

How to Undertake Great Cross-Disciplinary Research

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ABSTRACT

As an applied social science, business-to-business research is inherently cross-disciplinary. The general theories that provide insight into business relationships, systems, and markets have disciplinary foundations in the economics, psychology, sociology, and management disciplines. When conducting cross-disciplinary research, academic researchers, like their counterparts in industry, must overcome functional silos. Depending on the type of research challenge, a multi-disciplinary approach may be required; however, differences in incentives, culture, terminology and jargon, and so forth all can lead to opportunistic and counterproductive behavior. The purpose of this editorial is to explore how to undertake cross-disciplinary research that advances knowledge and understanding in the domain of business-to-business research. To achieve this purpose, we elaborate on the theorizing processes; we examine how to break cross-disciplinary boundaries; and we provide practical guidelines for undertaking cross-disciplinary research.

Keywords: Cross-disciplinary research; Interdisciplinary research; Functional silos.

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1. INTRODUCTION

As an applied social science, business-to-business research is inherently cross-disciplinary. This is because the general theories that provide insight into business relationships, systems, and markets have disciplinary foundations in the economics, psychology, sociology, and management disciplines. Commonly used general theories are, among others, Social Exchange Theory, Organizational Economics (Transaction Cost Economics, Agency Theory, and Plural Form Institutional Theory), Commitment-Trust Theory of Relationships, Structuration Theory, Actor Network Theory, Corporate Social Responsibility, Stakeholder Theory and, more broadly, Systems Theory, Complexity Theory, and Evolutionary Psychology Theory. Different disciplines in business-to-business research make use of these general theories in varying degree. For example, Transaction Cost Economics provide a framework for researchers seeking to explain and guide decision makers as how to organize transactions, while Evolutionary Psychology Theory offers a framework for researchers trying to explain how consumers make their decisions.

Recently, Brodie and Peters (2020) propose a theorizing process that explicitly considers the use of cross-disciplinary research. The theorizing process takes into account multiple theoretical pathways and recognizes how different general theoretic perspectives lead to the development of midrange theory and empirical research.

A major barrier that needs to be overcome when undertaking cross-disciplinary research comes from a parallel with organization structures, where there is a path from start-up to functional (silo) structure, to matrix structure, and to customer/project-based teams. Depending on the type of research challenge, the organization structure may relate to whether a multidisciplinary or monodisciplinary approach is necessary. Differences in incentives, culture, terminology and jargon, and so forth all can lead to opportunistic and counterproductive behavior.

The purpose of this editorial is to explore how to undertake cross-disciplinary research that advances knowledge and understanding in the domain of business to business research. To achieve this purpose, we first elaborate on the theorizing processes. Second, we examine how to break cross-disciplinary boundaries. Third, we provide practical guidelines for undertaking cross-disciplinary research.

2. THEORIZING PROCESSES FOR CROSS-DISCIPLINARY RESEARCH

The theorizing process developed by Brodie and Peters (2020) provides guidelines for undertaking cross-disciplinary research by integrating general theoretic perspectives and contextual research to develop midrange theory. A distinction is made between the theoretical domain of knowledge and

the empirical domain of knowledge; and, as depicted in Figure 1, midrange theory bridges these two domains. Fundamental to the domains of knowledge is the paradigmatic perspective. The paradigmatic perspective provides the outer ring for the recursive theorizing process between general theory, midrange theory, and applied research. A paradigm (e.g., positivism, pragmatism, or subjectivism) is the generally accepted perspective of a particular discipline at a given time and provides philosophical consensus on how to understand reality and conduct research (Kuhn, 1962). While a theory explains something, a paradigm does not explain something, but exists before theory. We explore a paradigmatic perspective that is not based on a single discipline, but one that is cross-disciplinary.

Figure 1 distinguishes between three levels of theory, which we discuss next:

General theories: These theories are conceptions and perspectives utilizing theory that is framed at the highest conceptual level and provides a perspective or logic of explanation for a domain. The theories are broad in scope, integrative, and context-free, and thus do not directly lead to empirical investigation. The theories provide the foundations for understanding and explanation.

Midrange theories: Midrange theories are context-specific. Hence, these theories provide frameworks that can be used to undertake empirical observation and models to guide managerial practices. Most of the theories currently used in business-to-business research have these characteristics.

