Knowledge Architecture

The Path to Better Decisions in Your Organisation
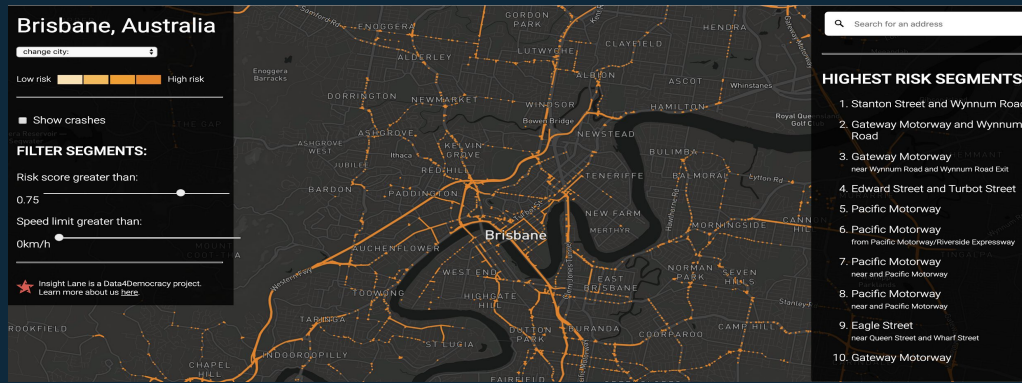
About Me
Terry Franklin

- Software / Data Engineer & Technical Lead

- Co-founded Tourism Media in 2006

- Now working as independent consultant

Brisbane, Australia

change city:

Low risk ▭▭▭▭▭ High risk

☐ Show crashes

FILTER SEGMENTS:

Risk score greater than:
0.75

Speed limit greater than:
0km/h

★ Insight Lane is a Data4Democracy project.
Learn more about us here.

🔍 Search for an address

HIGHEST RISK SEGMENTS:

1. Stanton Street and Wynnum Road
2. Gateway Motorway and Wynnum Road
3. Gateway Motorway
   near Wynnum Road and Wynnum Road Exit
4. Edward Street and Turbot Street
5. Pacific Motorway
6. Pacific Motorway
   from Pacific Motorway/Riverside Expressway
7. Pacific Motorway
   near and Pacific Motorway
8. Pacific Motorway
   near and Pacific Motorway
9. Eagle Street
   near Queen Street and Wharf Street
10. Gateway Motorway

What is Knowledge Architecture?

Knowledge Architecture is the process of designing systems that connect and add context to data, turning it into knowledge that can help make better decisions.

Why is it relevant?

◇ Many organisations are now data-dependent

◇ Many systems with many standards

◇ Organisations face increasingly complex problems

◇ Human networks intersecting with technology
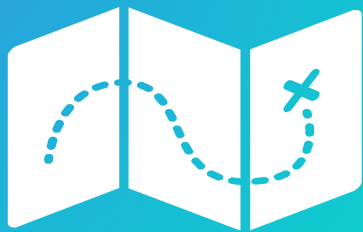
Origins

Evolution

Industrial Era

◇ Production at scale

◇ Automation and removal of manual labour

◇ Inefficient

◇ Externalised costs to communities and environment

◇ Unable to adapt to complexity

Information Era

◇ Mainstream adoption of cloud-based data technologies

◇ 'Big Data' thinking - collect everything

◇ Data recognised as an asset

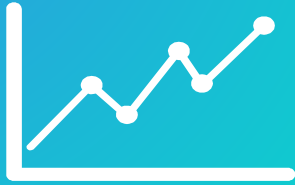◇ Overwhelmed by volume, awkward storage

◇ Lacks connection and context

Knowledge Era

◇ Connection is more important than collection

◇ Data should always be considered in context

◇ Connected data + context = actionable knowledge

◇ Built to support better decisions

Benefits of Investing in Knowledge Architecture

1. Value of data goes up

◇ Connected data gives clearer picture

◇ Cause & effect relationships appear

◇ Context is enhanced

◇ Dimensions can be added

2. Supports innovation

◇ Increased visibility generates new ideas

◇ Cross-department conversations begin

◇ Source of true innovation

◇ Connect silos, don't smash them

15

3. Knowledge sharing

◇   Minimises impact of generational change

◇   Capture experiences as part of daily workflow

◇   Records context of decisions made

Costs of Not Investing in Knowledge Architecture

1. Decision making suffers

◇ Disconnected data isn't easily accessible

◇ Real-time decisions can't benefit

◇ Cost of ad-hoc manual collection

2. Losing sight of mission

◇   "Can't see the forest for the trees"

◇   Copying and transforming data

◇   Time spent amongst data rather than domain

3. Misunderstandings

◇ Different systems have different assumptions

◇ Discovering incompatibilities is actually good!

