

Critical Analysis of Published Works

How to Establish a New IS Research Technique?

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[{.html, .pdf}](http://www.rogerclarke.com/SOS/CAPW)

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The Issue: Content Quality

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The Issue: Content vs. Noise

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IS's Substantial Literature

- Emergence c. 1965
- **AIS eLibrary** > 15,000 refereed works
- 'Basket of 8' journals alone: otoo 7,000 articles
- 5 xCIS conferences: +1500 refereed papers p.a.
- John Lamp's directory of IS journals: almost 700 active venues that publish IS works



John Lamp's IS Pages
Background Information

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Categories of Research Papers

- Empirical
- Theoretical
- ...
- Meta-Discussions
 - Disciplinary Scope
 - Terminology / Dialects
 - Research Technique Applicability
 - ...

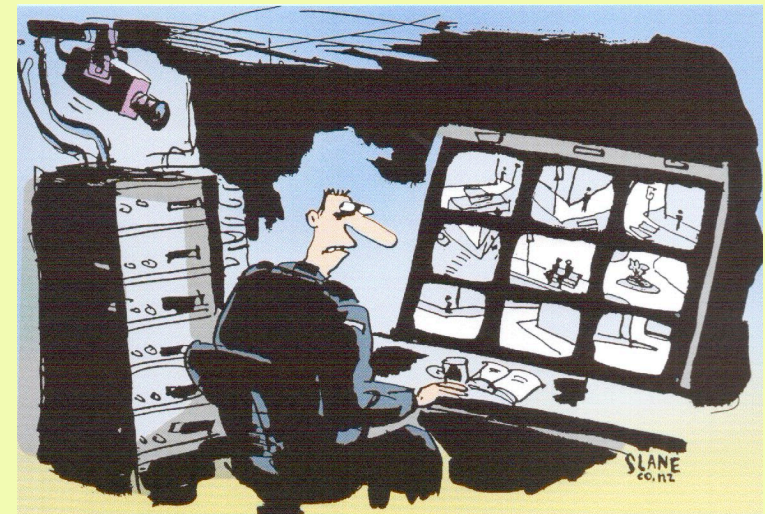
Propositions for a Meta-Discussion

- Hallmarks of a science are:
 - All statements must be refutable
 - All statements are provisional
 - All propositions must be tested
- New submissions to publishing venues must be subjected to critical review

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- Already-published literature must be subjected to critical review

Already-published literature
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Personal Motivation

- I conducted a critical analysis of articles in a Special Issue in a leading journal in a specific research-domain relevant to the IS discipline
- I submitted the paper to that journal
- It was rejected. A key factor: **Reviewers thought that the research technique was illegitimate**
- It was rejected by an IS 'Basket of 8' journal
- The rejection came with an invitation to further develop the methodological component

Terminology

- **Research Technique**
A specification for a process: Structured interview, case study, action research, ...
- **Research Method**
The process adopted in a particular project, comprising one or more Research Techniques
- **Research Methodology**
The disciplined study of research methods; **not** a synonym for either or both of the above



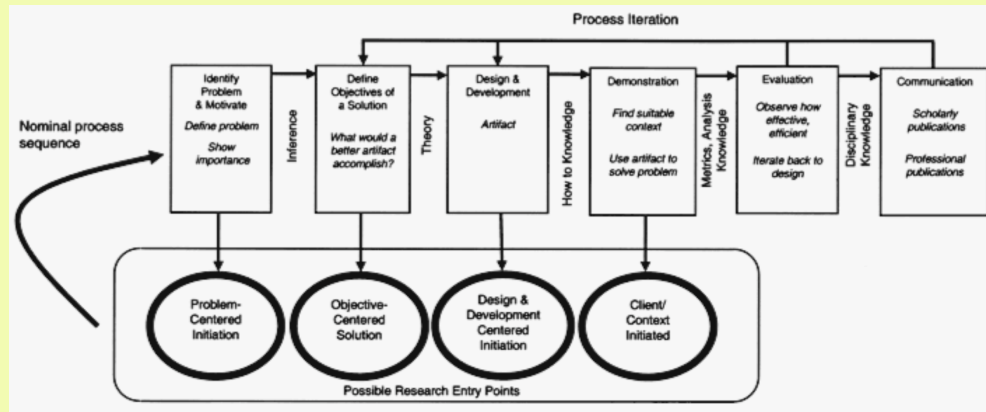
The Research Objective

**The Development of a Research Technique
for the Critical Analysis
of the content of Published Works
relevant to the IS discipline**

