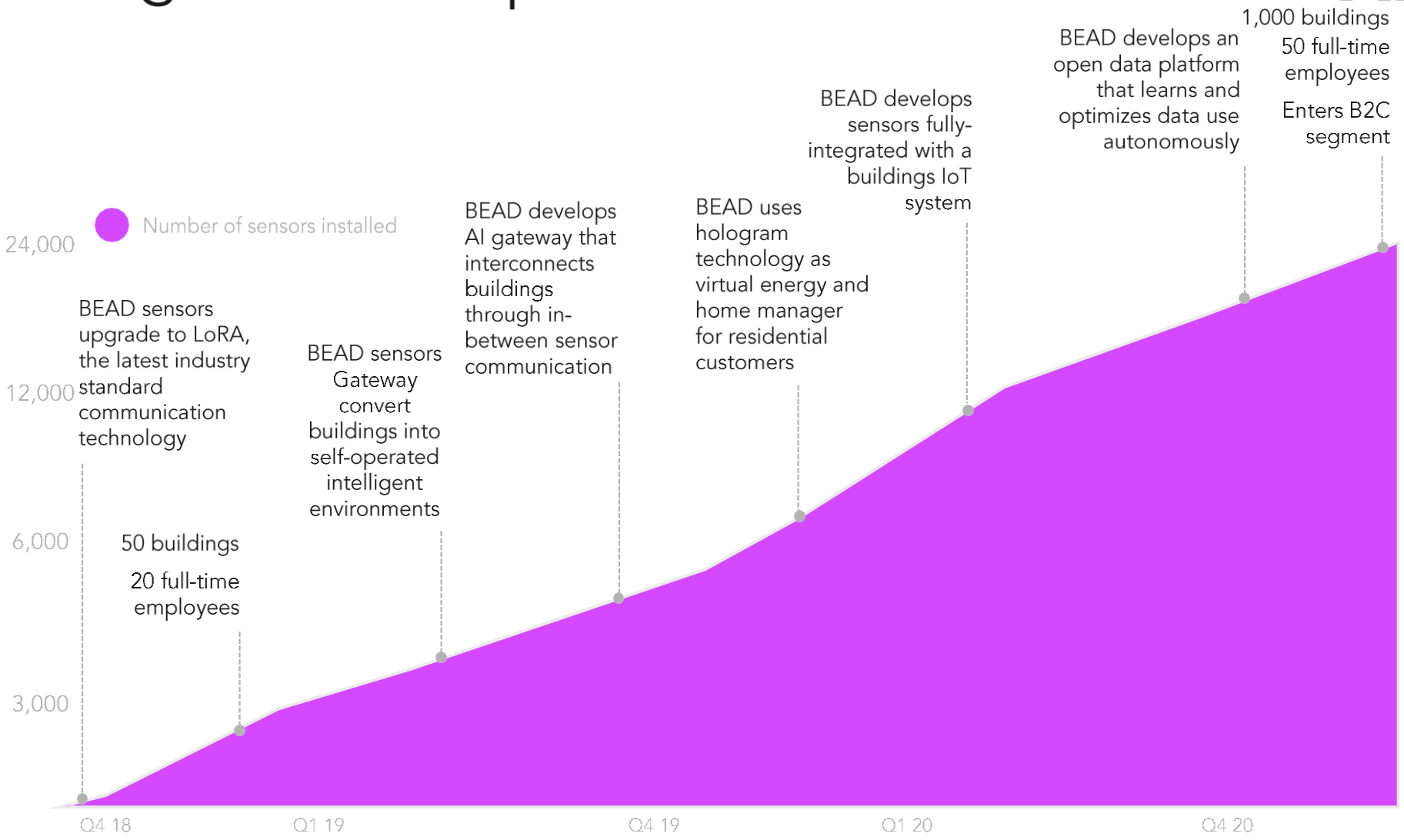
2020

BEAD as The data source for different Verticals and Industries

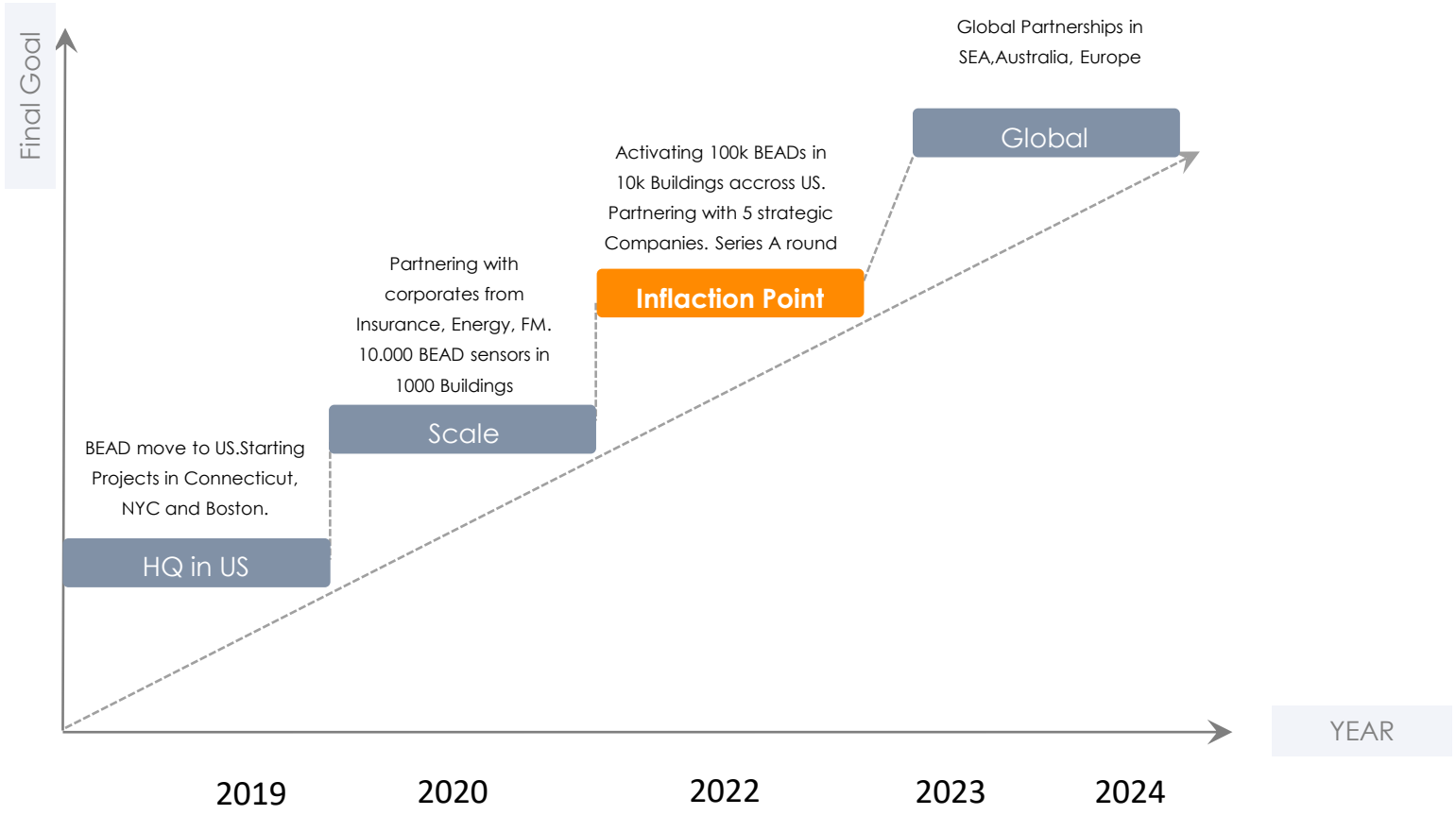
BEAD KPIs



Progress in Perspective



Roadmap Perspective



Competition

By opening BEAD Data to different verticals our competitors are becoming BEAD partners

	Traditional Competitors who become Partners	Vertical
	SIEMENS Honeywell enlighted	BuildingIQ, lucid, EcoFactor, VERDIGRIS, ecova, C3
Solution integration focus	**Hardware**	**Software/limited hardware**
Pricing	**High**	**Low**
Defensibility	**Low** via costly branding only	**High** added value & high switching costs

Bead Technologies' unique value proposition combines software and AI features of its competitors with its patented hardware sensor technology.

