I TRIANGULATE THEREFORE I AM: RIGOUR IN CASE STUDY RESEARCH

Introduction
For marketing across the dimensions of people, places and spaces, an in-depth understanding of complex problems is invaluable. Case study research is well suited to investigating complexity (Eisenhardt, 1989, Yin, 2009) and generating context-dependent knowledge (Flyvbjerg, 2006). In spite of its benefits, case study research has attracted criticisms, primarily directed as its perceived lack of rigour. Reviewers have, for example, pointed to case study research where little insight has been provided (Beverland and Lindgreen, 2010; Dubé and Paré, 2003). To respond to this damning accusation, case study researchers need to enhance the quality of the ‘story’ by detailing analytical procedures (Eisenhardt, 1989), such as triangulation. The claims made for triangulation in establishing rigour in research are extensive and perhaps even over-stated as suggested in Miles and Huberman’s (1994) description of it as near-talismanic. Researchers are, therefore, left in something of a quandary about the nature of the claims that they can make about the rigour of their research. In particular, how can the multiple sources, which characterise case study research, be triangulated and what may be the outcomes? The purpose of this paper is, therefore, to appraise and advance understanding of the role of triangulation in strengthening the rigour of case study research.

Triangulation
The principle of triangulation is getting a fix on the phenomenon under investigation from two known points. It is a construct borrowed from trigonometry and adapted by social sciences and proposes that multiple and independent measures provide a more ‘certain portrayal’ of the phenomenon that is being studied (Jick, 1979 p. 604). Researchers triangulate multiple measures or sources so that they converge on this phenomenon (Yin, 2009; Modell, 2005, 2009). In this way, triangulation overcomes bias and establishes validity (Blaikie, 1991). More broadly, the multiplicity of sources offers a stronger substantiation of constructs and hypotheses in grounding emerging theory (Eisenhardt, 1989). Although triangulation is often envisaged as being data or method, Denzin (1978) extended the number of triangulation types to include investigator and theoretical triangulation. In Table 1, we update and extend the original categories in the light of recent contributions to the topic.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>Data</td>
<td>Gathering data with same objective through different sampling strategies, at different times, situations and from a variety of informants.</td>
</tr>
<tr>
<td>Investigator/researcher</td>
<td>Use of more than one researcher in gathering and interpreting data with same objective.</td>
</tr>
<tr>
<td>Theoretical</td>
<td>Use of more than one theoretical perspective in the interpretation of data.</td>
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<tr>
<td>Methodological or data type</td>
<td>1. Within-method i.e. varieties of similar method.</td>
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<td></td>
<td>2. Between-method, i.e. different methods (qualitative and quantitative.</td>
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<tr>
<td>Perceptual</td>
<td>Perceptions of actors and observers.</td>
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</tbody>
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Compiled from Bryman, (n.d); Denzin (1978); Erzburger and Prein (1997); Flick (1992); Jick (1979); Miles and Huberman (1994).

The first type shown in Table 1 is data triangulation, which refers to data collected using the same method but collected from different sources, for example interviews with different
informants, conducted at different times or observation of different situations or contexts. In qualitative research, a study gains impact when two or more data sets are used for corroboration, consolidating claims for external validity or reliability (Bluhm et al. 2010). The second type of triangulation is investigator or researcher triangulation, where multiple researchers collect and/or interpret evidence. One example of researcher triangulation might correspond to inter-rater reliability, which has been advised for demonstrating rigour in case study research (see for example Voss et al. 2002). One suggestion is that each investigator in a research team tackles a data set and if they find patterns corroborated across the data sets, they then have greater confidence in the emerging theory (Eisenhardt, 1989). The third type is theoretical triangulation, which rests on the notion that greater insight may be gained from looking at a data set from a number of theoretical perspectives. Recourse to more than one theory in seeking explanations is commonplace and has been dismissed as not necessarily being an example of triangulation (Swanborn, 2010). In case study research, the evaluation of findings with reference to a broad range of theories and has been referred to ‘enfolding the literature’ (Eisenhardt, 1989, p 544). The fourth type of triangulation is methodological and has attracted a great deal of interest from multi-method researchers (see for example Fielding 2009). As indicated in the Table 1, methodological triangulation is usually either within-method or between-method. Within-method triangulation consists of multiple techniques within a given methodology, for example, qualitative evidence from focus groups and archival analysis. With quantitative research, a recent example was the use of confirmatory factor analysis to establish validity (Homburg et al. 2012). Between-method triangulation uses different methods from different methodologies and an example might be a survey of an appropriate sample accompanied by semi-structured interviews. Somewhat confusingly, this type appears to be similar to Miles and Huberman’s (1994) triangulation by data type. Whilst triangulation has been generally perceived to allow multiple perspectives on the phenomenon under study, the rationale for methodological triangulation is that the use of more than one method compensates for the weaknesses of the other one (see for example Erzberger and Prein, 1997). Between methods triangulation and between methods research has sparked fierce debate on the subject of incommensurability (see for example Blaikie, 1991). The final type of perceptual triangulation acknowledges that triangulation may consist of multiple perceptions (Flick, 1992).

