A Reconsideration of the Foundations of Identity Management

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http://rogerclarke.com/ID/IDM-Bled {.html, .pdf}

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Context

- Digitalisation's Big Impacts on Individuals and Society ('Digital Restructuring and Humans ... ')
- 'Identity Management' in the thick of the action, still

Motivation

- A model to underlie <u>Human-Friendly Digitalisation</u>
- A model that reflects the intellectual complexities ('<u>metatheoretic assumptions</u>')
- A model that is <u>pragmatic</u>, and supports <u>instrumentalism</u> (for IS practice first, IS-relevant research second)
- <u>Effective representation of relevant phenomena</u> to overcome 'id management' blunders, past and present

A Pragmatic Metatheoretic Model
for IS Practice (and Practice-Relevant Research)

The most relevant elements of Metatheory:

- **Ontology** – the study of existence
- **Epistemology** – the study of knowledge
- **Axiology** – the study of value
- Methodology – the study of processes
- Semantics, Linguistics, ...

Metatheoretic Assumptions

- Conscious / Unconscious
- Explicit / Undeclared

Metatheoretic Commitments

'Pragmatism'

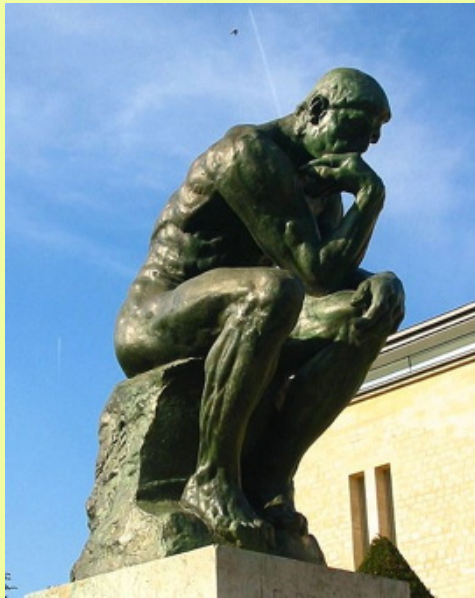**In philosophy**, 'concerned with understanding and action'
not just describing and representing

In IS practice, approximates and articulates 'common sense'

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Ontology / Existence or 'Being'

Phenomena – Matter, Things, Events, Properties

Materialism
Matter exists, independently
of whether a human detects it

Cogito ergo est
I think it is, therefore it is

Idealism
Everything exists in the human mind.
The 'real world' I think I see is only an idea.
That idea may be shared, but not identically

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A <u>Pragmatic</u> Ontological Model

- **The Dualism postulate**:
    - There <u>are</u> material realities (the Real-World)
    - There <u>is</u> internal 'mind-stuff'
    (the spiritual, intellectual or Abstract-World)

- **Real-World <u>Phenomena</u> and Properties**
  The wavelength of electromagnetic radiation,
  hardness and brittleness of things, event-duration

- **Abstract-World <u>Ideas</u>**
  Numbers, colours, hardness, brittleness, time, ...

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Epistemology – Different Forms of Knowledge

- **'Codified Knowledge'** (Empiricist / Positivist)
  Expressed
      In text, defined dialect, flowcharts, formulae, blueprints, ...
  Disembodied, but communicable among people
  Capable of delivering a coherent body of information to individuals in particular contexts

- **'Tacit Knowledge'** (Innate or Reasoned)
  Exists in a particular person
  Informal and intangible
  Not readily communicated

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Axiological Aspects

- The study of **Value(s)**
  - A **'Virtue'** dimension of 'good / bad'
    (Loose even mystical criteria?)
  - A **'Deontic'** approach, related to duty / obligation
    on a 'mandated / optional / forbidden' dimension
  - A **'Utilitarian' or 'Consequentialism'** approach
    based on impacts or outcomes,
    which depends of clarity of purpose (Teleology)

- Positivism assumes a common denominator ('Utils'?)
- Antipositivism rejects that as fantasy

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Axiology in IS

- Dominance of a narrow interpretation, based on **Economic** and **Financial** factors – **'Shareholder Value'**

