Building for Management

A Strong Foundation for Smart Buildings

Mr. Tyler Holland
Chief Operating Officer
En-trak

ABOUT EN-TRAK

Founded in 2013, we have worked with over **300 world-class clients** in Asia-Pacific. Our mission is to empower our customers to get the best from their buildings by reducing costs, improving portfolio performance, and making our planet more sustainable.

En-trak™ Smart Building OS is the core of that mission, helping customers to make smarter business decisions and automate key processes.

Invested by:

China

Hong Kong

Malaysia

Singapore

Australia

EN-TRAK
SMART BUILDING OS

En-trak provides an open & scalable **IoT platform to manage multiple aspects of your building** or portfolio in the cloud.

Our award-winning Smart Building OS enables building owners/operators to **optimize resource use, enhance productivity, and reduce compliance risk**.

Energy module

Air quality module

Water module
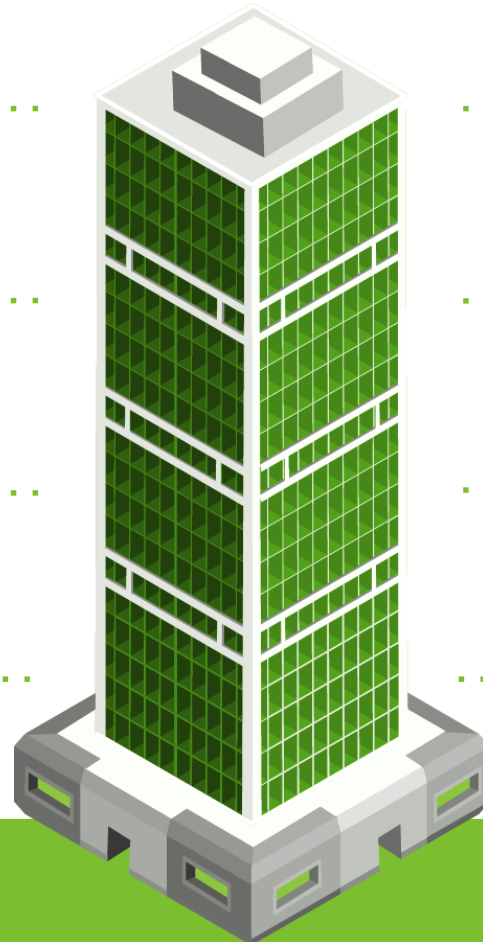
Solar module

Smart lighting & fan coil control

Chiller optimization

Gas module

Wind power module

Third party integrations:

Security access

Room booking

People tracking

Emergency services

Smart parking

JUST MAKE IT "SMART"

- Customers want "smart" buildings (and smart cars and smart toothbrushes)

- **But they usually focus on the frills without paying attention to the foundation**

LAY A SMART FOUNDATION

- Smart buildings need strong foundations (exciting things are possible because boring things are done well)

- **A weak foundation will make it hard for a building to keep up with "smart" technology**

AN OLD DEBATE...

- **Conflict between needs during construction and needs during operation**

- Cheap equipment/materials! High energy costs...

- More sellable floor area! Hallways too narrow for cleaning equipment...

...WITH A NEW TWIST

- **Not just about facilities management teams anymore**

- Sustainability and finance departments are getting more involved, and higher management expects more transparency

- Increasing centralization of building management across multiple sites

WHAT DO THEY NEED?

- More **transparency**

- **Leaner** operations on-site

- Added **value** for occupants

WHAT DO THEY NEED
WHEN THE BUILDING IS GOING UP?