However seductive triangulation may sound in its ability to strengthen rigour in research, it has proved less easy to put into practice. Denzin (2010) – a long-term advocate of triangulation – has recently revisited the topic and now considers triangulation to be unsettling and unruly. An immediate difficulty arises from transposing triangulation from its geometrical home to social sciences (Blaikie, 1991; Swanborn, 2010) so that perspectives and practices of triangulation are subject to the ontological and epistemological stances of the researchers or the studies. Triangulation can support claims for validity and reliability as advocated by Yin (2009) and Homburg et al (2012) and is perceived through the language of capture and constraint with the underlying assumption that phenomena can be represented objectively (Wolfram Cox and Hassard, 2010). This view is probably closest to the original view of ‘getting a fix’ on the subject of the study. Triangulation is also valuable in multi-method research for minimising bias through compensating for the deficiencies of a particular method (Erzburger and Prein, 1997) or reducing bias in the multiple sources characteristic of case study research (Davis and Eisenhardt 2010). A subjectivist view of triangulation might support revelations of multiple constructed realities (Seale, 1999) or the perceptions included in Table 1. It can also support claims for confirmability in naturalistic research (Wallendorf and Belk, 1989). Further support for the use of triangulation following these approaches in research includes substantiation (Stake, 1995), trustworthiness (He and Baruch, 2010) and the
reduction of vulnerability to errors (Patton, 1989). Rigorous triangulation will therefore take its cue from the paradigmatic assumptions of the researcher or the nature of study, which in turn dictate the rigour issues that it is deployed to address. It is evident therefore that triangulation should operate according to ground rules, which start with robust theoretical models and the selection of methods and empirical materials that complement that perspective (Silverman, 2005).

As Denzin (2010) has recently written, triangulation like many other aspects of research is subject to evolution and re-appraisal, so we now move on to consider triangulation in case study research.

**Triangulation in case study research**

As well as access to raw data and explanation of negative cases, triangulation is widely recommended (Beverland and Lindgreen, 2010; Dubé and Paré, 2003; Eisenhardt and Graebner, 2007; Gibbert and Ruigrok, 2010) for strengthening rigour in case study research. As in other research strategies, triangulation in case study research can address both validity (Beverland and Lockshin, 2003; Yin, 2009) and reliability (Miles and Huberman, 1994). A case study can claim a degree of construct validity by triangulating the number of data sources that have been assembled as part of the case or cases (Beverland and Lockshin, 2003; Yin, 2009). Triangulation is thought to support internal validity (Dubé and Paré, 2003) and convergent validity (Jick, 1979). It has even been asserted that the greater the number of sources, the greater the construct validity (Dubois and Gibbert, 2010) but this might be a claim ‘too far’. These arguments will rest of course on how robustly the measures or constructs have been operationalized in the first place (Swanborn, 2010). Given this support for triangulation, there is an expectation that case study researchers will engage in one form of triangulation or another as a means of strengthening their research findings.

As has been stated above, triangulation should be clearly aligned to the epistemological approach (Blaikie, 1991) of the study. Whilst research has indicated that many case studies published in even high quality journals do not afford an explicit epistemological stance (Gibbert and Ruigrok, 2011), claims for how triangulation supports rigour will strengthened if this alignment is clear. In a broadly positivist study, the study may include an explanation of how triangulation supports claims for validity and reliability. From an interpretivist stance, the study may contain arguments around how triangulation enhances the evaluation of alternative explanations (for example Patton, 1989) or contributes to plausibility and credibility in the findings (see for example Sonenshein, 2010). Following Eisenhardt’s (1989) suggestions, detail of the triangulation process must be evident. In this detail, the relationship between the sources would be delineated, for example, if there is there a primary source and why is it primary (Bryman n.d.). The contribution of remaining sources to the study should be clearly articulated and details of analysis explicitly stated, for example, the role of other researchers in verifying or supporting the codes or analysis.