Applied theory: Applied theory is embedded in empirical research and context. While the focus of applied theory traditionally has been with empirical research, “theories-in-use” can play an important role (see, for example, Beverland, 2004; Zeithaml et al., 2020). Theories-in-use recognize that practicing managers, customers, and other stakeholders in a service system use theory. Theories-in-use is context-specific and can be based on tacit mental models.

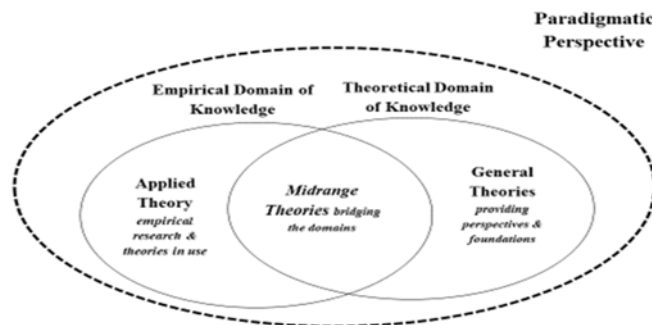


Figure 1: Domains of knowledge and levels of theory

The theorizing process outlined in Figure 2 recognizes there are multiple pathways to develop midrange theory and hence undertake empirical research. An important distinction is made between the focal general theoretic perspective and other general theories. The marketing discipline traditionally has been based on a dyadic buyer-seller perspective, and the focal general theoretic perspectives are based on general theories either from microeconomics or psychology. In contrast, within contemporary business-to-business research, a network perspective is adopted where focal general theoretic perspectives inherently are cross-disciplinary and broadened, drawing on sociological and institutional foundations and the management disciplines. For example, the focal general theoretic perspective provided by S-D logic is cross-disciplinary and is a synthesis of general theories including institutional theory, systems theory, complexity theory, complexity economics, and evolutionary theory (Vargo and Lusch, 2017). Specific examples where authors have interfaced other general theory with S-D logic to develop midrange theory include practice theory (Kjellberg and Helgesson, 2006), actor-network theory (Chandler and Vargo, 2013), and systems and ecosystems theory (Frow et al., 2014).

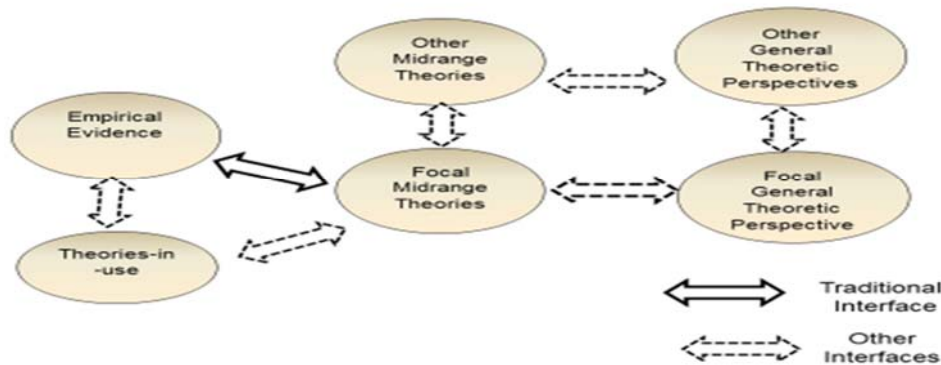


Figure 2. Interfaces for theorizing

As outlined in Figure 2, the focal general theoretic perspective can interface directly with midrange theory, but other general theoretic perspectives can also provide pathways that can lead to other midrange theories, which then leads to a focal midrange theory that can be used in business-to-business research. For example, when defining the conceptual domain for customer engagement, Brodie et al. (2011) adopted a focal general theoretic perspective from S-D logic, but also drew extensively on general and midrange theory from psychology, sociology, political science, and organizational behavior literatures to develop midrange theory. The theorizing process also drew on research, which can serve as an input for developing and refining a focal midrange theory. Applied

theory drawing on theories-in-use provided valuable input to ensure the cross-disciplinary theorizing resonated with practice.