- **Social** and **Environmental** factors?
  Triple-bottom-line reporting / 'people, planet and profits'
  Corporate Social Responsibility (CSR)

- **Human** values?
  - Hedonism
  - Conservation/ism: Conformity, Tradition, Security
  - Openness to Change: Self-Direction, Stimulation
  - Self-Enhancement: Achievement, Power
  - Self-Transcendence: Benevolence, Universalism

- **Evident in**: Multiview, Soft Systems Methodology, Participatory Systems Design, Value-Sensitive Design

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Stakeholder Theory

- Postulated in 1963/83 as **a counterpoint to Shareholder**
- "Any party that can affect, or is affected by, the achievement of the organisation's objectives"

- **Participants** – But in IS often conflated with 'User'
- **Non-Participants / 'Usees'**

- Characteristics:
  - **P – O – W – E – R**
 - Legitimacy
  - Urgency

Researcher Perspective Theory

- **c. 90%** of papers on research of relevance to IS practice are **Single-Perspective, i.e. all other stakeholders' interests are constraints on the primary stakeholder**

- **c. 90% of those papers privilege the System Sponsor**

- Far less Single-Perspective other-than-System-Sponsor

- Little Dual-Perspective Research (cf. win-win!?)

- Very little Multi-Perspective Research (cf. win-win-win) (even in supply chain and network studies!?)

- **IS Researchers score a Fail on axiological insight**

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Clarke at Bled (2016)
Clarke & Davison, JAIS (2019)

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A **<u>Pragmatic</u> Axiological Model**

- "An open attitude toward any kind of axiological foundation that might work"
- "Axiological diversity"
- "Disciplined axiological pluralism"

- Single-Perspective
    - System-Sponsor   90%
    - Other Stakeholder   5%
- Dual-Perspective   3%
- Multi-Perspective   2%

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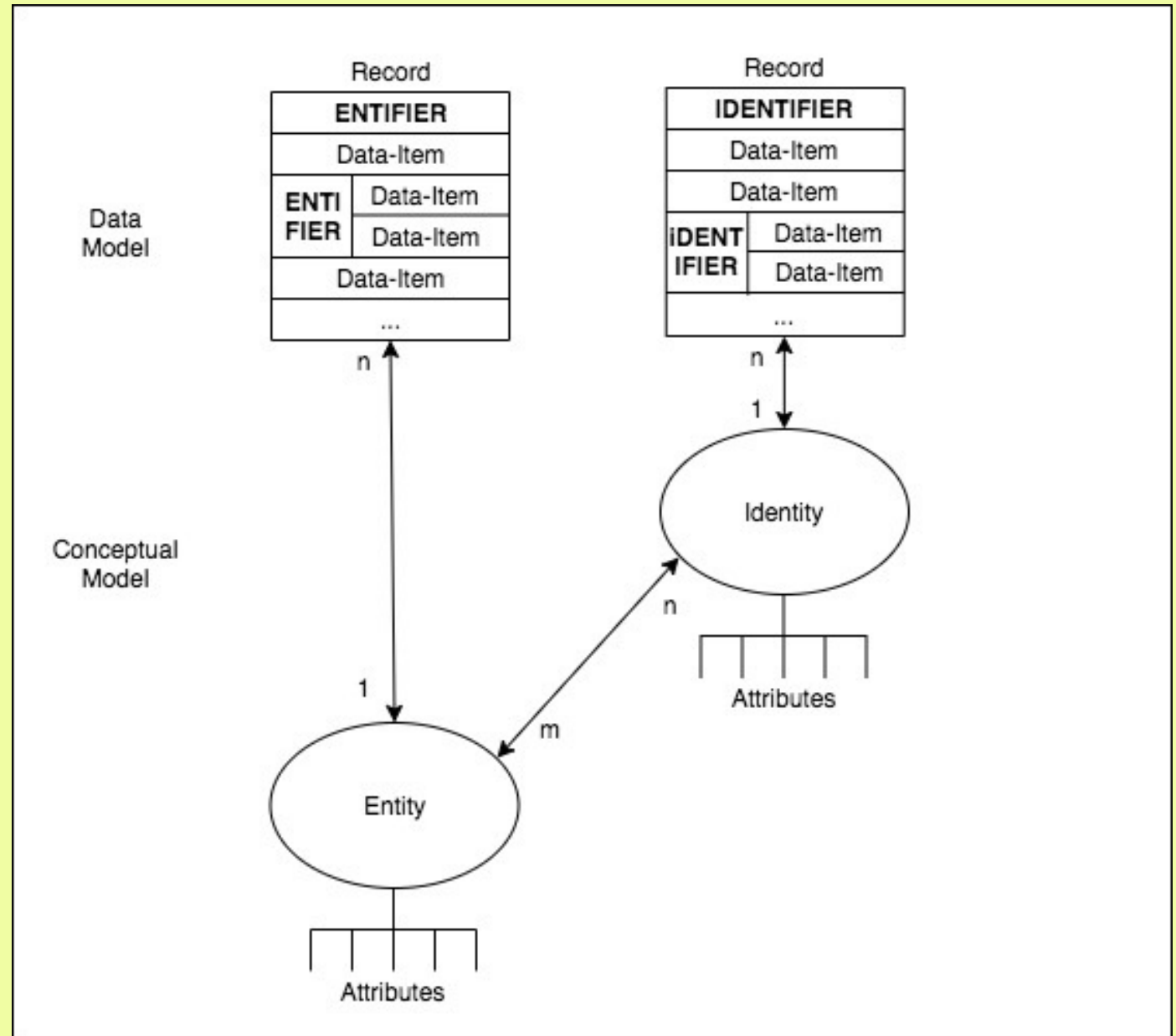# Part of the Framework for Application of the Pragmatic Model

