



areas or research areas for which existing theory seems inadequate. This type of work is highly complementary to incremental theory building from normal science research. The former is useful in early stages of research on a topic or when a fresh perspective is needed, while the latter is useful in later stages of knowledge. Finally, several guidelines for assessing the quality of theory building from case studies have been suggested. Strong studies are those which present interesting or framebreaking theories which meet the tests of good theory or

concept development (e.g., parsimony, testability, logical coherence) and are grounded in convincing evidence.

Most empirical studies lead from theory to data. Yet, the accumulation of knowledge involves a continual cycling between theory and data. Perhaps this article will stimulate some researchers to complete the cycle by conducting research that goes in the less common direction from data to theory, and equally important, perhaps it will help others become informed consumers of the results.

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theory built from incremental studies or arm-chair, axiomatic deduction.

A second strength is that the emergent theory is likely to be testable with constructs that can be readily measured and hypotheses that can be proven false. Measurable constructs are likely because they have already been measured during the theory-building process. The resulting hypotheses are likely to be verifiable for the same reason. That is, they have already undergone repeated verification during the theory-building process. In contrast, theory which is generated apart from direct evidence may have testability problems. For example, population ecology researchers borrowed the niche concept from biology. This construct has proven difficult to operationalize for many organizational researchers, other than its originators. One reason may be its obscure definition, which hampers measurability: "... that area in constraint space (the space whose dimensions are levels of resources, etc.) in which the population outcompetes all other local populations" (Hannan & Freeman, 1977, p. 947). One might ask: How do you measure an area in constraint space?

A third strength is that the resultant theory is likely to be empirically valid. The likelihood of valid theory is high because the theory-building process is so intimately tied with evidence that it is very likely that the resultant theory will be consistent with empirical observation. In well-executed theory-building research, investigators answer to the data from the beginning of the research. This closeness can lead to an intimate sense of things—"how they feel, smell, seem" (Mintzberg, 1979). This intimate interaction with actual evidence often produces theory which closely mirrors reality.

Weaknesses of Theory Building from Cases

However, some characteristics that lead to strengths in theory building from case studies also lead to weaknesses. For example, the intensive use of empirical evidence can yield theory which is overly complex. A hallmark of good theory is parsimony, but given the typically

staggering volume of rich data, there is a temptation to build theory which tries to capture everything. The result can be theory which is very rich in detail, but lacks the simplicity of overall perspective. Theorists working from case data can lose their sense of proportion as they confront vivid, voluminous data. Since they lack quantitative gauges such as regression results or observations across multiple studies, they may be unable to assess which are the most important relationships and which are simply idiosyncratic to a particular case.

Another weakness is that building theory from cases may result in narrow and idiosyncratic theory. Case study theory building is a bottom up approach such that the specifics of data produce the generalizations of theory. The risks are that the theory describes a very idiosyncratic phenomenon or that the theorist is unable to raise the level of generality of the theory. Indeed, many of the grounded case studies mentioned earlier resulted in modest theories. For example, Gersick (1988) developed a model of group development for teams with project deadlines, Eisenhardt and Bourgeois (1988) developed a mid-range theory of politics in high velocity environments, and Burgelman (1983) proposed a model of new product ventures in large corporations. Such theories are likely to be testable, novel, and empirically valid, but they do lack the sweep of theories like resource dependence, population ecology, and transaction cost. They are essentially theories about specific phenomena. To their credit, many of these theorists tie into broader theoretical issues such as adaptation, punctuated equilibrium, and bounded rationality, but ultimately they are not theories about organization in any grand sense. Perhaps "grand" theory requires multiple studies—an accumulation of both theory-building and theory-testing empirical studies.

Applicability

When is it appropriate to conduct theory-building case study research? In normal science, theory is developed through incremental

Similarly, Gersick (1988) linked the sharp mid-point transition in project group development to the more general punctuated equilibrium phenomenon, to the literature on the adult midlife transition, and to strategic transitions within organizations. This linkage with a variety of literature in other contexts raises the readers' confidence that Gersick had observed a valid phenomenon within her small number of project teams. It also allowed her to elevate the conceptual level of her findings to the more fundamental level of punctuated equilibrium, and strengthen their likely generalizability to other project teams. Finally, Burgelman (1983) strengthened the theoretical scope and validity of his work by tying his results on the process of new venture development in a large corporation to the selection arguments of population ecology. The result again was a higher conceptual level for his findings and enhanced confidence in their validity.