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"Design Science Research involves the construction of a wide range of socio-technical artifacts such as decision support systems, modeling tools, governance strategies, methods for IS evaluation, and IS change interventions" (p.337)



Peffer K., Tuunanen T., Rothenberger M. & Chatterjee S. (2007)
 'A Design Science Research Methodology
 for information systems research' JMIS 24, 3 (Winter 2007) 45–77

Critical Analysis of Published Works A New IS Research Technique?

- What would it do? And Why?
- How to establish a new technique?
- Relevant Research Techniques
- Criticism
 - The Role of Criticism in Research
 - Critical (Research) Theory
- Key Characteristics of a Technique
- Instantiation and Demonstration

Discussion No. 1

1. Does Critical Analysis of Published Works have a **legitimacy problem**, as reviewers suggested?
2. Are there **sufficient potential benefits** to justify resources being allocated to it?
3. Is the **initial framing** sufficiently comprehensive and coherent?
4. Is the Research Technique **already established**?

Sample Research Questions 1 of 3

Critique of the Theoretical Base:

- Is **the scope of works cited** in each work's literature review sufficiently comprehensive?
- Are **recognised leading works** appropriately represented and applied in each work?

Sample Research Questions 2 of 3

Methodological Critique

- Is **the description of the research method** in each work at a sufficient level of detail to enable evaluation of research quality?
- Are reports of case study research **auditable**?
- Does each work consider **the suitability of the data to the data analysis techniques that are applied**, or is its suitability merely assumed?

Sample Research Questions 3 of 3

Substantive Critique:

- Does the research-domain contain **sufficiently homogeneous and stable phenomena**?
- To what extent does each work reflect the **interests of sub-dominant stakeholders**?
- Does each work evidence understanding of the **power relationships** within the research domain?

'Published Works' / 'Publishing Venues'

- **Refereed Articles in Journals**
- **Refereed Papers in Conference Proceedings**
- **Refereed Chapters in Academic Books**
- **Refereed Academic Books**
- Papers in Workshops and Symposia?
- PrePrints / Working Papers?
(institutions with appropriate standing only?)
- Research reports commissioned by govt agencies, foundations, industry associations, corporations?
- Corporate White Papers?
- Articles in the Technical Media?

'Content' / 'Relevant to the IS Discipline'

- **The Text** of the published work, **in Context** (e.g. research domain, the academic discipline, relevant cultural factors)
- Text includes tables, diagrams, formulae
- **Research Method *per se* is out-of-scope EXCEPT** where content describes or discusses the research method and data
- **IS Venues**, other venues publishing IS, venues of reference and cognate disciplines

The Scope of such an Analysis

- The whole Corpus / Literature ??
- Population Segment, Sampling Frame, Sample:
 - A Venue
 - A Time-Span
 - A Focussed Collection – Special Issue(s), Specialised Confs, set of Academic Books
 - A Research Domain
 - A Research Technique
 - A Single Work (significance, originality)

Discussion No. 2

1. Is **Theory, Method and Substance** a suitable categorisation for relevant Research Questions?
2. How to establish a **new Research Technique**?
Is there a formal meta-method?
Or maybe even a formal meta-methodology?
3. Are there relevant **exemplars**?
4. Are there relevant **reviews and expositions** of existing IS-relevant Research Techniques?