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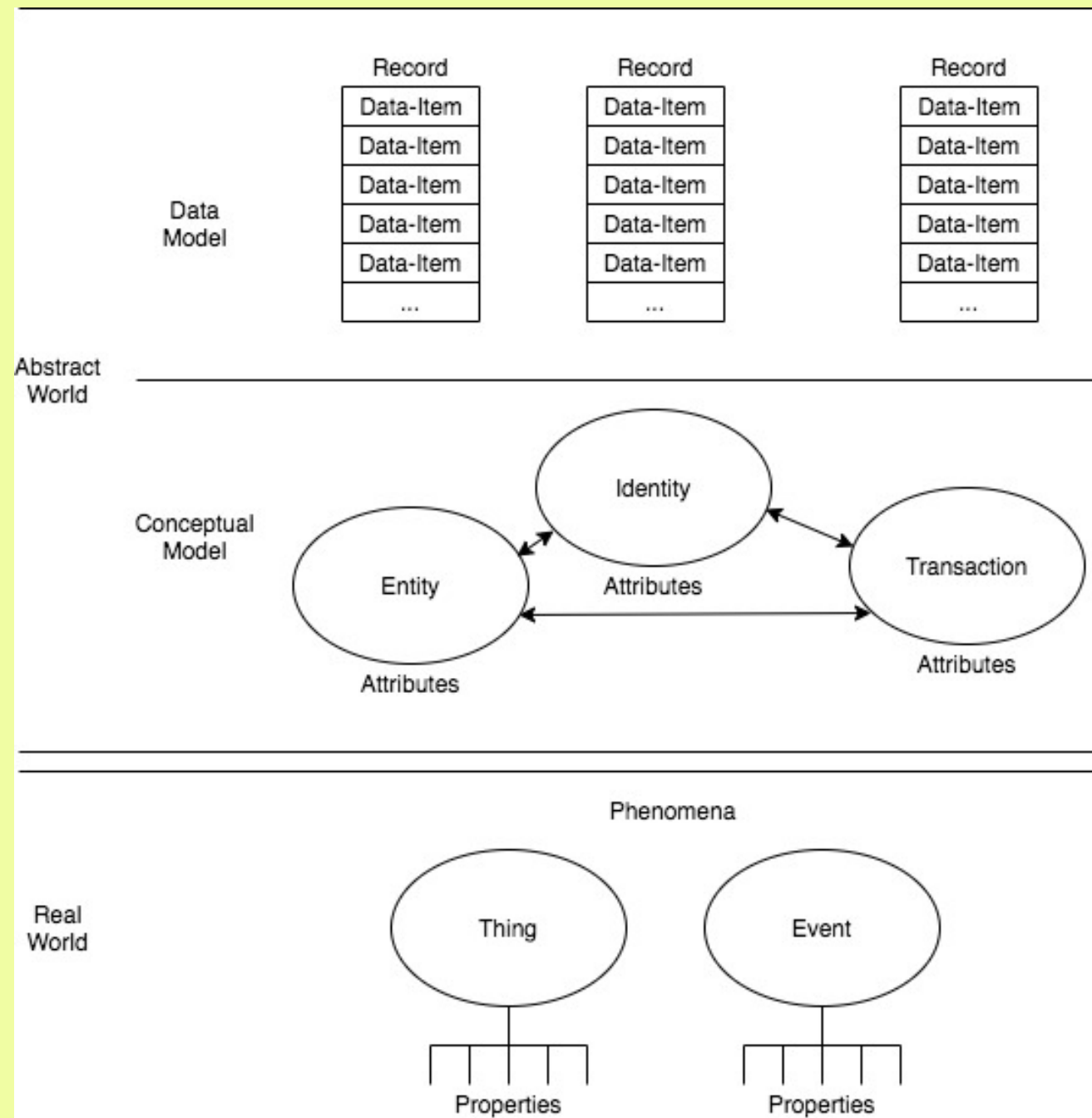
Application to (Id)Entity Management
