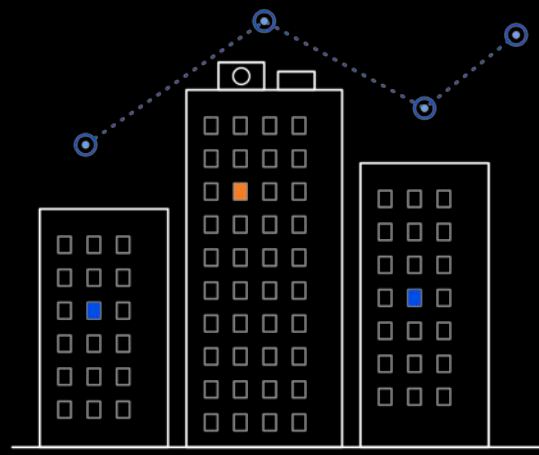
CLOCKWORKS ANALYTICS

Smart Buildings SHOW

DROP BY OUR BOOTH #D27

KEYNOTE · SMART BUILDINGS SHOW 2026

THREE ESTATES, THREE JOURNEYS



What it takes to turn analytics into outcomes

Billal Vindhani · Sales Director, EMEA & APAC · Clockworks Analytics

HOW ANALYTICS CASE STUDIES USUALLY START

£1.2m Savings.
2,100 FDD tasks closed.
30% less energy.

That's the ending. Today we go back to the beginning — the part that never makes it onto the slide.

CLOCKWORKS
ANALYTICS

CLOCKWORKS ANALYTICS

WHO WE ARE

CLOCKWORKS ANALYTICS

Fault detection and diagnostics software that plugs into the building systems you already have and tells your team what's wrong, why, and what it's costing.

2008

Founded inside MIT's Building Science Department

500k+

Pieces of equipment under diagnostics

30+

Countries, direct and through service partners

5

Core sectors: life sciences, higher ed, healthcare, real estate, FM partners

Life sciences **Higher education** **Healthcare** **Real estate** **FM service partners**

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WHAT FDD ACTUALLY DOES

FROM ALARM TO ANSWER

BMS ALARM

"My AHU has a high discharge air temperature right now."

FAULT DETECTION

"This is a big AHU and it's been happening for three straight days."

DETECTION + DIAGNOSTICS

"The preheat valve is stuck open. It's hitting every perimeter zone on floor 3 and has wasted £315 in three days."

Root cause, impact and cost — **so the work order is right first time.**

ALARM: ONE MOMENT, THEN GONE

FDD: PERSISTENT FOR 3 DAYS · £315 WASTED



WHITE PAPER

CLOCKWORKS ANALYTICS

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HOW IT WORKS

CONNECT · MODEL · DIAGNOSE

CONNECT

A software gateway reads the existing BMS every five minutes and pushes data out over HTTPS. No new hardware.

MODEL

Every point typed, every asset classed, with its ratings, schedules and sequences. This is where data readiness bites.

DIAGNOSE

Engineering rules find the root cause, put a cost on it and rank it for energy, comfort and maintenance — then it becomes a task.



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THREE ESTATES

SAME DESTINATION, DIFFERENT ROUTES

AMGEN

01 · LIFE SCIENCES

Amgen, global

Carbon opened the door; manufacturing set the terms.

GK

02 · SERVICE PARTNER

GK, Scandinavia

The business model set the terms.

IOWA

03 · UNIVERSITY CAMPUS

University of Iowa

Team capacity set the terms.

For each: What were they fixing? · What did the data reveal? · Where did it stall? · What changed? · What came out?

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JOURNEY 01 · LIFE SCIENCES

AMGEN

THE ESTATE

- Global biotechnology manufacturer
- 83 buildings on six major campuses across the US, Ireland, Singapore and Puerto Rico
- Office, lab and manufacturing space, plus central utilities
- FDD started in 2016 under Amgen's Smart and Integrated Facilities (SAIF) program

WHAT THEY WERE TRYING TO FIX

Carbon targets opened the door. Manufacturing set the terms.

FDD in offices and labs was becoming normal. Amgen pushed it into manufacturing plant and utilities, where uptime and process performance come first.

United States | Ireland | Singapore | Puerto Rico

WHERE IT STALLED

A LIST OF FAULTS IS NOT A LIST OF FIXES

Six campuses, four countries

Different site teams and systems. No common way to compare one site's performance with another's.

Manufacturing is new ground

Steam, compressed air and water treatment are not office HVAC. The model had to be built for process plant.

Findings don't fix themselves

A central analytics team can see a fault. Only a site team can fix it.

Three years in, Amgen still called itself **"in the development phase"** — honing data and process so analytics drove action.



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AMGEN

WHAT THE DATA REVEALED

FOLLOW THE ENERGY TO THE CENTRAL PLANT

THE MOST ENERGY-INTENSIVE SYSTEMS, CONNECTED FIRST

- **Central chilled water**
- **Cooling towers**
- **Steam boilers and distribution**
- **Heating hot water**
- **Air handlers and HVAC**
- **Compressed air**
- **Water treatment**
- **Wastewater treatment plant**

FROM DATA TO A RANKED LIST

Hundreds of thousands of data points become one list per site

Ranked by cost, comfort, energy and maintenance impact, so a site team knows which fault to take first.