Somewhat Relevant Techniques – 1 of 3 Qualitative Research Techniques

Ethnography, Grounded Theory, Phenomenology

Sources

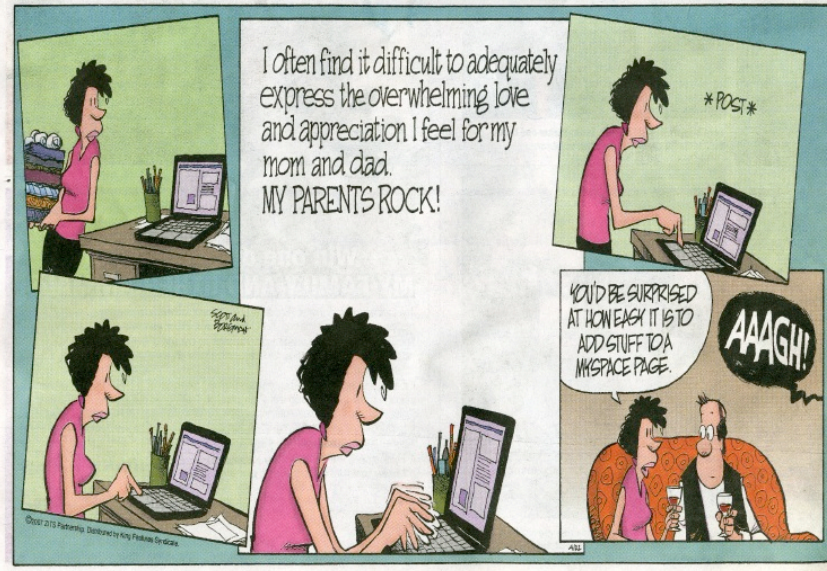
- Natural Settings
(Field Research,
Social Media Postings)
- Contrived Settings
(Laboratory Experiments)
- Mixed Settings (e.g.
interviews conducted in
the subject's workplace)

Forms

- Text
- Speech
- Natural Non-Verbal
(Behaviour)
- Non-Verbal, Non-Textual
(Questionnaire Responses)



Qualitative Research seldom deals with the carefully-considered, formalised texts that are typical of published academic works



An Ode to the Integrity of Social Media Content

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Somewhat Relevant Techniques – 2 of 3 Informal Literature Reviews

"Traditional literature reviews ...
a selective, opportunistic and discursive approach
to identifying and interpreting relevant literature"
(Oakley 2003, p.23)

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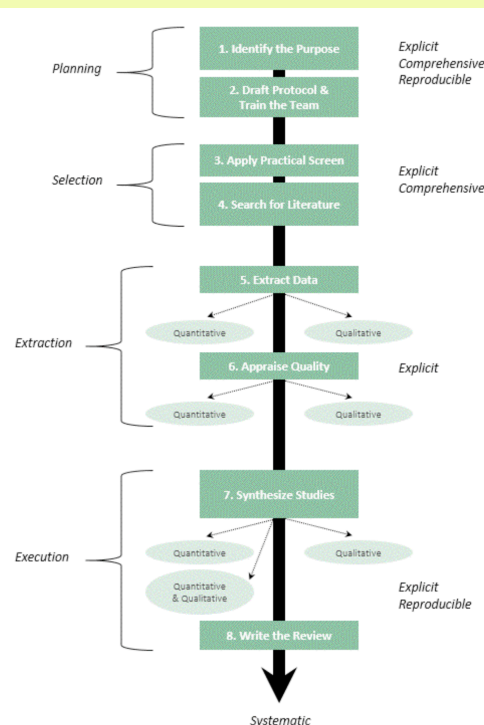
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Somewhat Relevant Techniques 3 of 3

Systematic Literature Reviews

Structure
Transparency
Replicability

Okoli & Schabram 2010



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Purposes of Literature Reviews

- **Exposition** of Existing Theory
- **Interpretation** of Existing Theory
esp. Application to a Particular Context
- **Evaluation** of Existing Theory
e.g. gap / opportunity identification
- **Critical Analysis**