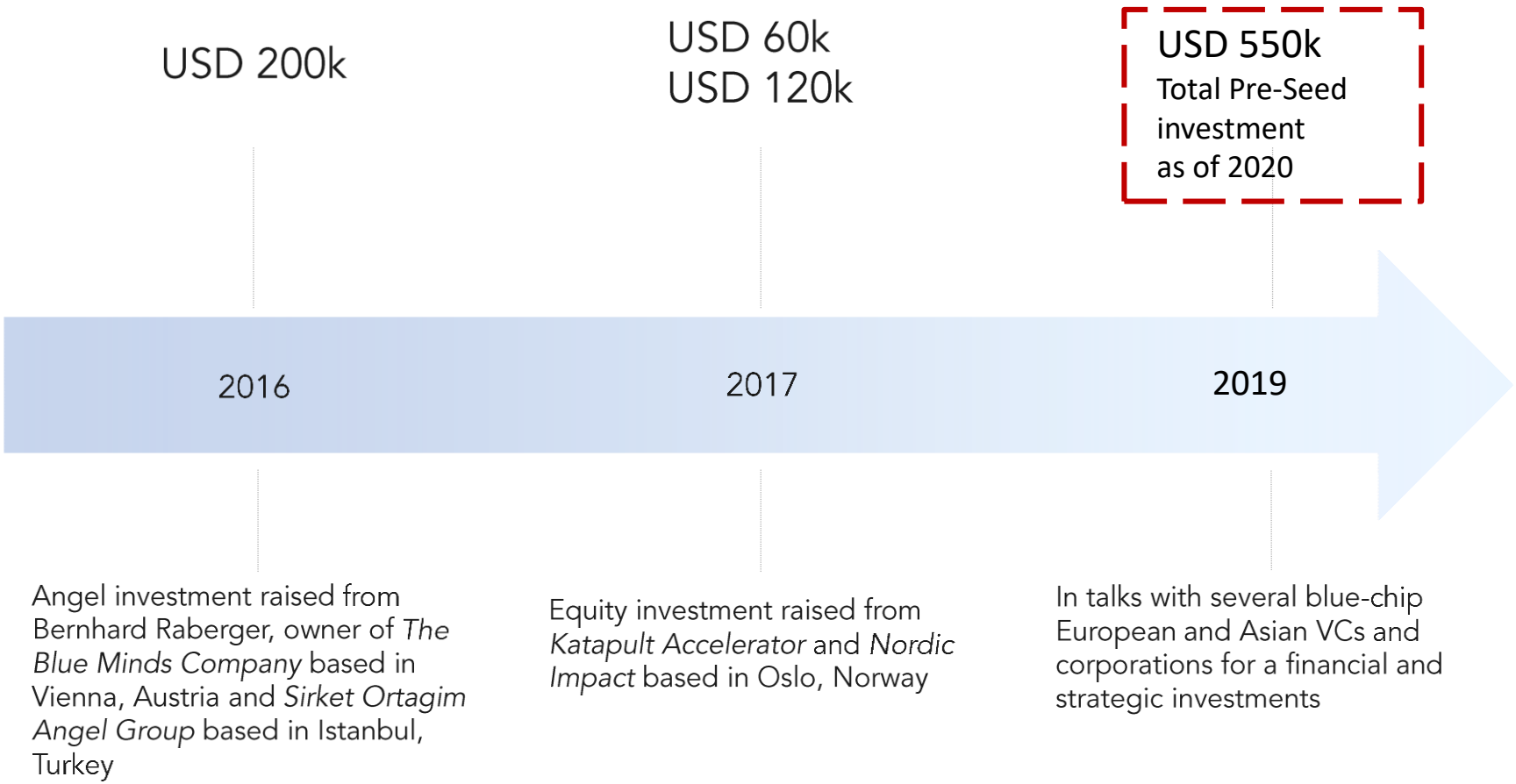
B E A D

TECHNOLOGIES

The combination of AI, Big Data and smart sensors provide a unique competitive advantage in the market for commercial buildings automation systems.