In summary, to undertake cross-disciplinary research, we suggest that there first needs to be a paradigm shift. Second, explicit attention needs to be given to the process of theorizing, rather than just focusing on theory as an outcome (Weick, 1995). Our approach meets the challenge by paying attention to both 1) theoretical frameworks and their cross-disciplinary foundations and 2) managerial practices to inform research processes. The recursive theorizing process leads to multiple pathways to develop midrange theory and hence undertake empirical research.

A somewhat different, but complementary perspective comes from design science research (Simon, 1969). Design science research is the standard paradigm in engineering disciplines such as mechanical engineering, chemical engineering, and information systems, but also common in medicine and law. By relying on a philosophy of pragmatism, design science researchers use any method, technique, and procedure to improve “the human condition by developing knowledge to solve field problems, i.e. problematic situations in reality” (Denyer, Tranfield, & Van Aken, 2008, p. 394). Being an applied social science, business-to-business marketing inherently can be typified as a design science.

Design science considers different types of design artefacts (Romme, 2016) including values (e.g., increase welfare of all stakeholders), concepts (e.g., customer engagement), models (e.g., SD-logic), design rules (e.g., to achieve Y do X), and instantiations (e.g., customer management system implemented in a company). The order in which these artefacts can be created are multitude. For instance, based on theories-in-use, practitioners can create instantiations, which then are studied by scholars to create mid-range theories. In contrast, academics also can create design rules and instantiations from theoretical models. The creation and justification of all these artefact types belongs to the work domain of both academics and practitioners and can cross many disciplines.

Design science research centers on classes of problems, which refer to problems that share a set of commonalities and as such are considered generalizable across organizational settings (e.g., decision-making under uncertainty; allocation of marketing resources). Different framing of the problem (i.e., using a different theoretical lens or paradigm) may lead to different solution outcomes. As such, design science scholars acknowledge that there are no universal solutions to problems, but instead advance that multiple solution artefacts can co-exist within a class of problems. Operating in an interdisciplinary research teams can be especially valuable, as it may help to identify the most promising research approaches and solutions.

3. CROSS-DISCIPLINARY RESEARCH

3.1. Barriers to Breaking Cross-Disciplinary Research

Although many university administrators may call for “interdisciplinary research,” they often do not really know what to expect. It may be true that the biggest and most lucrative research topics may require a big-picture perspective, and the participation of researchers from several disciplines. This does not mean, however, that interdisciplinary research will necessarily come about organically. Next, we will discuss some barriers to breaking cross-disciplinary boundaries.

First, it is clear that a research team does not need to be made up of “interdisciplinary people” (however that is defined), but rather by experts in their own areas who have enough familiarity with the research problem, and understanding of the basics of each other’s discipline so that they can communicate effectively. A business-to-business marketing strategy person does not have to be an expert in big data analytics to coauthor a research grant proposal, or to work effectively on a research team (or *vice versa*). The construct “imported” from the other discipline should be well-defined, well-measured, and already well-published, making it easier to use in the new context. Some initial, intuitive, basic understanding of the concept by all involved in the research team would also help, but encyclopedic understanding is not required. This consideration has research team composition and even hiring implications. It would be better for the research team to be composed of these two (monodisciplinary) experts who have a good combination of skills and good communication abilities, rather than two interdisciplinary researchers who lack experience or expertise.

Incidentally, this same issue arises in industry as well. New-product teams are typically multidisciplinary in nature, with representation from marketing, R&D, engineering, design, manufacturing, and others all playing a part. In cases where a specific technical expertise is critical, say for example in the development of a new business-to-business product requiring state-of-the-art fluid dynamics, it would be better for the leading engineers on the new-product team to be experts on this topic. High levels of functional expertise are most valuable, and would be the expected contribution of these engineers (Ulrich and Eppinger, 2000, pp. 28–29). Their time away from the laboratory is better spent keeping up with the latest technological advances and going to top meetings in their field than learning about new-product launch strategy.