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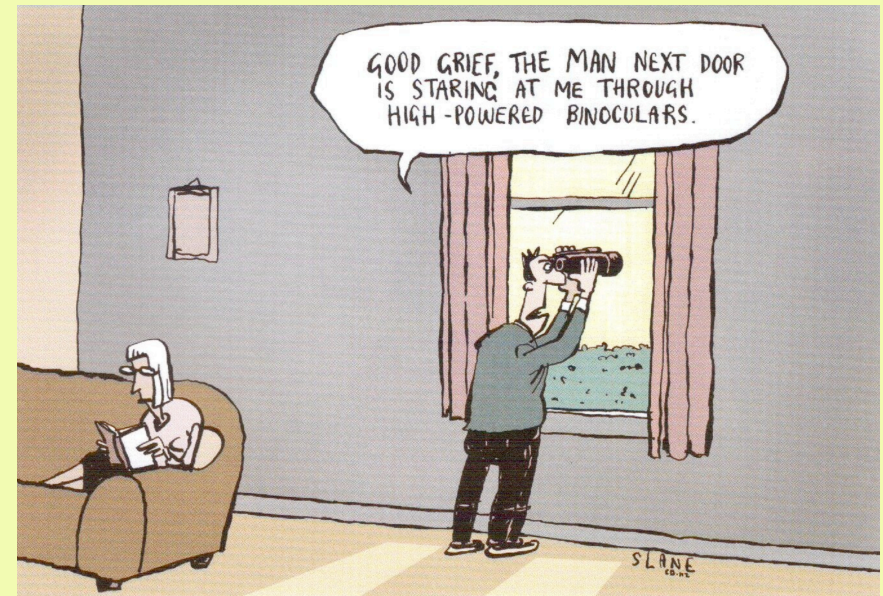


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Critical Analysis Asks Hard Questions

Is it reasonable to make such assumptions as:

- All relevant published literature is of high quality
- Measurement instruments and research techniques have always been good, well-understood by researchers, and appropriately applied
- No material changes in the phenomena
- No material changes in the intellectual contexts within which research is undertaken



Critical Analysis

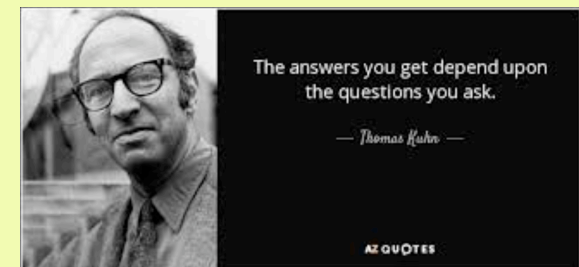
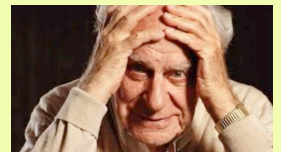
Critical Analysis addresses
both the merits and faults of a body of work
including its framing,
the expression of the analysis,
and the expression of the inferences drawn

'Constructive Criticism'?

'Critique'?

Criticism is Vital to Scientific Progress

- A theory is scientific iff its statements are empirically falsifiable
- Progress depends on attempts to demonstrate falsity of statements (1963)
- But 'normal science' is conducted within a 'paradigm' and subject to conventions
- 'Paradigm shifts' are resisted, and only occur after substantial 'anomaly accumulation' (1962)



The IS Discipline is Wary of Criticism

"In contrast to specific and critical reviews of individual papers, tell the reader what patterns you are seeing in the literature ...

"Do not fall into the trap of being overly critical"

But how important is politeness, in comparison with scientific insight and progress?

The IS Discipline is Wary of Criticism



"Papers should be in apposition rather than in opposition"

[i.e. position things side by side or close together]

= '**Papers should not be in opposition**'?

OTOH, it is intellectually dishonest to represent a contrary or disruptive theory as if it were merely a refinement to existing theory

Critical Theory Research

Precepts shared with Interpretivism

- Reality/ies are (re-)constructed by people
- Interpretation of reality is **not value-free**
- Understanding of socio-technical systems requires **engagement with the context**

Precepts specific to Critical Theory Research

- Recognises and studies **power relationships**
- Uses a **highly inclusive stakeholder model**
- Is transformational / **instrumentalist** / 'has an agenda' (cf. Design Theory Res.)
- Seeks **insight**
- Embodies reflection / **self-questioning**

Discussion No. 3

1. Other relevant **Research Techniques** to study?
2. Are the depictions suitable:
 - of **Critical Analysis**
 - of **Critical Theory Research**
3. Are there better examples of the discipline's **institutionalised resistance to criticism**?

