“Categorization of case in case study research method: new approach”

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ARTICLE INFO	Khalifa Ababacar Sy Diop and Ersi Liu (2020). Categorization of case in case study research method: new approach. *Knowledge and Performance Management*, *4*(1), 1-14. doi:10.21511/kpm.04(1).2020.01
DOI	http://dx.doi.org/10.21511/kpm.04(1).2020.01
RELEASED ON	Wednesday, 16 December 2020
RECEIVED ON	Wednesday, 04 November 2020
ACCEPTED ON	Saturday, 05 December 2020

JOURNAL	"Knowledge and Performance Management"
ISSN PRINT	2543-5507
ISSN ONLINE	2616-3829
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	Sp. z o.o. Kozmenko Science Publishing

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
59	3	0

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

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CATEGORIZATION OF CASE IN CASE STUDY RESEARCH METHOD: NEW APPROACH

Abstract

This study was inspired by two of the leading papers in the case study method: Eisenhardt (1991) and Dyer and Wilkins (1991). The work of those authors could be considered a benchmark for research based on a case study. Additionally, this research comes as a complement to re-categorize case study research design.

After reviewing those papers, the authors identified certain misunderstandings relative to when a case study should be addressed as single or multiple case studies. This study reviewed both recent and ancient research papers that used the case study research design in their investigations based on this misunderstanding. Thus, the previously identified misinterpretation of case study categorization is the gap this study filled.

For this study, the case study research design was to be re-categorized to understand which case study design suits which research study. Accordingly, based on the identified gap, the study used secondary data to re-categorize the case study research design through a literature review method. As a result, the study identified three case study categories: single setting case study with single sub-case, single setting case study with multiple sub-cases, and multiple case studies. Consequently, the result re-categorizes single case study design into single sub-case and multiple sub-cases. This study makes recommendations through the proposed approach that filled the gap identified in the case study design categorization. In terms of adding to knowledge, this study's proposed approach will augment the optimal use of case study research design by management, economics, and other disciplines' researchers in the future.

Keywords case study, single case studies, multiple case studies, single sub-case, multiple sub-cases

JEL Classification B40, M00, Y50, Y80

Received on: 4th of November, 2020
Accepted on: 5th of December, 2020
Published on: 16th of December, 2020

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Conflict of interest statement:
Author(s) reported no conflict of interest

INTRODUCTION

First and foremost, Eisenhardt (1991) and Dyer and Wilkins (1991) perspectives on the case study inspired this study. Their knowledge of the case study has given an interesting view and made a significant academic and scientific contribution to building theory from case study research design. In the beginning, Eisenhardt (1989) argued that, in developing a theory from a case study research design, it is not only a better story that matters but also healthier and measurable constructs. Furthermore, she contended that rigorous methodology should be employed for data collections, data analysis, and presentation of research findings. Accordingly, Dyer and Wilkins (1991), in their rebuttal, acknowledged that the research based on the case study structure proposed by Eisenhardt's (1989) crossbreed structure is at odds with this study method's soul, giving more credence to the robust nature of the case than a better story.

Secondly, Dyer and Wilkins (1991) went further to deduce a similarity between Eisenhardt's (1989) approach and hypothesis-testing research. According to Bryman (2004), hypothesis-testing research is when a researcher puts together quantitative research, he/she is cer-

tainly trying to find answers to a research question or hypothesis that he/she has set. In this respect, one way of assessing research questions is through a procedure termed hypothesis testing or significance testing. This test informs the researcher of the primary hypothesis being true or not. At the point, it turns out to be incorrect, the scholar provides an overview of a new hypothesis for testing; rephrasing the technique until information showing a genuine conjecture concludes this. Based on the above definition and subsequent discussion, it could be said that there is no similarity between Eisenhardt's (1989) method and the hypothesis-testing method. Eisenhardt's (1989) hybrid method is focused on finding good constructs that should be measurable and using a rigorous methodology to develop the relationship between the constructs for the development of theory. Through a process, the researcher might found a new insight that was not clear initially but can be used if judged necessary.

Additionally, Baškarada (2014) claimed that the subjective (qualitative) case study technique was mostly used but not entirely understood by analysts. This study takes the understanding of the qualitative case study method to another level, which aims to understand at least the categorization of the case study method.

In general, this study will be filling the gap(s) on categorizing case study – not only the formal single and multiple case studies. From the reviewed studies on case study design, it could be understood that there is enormous confusion because many researchers' work has been considered single case studies. However, those studies often explore multiple frameworks because the investigations focus on comparing either small cases from a single setting or time-based case (Dutton & Dukerich, 1991; Warne & Price, 2016).