Another barrier to effective interdisciplinarity is that academic research usually is very monodisciplinary. An interdisciplinary research grant application might falter because the reviewers are likely to be monodisciplinary experts who may not understand the cross-disciplinary aspects, or who may fail to see the value of the joint research. Similarly, it is generally harder to get

interdisciplinary research conducted, peer-reviewed, and published since the same reviewers will be gatekeepers in this process as well. Due to these factors, researchers under pressure from university administrators to conduct interdisciplinary research may fall back on opportunities in closely-related fields (marketing can easily reach out to research partners in strategic management or organizational studies, for example), rather than stretching to riskier, but potentially lucrative partnerships with researchers in very different silos: engineering, mathematics, hard sciences, or medicine, for example.

University administration's efforts to support and reward interdisciplinary research may be misguided at times: interdisciplinary research should not be the end in and of itself! Forcing some vaguely-defined interdisciplinary agenda on researchers can lead to wasted effort or, at best, research projects, which are difficult to get funded or published for reasons stated above. A better approach would be to start with the research problem, identify to which problem class it belongs, and if the research problem is big or complicated enough to warrant interdisciplinary work, and questions arise that require input across multiple disciplines, then the contacts are made and the joint research is initiated. Also, university administration should resist the temptation to reward interdisciplinary research for its own sake. It would be far more beneficial to create a research environment where researchers are doing quality work in their own disciplines, but rewarded for taking on the bigger interdisciplinary research challenges on occasion.

3.2. Suggestions for How to Undertake Cross-Disciplinary Research

In this section, we provide some action-oriented guidelines that can serve as a starting point for breaking down the above identified silo barriers and fostering a research workplace environment that encourages and values cross-disciplinary work.

A great idea for researchers is to collaborate with colleagues from other departments inside their university or outside their university. For instance, researchers should try to join initiatives within their university that target big themes (e.g., sustainability, digitalization, or sharing economy). As an example, the Fox School at Temple has an Innovation and Entrepreneurship Institute (IEI), and faculty from all areas who are interested in innovation research (marketing, strategic management, entrepreneurship, and so on) can work jointly in this space. One of the goals of this institute is to collaborate with like-minded members of the business community, for example, by partnering with the Product Development & Management Association. Copenhagen Business School has conceptualized Business-in-Society platforms so that its researchers can engage in knowledge production based on "context-driven, problem-focused and interdisciplinary research that deals with complex societal and business problems." These platforms are funded for five years with regular

evaluation of performance and success criteria after which research teams can apply for funding to set up new platforms. At this time, there are the following platforms: Diversity and Difference Platform, Inequality Platform, Digital Transformations Platform, and Maritime Platform.

Researchers should consider working with colleagues outside their domain, as this will increase the size of the audience coming across their research—and could open entirely new research fields. A marketing department with strong interest in business-to-business and/or innovation may effectively collaborate with the engineering or medical schools. Try to profit from opportunities to present your work outside your area, as this leads to increased visibility, novel insights, and possibly future collaborative opportunities.

Researchers could connect with practitioners. Their requests for help are often interdisciplinary in nature and require input from other people. Important here is to have an open mind and be open for input from these other people. Ensure that you engage in research publishable in high-quality journals, though, at least eventually. Your business school may be pushing for closer ties with the business community, so these efforts may be seen as worthwhile service contributions at annual review time. A previous editorial recommended that universities provide incentives to foster an intellectual environment in which academics are encouraged to question assumptions and revisit their academic contributions, so that they can have greater relevance and offer more meaningful solutions to the business community (Di Benedetto et al., 2019).

Make sure you search for cross-disciplinary topics that have your personal interest, that is, what do you value? Think outside of the box about who might be interested in cross-disciplinary work, or which department might provide insights for your research. As an example, your marketing department may have several researchers who are doing quantitative consumer research based on big-data analysis, or applying neuroscience techniques to understand consumer response to advertising. Could some of those concepts be equally applied in a business-to-business setting in a novel way?

Positioning cross-disciplinary research in monodisciplinary top journals is difficult. When targeting such journals, it is important to frame your own part of the research in terms of your own field. This will be a balancing act, as you do not want to lose your coauthors along the way. Be clear about your expectations and make sure that your collaborators understand what you want to get out of the research, and that your objective is indeed to collaborate—not to take over or usurp the coauthors' projects or ideas. This issue can possibly be addressed with a statement of research objectives that clearly positions the research in terms of what contribution it makes to the business-to-business literature stream.