- Connectivity

- Clarity

- Consistency

CONNECTIVITY

- Data measurement devices are often left **unconnected** to any network

- That means they deliver **ZERO** value (beyond compliance)

- More than simple connectivity needed

- Collecting meter data and dumping it on a local workstation doesn't help much

- **Wider accessibility is needed** – non-proprietary communications, APIs are ideal

WEAK FOUNDATION - CONNECTIVITY

- **BEEO compliance met** (power meters for all circuits >200A)

- Most (or all) of those meters are not connected to any network. Just an LCD screen on the switch cabinet that will rarely be seen

- Later, when the customer wants more energy use data, they realize that they it's **expensive** to connect those meters - because there's no conduits for communications cables

STRONG FOUNDATION - CONNECTIVITY

- BEEO compliance met (power meters for all circuits >200A)

- **All of those meters are connected** to a central network (on-site or in the cloud). All data is stored on-site for at least 30 days in case of connection problems

- The customer can access all of its detailed energy data, **completely and easily**

CLARITY

- **Labeling matters**

- After occupants move in, nobody knows what "DB-N1" means

- Extra labels, better names – whatever helps the people managing the building to **understand its parts**

- "DB-1L" (1/F Lighting) can make a world of difference

WEAK FOUNDATION - CLARITY

POWER METER ID	VOLTAGE(L1-L2)	VOLTAGE(L2-L3)	VOLTAGE(L3-L1)	CURRENT(I1)	CURRENT(I2)	CURRENT(I3)	ACTIVE POWER(KW)	KWH	PF
EDB-PA-GLP (QE-1)	409.8	410.0	409.6	0.2	0.1	0.0	2,444.5	107,656.0	0.5
EDB-PA-2-SVR (QE-2)	409.3	410.4	409.6	1.2	1.0	1.3	19,523	155,510	1.0
EDB-PA-MECH (QE-3)	408.3	409.9	409.3	0.3	0.4	0.4	17,904.4	397,469.3	1.0
EDB-SS-1-GLP (QE-4)	407.7	410.3	409.7	0.4	0.3	0.5	19,215.2	266,325.2	0.9
EDB-PA-PL (QE-5)	408.4	410.4	409.1	0.1	0.0	0.0	3,139.2	5,583.7	0.7
EDB-SS-1-LAN (QE-6)	408.7	409.4	409.3	0.3	0.0	0.0	2,968.8	74,861.8	0.7
EDB-SS-CSR (QE-7)	409.4	410.6	410.6	0.0	0.0	0.2	2,857.4	324,547.4	0.8
EDB-SS-LIFT (QE-8)	408.7	410.6	410.4	0.1	0.1	0.0	1,690.8	343,815.0	0.6
SPARE (QE-9)	409.9	409.5	410.7	0.0	0.0	0.0	0.0	104.9	0.0
CARPARK-MV-1 (QE-10)	409.5	409.8	410.7	0.0	0.0	0.0	321.1	330,694.7	0.3
CARPARK-MV-2 (QE-11)	409.0	409.2	410.2	0.0	0.0	0.0	321.1	56,249.5	0.2

OTHER PM   MSB PM

- Shorthand used for labeling during the working process ("DB-N", "DB-N1", "DB-N1A")

- In the rush to complete and hand over the building, **updating these labels seems unimportant** (everything is working – get the customer to sign off!)

- Later, when the customer has paid $X to connect all of their meters to a BMS/database, they find that **they don't know** what any of the meters are actually measuring. They ask the contractor but they've long since forgotten

STRONG FOUNDATION - CLARITY
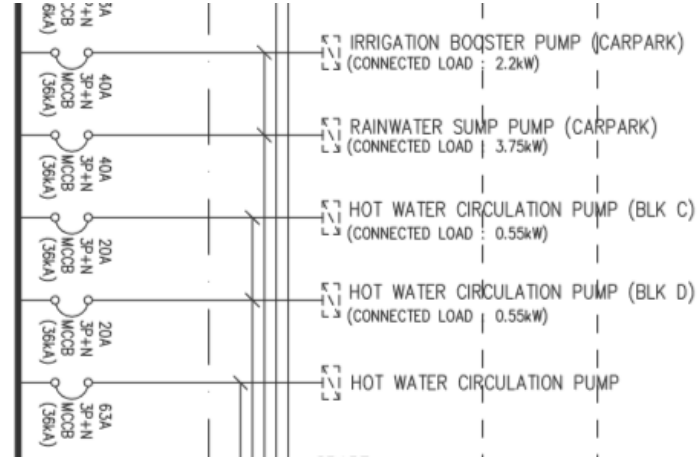
- Shorthand used for labeling during the working process ("DB-N", "DB-N1", "DB-N1A")