Conclusively, in terms of structure, this specific paper would have five thematic sections. It begins with an introduction section; followed by the literature review mainly focusing on the papers published by Eisenhardt (1989, 1991) and Dyer and Wilkins (1991); generalization of the main statements; discussion (this section details the classic single and multiple case studies the following section from there will be the categorization part, based on the understanding of this study from the literature and follow up conclusion and limitation section), conclusion and recommendations.

1. LITERATURE REVIEW

First, the two papers and the different literature make this study understand that much research has been done on the case study design method. However, the confusion on when to describe a study multiple or single case study remains unattended (Castles, 1996; Driver & Halligan, 1991; Virta & Lowe, 2017; Mckenna et al., 1978; Flyvbjerg, 2006). This understanding emanated from these authors' (Eisenhardt, 1991; Dyer & Wilkins, 1991) propositions, which inspired this study. It could be seen that all sides had evident or hidden confusion on when to call a case study to have single or multiple cases. For example, in response to Dyer and Wilkins (1991) refutation, Eisenhardt (1991) used different cases that were employed by Dyer and Wilkins (1991) to support their single case argument. Eisenhardt (1991) claimed those researches are a multiple case study. She contended that "*although these studies may focus on a single setting such as a corporation, they are not single cases. Rather, many are multiple-case studies, relying on the comparative multiple-case logic of replication and extension for their theoretical insights*" (Eisenhardt, 1991, p. 622).

In this regard, the study decided to reapply those cases for more in-depth explanations, such as Whyte's (1943) viewpoint. According to Eisenhardt (1991), Whyte (1943) studied multiple gangs' perceptions and evaluations at Boston's North End, a single setting. Apart from the argument put forward by Eisenhardt (1991), Whyte (1941) further argued that "*I made an intensive and detailed study of 5 gangs based on personal observation, intimate acquaintance, and participation in their activities for an extended period of time*" (Whyte, 1941, p. 648). From this statement, it is evident that from the single setting chosen by Whyte (1941)

http://dx.doi.org/10.21511/kpm.04(1).2020.01

in the investigation of multiple gangs at Boston's North End, the use of many gangs is essential to data quality, reliability, and trustworthiness of research findings. Most of Whyte's (1941) insights were observed by Eisenhardt (1991) and this study. Besides, parts of these remarks were repeatedly tested among gangs for research generalizations. The generalization of the finding from case study research, especially single case, is a crucial matter discussed through research papers (Zittoun, 2017; Thomas, 2017). It can be perceived as the most significant contribution. Thus, the more generalized the research findings could be, in other cases, the stronger the research findings.

Imperatively, to further give a more sustainable point on the importance of multiple gangs on Whyte (1941) paper for example, at the beginning of his discourse of mutual obligations, he pointed out that "*this system is substantially the same for all the groups on which I have information*" (Whyte, 1941, p. 658). Whyte (1941) again highlighted that additional uniformities take their source on duplication overcomer gangs. For instance, from the observations of Whyte (1941): "*Many corner gangs set aside the same night each week for some special activity, such as bowling. Most groups have a regular evening meeting-place aside from the comer*" (Whyte, 1943, pp. 255-256). Amongst gangs, early deductions were proven wrong and lead to the dismissal of chance associations and, therefore, to removed inaccurate results. Notably, Whyte's (1941) research underscored certain observations that were disconfirmed across gangs. Therefore, it could be said that non-general findings such as the reject observation of Whyte (1941), which were developed on a single gang, might not be general but at least make its point on the gang from which it has been developed, the same interpretation stands for the cases.

Furthermore, concerning Eisenhardt's (1991) viewpoint, the data gathered was from multiple gangs. Whyte (1941) resolved that, in characterizing leadership, personality variables are possible to be of little importance. According to Whyte's deduction, one can locate an incredible assortment of individual behavioral characteristics among comer boy leaders, similarly as one can among leaders in business or political unit. Some are forceful in social contacts, and others show up practically resigning. Some are chatty, and others want to sit quietly. In such a nature, few consistencies are to be found (Whyte, 1941). Hence, the study and Eisenhardt (1991) who also analyzes Whyte's (1941) opinions highlighted that these discoveries would not be conceivable if they were to be undertaken in a single-case design. Another example given by Eisenhardt (1991) on her answer said that Gouldner's (1954) study on the Patterns of Industrial Bureaucracy detains the evolution of bureaucracy inside a Midwestern manufacturing plant. Although Gouldner (1954) researched using only one plant, a single setting, his theoretical understandings rely on multiple cases.