Overall, tying the emergent theory to existing literature enhances the internal validity, generalizability, and theoretical level of theory building from case study research. While linking results to the literature is important in most research, it is particularly crucial in theory-building research because the findings often rest on a very limited number of cases. In this situation, any further corroboration of internal validity or generalizability is an important improvement.

Reaching Closure

Two issues are important in reaching closure: when to stop adding cases, and when to stop iterating between theory and data. In the first, ideally, researchers should stop adding cases when theoretical saturation is reached. (Theoretical saturation is simply the point at which incremental learning is minimal because the researchers are observing phenomena seen before, Glaser and Strauss, 1967.) This idea is quite similar to ending the revision of a manuscript when the incremental improvement in its quality is minimal. In practice, theoretical saturation often combines with pragmatic considerations

such as time and money to dictate when case collection ends. In fact, it is not uncommon for researchers to plan the number of cases in advance. For example, the Warwick group planned their study of strategic change and competitiveness in British firms to include eight firms (Pettigrew, 1988). This kind of planning may be necessary because of the availability of resources and because time constraints force researchers to develop cases in parallel. Finally, while there is no ideal number of cases, a number between 4 and 10 cases usually works well. With fewer than 4 cases, it is often difficult to generate theory with much complexity, and its empirical grounding is likely to be unconvincing, unless the case has several mini-cases within it, as did the Mintzberg and McHugh study of the National Film Board of Canada. With more than 10 cases, it quickly becomes difficult to cope with the complexity and volume of the data.

In the second closure issue, when to stop iterating between theory and data, again, saturation is the key idea. That is, the iteration process stops when the incremental improvement to theory is minimal. The final product of building theory from case studies may be concepts (e.g., the Mintzberg and Waters, 1982, deliberate and emergent strategies), a conceptual framework (e.g., Harris & Sutton's, 1986, framework of bankruptcy), or propositions or possibly mid-range theory (e.g., Eisenhardt and Bourgeois's, 1988, midrange theory of politics in high velocity environments). On the downside, the final product may be disappointing. The research may simply replicate prior theory, or there may be no clear patterns within the data. The steps for building theory from case studies are summarized in Table 1.

Comparison with Other Literature

The process described here has similarities with the work of others. For example, I have drawn upon the ideas of theoretical sampling, theoretical saturation, and overlapped coding,

Table 3
*Example of Tabulated Evidence for a Power Centralization Construct**

Firm	CEO Decision Description	CEO Power Score	CEO Power Distance ^a	CEO Dominated Functions	Story Decision Style ^b	Examples ^c
First	Strong Volatile	9.6	3.5	Mkt, R&D, Ops, Fin	Authoritarian	Geoff (Chairman) is THE decision maker. He runs the whole show. (VP, Marketing)
Alpha	Dogmatic Impatient Parental Tunes You Out	9.6	3.8	Mkt, R&D, Ops, Fin	Authoritarian	Thou shalt not hire w/o Presidential approval. Thou shalt not promote w/o Presidential approval. Thou shalt not explore new markets w/o Presidential approval. (VP, Operations)
Cowboy	Strong Power Boss Master Strategist	9.1	3.1	Mkt, R&D, Fin	Authoritarian Consensus	The tone of meetings would change depending upon whether he was in the room. If he'd leave the room, discussion would spread out, go off the wall. It got back on focus when he came back. (Director of Marketing)
Neutron	Organized Analytic	9.1	2.3	Mkt, Ops, Fin	Authoritarian	If there is a decision to make, I will make it. (President)
Omicron	Easy Going Easy to Work With	8.4	1.2	Fin	Consensus	Bill (prior CEO) was a suppressor of ideas. Jim is more open. (VP, Mfg.)
Promise	People-Oriented Pragmatic	8.9	1.3	Ops, Fin	Consensus	(My philosophy is) to make quick decisions involving as many people as possible. (President)
Forefront	Aggressive Team Player	8.3	1.2	None	Consensus	Art depends on picking good people and letting them operate. (VP, Sales)
Zap	Consensus-Style People-Oriented	7.5	0.3	Fin	Consultative	It's very open. We're successful most of the time in building consensus. (VP, Engineering)

^a Difference between CEO power score and score of next most powerful executive.

^b Authoritarian—Decisions made either by CEO alone or in consultation with only one person.

Consultative—Decisions made by CEO in consultation with either most of or all of the team.

Consensus—Decisions made by entire team in a group format.

^c Individual in parentheses is the source of the quotation.