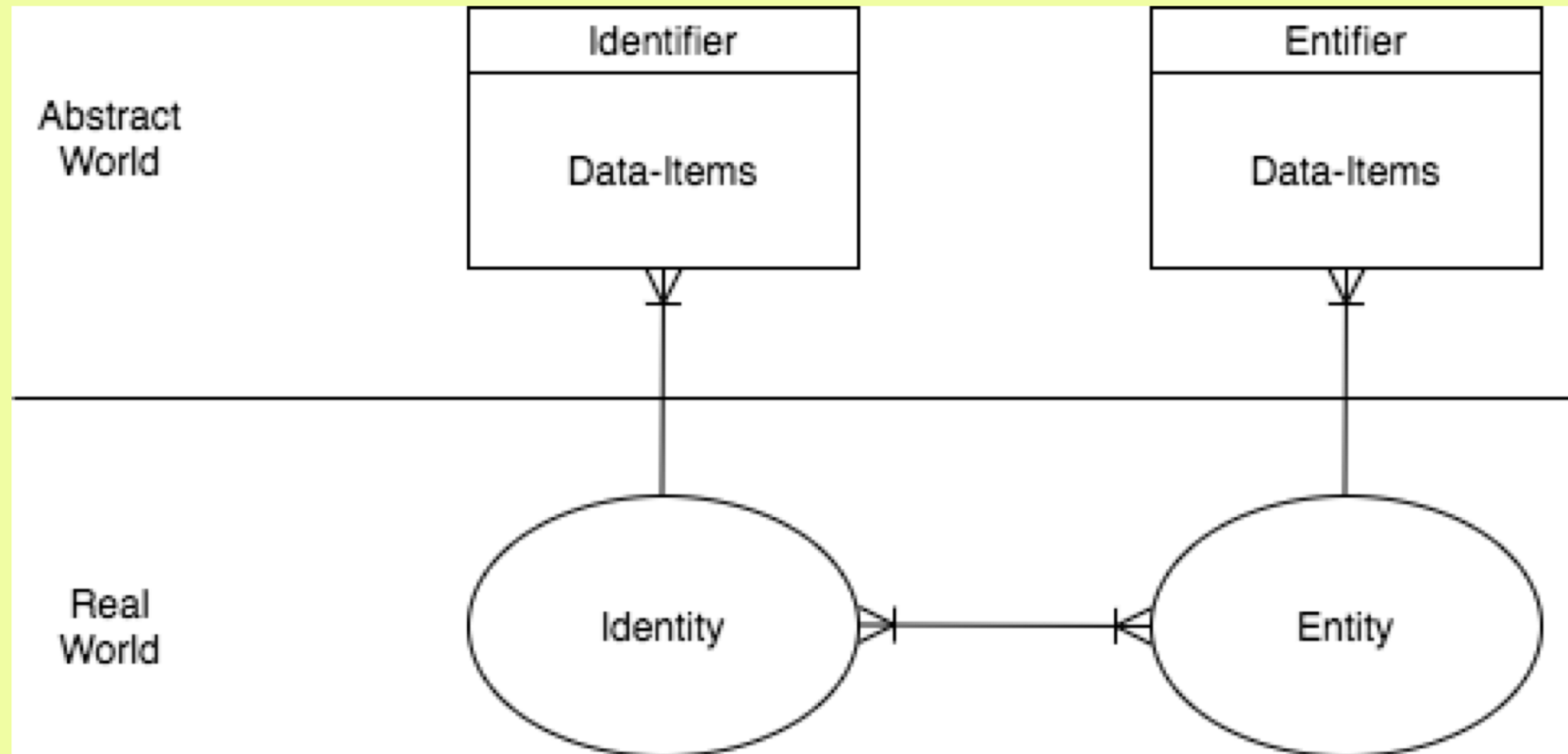
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Entities and Identities