To widen the study's secondary data sources through literature review, Gouldner's (1954) paper was reviewed as well. As Eisenhardt (1991) posited, Gouldner (1954) build his framework of bureaucracy from a three-case assessment, which is as follows:

- no smoking;
- safety; and
- bidding rules.

So, till this point, the findings of Eisenhardt are verified and make sense.

According to Gouldner (1954, p. 182), "*What could be done, however, was to examine several of the programs and rules within the plant and contrast them with each other, noting the variations that were thereby revealed.*" Eisenhardt (1991) again contended, Gouldner (1954) employed multiple cases to duplicate perceptions. For instance, the understanding that a foundation of bureaucracy is management's conviction that subordinates are inadequate to execute their role of responsibilities came from comparing two cases of Old Doug, the former plant manager, and Vincent Peele, his substitute. Accordingly, Gouldner (1954, p. 233) alleged that "*They (plant employees) overflowed with stories which highlighted the differences between the two managers, the leniency of Doug and the strictness of Peele*" (Gouldner, 1954, p. 233). He imitated this understanding with a second two-case comparison, surface versus mine workers. Owing to an incredible bureaucratized surface, supervisors have a habit of viewing their subordinates as hesitant to do the job and as arranged to "gold-

brick." In a less bureaucratized mine, supervisors viewed the miners as a committed employee and hard workers. Even though the study was on only one plant, the above hypothesis is upheld, as are others, by remarks of a few discrete units of comportment (sub-cases).

Gouldner (1954) used multiple cases design in a single case study to set up expansions, which in so doing, developed a more elaborate theory. For example, he made use of the surface and mine workers cases as the foundation for hypothesizing that the bureaucratic procedure lies upon the opposition of individuals being bureaucratized. Gouldner (1954) further argued that these assumptions originated from the difference between the mines and the surfaces. For instance, globally, miners would hold fast to "traditional" qualities to a more prominent degree than the surface men, who were all the more handily acclimated to the judicious and changing parts of the bureaucratic organization (Gouldner, 1954, p. 236). Indeed, from these clear statements, it is evident that Gouldner's findings and most of his investigation would not be possible if he had not used the multiple case studies model in the single setting, which as being also referred to by Dyer and Wilkins (1991) as a single case study.

Elsewhere, Virta and Lowe (2017) based their study on a single case study method. Nevertheless, after reviewing their research, it became clear that the investigation will not be possible if it was not conducted at a different time level. The authors contended that:

"Data collection was conducted in the various stages of Mediapolis development. The first round of interviews was done in March-April 2013, the second in November 2015, and the latest in March 2016" (Virta & Lowe, 2017).

Moreover, the authors revealed that different managerial levels (representatives with management-level responsibilities, external consultants, and managerial representatives) were interviewed by explicitly focusing on the core associates in charge of Mediapolis early development and management, just as every one of the contracted external expert consultants profoundly engaged with the project.

Using a case study design to build a supply chain management theory, Hu and Zhao (2018) combined different case study methods. Notably, the one this paper would focus on is the within-case analysis method. This method is undertaken in one case, but later the author makes it evident that three primary automobile quality sources (the suppliers, the internal production process, and downstream partners (4S stores)) were used. Thus, this enables the authors to effectively highlight the parts of the chain of supply impact leading to the recall of the automobile.

Again, Friedkin (1993) researched on examining the interpersonal influences that developed among teachers while establishing criteria for evaluating their school's performance was done on a single public elementary school in California, which was the case. However, it was clear that the research will not be conceivable without the study's longitudinal design in the study. According to Friedkin (1993, p. 870):

"The longitudinal design of this study permits a relatively straightforward assessment of the extent to which the frequency of issue-related interpersonal communications and influences are shaped by previously existing relational power bases" (Friedkin, 1993, p. 870).

The longitudinal form of study permits the researcher(s) to have repeated observations of the same element. These repeated observations will make it possible for the researcher(s) to compare the different time data and reach a coherent conclusion. Each time that researcher(s) collect(s) data, it is considered as a sub-case, which can also be examined on its frame. For instance, the findings of Masozera et al. (2007) study emphasized that

"Hurricane Katrina caused severe flooding in most New Orleans neighborhoods, regardless of income, elevation, and other social factors. However, our study does indicate that lower-income groups were more vulnerable to Hurricane Katrina during the response and recovery phases" (Masozera et al., 2007, p. 304).