Financials & Valuation

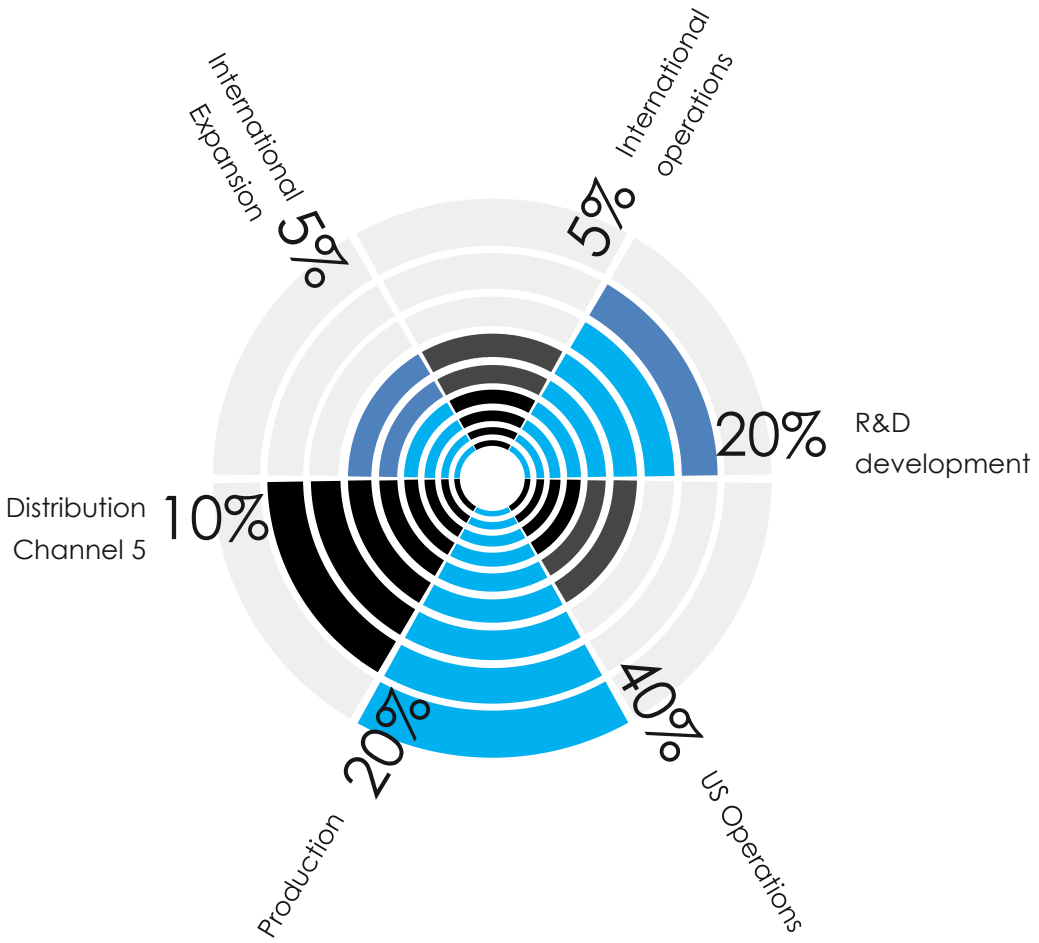
Initial investment led to successful and robust MVP launchin target market through POC stage.