- **Inanimate Objects** (Inventory-Items, Equipment)
  - Containers ⊃ Pallet-Loads ⊃ Boxes ⊃ Cartons
  - Mobile-Phone/Handy/Cellulare ⊃ SIM-Card
  - Computer ⊃ Processes
  - Car – Chattel, Speed-Check, Convoy-Lead, Get-Away Car, ...

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(Id)Entities and (Id)Entifiers

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Entities and Identities
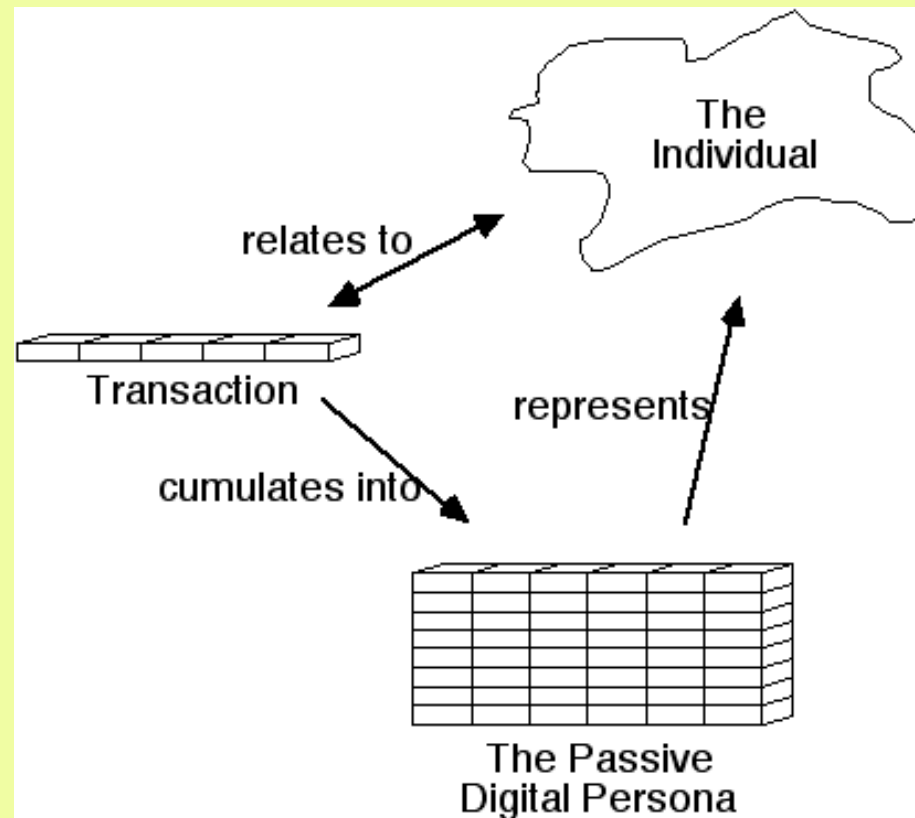
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  - Mobile-Phone/Handy/Cellulare ⊃ SIM-Card

  - Computer ⊃ Processes

  - Car – Chattel, Speed-Check, Convoy-Lead, Get-Away Car, ...