Even though based on a single case study, the researchers could not arrive at this finding with-

http://dx.doi.org/10.21511/kpm.04(1).2020.01

out grouping sub-case and ran the comparison to see the differences based on the income level of groups that constituted their respondents.

The last illustration chosen by Eisenhardt (1991) was a case cited by Dyer and Wilkins (1991) as single-case research which for Eisenhardt (1991) bases are the most outstanding model is Dalton's (1959) owing study; Men Who Manage. Although Dalton (1959) emphasized only one plant, the research depended much upon the understandings picked up from three different institutions. Dalton (1959, p. 274) stated that several intuitions and questions originating in Milo and Fruhling's experience remained cross-fertilized by simultaneous contacts at Attica and Rambeau. As no concurrent methodical research may be made of all, Milo was the best accessible; the company became the heart of studies and the continuing point of essential efforts. Nonetheless, overall interrogations and explanations were progressively influenced by the additional companies' research, mainly the factories. Mutual procedures and similar repeated situations induced interlocking questions, which led to developing the problem areas.

In their article, Dyer and Wilkins (1991) seriously criticized Eisenhardt (1991) on many different points, such as the focus should not be on constructs development and their measurability. This variable's importance is also pointed out in many scholars' studies (Varpio et al., 2020; Dooley, 2002; Hillmann & Guenther, 2020) part from Eisenhardt (1991). However, this study focuses only on the confusion that became obvious during the review of the two papers and other case studies research papers, which also work on case studies design and research based on the classic model.

It has been argued in the literature that, at whatever point, case studies are contrasted with one another. Additionally, scholars can give the literature a significant impact on the differences and likenesses (Vannoni, 2014). This comparison could be seen in a classic single case study (where different sub-cases are compared to each other) or multiple case studies. Thus, the confusion on studies has single or multiple cases.

2. GENERALIZATION OF THE MAIN STATEMENTS

Case study design foundation is settled by stages of solid use and periods of neglect. The underlying utilization of this sort of study can be traced back to Europe, firstly to France. In the USA, the methodology was closely associated with The University of Chicago, Department of Sociology. Dating back to the beginning of the 1900s till 1935, famously, the most critical literature in the field originated from the Chicago School (Tellis, 1997). Furthermore, initial and utmost natural examples can be seen in the areas of Law and Medicine, where the use of "cases" encompasses a large body of student work. However, there are nearly other areas with widely used case study systems, especially in government and evaluative circumstances. Often than not, government research was done to establish if specific programs were effective or if a specific program's objectives were being achieved or not to determine the way forward. Evaluative applications were made in public healthcare structures to survey the viability of instructive initiatives.

Among the types of research approaches, quantitative techniques are likely not to be enough to describe and doubtful in some of the important data that the investigators required to discover. In this respect, case studies were utilized to set up a critical thinking method for researchers or students (Alvarez et al., 1990). Additionally, they also provide helpful verbal subject (Carney, 1995), practical subject (Greenwald, 1991), and in any event, the subject is expected to grow the students' points of view (Brearley, 1990) and philosophical perspectives (Garvin, 1991).

Based on the literature on case studies (single or multiple-case design – in what place a multiple design needs in itself a repetition instead of sampling logic). Nevertheless, without a specific categorization, scholar(s) will still be confused because, most of the time, case study founded on the single case uses the multiple case studies method and logic even when undertaken in a single setting (Eisenhardt, 1989). Besides, research using the case study method is not sampling research;

this was a point of view affirmed by most of the authorities in this research field (Feagin, Stake, Yin, Tellis, and others) and could be an example of those researchers with others. In any circumstance, the choice of case selection must be made to exploit what can be realized in the period accessible for the study (Tellis, 1997). According to Yin (1994), the generalization of the outcome of single or multiple techniques is for the theory and not to populaces. Multiple cases fortify the outcomes by rehashing the example coordinating, subsequently accumulating confirmation in the theory's quality. Also, this example of coordinating could be found in classic single case studies. For instance, examining the effect of responsibility enactment on the quantity of understudy has revealed talents in Texas government-funded schools (Warne & Prince, 2016). The study by Dutton and Dukerich (1991) on keeping an eye on the Mirror: Image and Identity in Organizational Adaptation was considered too. From those single cases, it should be noted that the authors' work would not be possible without the comparison on a different time frame. Significantly, the research conducted by Dutton and Dukerich (1991), the authors based their investigation on comparing 5 different periods to develop their theory. Also, different managers who have passed throughout the five periods each could be seen as a single case on how they deal with the issue at their time. More so, High-Risk Youth Programs have made use of the case study methodology (Yin, 1993) through numerous scholars' studies.