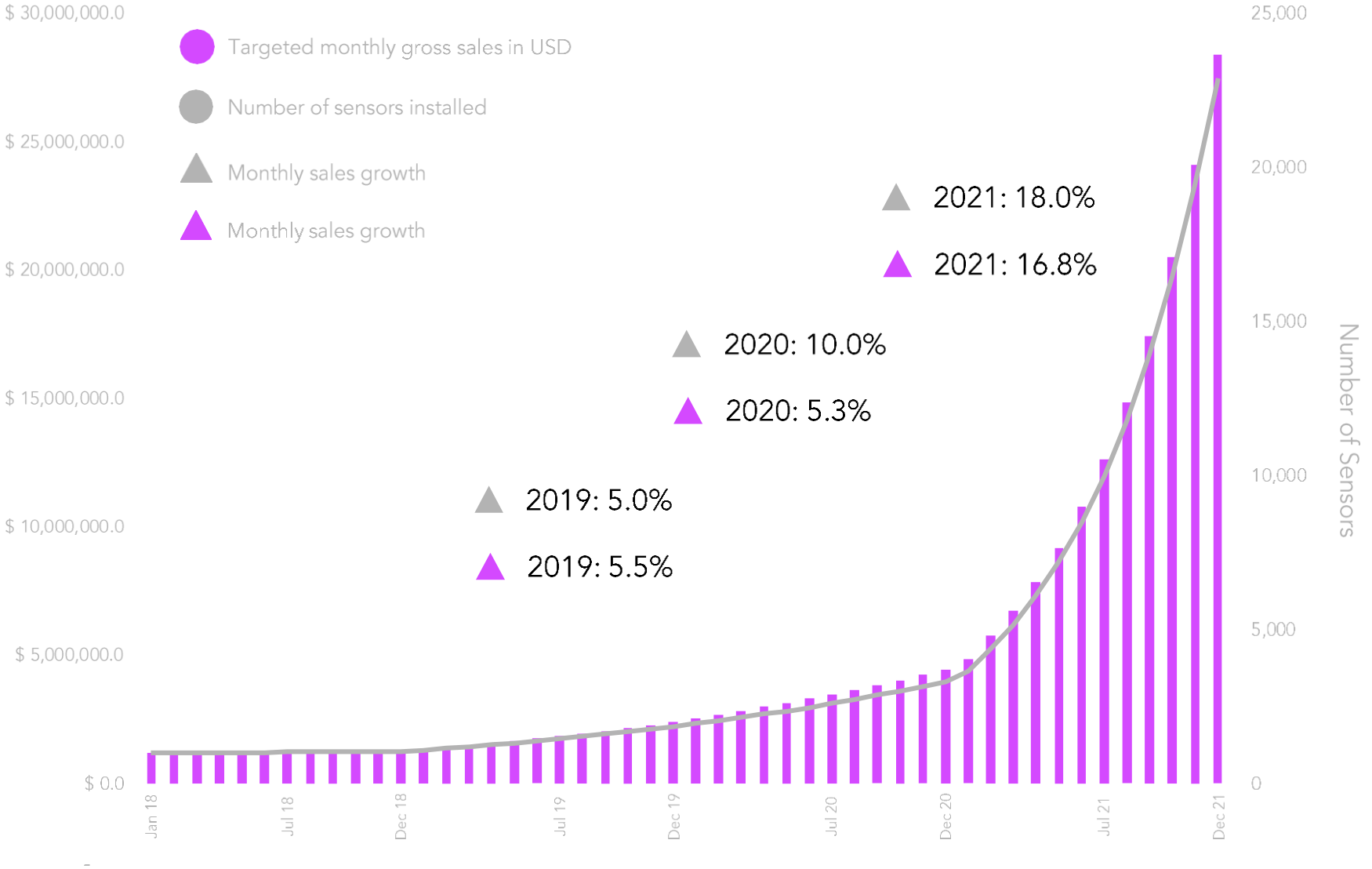
Investment

USD 1.5m

Convertable Note
USD 10m CAP



Seed investment ensures topline growth acceleration in 2021 due to robust sensor demand, streamlined sensor production and rising revenue per customer.



Appendix

Bead sensors use latest technology and international industry communication standards for integration into buildings' automation systems.

Supported Protocols

KNX
LonWorks
BACnet
OPC
Modbus
TCP/IP
Pulse
ODBC
CSV
DDE
SQL
HTTP

Security Protocol

HTTPS (Port 443)

3rd Party Application Integration

RESTful API

IoT Platform Support

Data ETL Tools

Gateway

Bead Protocol

Safety Compliance

EN 60950
EN 60730

BEAD SOFTWARE

Cloud Based Analysis Software

- Adaptive, Active Controlling system of HVAC-BMS
- Analysis of Occupancy patterns and zones
- Analysis of Occupancy flow direction
- Adaptive controlling of AC and refrigerators
- Real-Time analysis of different energy consumption points.
- Analysis of indoor circumstances (Temperature,humidty,CO2, VOC, lighting level, airpressure)
- Space optimization analysis (meeting rooms, tables, Office space)
- Real-time work analysis of devices in the building (Boilers, ventilation systems, UPS, Generators, heat-pumps, lighting systems)
- Alarms,notifications, remote controlling and logs for mentainance.

