



User-centred approach in the design & operation of smart buildings

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Where do we stand today?

“Science is converging on an all encompassing dogma, which says that organism are algorithms and life is data processing.”

“Intelligence is decoupling from consciousness.”

“Non-conscious, but highly intelligent algorithms may soon know us better than we know ourselves.”

Homo Deus by Yuval Noah Harari

[The Guardian's review](#)



Where do we stand today?

Liberal
humanism



Technological
humanism



Dataism

Deo-centred
world



Homo-centred
world



Data-centred
world



Where do we stand today?

Gen C is constantly connected



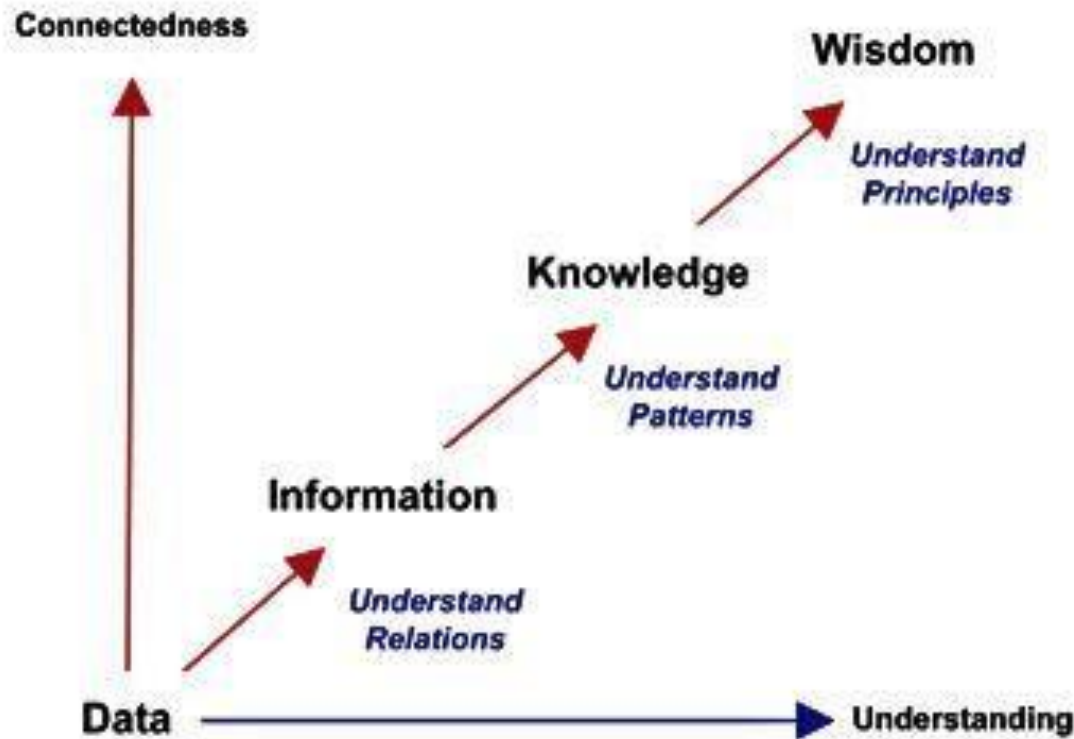
Gen C eats, sleeps and breathes the internet across devices. Literally...

91%

of Gen C sleeps next to a smartphone⁹

9. Rigging Generation C, November 2012

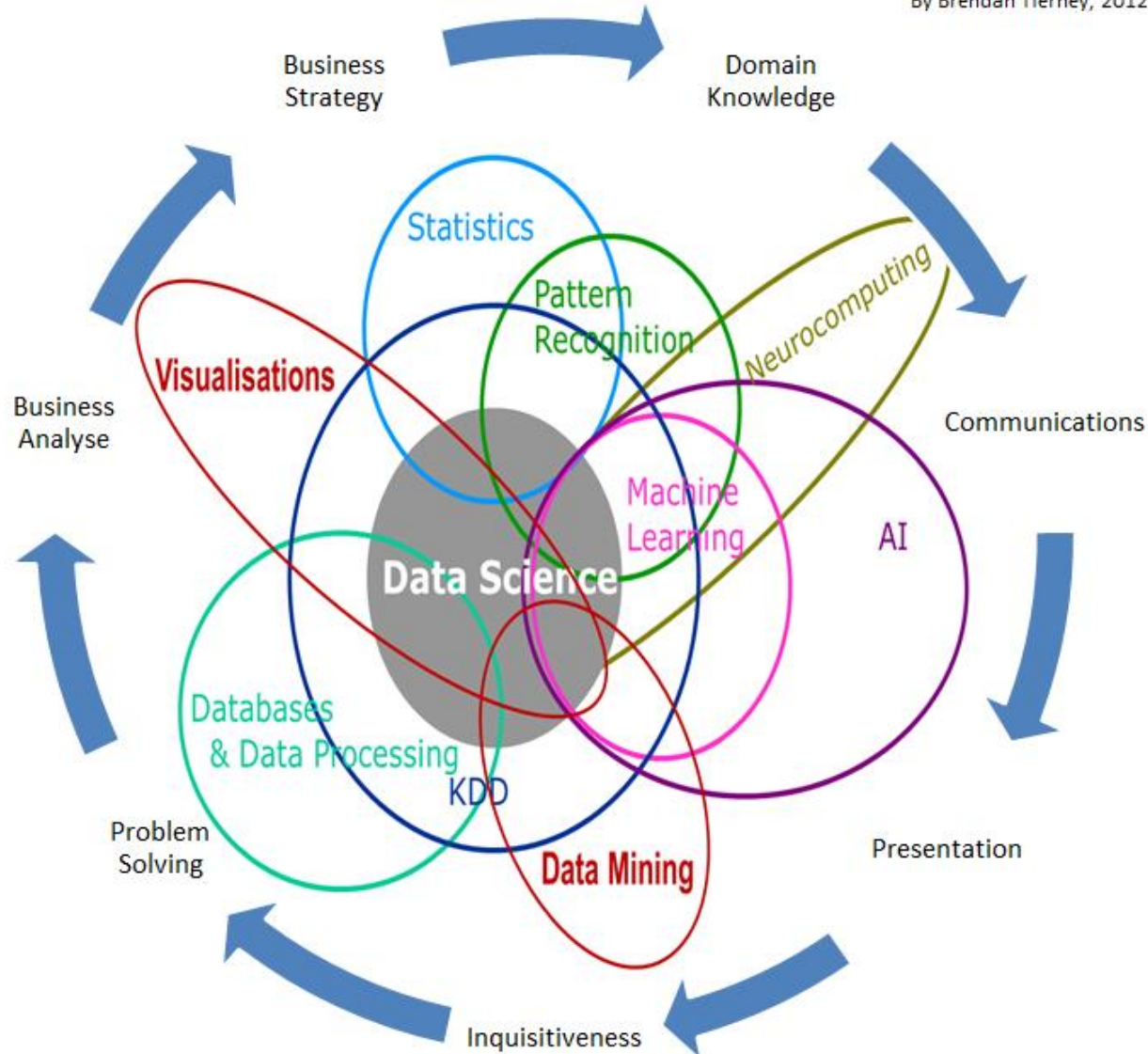
Where do we stand today?



