Durable Data Design
presented to
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by
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Causes of fragile data designs

- Changing business expectations and needs
  - Structured to unstructured data
  - Big data analytics
- Changes in information and communications technology capabilities
  - New versions of everything
  - Internet of things
- Imposed solution constraints
  - buy vs. build (packages dictate data design)
  - Applications first, data second
- Hype-cycles (distractions from the real problem)
  - A hype-cycle runs its course when the income from conferences, books, consulting, training and software declines. Then a new hype-cycle begins and the process starts all over. Michael H. Brackett

These are not causes! This is the environment!

Find a way to succeed in the environment, or go extinct

Creating durable data designs

- Base the design on what is stable
  - If business is stable

  … then data that supports the business is stable

- It all depends on how you look at it!
  - Business process stability
  - Look past activity to accomplishment
  - Avoid detailed "as is" process models

- Look through instable data sources
  - Forms, reports, screens
  - Current solution artifacts (e.g., invoice, AFE, permit)

- Avoid classification traps
  - Use appropriate generalization and abstraction
  - Classify only according to defined rules

Organizational instability

Management
Decreasing
control
stability

Who — Organization

Control Span — Roles/responsibility

How — System functions

What — Business functions

Business resources

People   Money   Facilities   Information

Functional instability
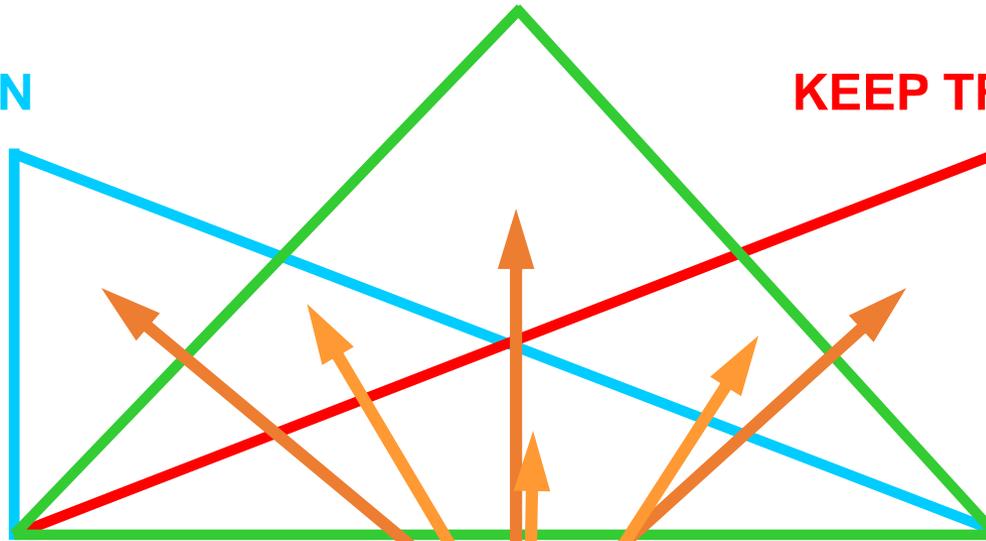
Classification Exercise

Blue | **Green**

Berry | **Brown**
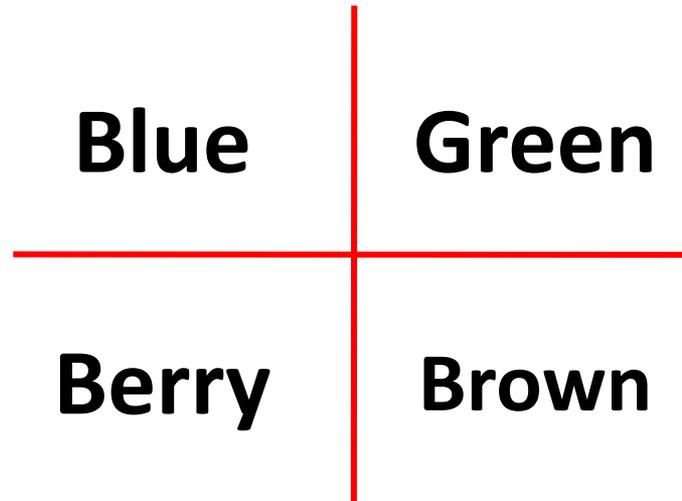
One of these things is not like the others…

- Obviously – three are colours
- Obviously – three start with the letter "B"
- Obviously – three have five letters
- Obviously – three contain the letter "e"
- Obviously – three are adjectives – one is a noun
- Obviously – three are single syllable – one is two syllable

So maybe it's not so obvious without first defining the rules

Classification Fundamentals

- A classification must be based on a distinguishable attribute of the thing being classified
  - *Do classify humans by gender, eye colour, date of birth*
  - *Don't classify humans by gigabytes of storage, screen size, or processor speed*

- A classification must be based on attributes, not relationships
  - *Classifying people according to the department they work in, religion or political persuasion is a derivation from a relationship*

- A classification must not be based on a multiple distinguishable attributes
  - *A list of people who have brown eyes or are females born in the 8th decade of the 20th century will become cumbersome*

Reuse is more easily achieved with fundamental attributes rather than ill-conceived classifications

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Durable data design principles

- ## Fundamental physical reality
  - *New solutions reflect <u>Fundamental Physical Reality</u> underlying the business*

- ## Logical source data capture
  - *Data will be captured once and only once at its logical source*

- ## Stability
  - *The core aspects of information systems are based on business activities which are stable over time*

- ## Disaggregate data
  - *Data will be defined in disaggregate form*

Find stability by eliminating instability

Paper available on request

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A word about applications

- An unfortunate historical aberration
  - *Data is the corporate asset, applications are temporary containers*

- We know how to avoid building stovepipes
  - *Loosely coupled components, service based integration with messages defined according to data principles*

- We have adequate tools
  - *Rich development environments, enterprise service bus, BI, rich DBMS (including built in GIS)*

- Our application delivery process sucks
  - *Sponsorship, vendor influences, stovepipe mentality*

The challenge is resistance to change

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Conclusions

- Durable data designs result from removing instable viewpoints

- Instable viewpoints must be exposed, communicated and understood

- Improper classification can disable a durable design

- Implementing durable data bases is not easy

- If you must have applications, there can be only one

Why is this so hard?

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Discussion

- Questions
- Challenges
- Comments