* Taken from Eisenhardt & Bourgeois, 1988.

tative data to understand the cognitive and motivational reasons why such abrupt and precisely timed transitions occur.

Overall, shaping hypotheses in theory-

building research involves measuring constructs and verifying relationships. These processes are similar to traditional hypothesis-testing research. However, these processes are

between cases. The juxtaposition of seemingly similar cases by a researcher looking for differences can break simplistic frames. In the same way, the search for similarity in a seemingly different pair also can lead to more sophisticated understanding. The result of these forced comparisons can be new categories and concepts which the investigators did not anticipate. For example, Eisenhardt and Bourgeois (1988) found that CEO power differences dominated initial impressions across firms. However, this paired comparison process led the researchers to see that the speed of the decision process was equally important (Eisenhardt, in press). Finally, an extension of this tactic is to group cases into threes or fours for comparison.

A third strategy is to divide the data by data source. For example, one researcher combs observational data, while another reviews interviews, and still another works with questionnaire evidence. This tactic was used in the separation of the analyses of qualitative and quantitative data in a study of strategic decision making (Bourgeois & Eisenhardt, 1988; Eisenhardt & Bourgeois, 1988). This tactic exploits the unique insights possible from different types of data collection. When a pattern from one data source is corroborated by the evidence from another, the finding is stronger and better grounded. When evidence conflicts, the researcher can sometimes reconcile the evidence through deeper probing of the meaning of the differences. At other times, this conflict exposes a spurious or random pattern, or biased thinking in the analysis. A variation of this tactic is to split the data into groups of cases, focusing on one group of cases initially, while later focusing on the remaining cases. Gersick (1988) used this tactic in separating the analyses of the student group cases from her other cases.

Overall, the idea behind these cross-case searching tactics is to force investigators to go beyond initial impressions, especially through the use of structured and diverse lenses on the data. These tactics improve the likelihood of accurate and reliable theory, that is, a theory with

a close fit with the data. Also, cross-case searching tactics enhance the probability that the investigators will capture the novel findings which may exist in the data.

Shaping Hypotheses

From the within-site analysis plus various cross-site tactics and overall impressions, tentative themes, concepts, and possibly even relationships between variables begin to emerge. The next step of this highly iterative process is to compare systematically the emergent frame with the evidence from each case in order to assess how well or poorly it fits with case data. The central idea is that researchers constantly compare theory and data—iterating toward a theory which closely fits the data. A close fit is important to building good theory because it takes advantage of the new insights possible from the data and yields an empirically valid theory.

One step in shaping hypotheses is the sharpening of constructs. This is a two-part process involving (1) refining the definition of the construct and (2) building evidence which measures the construct in each case. This occurs through constant comparison between data and constructs so that accumulating evidence from diverse sources converges on a single, well-defined construct. For example, in their study of stigma management in bankruptcy, Sutton and Callahan (1987) developed constructs which described the reaction of customers and other parties to the declaration of bankruptcy by the focal firms. The iterative process involved data from multiple sources: initial semi-structured telephone conversations; interviews with key informants including the firm's president, other executives, a major creditor, and a lawyer; U.S. Bankruptcy Court records; observation of a creditors' meeting; and secondary source material including newspaper and magazine articles and firm correspondence. The authors iterated between constructs and these data. They eventually developed definitions and measures for several constructs: disengagement, bargaining

Van Maanen (1988), field notes are an ongoing stream-of-consciousness commentary about what is happening in the research, involving both observation and analysis—preferably separated from one another.

One key to useful field notes is to write down whatever impressions occur, that is, to react rather than to sift out what may seem important, because it is often difficult to know what will and will not be useful in the future. A second key to successful field notes is to push thinking in these notes by asking questions such as "What am I learning?" and "How does this case differ from the last?" For example, Burgelman (1983) kept extensive idea booklets to record his ongoing thoughts in a study of internal corporate venturing. These ideas can be cross-case comparisons, hunches about relationships, anecdotes, and informal observations. Team meetings, in which investigators share their thoughts and emergent ideas, are also useful devices for overlapping data collection and analysis.

Overlapping data analysis with data collection not only gives the researcher a head start in analysis but, more importantly, allows researchers to take advantage of flexible data collection. Indeed, a key feature of theory-building case research is the freedom to make adjustments during the data collection process. These adjustments can be the addition of cases to probe particular themes which emerge. Gersick (1988), for example, added several cases to her original set of student teams in order to more closely observe transition point behaviors among project teams. These transition point behaviors had unexpectedly proved interesting, and Gersick added cases in order to focus more closely on the transition period.