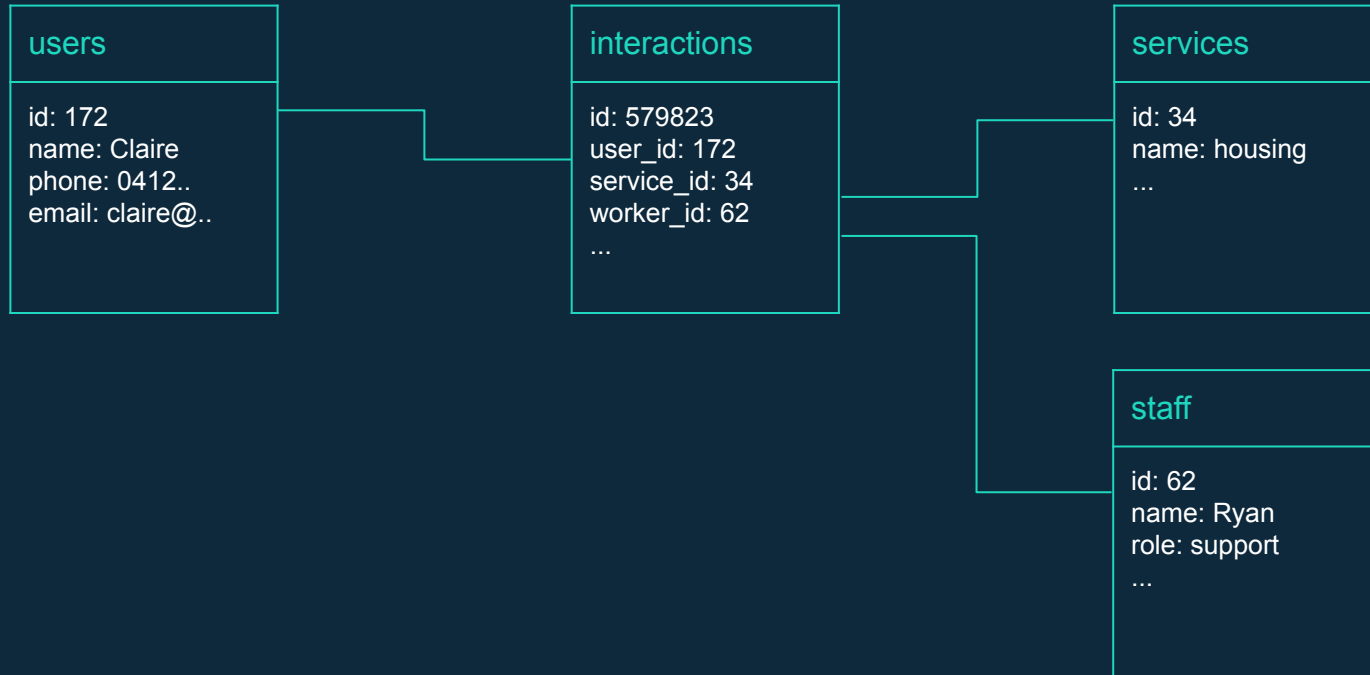◇ Missing them can be costly

Enabling Technologies - Examples

1. Graph Databases
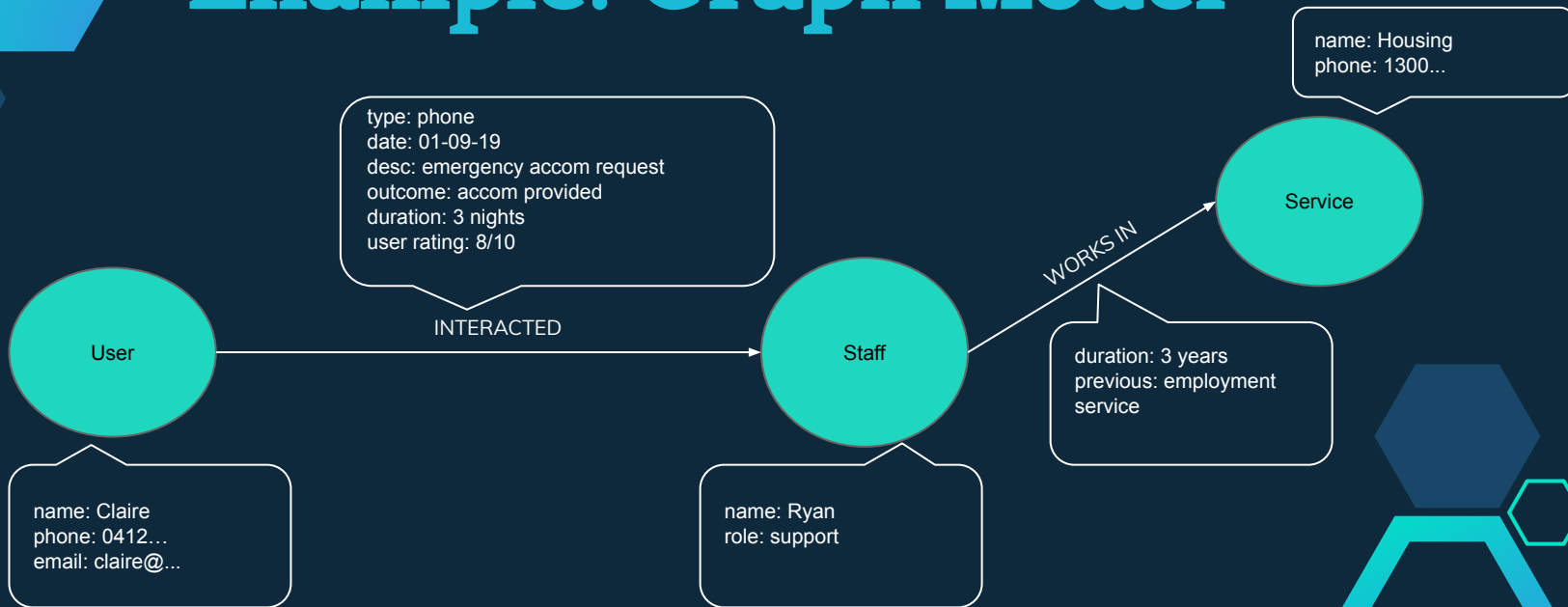
◇ Promote a more intuitive way of storing data

◇ Consist of **nodes** (nouns), **relationships** (verbs) and **properties** (adjectives)

◇ Able to grow and change over time

◇ Relationships are just as important as nodes

Example: Relational Model

users

id: 172
name: Claire
phone: 0412..
email: claire@..

interactions

id: 579823
user_id: 172
service_id: 34
worker_id: 62
...

services

id: 34
name: housing
...

staff

id: 62
name: Ryan
role: support
...

Graphs Can Facilitate:

◇ Changing environments and procedures

◇ Easier conversations about data

◇ More compelling questions

◇ Greater context

2. Event Platforms

◇ All data - everything - becomes **streams** of **events**

◇ Tables (latest state) or stream (changelog)

◇ Reveals trends & patterns in data

◇ Enable real-time response

Example: Non-Event Driven

Interaction #579283

User: Claire
Service: Housing
Staff: Ryan
Date: 01-09-2019

Description: request for emergency accommodation
Outcome: accom provided
Duration: 3 nights

User rating: 8/10

Example: Event Driven

Interaction #579283	
1	Claire called Housing service, left message for callback
2	Ryan from Housing returned call, opened support request
3	Availability check - properties A, B & C occupied, D vacant
4	Property D not suitable for user (too far away from school)
5	Re-check of availability - property E vacant and suitable
6	Property E confirmed for 3 nights

How to Get Started

1. Understand your situation

◇   Create a data inventory

◇   Speak to your people and Identify **their** problems

◇   Look for knowledge gaps

2. Define your strategy

◇ Design solutions to real problems in your environment

◇ Find appropriate tools

◇ Create a clear vision of outcomes

3. Get buy-in

◇ Culture is critical

◇ Start small, solve real problems

◇ Lead by example

Thanks!

Any questions?

◇   terry@franklindata.com.au

◇   https://www.linkedin.com/in/terryf82/

◇   https://insightabletimes.org