- **Humans** as Individual Entities and as Identities / in Roles:

  Seller, buyer, supplier, receiver, debtor, creditor, payer, payee, principal, agent, franchisor, franchisee, lessor, lessee, copyright licensor, copyright licensee, employer, employee, contractor, contractee, trustee, beneficiary, tax-assessor, tax-assessee, business licensor, business licensee, plaintiff, respondent, investigator, investigatee, and defendant

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Entifiers and Identifiers

- **Inanimate Objects** (Inventory-Items, Equipment)
    - Containers ⊃ Pallets ⊃ Boxes ⊃ Cartons
    - Mobile-Phone/Handy/Cellulare ⊃ SIM-Card
    - Computer ⊃ Processes / NICiD? IP-Address&Port ?
    - Car – Chattel, Speed-Check, Convoy-Lead, Get-Away Car, ...

- **Humans** as Individual Entities and as Identities / in Roles:

    Seller, buyer, supplier, receiver, debtor, creditor, payer, payee, principal, agent, franchisor, franchisee, lessor, lessee, copyright licensor, copyright licensee, employer, employee, contractor, contractee, trustee, beneficiary, tax-assessor, tax-assessee, business licensor, business licensee, plaintiff, respondent, investigator, investigatee, and defendant
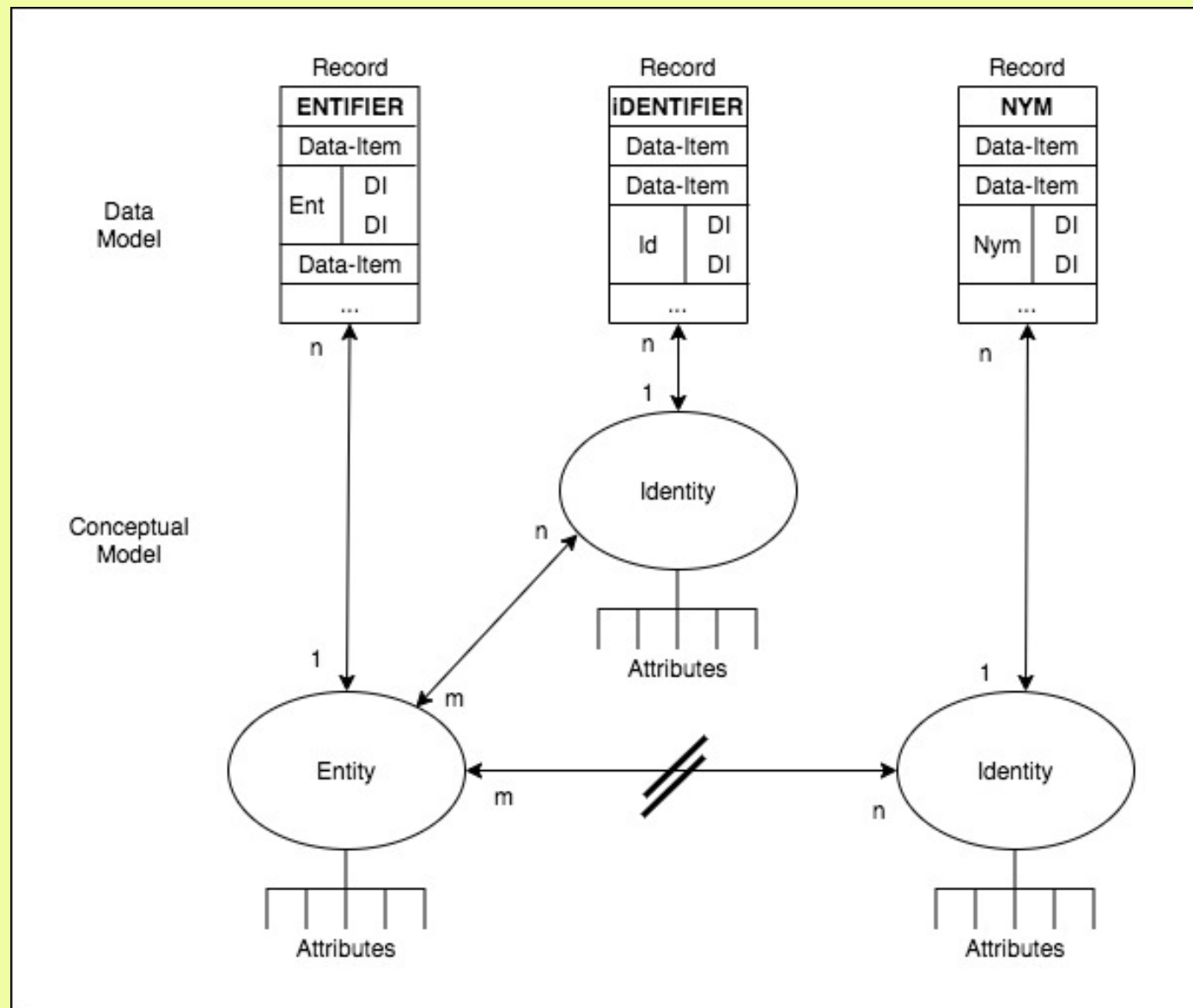
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The Digital Persona

