

*Posted: July 2009*

**When is a conceptual framework also a theoretical contribution?**

**Matthias Holweg (Judge Business School, University of Cambridge, United Kingdom)**  
**Dirk Pieter van Donk (Faculty of Economics and Business, University of Groningen, The Netherlands)**

**Introduction**

This note started out as a very harmless conversation between us – we share an interest in supply chain management, and specifically, what factors make supply chains responsive to customer requirements. In the course of our debate we compared a range of papers that we and others had written on the subject, and soon discovered that the conceptual frameworks that each of these papers promoted differed significantly in form, variables and relationships considered. What struck us was that we could each logically ‘defend’ or ‘justify’ our respective frameworks, yet despite the considerable disagreement between them – in terms of variables considered, for example – there seemed no obvious reason to either prove or disprove any of them. As we described how we had arrived at our respective ‘magnum opus’, it soon transpired that there is little guidance on how to build such frameworks in the first place. Yet without such guidelines, how do we assess the quality, validity, or contribution made to theory – considering that Operations Management (OM) research spans across the epistemological spectrum whereby many frameworks are never subjected to formal theory testing?

These questions intrigued us, in particular in the light of Roger Schmenner’s recent critique of the use of theory in OM, highlighting a tendency to draw up new theories without ever rejecting old ones (Schmenner, 2009). The way we tend to position conceptual frameworks in OM research marks a case in point, even more so, as we tend to encourage our postgraduate students to draw up conceptual frameworks as an important part of their doctoral work. These often then become part of what the student claims as ‘theoretical contribution’. But can this really be a valid theoretical contribution, if a conceptual framework is essentially bound by the

subjectivity of the researcher proposing it for the purpose of her study? In the extreme case, would this not make a conceptual framework essentially non-refutable, apart from judging its consistency and underlying logic? What guidelines do we provide for building sound conceptual frameworks, and when does a conceptual framework also become a contribution to theory? We found the answers to be far from obvious, so set out to enquire.

### **Different forms, different purposes**

Our very first observation is that conceptual frameworks actually differ considerably in their form. Miles and Huberman (1994, p. 18) distinguish between a *graphical* and a *narrative* form, adding that ‘frameworks can be rudimentary or elaborate, theory-driven or commonsensical, descriptive or causal’. We build on this notion, and identify common types in OM research: firstly, *descriptive mindmaps* that lay out the main factors or constructs in a certain field of interest and shows a connection between them, but without causality or directionality. Within this framework variables might be shown in a hierarchy of different levels of aggregation (see for example Koste and Malhorta, 1999, p87). Adding a further level of restrictions, *relational frameworks* highlight the main variables of interest (to the researcher proposing it), alongside the connections between these variables. Connections are generally unidirectional, but might be bi-directional to depict mutual influence. A special case here is the *causal framework* where connections direct into one way to imply causality. In the latter case the model shows dependent and independent concepts, constructs, or variables (see for example Frohlich and Westbrook, 2002, p733). Thirdly, *Venn diagrams* (or *set diagrams*) show all hypothetically possible, logical relations between a finite collection of entities. The aim of this type of framework is to show all entities at the same level, in one space, where each entity can be associated with a specific set or attributes of entities. Circles (or similar shapes) show the belonging and/or identity of each element (see for example Hamilton and Selen, 2004, p273). Finally, *narrative frameworks* that can be based on of any of the above forms verbally express what the above show in a graphical form. In summary, the main distinguishing characteristics of any form of a conceptual framework are (1) the *type of elements* considered, (2) their

*relationships* in terms of causality and directionality, (3) the *hierarchy* between these elements, and, finally, (4) the *representation* of these elements.

A second observation, and one directly linked to the question of form, is that conceptual frameworks serve very different purposes. Miles and Huberman (1994, p. 18) state that ‘a conceptual framework explains [...] the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them’. They continue by arguing that conceptual frameworks essentially mark the current version of the researcher’s map of the territory under investigation, which would suggest that these serve multiple – and mutually non-exclusive – purposes. The main ones we have identified (while fully acknowledging that this list is not exhaustive) can be outlined as: to *simplify*, to *determine relevance*, to *depict causality or order*, to *summarise*, to *provide a theoretical lens*, and to *promote* a concept. First and foremost, conceptual frameworks simplify a complex world to a ‘digestable’ set of *relevant* variables, in other words, simplification signifies a judgement about relevance when deciding what to include or not to include in the research. A second aim is causality: many frameworks show causality (“A leads to B”) as a foundation for developing and subsequently testing a hypothesis, or a set of hypotheses. Also, a conceptual framework can aim to summarise empirically found concepts and their relations, or serve as a means to order a part of a field and depict how the main concepts, constructs and elements can be grouped in a logical, structured and sometimes hierarchical way. The last two purposes we could distinguish are to create a theoretical lens (see Amundson, 1989), which represents the ‘Weltanschauung’ that guides the observations, and to promote a certain vision or idea. Management consultants will typically use conceptual frameworks in this way in order to persuade and instigate change within organisations.