Content Analysis Techniques

Alternative Philosophical Assumptions:
authorial intent, inherent meaning, reader interpretation

"The interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns"

- *A Priori* Categories
- Emergent Categorisation
- Summative Content Analysis
- Computational or Programmatic (Debortoli et al. 2016)

Hsieh & Shannon (2005)

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A Broad Spectrum of Assumptions

Data creation can be on any scale, but, as ever,
prefer ratio to cardinal to ordinal to nominal

Positivist

- There is a unary truth
- Observation and measurement can be conducted value-free
- Physical-science rigour is achievable

Interpretivist

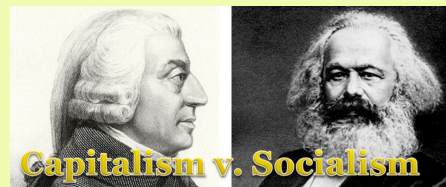
- Realities are human-constructed
- Value-free processes are not feasible
- Observation involves engagement

Chen W. & Hirschheim R. (2004) 'A paradigmatic and methodological examination of information systems research from 1991 to 2001' *Infor. Syst. J.* 14 (2004) 197-235

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Critical Discourse Analysis

- IS is subject to 'Ideological Hegemony', i.e. **dominant thought patterns and worldviews, engrained in a discipline and beyond scrutiny:**
 - framing of research topics and questions
 - choices of theories and research methods
- So assess power relationships between actors, and evaluate comprehensibility, truthfulness, legitimacy and sincerity



Habermas 1984, Cukier et al. 2009,
Wall et al. 2015

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The Central Issue of Competing Ideologies

- Participants in meta-discussions too often adopt the stance that **'they' have an ideology**, whereas 'we' have a coherent frame of reference
- **But an ideology is "a systematic scheme of ideas, ... forming the basis of action or policy; a set of beliefs governing conduct"** (OED 4)
- **IS needs to internalise**, appreciate, juxtapose and actively seek balances among, diverse values and objectives



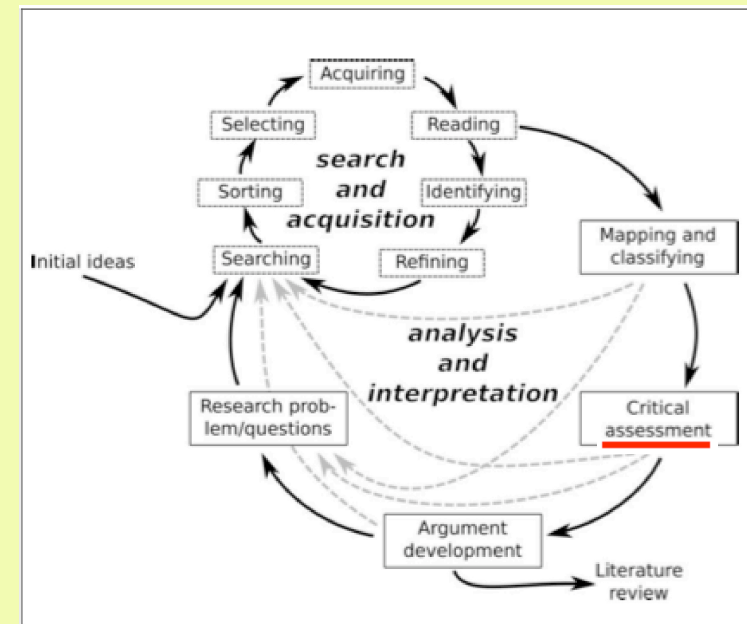
<http://www.rogerclarke.com/EC/DSE.html#CI>

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'Systematic' Literature Reviews Considered Harmful

- **Beyond (positivist)**
clarity, countability, accountability, ...
- **To (interpretivist and critical theory)**
intertextual connectivity, critique, interest, expertise, independence, tacit knowledge, chance encounters with new ideas, and dialogic interactions between researcher, 'literature' and 'data', ...