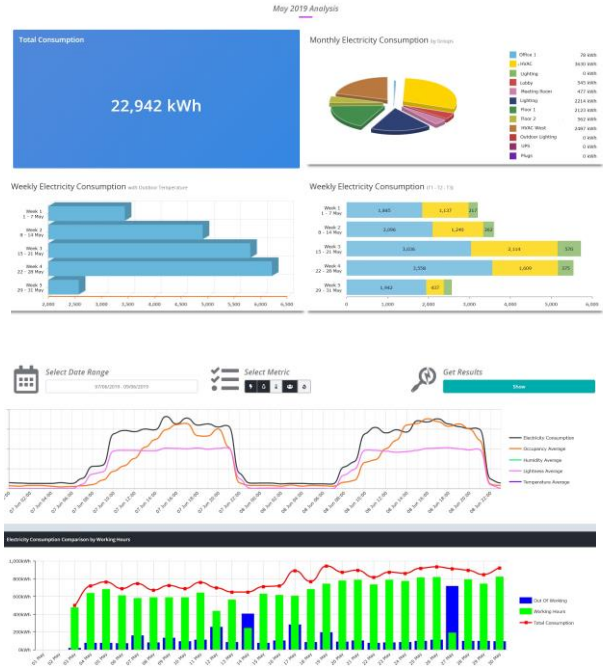
Outputs

- ✓ Digital model of the day-cycle of the building.
- ✓ Occupancy flow direction and patterns from different zones of the building
- ✓ Analysis of energy consumptions vs occupancy
- ✓ Analysis of indoor circumstances vs occupancy
- ✓ Analysis of risk zones in building.
- ✓ Analysis of working performance of HVAC and BMS
- ✓ Lighting levels from different zones
- ✓ Remote and Autonomous controlling of HVAC,BMS
- ✓ Push notifications via email, sms and/or via dashboard
- ✓ Space optimization and usage analysis
- ✓ Daily, monthly and annual reporting

DASHBOARD

2D-3D maps of the building

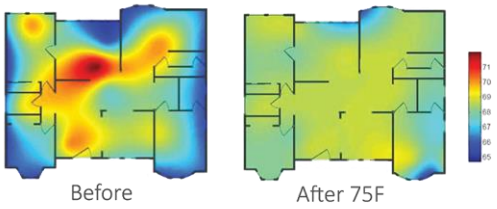
Real-time data intagrated to the building

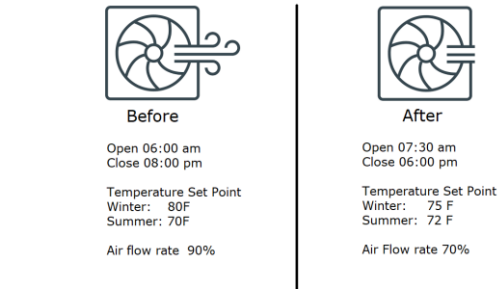


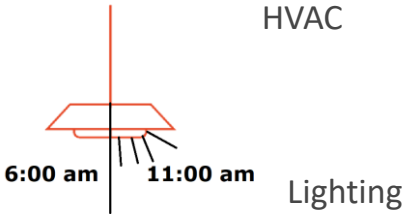
OPTIMIZATION

%10-%20 HVAC, BMS, Lighting

Machine-learning powered control system that controls HVAC systems to make them more responsive and more efficient







%5-%15 Space optimization, Operations

By creating data from different parts of the building gives the opportunity to understand how the real day-cycle is in the building. That data helps to optimize space usage and operations.

The Bead sensor prototype measures all major variables through infra-red technology.