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WHAT CHANGED OPERATIONALLY

A CENTRAL TEAM, A WEEKLY RHYTHM

A CENTRAL TEAM

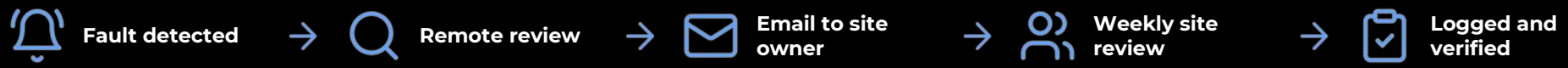
A remote energy monitoring center: two full-time commissioning engineers review every fault and can reach any site's BAS remotely.

A CLEAR HAND-OFF

Each reviewed fault goes to the building owner with the cause, possible fixes and the cost avoided.

A RHYTHM

Weekly fault reviews with every site's building managers. Weekly and monthly reports. One log of every fault and work order.



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OUTCOMES · AMGEN

$6M AVOIDED, AND GROWING

COST

$6.02M

Avoided energy cost to date

ENERGY

5%

Whole-facility savings (LBNL study, 3 sites)

CARBON

5,400 t

CO_2 cut in 2018 alone, with 83,000 GJ and $1.3M

ENGINEERING

1,046

Tasks completed across 83 buildings

"You cannot improve what is not measured. Continuous improvement comes from continuous monitoring."

Aditi Joshi, Sr Energy Engineer, Amgen · AEE International Energy Project of the Year 2017 · LBNL / US DOE recognition 2019



JOURNEY 02 · SERVICE PARTNER

GK, SCANDINAVIA

THE BUSINESS

- Scandinavia's leading end-to-end technical contractor, founded 1964
- 3,100 people across ~100 branches in Norway, Sweden and Denmark
- Ventilation, plumbing, cooling, automation and electrical
- 40,000+ service call-outs a year

WHAT THEY WERE TRYING TO FIX

Win back service agreements in a market where calendar maintenance had become a price fight.

The question wasn't "can we find faults?" It was "can we sell, price and deliver maintenance differently — and still make money?"



WHERE IT STALLED

THE FIRST IDEA WAS THE WRONG ONE

STEP 1
Three technical pilots

STEP 2 · FAILED
Pitched as predictive maintenance

STEP 3
Re-analysed which PM tasks FDD can automate

STEP 4
Pivot: maintain on condition, not calendar

STEP 5
Digital service center, then regional scale

Predicting failures is hard to sell and harder to prove. **Replacing a site visit is easy to price.**



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WHAT THE DATA REVEALED

HALF THE CHECKLIST WAS ALREADY WATCHED

PM CHECKS FDD CAN TAKE OVER, BY DISCIPLINE



PM HOURS PER TASK, PER YEAR

3.7 Without FDD

1.9 With FDD

Roughly half the technician time on a standard equipment class.

ONE PLANNED-MAINTENANCE CHECKLIST, TEN CHECKS



Covered by FDD, every day

Still needs a site visit

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WHAT CHANGED OPERATIONALLY

THE ORG CHART, THE CONTRACT, THE MARGIN

HOW ENGINEERS WORK

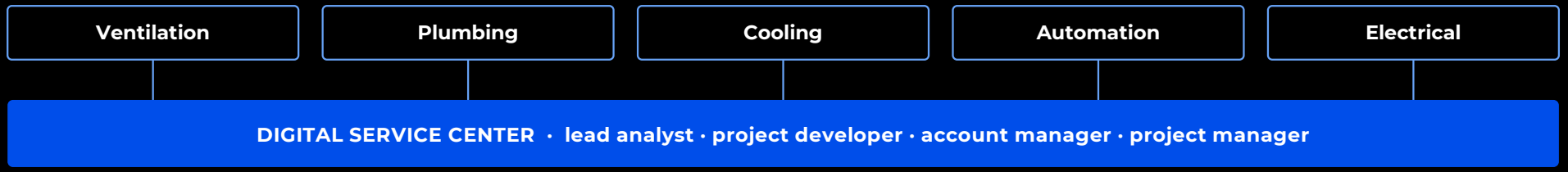
A new Digital Service Center sits beside the five trades. A lead analyst reviews diagnostics and writes the task cards; an account manager owns the customer.

HOW CONTRACTS ARE PRICED

Software + 3 h/month diagnostic review + 2 × 2 h client meetings + far fewer PM hours. Cheaper for the client, higher margin for GK.

HOW PM IS JUSTIFIED

Trades lose PM hours, so margin is redistributed back to them inside one multi-discipline agreement. Without that, nobody sells it.



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OUTCOMES · GK

LOWER COST TO CLIENT, HIGHER MARGIN

20

Customers moved to condition-based contracts

60+

Buildings and thousands of assets

~30%

Energy saving at a hotel customer

~50%

Less PM time on standard equipment

"It's the best tool in the world for multidisciplinary service."

Even Augensen, Business Developer, GK Norway

"They increasingly approach us first."