The assumption underlying triangulation is that the findings from sources will support or corroborate each other, for example in MTMM. Whatever the orientation of the researcher, the outcomes of triangulation in case study research may not produce a perfect fit of sources. How does the researcher address the next step in managing these outcomes, especially if the outcomes do not mesh? The triangulation literature emphasises convergence (for example Greene et al.1989), correlation (Homburg et al. 2012) or corroboration (Miles and Huberman, 1994) of sources or perspectives. Whilst convergence is desirable in the original discipline of geometry, it is just one possible outcome in the social sciences, including marketing, where multiple dimensions increasingly characterise the discipline. Two further
outcomes of complementarity and divergence can equally be anticipated in case study research in addition to convergence. We propose a spectrum of triangulation outcomes, which we illustrate in Figure 1.

Figure 1 Spectrum of triangulation sources

In Figure 1, convergence sits at one end of the spectrum, with complementarity in the middle and divergence at the far end.

**Convergence**
In case study research, converging findings in triangulation increase the likelihood of theoretical concepts and their operational definitions capturing empirical phenomena with greater precision (Modell, 2009). The word ‘precision’ is key here and resonates with the original concept of multiple measures fixing on an objective reality. Where the outcomes of triangulation converge, researchers tend to have greater confidence in the reliability and/or validity of the research (Wolfram Cox and Hassard, 2010). There is an underlying assumption that between-methods research will yield convergent outcomes where the findings from data sets (Jick, 1979) or, indeed, other sources are comparable. Reiterating Swanborn’s (2010) concern, the measures or instruments need to be operationalised so that these comparisons can be made with confidence and credibility.

**Complementarity**
Complementary outcomes are also consistent with triangulation in between-methods research. These outcomes may arise from a situation where quantitative and qualitative methods do not generate one complete picture but instead an adequate image of reality (Erzburger and Prein, 1993), leading to the question of how can the adequacy of this image be substantiated and what kind of reality is being advocated? Complementary outcomes capture overlapping but different facets of a phenomenon so that an enriched understanding of a phenomenon is gained (Greene et al. 1989). Complementarity as an outcome of triangulation captures complexity as well as richness and portrays holism (see for example Verschuren, 2003). The question still remains of demonstrating how the complementary outcomes contribute to the rigour of the research.

**Divergence**
A third outcome from triangulation in case study research might be divergent results. Far from weakening the research, divergence offers researchers the chance to enrich their research work and strengthen its contribution (Flyvbjerg, 2006; Patton, 1989). There are instances of where divergent findings have uncovered unseen factors in research (Jick, 1979).
Findings which are divergent can lead to clearer definition and theoretical elaboration (Wolfram Cox and Hassard, 2010) in the study. In case study research, diverging outcomes may support other methods of establishing rigour such as negative cases (Beverland and Lindgreen, 2010), creative use of setbacks (Gibbert and Ruigrok, 2010) or alternative explanations (Patton, 1989).

Conclusion
Case study research is particularly apposite for generating in-depth understanding of complex problems encountered in marketing across the dimensions of people, places and spaces. To respond to the criticisms of lack of rigour in case study research, triangulation has been widely recommended. The claims for triangulation are many and varied prompting this study into how triangulation strengthens case study research. We propose three outcomes of triangulation; convergence, divergence or complementarity. These outcomes, which relate to existing suggestions for case study rigour substantiate the arguments for rigour based on triangulation. We also argue for these approaches to make a substantive case for rigour they need to be aligned to the overall epistemological stance of the study. Thus the contribution of this paper is twofold, firstly in generating a three pronged model of triangulation outcomes and emphasising the need for explicit epistemological foundations to case study research.

Further research
The linkages that we make between the claims for triangulation and epistemological stance of study are as yet unexplored and suggest important areas for further study. A further area for attention is the conclusions that might be drawn from a case study where sources are not triangulated? Such is the weight of literature in support of triangulation in case study research that its omission provokes questions about the rigour of the study. In these circumstances, how have the researchers argued for the rigour of the study? Further research can investigate how high quality studies that have not used triangulation have substantiated the quality of their study.
References