In our view it is important to acknowledge this morphological diversity and difference in purpose when discussing the quality of a conceptual framework, which we turn to next.

### **So, what makes for a ‘good’ conceptual framework?**

When judging the quality of conceptual framework, one first and foremost has to note that very limited guidance is available. Miles and Huberman (1994) implicitly give a number of hints

that are related to the quality of a framework, while Pfeffer (1982), Whetten (1989) and Handfield and Melnyk (1998), and others, offer more explicit criteria. Combined, we suggest that the following can be seen as a list of established criteria for 'good' conceptual frameworks:

1. **Selectivity:** there should be a clear and logical justification why a conceptual model includes certain elements and excludes others (Whetten, 1989)
2. **Parsimonious use of variables:** as few variables as possible should be used, restricting the model to the 'vital few' (Pfeffer, 1982; Whetten, 1989)
3. **Specificity:** a framework should be precise and clear, with clear boundaries as to what it covers, and what it does not cover (Pfeffer, 1982)
4. **Comprehensiveness:** considering the intention of the framework, all elements should be taken into account that are needed to support any claims made (Whetten 1989)
5. **Novelty (or risk):** it is not sufficient just to repeat what others have done – a framework should have its own conjecture and be surprising in offering new insights, which often involves negating an existing and accepted theory (Davis, 1971; Siggelkow, 2007)
6. **Meaning:** does the framework present us with an instrument that helps understand an existing, real-life managerial problem? The relevance to a practical problem seems to be the point of greatest agreement in the literature (Whetten, 1989; Schmenner, 2009)

While there is a logical case for any of the above criteria, they are by no means easy to judge, while some are even contradictory. How, for example, does one determine the boundaries of a framework? Or how does one balance the need for a parsimonious yet comprehensive use of variables? What specific guidelines do we have at hand to make these decisions in the light of the above criteria, and balance them in an appropriate way? Here, Whetten suggests that authors should provide '[...] compelling and logical justifications' (Whetten, 1989, p. 491), which in some ways is like telling a novice cook to 'boil to taste' or to 'add salt as needed'.

To us the critical question is where to draw the system boundary: any model or framework, by definition, has to simplify: as Siggelkow (2007, p21) points out, if models '[...] were as

complex as reality, they would not be useful at all'. The parsimonious use of variables is hailed as a virtue across the board, but how does the researcher know which variables to include, and which ones can be omitted without incurring bias? This is specifically important as the framework functions as a bridge between theory and hypotheses, and subsequently, the empirical investigation.

So while we do have a set of quality criteria for assessing conceptual frameworks, we have in fact little guidance to offer how to devise them, and one might argue that this has a direct detrimental effect on the quality and subsequently, contribution, of the framework proposed. With these points in mind, let us now return to our initial question.

### **So, when is a conceptual framework also a theoretical contribution?**

First and foremost, the key criterion here is that any theory or contribution to theory should have an explanatory value, or as Whetten (1989, p491) puts it, '[..] we must make sure that what is passing as good theory includes a plausible, cogent explanation for why we should expect certain relationships in our data.' And it is this criterion that we must apply when judging whether or not a conceptual framework indeed marks a contribution to theory. To facilitate this discussion, we distinguish between two types of conceptual frameworks: frameworks that can be further developed into testable hypothesis, and those that cannot.

With regard to *empirically testable conceptual frameworks*, one could argue that extensive lists of criteria and guidelines are already available to judge quality (e.g. Bacharach, 1989; Flynn et al., 1990) – not necessarily with regard to judging the quality of the framework, but with regard to falsifying and justifying constructs, relationships, dependencies, and so on. The basic notion is that a conceptual framework needs to be rejected once the hypotheses derived from it are rejected (see also the critique by Schmenner, 2009). This is the traditional cycle of theory-building and -testing and has been well documented.

With regard to *empirically non-testable conceptual frameworks* one could argue that one should apply measures such as those proposed by Whetten (1989) to assess the quality of conceptual papers, by systematically addressing his seven questions: *what's new, so what, why so, well done, done well,*

*why now*, and *who cares*? Essentially, the conceptual framework could be disregarded if it did not pass one of these criteria.