Heat

Working voltage: 2.7V to 5.5VDC
10 mV/°C scale factor
±2°C accuracy over temperature
±0.5°C linearity
Temperature range: -40°C to +125°C

Humidity

Working voltage: 3.3V to 6.0V
Operating current: 1mA to 1.5mA
Standby current: 40uA to 50 uA
Humidity range: 0RH to 100% RH
Temperature range: -40°C to +80°C
± 2% RH accuracy
± 0.5

Light

Operating Voltage: 3.3V
Operating Current: 56μA
350-10000PPM
DC 5V
100mA
Resolution: 1 Lux
Light range: 0.1 – 40k+ Lux

Pressure

Working voltage: 3.3V to 6.0V
Operating current: 1mA to1.5mA
Temperature range: -40°C to +105°C
Accuracy: ± 0.1hPa
Range: 50kPa – 115kPa

CO2

Working voltage:4.5V to 5.5VDC
Operating current: 85mA
Range: 0 – 2000 PPM
Temperature range: +10°C to +60 °C
Measuring range: 0% to 5%vol

Wifi

802.11 b/g/n (2.4 GHz)
Security standard: WPA, WPA2
Antenna: Internal 2dBi
Range: max. 75m
Network: IPv4 –DHCP or Static

PoE

IEEE 802.3af PoE Adapted

Infra-red sensor

Passive Infra-red Type
Range: 1 to 7 m

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
RO⁻R1608BA1		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/⁻R2016/050286	11 August 2016 (11-08-2016)	
Applicant		
POSITIV⁻ SURDURULEDILIR ENERJI YAZILIM...		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1 **Basis of the report**

a. With regard to the **language,** the international search was carried out on the basis of:

[X] the international application in the language in which it was filed

[ ] a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. [ ] This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. [ ] With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2 [ ] **Certain claims were found unsearchable** (See Box No. II)

3 [ ] **Unity of invention is lacking** (see Box No III)

4 With regard to the **title,**

[X] the text is approved as submitted by the applicant

[ ] the text has been established by this Authority to read as follows:

5 With regard to the **abstract,**

[X] the text is approved as submitted by the applicant

[ ] the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6 With regard to the **drawings,**

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

[X] as suggested by the applicant

[ ] as selected by this Authority, because the applicant failed to suggest a figure

[ ] as selected by this Authority, because this figure better characterizes the invention

b [ ] none of the figures is to be published with the abstract

Form PCT/ISA/210 (first sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No
PCT/TR2016/050286

A. CLASSIFICATION OF SUBJECT MATTER
INV. G05B15/02
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G05B H02J F24F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	US 2012/310376 A1 (KRUMM JOHN CHARLES [US] ET AL) 6 December 2012 (2012-12-06) paragraph [0016] - paragraph [0038] paragraph [0046] - paragraph [0051] paragraph [0054] - paragraph [0084]	1-7
X	US 2010/235004 A1 (THIND DEEPINDER SINGH [US]) 16 September 2010 (2010-09-16) paragraph [0025] - paragraph [0060] paragraph [0070] - paragraph [0082]	1-7
X	EP 3 051 366 A1 (MATEX CONTROLS SP Z O O [PL]) 3 August 2016 (2016-08-03) paragraph [0019] - paragraph [0051]	1-7
A	EP 2 903 217 A1 (SIEMENS SCHWEIZ AG [CH]) 5 August 2015 (2015-08-05) paragraph [0023] - paragraph [0041]	1-7

-/--

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25 April 2017	11/05/2017
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Ciric, George

1

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/TR2016/050286

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2016/061469 A1 (ALBONESI DAVID H [US] ET AL) 3 March 2016 (2016-03-03) paragraph [0019] - paragraph [0128]	1-7

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/TR2016/050286

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2012310376 A1	06-12-2012	NONE	
US 2010235004 A1	16-09-2010	NONE	
EP 3051366 A1	03-08-2016	EP 3051366 A1	03-08-2016
		US 2016216721 A1	28-07-2016
EP 2903217 A1	05-08-2015	EP 2903217 A1	05-08-2015
		US 2015211761 A1	30-07-2015
US 2016061469 A1	03-03-2016	US 2016061469 A1	03-03-2016
		WO 2014153552 A1	25-09-2014

THANK YOU

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