Additional adjustments can be made to data collection instruments, such as the addition of questions to an interview protocol or questions to a questionnaire (e.g., Harris & Sutton, 1986). These adjustments allow the researcher to probe emergent themes or to take advantage of special opportunities which may be present in a

given situation. In other situations adjustments can include the addition of data sources in selected cases. For example, Sutton and Callahan (1987) added observational evidence for one case when the opportunity to attend creditors' meetings arose, and Burgelman (1983) added interviews with individuals whose importance became clear during data collection. Leonard-Barton (1988) went even further by adding several experiments to probe her emergent theory in a study of the implementation of technical innovations.

These alterations create an important question: Is it legitimate to alter and even add data collection methods during a study? For theory-building research, the answer is "yes," because investigators are trying to understand each case individually and in as much depth as is feasible. The goal is not to produce summary statistics about a set of observations. Thus, if a new data collection opportunity arises or if a new line of thinking emerges during the research, it makes sense to take advantage by altering data collection, if such an alteration is likely to better ground the theory or to provide new theoretical insight. This flexibility is not a license to be unsystematic. Rather, this flexibility is controlled opportunism in which researchers take advantage of the uniqueness of a specific case and the emergence of new themes to improve resultant theory.

Analyzing Within-Case Data

Analyzing data is the heart of building theory from case studies, but it is both the most difficult and the least codified part of the process. Since published studies generally describe research sites and data collection methods, but give little space to discussion of analysis, a huge chasm often separates data from conclusions. As Miles and Huberman (1984, p. 16) wrote: "One cannot ordinarily follow how a researcher got from 3600 pages of field notes to the final conclusions, sprinkled with vivid quotes though they may be."

esis-testing research, the concept of a population is crucial, because the population defines the set of entities from which the research sample is to be drawn. Also, selection of an appropriate population controls extraneous variation and helps to define the limits for generalizing the findings.

The Warwick study of strategic change and competitiveness illustrates these ideas (Pettigrew, 1988). In this study, the researchers selected cases from a population of large British corporations in four market sectors. The selection of four specific markets allowed the researchers to control environmental variation, while the focus on large corporations constrained variation due to size differences among the firms. Thus, specification of this population reduced extraneous variation and clarified the domain of the findings as large corporations operating in specific types of environments.

However, the sampling of cases from the chosen population is unusual when building theory from case studies. Such research relies on theoretical sampling (i.e., cases are chosen for theoretical, not statistical, reasons, Glaser & Strauss, 1967). The cases may be chosen to replicate previous cases or extend emergent theory, or they may be chosen to fill theoretical categories and provide examples of polar types. While the cases may be chosen randomly, random selection is neither necessary, nor even preferable. As Pettigrew (1988) noted, given the limited number of cases which can usually be studied, it makes sense to choose cases such as extreme situations and polar types in which the process of interest is "transparently observable." Thus, the goal of theoretical sampling is to choose cases which are likely to replicate or extend the emergent theory. In contrast, traditional, within-experiment hypothesis-testing studies rely on statistical sampling, in which researchers randomly select the sample from the population. In this type of study, the goal of the sampling process is to obtain accurate statistical evidence on the distributions of variables within the population.

Several studies illustrate theoretical sampling. Harris and Sutton (1986), for example, were interested in the parting ceremonies of dying organizations. In order to build a model applicable across organization types, these researchers purposefully selected diverse organizations from a population of dying organizations. They chose eight organizations, filling each of four categories: private, dependent; private, independent; public, dependent; and public, independent. The sample was not random, but reflected the selection of specific cases to extend the theory to a broad range of organizations. Multiple cases within each category allowed findings to be replicated within categories. Gersick (1988) followed a similar strategy of diverse sampling in order to enhance the generalizability of her model of group development. In the Warwick study (Pettigrew, 1988), the investigators also followed a deliberate, theoretical sampling plan. Within each of four markets, they chose polar types: one case of clearly successful firm performance and one unsuccessful case. This sampling plan was designed to build theories of success and failure. Finally, the Eisenhardt and Bourgeois (1988) study of the politics of strategic decision making illustrates theoretical sampling during the course of research. A theory linking the centralization of power to the use of politics in top management teams was built and then extended to consider the effects of changing team composition by adding two cases, in which the executive teams changed, to the first six, in which there was no change. This tactic allowed the initial framework to be extended to include dynamic effects of changing team composition.