Jonny Kongsgård, Energy Adviser, GK Norway



JOURNEY 03 · UNIVERSITY CAMPUS

UNIVERSITY OF IOWA

THE ESTATE

- Major US research university
- 47 buildings, 6.9 million sq ft under diagnostics
- Labs, academic, recreation and office space, with decades of inherited plant
- Four different building automation systems
- A small in-house data analytics and commissioning team

WHAT THEY WERE TRYING TO FIX

A reactive, firefighting operation with no central view of performance.

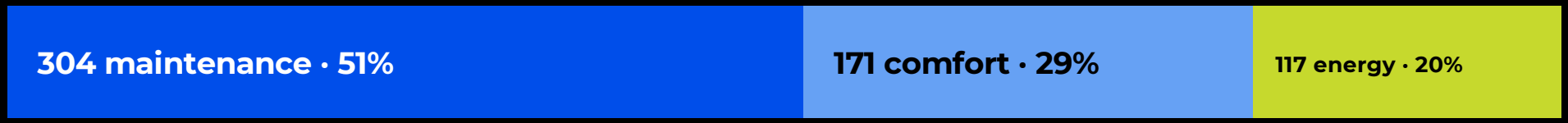
With ageing equipment and a tight budget, the real question was: what do we fix first, with the people we've got?

IOWA

WHAT THE DATA REVEALED

MOST PROBLEMS WEREN'T ENERGY PROBLEMS

592 ISSUES RESOLVED IN THE FIRST SIX MONTHS



Every fault carried a cost, so a small team could work the list **from the most expensive down** — not the loudest complaint.

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IOWA

WHERE IT STALLED · WHAT CHANGED

THREE YEARS TO ONE MODEL, THEN A NEW WAY OF WORKING

STALLED

2014 → 2017

Programme started in 2014; deployment complete in March 2017. Four automation systems, one data model — built once, used ever since.

CHANGED

1 in 4

Work orders now generated by FDD rather than a complaint or an alarm. The team plans from the diagnostics.

FOCUSED

13–24%

Energy savings in the four buildings the team concentrated on first.

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IOWA

OUTCOMES · UNIVERSITY OF IOWA

FROM $600K TO $2.5M A YEAR

6 MONTHS
$600k
Energy savings after go-live

YEAR 1
$780k
Energy cost saved

TODAY
$2.5M
Verified annual energy savings

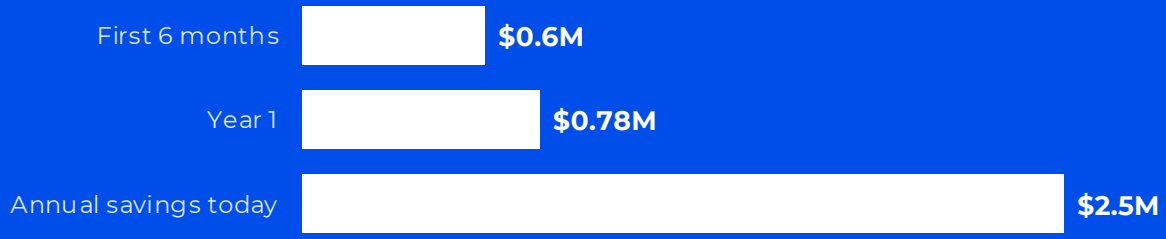
TASKS
2,100+
Completed through the programme

"We saved $780,000 in energy cost in the first year and had 24% of work orders generated by FDD — helping us transition the organization from reactive to proactive mode."

Katie Rossmann, former Energy Manager, University of Iowa · Recognised by LBNL and the US DOE, 2018





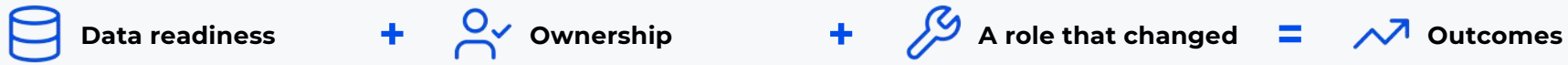


THE THROUGH-LINE

WHAT SEPARATED VALUE FROM NOISE

	AMGEN	GK	IOWA
Data readiness	One standard data view across six campuses	Standard equipment classes so assessments scale	Four BAS platforms in one model, built once
Ownership of actions	Two remote engineers review every fault	A lead analyst writes every task card	A small team works the list by cost
Whose job changed	Site managers get a weekly fault review	Technicians swap calendar checks for task cards	1 in 4 work orders now starts in FDD

The technology was the same in all three. These three rows were not.



BEFORE YOU BUY ANALYTICS

FIVE QUESTIONS TO ANSWER FIRST

01	Can we get the data out — every system, every five minutes, remotely?
02	Who owns the task list? Give me a name, not a department.
03	What will we stop doing? Which rounds, which PM checks?
04	How will we fund and price the work it finds?
05	What does success look like in £, kWh, CO_2e, Key KPIs and hours saved — agreed before go-live?

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THE TECHNOLOGY IS RARELY THE CONSTRAINT.

Data readiness · Ownership · Whose job changed

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