Hermeneutic Approach for Conducting Literature Reviews



The Purposes and the Targets of Existing Techniques

Context Analysis

- Primarily descriptive, perhaps interpretive, categorisation of contents of a body of text

Critical Discourse Analysis

- Appreciation of a literature in context

Hermeneutic Literature Search and Review

- Appreciation of a literature in context

Discussion No. 4

1. Can **content analysis techniques** support the critical analysis of published works?
2. Can **critical discourse analysis** support the critical analysis of published works?
3. Can **hermeneutic literature search and review** support the critical analysis of published works?
4. Can a single research technique **bridge worlds** – supporting both positivist and interpretivist approaches, and critical theory research?

The Conceptual Contribution

Key Characteristics of a Technique for the Critical Analysis of Published Works

- The Focus of the Research 4
- The Framing of the Research 2
- The Research Process 6
- The Presentation of the Research 8

Key Characteristics of a Technique for the Critical Analysis of Published Works

The Focus of the Research

1. Formal Content
2. Content rather than Method
3. Criticism
4. Content not Intent

The Framing of the Research

5. Appropriate Degree of Structuredness
6. Designed-in Methodological Rigour

Key Characteristics of a Technique for the Critical Analysis of Published Works

The Research Process

7. Phased Reading
8. Self-Questioning, Reflection, Open-mindedness
9. Coding Rigour
10. Quantification
11. Analytical Rigour
12. Iteration

The Research Presentation

13. Declaration ... of the Research Qn
14. ... of the Research Method
15. ... of Researcher Perspective
16. Qualitative Critique
17. Inferential Rigour
18. Careful Expression
19. No *argumentum ad hominem*
20. Expression in Apposition Unless the Evidence Warrants Opposition

An Operational Contribution Application to a Specific Project

- 'Researcher Perspective':
The stakeholder viewpoint(s) from which the researcher observes the relevant phenomena
- Collections of works examined 2015-18, trialling successive iterations of the analysis process:
ACIS/ AJIS (2014); Bled Conf. (longitudinal sample), papers from a Special Issue; Bo8 (longitudinal)
- (In >90% of works, a single stakeholder's perspective is adopted as an objective, whereas other interests are treated as constraints. Of single-perspective works, c.90% adopt that of the system's sponsor)

<http://rogerclarke.com/SOS/ACIS15.html>
<http://rogerclarke.com/SOS/BledP.html>
<http://www.rogerclarke.com/SOS/RP8.html>

The Category of Project to which the Test Application belongs

- **Critical Theory Approach**, incl.:
 - inclusive stakeholder model
 - a power relationship focus
- **Research Question Pre-Specified**
but subject to some adaptation
based on careful readings of the works
- **Coding Structure Largely *a priori***
but subject to reconsideration and refinement

A Customised Research Method for the Critical Analysis of Published Works

1. Specify the Research Question
2. Specify the Segment, Sampling Frame, Sample
3. Specify the Sources of Categorisations
4. Review each Work in its own Terms
5. Identify Key Passages
6. Perform the Coding
7. Record Coding Rationale and Key Passages
8. Review the Analysis
9. Re-Work the Analysis
10. Communicate the Research Method, and the Researcher Perspective
11. Communicate the Results
12. Avoid Undue Attribution of Intent

Limitations / Further Steps

- Multiple **instantiations of the technique** are needed, articulated for exemplar research projects
- A **sufficiently rich set of projects** is needed, to illustrate and/or demonstrate the usefulness of the guidance across multiple project-types
- **Evaluation**, as per DSRM, i.e. observation and measurement of the new artefact's effectiveness in addressing declared objectives
- **Improved connections with existing literature**

Discussion No. 5

1. Is the 'key characteristics' set comprehensive?
2. What **key categories** should be prioritised?
3. What **sample research questions** are likely to garner attention from journal editors?