- Prior to handover, clear labels were added to the final drawing so the building managers could **understand their building** ("DB-N" is now labeled ("Lights & Sockets")

- The customer can understand what all of its detailed energy data **means**

CONSISTENCY

- Last minute changes, miscommunications, cost cutting...

- **Wiring becomes a mess**

- "DB-1L" (1/F Lights) suddenly gives power to several aircon units, and "DB-1P" (1/F Plug Loads) now gives power to lighting in several rooms

- **False alarms** and **incorrect conclusions** will arise

WEAK FOUNDATION - CONSISTENCY
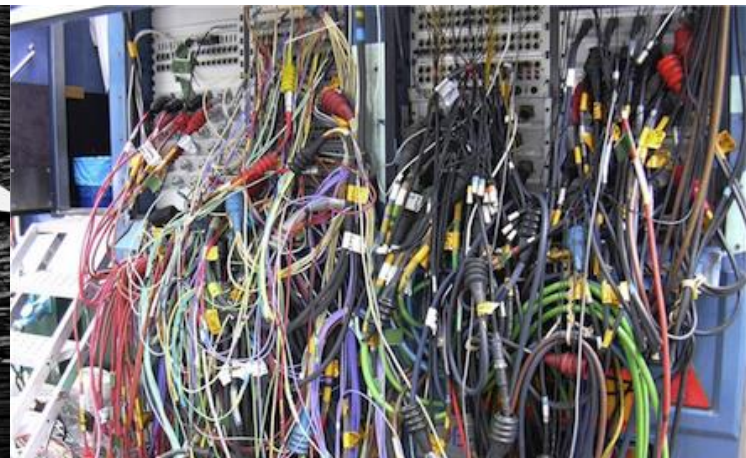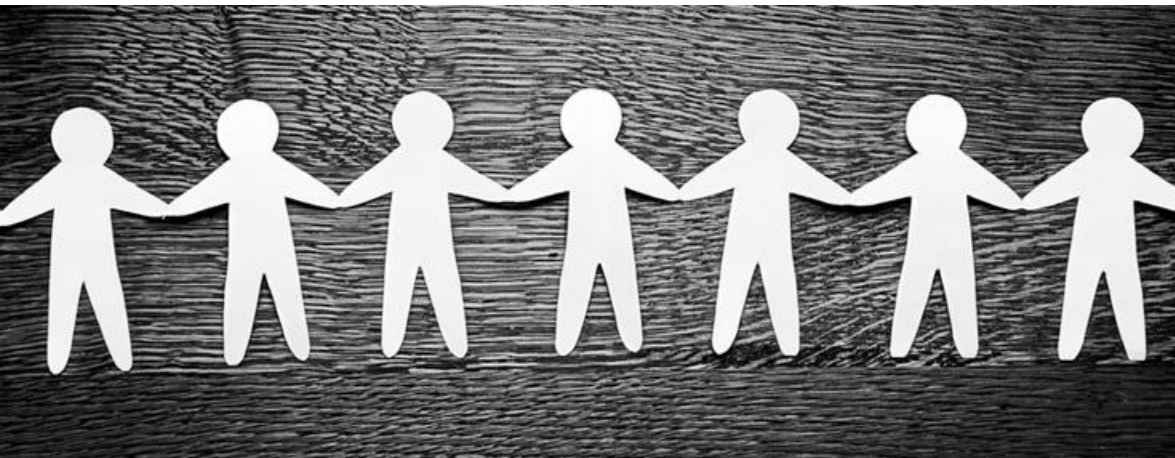
- Actual wiring **didn't follow the plan** (maybe because nobody knew what "DB-N1A" meant?)