A model of the public personality of an (Id)Entity, based on Data, maintained by Transactions, for use as **a proxy for the (Id)Entity**

The Individual

relates to

Transaction

cumulates into

represents

The Passive Digital Persona

Clarke (1994, 2014)
The Digital Surveillance Economy (JIT, 2019)

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(Id)Entities, (Id)Entifiers and Nyms

Pseudonym, Anonym, Persistent Nym

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- **Personal Data De-identification** purports to prevent association of Personal Data with the relevant human (Id)Entity (if any)

- **Personal Data Re-identification** purports to reliably associate Data with the relevant human (Id)Entity, <u>despite</u> prior attempts at de-identification

- **Personal Data Falsification** is a process whereby Personal Data is changed so as to render it valueless for any purpose relating to the administration of relationships between organisations and particular individuals

  It **converts Empirical Data**, that reflects an Attribute of a Real-World human (Id)Entity, **into Synthetic Data** that represents a plausible Phenomenon, but not a real one

http://www.rogerclarke.com/DV/RFED.html (Bled 2019)   20

Contemporary Weaknesses the Model Addresses

** **Conventional Id Management fails** because **it conflates**:
Identities-Entities, Identifiers-Entifiers, Identification-Entification

- Conventional IS models have **unreliable association** of data records with human (id)entities

- Conventional IS have **mediocre correspondence** between Data-Item-Values and human phenomena

- **Conventional IS feature naive reuse and merger of data** ignoring purpose-specific QA, definitional incompatibility

- **Conventional IS depend on inaccurate digital personae** Impersonation, composite ids, masquerade, spoofing, id fraud, ...

- Organisations overlook **human (id)entity values**, risking mis-matched designs, resistance, low ROI

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Approach

- **Pure Research**
'I want to discover and understand what is'

- **Applied Research**
'I have a research tool, so I'll use it' (hammer, so nail)

- **Instrumentalist Research**
There's a problem, so I'll try to solve it

- **'Pragmatism'**

  - In philosophy, 'concerned with understanding and action', not merely describing and representing

  - In IS practice, approximates and articulates a layman's 'common sense' interpretation

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A <u>Pragmatic</u> Epistemological Model

- "An open attitude toward any kind of epistemological foundation that might work"

- "Epistemological and methodological diversity"

- "Disciplined methodogical pluralism"

- **Empiricist orientation, if mostly non-human entities**
  Guidance systems for aircraft and spacecraft
  Heavily-automated production control /inventory systems

- **Recognition of innateness, for systems with human involvement or with significant impact on humans**

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Employee Attributes

- **Human Entity**
  - Emergency Contact-Name, Bank a/c for Salary
    Do they <u>really</u> need a biometric/brand/embedded chip?

- **Human Identity**, persistent, but change over time
  - Position, Start-Date, End-Date, Permissions

- **Human Identity**, occasional and may be shared
  - Fire Warden, Zone, Training Certs, Permissions

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