But is this really sufficient? After all, as we have shown above, the same rigour that is applied to testing the framework has not been applied to developing the framework in the first place, as generally accepted guidelines are lacking. There is an implicit subjective judgment on relevance that underlies the decision on setting the system boundaries, for example. Thus, even if some variables turn out to be significant or important in the empirical analysis, who is to say that the omitted variables are less so? As much any model does, a conceptual framework represents a simplification of the real world, which in turn provides its intrinsic value. How this simplification is achieved, however, remains a dark secret.

Overall, our main observation is that the criteria for judging frameworks are more obvious than for building frameworks. Both approaches above offer some guidance here, but we must also recognise that they are only suitable for an *ex-post* determination of the quality and contribution a framework offers, similar to the problem of 'ex post obviousness' in case study research (Siggelkow, 2007). So do we need more explicit guidance on devising conceptual frameworks? On the one hand, increasing the quality of our conceptual models could in turn reinforce the quality of our empirical work, and thus help in challenging the beliefs, assumptions and theories we use to develop our testable hypotheses. On the other hand one might equally argue that developing a good conceptual framework is as much an art as a science, so good craftsmanship might be necessary, yet will never be sufficient. Inspiration from real-world observation seems a further necessary, but not sufficient requirement: Ohno's conceptual framework of the 'Seven Wastes', for example, clearly had a tremendous impact on practice, although in the form they were published few would recognise them as 'theory'.

\*\*\*\*\*

We neither did, nor had the ambition to, resolve all the issues raised in this short note. It does seem to us that the claim of a contribution to theory is all too often made rather lightly, so we felt it was a debate that should be brought forward in this forum. Clearly, a conceptual framework is an important means of setting the boundaries of a research project and distilling the many variables into the 'vital few'; in itself, however, it does not represent a contribution to theory. We have some guidelines at hand to test our frameworks, yet provide only limited guidance on how to build them. The general underlying

question we should ask ourselves here is whether we, as a field, are content with the way in which we develop, test and refute conceptual frameworks. All too often, it seems, we spend our time on devising novel frameworks that are conceptually interesting, yet remain unchallenged in the real world.

## References

- Amundson, S.D. (1998), Relationships between theory-driven empirical research in operations management and other disciplines. *Journal of Operations Management*, Vol. 16, No. 4, pp. 342-359.
- Bacharach, B. (1989), Organizational theories: Some criteria for evaluation. *Academy of Management Review*, Vol. 14, No. 4, pp 496-515.
- Davis, M.S. (1971), That's interesting: Towards a phenomenology of sociology and a sociology of phenomenology. *Philosophy of the Social Sciences*, Vol. 1, No.4, pp. 309-344.
- Flynn, B.B., S. Sakakibara, R.G. Schroeder, K.A. Bates, and E.J. Flynn (1990), Empirical research in operations management. *Journal of Operations Management*, Vol. 9, No. 2, pp. 250-284.
- Frohlich, M.T., R. Westbrook, (2002), [Demand chain management in manufacturing and services: web-based integration, drivers and performance](#). *Journal of Operations Management*, Vol. 20, No. 6, pp. 729-745.
- Hamilton, J., W. Selen, (2004), Enabling real estate service chain management through personalised Web interfacing using QFD. *International Journal of Operations and Production Management* Vol. 24, No. 3, pp. 270-288.
- Handfield, R.B. and S.A. Melnyk (1998), The scientific theory-building process: A primer using the case of TQM. *Journal of Operations Management*, Vol. 16, No. 4, pp. 321-339.
- Koste, L.L. and Malhorta, M.K. (1999), A theoretical framework for analyzing the dimensions of manufacturing flexibility. *Journal of Operations Management*, Vol. 18, No. 1, pp. 75-93.
- Miles, B.M. and A.M. Huberman (1994), *Qualitative data analysis: An expanded sourcebook*. California: Sage Publications.
- Ohno, Taiichi (1988), *Toyota Production System: Beyond large-scale production*, Portland, OR: Productivity Press
- Pfeffer, J. (1982), *Organizations and organization theory*. Marshfield, MA: Pitman.
- Schmenner, R.W. (2009), Too much theory, not enough understanding. *OSM Forum*, January 2009. (<http://www.journaloperationsmanagement.org/>)
- Siggelkow, N. (2007), Persuasion with case studies. *Academy of Management Journal*, Vol. 50, No.1, pp. 20-24.

Whetten, D.A. (1989), What constitutes a theoretical contribution? *Academy of Management Review*, Vol. 14, No. 4, pp. 486-489.