- Circuits and distribution boards exist that aren't on the plan, plans show circuits and distribution boards that don't exist

- Later, when the customer tries to name their circuits/meters, nobody can give a clear name to them. It seems **pointless to do analysis** on the data – whatever the result, you wouldn't know where to go to check

STRONG FOUNDATION - CONSISTENCY
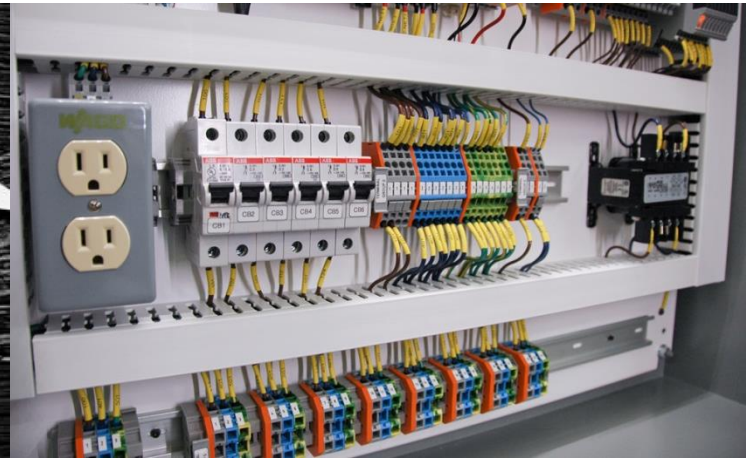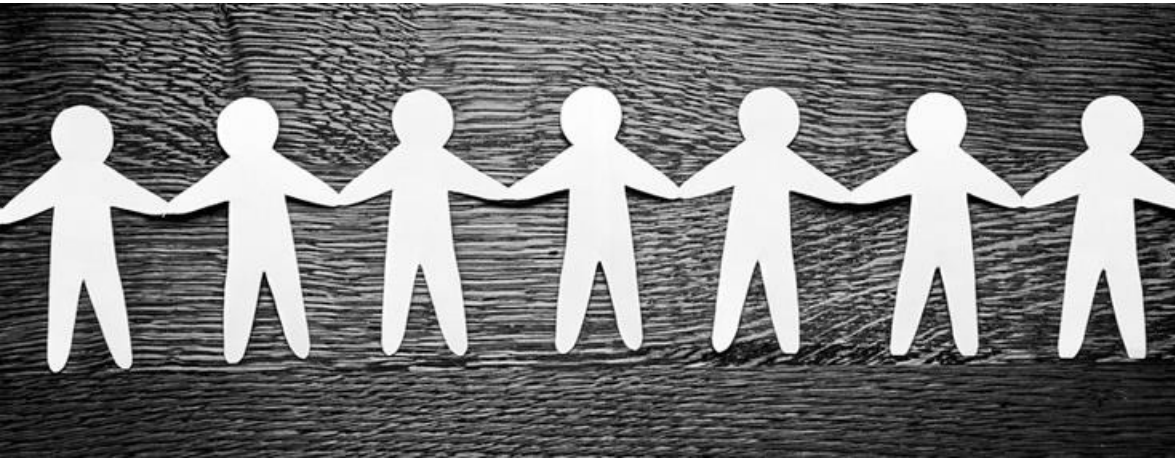
- Actual wiring **stuck to the plan**, and any changes were updated in the drawings

- The circuit labeled "Lights & Sockets" provides power to all the lights and sockets

- The customer can draw **confident conclusions** from any analytics done with their energy data

WEAK FOUNDATION: GARBAGE IN, GARBAGE OUT

STRONG FOUNDATION:
SMART BUILDING

When you build for management,
you're building for decision-makers.

- Decisions about operations,
- decisions about energy saving,
- and **maybe even decisions about who builds the next building**

You can't build a great building on a weak foundation.

Data is the foundation of smart building management –
give your customers a strong foundation for the future.

Thank You