Start with a clear and carefully constructed research question, which defines the precise problem class and knowledge gap. This will demonstrate the need for expertise from more than one scientific discipline, as the problem will require interdisciplinary collaboration to tackle properly. We mentioned earlier a possible collaboration with a research partner in neurosciences. One may identify a research gap, for example in managerial decision-making that could benefit from joint work with a neuroscience expert. It makes sense to hone this gap into a specific research problem that can pique interest among potential collaborators and can provide context and direction for the collaborative work.

Senior faculty in your department may have worked on cross-disciplinary projects in the past, and might have access to mentors in other departments. Reach out to these potential research partners. They may be able to identify possible collaborators for you, based on your research interests, and may know of available funding. A research partner from outside your department might even write an influential reference letter for an impending promotion or tenure decision. Look at your colleagues' university web pages, get to know their research agendas, and see what they are currently working on. If a cross-disciplinary institute exists, such as Temple's IEI or Copenhagen Business School's Business-in-Society platforms, it may be easy to reach out to researchers whose work is surprisingly close to yours, or who may want to work jointly with you in organizing outreach meetings or seminars with the business community.

Be sure there is a clear vision for the research. If two or more departments are involved, it may not be clear who is responsible for providing guidance. The right solution might be to establish a leadership team, which can call in other members to provide expertise to the team on an *ad hoc* basis. The leader, or leadership team, should set team objectives and timelines, and hold regular meetings, to ensure the project maintains momentum. It is also up to the leader(s) to make sure that all team members' voices are heard, including junior members and part-time members whose available time may be limited.

And here are a few additional thoughts for motivation:

Visit networking events, for example, for funding opportunities that are cross-disciplinary in nature. Here, you often can connect with people from other domains and practitioners.

Read topics outside of your main research area, not only scientific articles, but also books. Be inspired by people like Bill Gates and Warren Buffett who read a lot.

Working with someone outside your discipline means that you will not need to know this literature in as much depth as otherwise. After some preliminary work to scope out mutual research interests,

a good partner should be able to provide some direction regarding the most relevant articles and authors with which you should become familiar.

4. CONCLUSIONS

Academic institutions know the value of cross-disciplinary research. The bigger, and more relevant, the problem is, the more likely it will require experts from many different research areas to provide their expertise to help solve the problem. We see cross-disciplinary teams, such as new-product teams hard at work in industry, with members contributing their own expertise to reach a common goal. But, as in industry collaboration, effective academic collaboration is not always easily achieved. Functional silo thinking may be difficult to overcome, and reward structures may be unproductive or may backfire if not well planned. Academic administrators should resist the temptation to push for cross-disciplinary research for its own sake, allowing cross-disciplinary bonds to form if deemed necessary for the research problem being undertaken.

We presented a theorizing process (Figure 1) that provides guidelines for cross-disciplinary research by focusing on midrange theory, integrating general theoretic perspectives and contextual research to develop midrange theory. Explicit attention needs to be given to the process of theorizing, not theory, as an outcome. The process we present is recursive in the sense that it considers both theoretical frameworks and their cross-disciplinary foundations, as well as managerial practices to inform these research processes. The process thus provides multiple possibilities for development of midrange theory. If it is decided that cross-disciplinary research is required to tackle a particularly challenging problem, researchers are incited to reach outside their comfort zone and work with collaborators from an unfamiliar part of the university, or from industry. We need to remind ourselves of the fact that all of us—designers and practitioners across different fields—are designers working collaboratively to solve a problem or address a challenge via the creation of artefacts.

With this process in mind, we proposed several practical steps that can be undertaken to facilitate effective cross-disciplinary research. These steps include: establish a clear vision for the research project, carefully construct a clear research question, work with senior colleagues who have access to mentors in different parts of the university, take advantage of institutes within your school that are problem-focused and are cross-disciplinary in nature, and develop a positioning strategy for your cross-disciplinary research that will interest the top academic journals.

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reflections that should help prospective and early-career researchers eventually to see their findings published in *Industrial Marketing Management* and other top journals. Previous pieces include Di Benedetto et al. (2019), LaPlaca, Lindgreen, & Vanhamme (2018), LaPlaca et al. (2018), Lindgreen & Di Benedetto (2018a, 2018b, 2020), Lindgreen et al. (2019, 2020), and Lindgreen et al. (2019).

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