Crafting Instruments and Protocols

Theory-building researchers typically combine multiple data collection methods. While interviews, observations, and archival sources are particularly common, inductive researchers are not confined to these choices. Some investigators employ only some of these data collection methods (e.g., Gersick, 1988, used only obser-

numbers), or both. For example, Sutton and Callahan (1987) rely exclusively on qualitative data in their study of bankruptcy in Silicon Valley. Mintzberg and McHugh (1985) use qualitative data supplemented by frequency counts in their work on the National Film Board of Canada, and Eisenhardt and Bourgeois (1988) combine quantitative data from questionnaires with

qualitative evidence from interviews and observations.

Finally, case studies can be used to accomplish various aims: to provide description (Kidder, 1982), test theory (Pinfield, 1986; Anderson, 1983), or generate theory (e.g., Gersick, 1988; Harris & Sutton, 1986). The interest here is in this last aim, theory generation from case study ev-

Table 2
*Recent Examples of Inductive Case Study Research**

Study	Description of Cases	Research Problem	Data Sources	Investigators	Output
Burgelman (1983)	6 internal corporate ventures in 1 major corporation	Management of new ventures	Archives Interviews Some observation	Single investigator	Process model linking multiple organizational levels
Mintzberg & McHugh (1985)	1 National Film Board of Canada, 1939-1975, with 6 periods	Formulation of strategy in an adhocracy	Archives Some interviews	Research team	Strategy-making themes, "grass roots" model of strategy formation
Harris & Sutton (1986)	8 diverse organizations	Parting ceremonies during organizational death	Interviews Archives	Research team	Conceptual framework about the functions of parting ceremonies for displaced members
Eisenhardt & Bourgeois (1988)	8 microcomputer firms	Strategic decision making in high velocity environments	Interviews Questionnaires Archives Some observation	Research team Tandem interviews	Mid-range theory linking power, politics, and firm performance
Gersick (1988)	8 project groups with deadlines	Group development in project teams	Observation Some interviews	Single investigator	Punctuated equilibrium model of group development
Leonard-Barton (1988)	10 technical innovations	Internal technology transfer	Interviews Experiment Observation	Single investigator	Process model
Pettigrew (1988)	1 high performing & 1 low performing firm in each of 4 industries	Strategic change & competitiveness	Interviews Archives Some observation	Research teams	In progress

* Examples were chosen from recent organizational writing to provide illustrations of the possible range of theory building from case studies.

1984), and grounded theory building (e.g., Glaser & Strauss, 1967) and extends that work in areas such as a priori specification of constructs, triangulation of multiple investigators, within-case and cross-case analyses, and the role of existing literature. The result is a more nearly complete roadmap for executing this type of re-

search than has existed in the past. This framework is summarized in Table 1.

The second contribution is positioning theory building from case studies into the larger context of social science research. For example, the paper explores strengths and weaknesses of theory building from case studies, situations in which it

Table 1
Process of Building Theory from Case Study Research

Step	Activity	Reason
Getting Started	Definition of research question Possibly a priori constructs	Focuses efforts Provides better grounding of construct measures
Selecting Cases	Neither theory nor hypotheses Specified population Theoretical, not random, sampling	Retains theoretical flexibility Constrains extraneous variation and sharpens external validity Focuses efforts on theoretically useful cases—i.e., those that replicate or extend theory by filling conceptual categories
Crafting Instruments and Protocols	Multiple data collection methods Qualitative and quantitative data combined Multiple investigators	Strengthens grounding of theory by triangulation of evidence Synergistic view of evidence Fosters divergent perspectives and strengthens grounding
Entering the Field	Overlap data collection and analysis, including field notes Flexible and opportunistic data collection methods	Speeds analyses and reveals helpful adjustments to data collection Allows investigators to take advantage of emergent themes and unique case features
Analyzing Data	Within-case analysis Cross-case pattern search using divergent techniques	Gains familiarity with data and preliminary theory generation Forces investigators to look beyond initial impressions and see evidence thru multiple lenses
Shaping Hypotheses	Iterative tabulation of evidence for each construct Replication, not sampling, logic across cases Search evidence for "why" behind relationships	Sharpens construct definition, validity, and measurability Confirms, extends, and sharpens theory Builds internal validity
Enfolding Literature	Comparison with conflicting literature Comparison with similar literature	Builds internal validity, raises theoretical level, and sharpens construct definitions Sharpens generalizability, improves construct definition, and raises theoretical level
Reaching Closure	Theoretical saturation when possible	Ends process when marginal improvement becomes small