Data Science Is Multidisciplinary

By Brendan Tierney, 2012

6



Revised EPBD - SRI

“The methodology shall rely on three key functionalities relating to the building and its technical building systems:

(b) the ability to adapt its operation mode in response to the needs of the occupant while paying due attention to the availability of user-friendliness, maintaining healthy indoor climate conditions and the ability to report on energy use;”

Revised Energy Performance of Buildings Directive (2018/844)



Horizon 2020 projects

MOBISTYLE - MOtivating end-users Behavioral change by combined ICT based tools and modular Information services on energy use, indoor environment, health and lifestyle

UtilitEE - Utility Business Model Transformation through human-centric behavioural interventions and ICT tools for Energy Efficiency

BENEFICE - Energy Behaviour Change driven by plug-and-play-and-forget ICT and Business Models focusing on complementary currency for Energy Efficiency for the Wider Population

enCOMPASS - Collaborative Recommendations and Adaptive Control for Personalised Energy Saving

Horizon 2020 projects

eTEACHER - end-users Tools to Empower and raise Awareness of Behavioural CHange towards EneRgy efficiency

Eco-Bot - Personalised ICT-tools for the Active Engagement of Consumers Towards Sustainable Energy

InBetween - ICT enabled BEhavioral change ToWards Energy EfficieNt lifestyles

FEEdBACK - Fostering Energy Efficiency and BehAvioural Change through ICT

Find out more on <https://cordis.europa.eu/en> ‘Bringing you the results of EU research and innovation framework programmes since 1990: Horizon 2020, FP7 and earlier’.

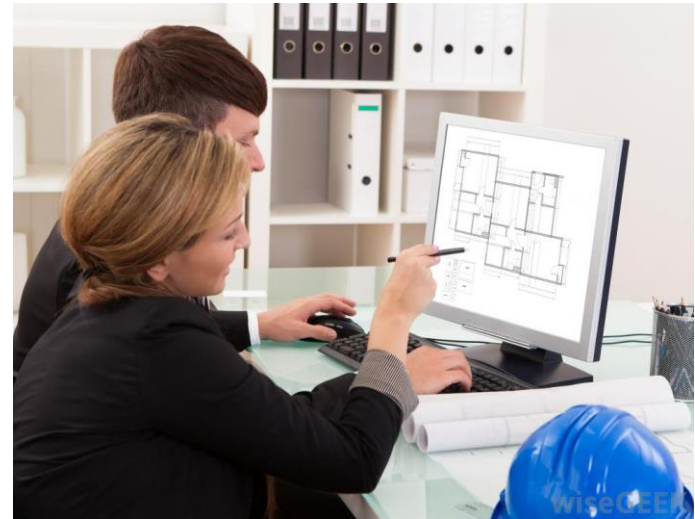
Users of buildings

In the construction industry, the term ‘user’ or ‘users’ typically refers to any persons, groups or organisations who use property or land as an occupier, owner, tenant, visitor or other stakeholder. For example, members of the public might be users of shops, hospitals, libraries, and so on. ([Designing Buildings Wiki](#))

- **Occupants** *and/or*
- **Building operators** / facility managers

Technology enabled shift

- Building regulations
- Building standards
- Building certification
- Owner Project Requirements
- Technical Monitoring
- Ongoing Commissioning
- Other



Technology enabled shift

- User needs (ever-changing)
- Building and wearable technology
- Convergence to a single ‘user-building’ interface
- Continuous monitoring and optimization
- Feedback loops
- Nudging users
- Other



Smart Buildings -> Smart Users?



REHVA Smart Buildings Task Force ↓

REHVA Smart Buildings Guidebook 2020

REHVA Seminar ISH 2019, Frankfurt (am Main), Germany
Smart buildings and digitalization in light of the revised EPBD

Where are we heading?

“Are organism really just algorithms and is life really just data processing?”

“What’s more valuable intelligence or consciousness?”

“What will happen to society, politics and daily life when non-conscious, but highly intelligent algorithms know us better than we know ourselves?”

Homo Deus by Yuval Noah Harari

[The Guardian’s review](#)





Thank you!
Questions?
No? Great! Bye.

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