Extensive debates have been made on the fact that the comparative sample size (be it 2, 5, or 200 cases used) does not convert multiple cases into macroscopic research (Yin, 1984, 1989, 1993, 1994; Yin et al., 1989; Hamel et al., 1993). Since from there, the confusion based on the number of cases was highlighted. Presently, the focus or the problem was on how many cases make a case study a macroscopic or microscopic. In contemporary times, the challenge is for scholars to define how many cases are enough to generate a theory that can be widely confirmed. That number of cases should be regarded beyond the main case until the sub-cases compose the study's main case.

Consequently, this study was inspired to categorize the case study from only the traditional categorization method: single and multiple case studies. The research aim is to develop the parameters applicable to all research. When this is done, a single case can be considered suitable, provided it met the developed objective(s).

Furthermore, the impacts of network-based avoidance programs have been, for the most part, investigated, utilizing the case study technique. A classic single case assessment technique was utilized inside high-risk youth examines. These explorations likewise utilized an average collection of cases as a multiple-case study. This has been valid in the different means of misuse prevention programs that are network-based (Yin, 1993; Sabol, 1990). Little of that kind of study is conveyed in writing between Evans (1976) and Gopelrud (1990).

In the literature, numerous works have been completed, including the case study process. Yin (1993) enumerated various outlines accompanied by a reasonable examination plan for each case study situation. There was a suggestion for a general approach for planning case study leading to proposals for exploratory, explanatory, and descriptive cases. Notably, each of those three techniques can be embraced under the new approach proposed by this research. Stake (1995) suggested that, when choosing the chance to increase the learning capacity, it is worth noting that time is inadequate. Therefore, the cases that are chosen must be comfortable and enthusiastic subjects. A worthy instrumental case does not have to prove its typicality.

In addition to the forgone discussions, explanatory cases could be proper for doing fundamental studies. This sort of examination can utilize the design of the pattern-matching method in exceptionally troublesome and multivariate cases. Yin and Moore (1987) directed an investigation to outline why some examination results slip into applied use. The authors utilized one supported study project as a fundamental element of their investigation, where the project diverse, yet the topic was steady. The three opposition theories that portrayed the usage results were a knowledge-driven theory, a problem-solving theory, and a social-interaction theory.

It suffices to add that the knowledge-driven theory alludes to the thoughts and discoveries from

http://dx.doi.org/10.21511/kpm.04(1).2020.01

the essential examination that eventually became commercial items. The problem-solving theory usually trails a similar pathway. However, it is not made by a researcher rather an outer source perceiving an issue. The social-interaction theory asserts that researchers and users are in numerous communications and fit in corresponding with proficient linkages.

Also, descriptive cases require that the scholar starts with an engaging theory or face the probability that issues may occur during the undertaking. This method was practiced by Pyecha (1988) who researched special education by adopting a unique technique called pattern matching. Numerous states were adopted in the research, and the data derived from each state's events were compared with others, with idealized theoretical patterns. Hence, what is gathered in this kind of examination is the development of hypotheses of cause-impact correlations. In this way, the graphic theory must envelop the case study's insightfulness and scope under investigation while picking the cases, and the unit of investigation is made similarly to different sorts of case studies.

In place of the forgone issues discussed, Yin (1994) suggested that case-study protocol be used as part of a cautiously planned research project that would consist of the following sections:

- Summary of the project (case under study and the aims of work);
- Field processes (qualifications and admittance to locales);
- Questions (what the research should be clear to ask about);
- Guide for the report includes outline, design, or format for the story (Yin, 1994, p. 64).

According to Feagin et al. (1991), the ideal quality of study based on the case study technique is that they attempt to thoroughly comprehend social structures of action. The component examination is a critical factor in the case study and inspired the current research – to help categorize the different unit and their proper addressing term. It is characteristically a system of deeds rather than an individual or group of individuals. Methods of the case studies have a habit of being selective, concentrating on one or two issues essential to understanding them being tested.

More often than not, case studies use multi-perspectival analyses. As a result, the researcher thinks through not just the opinion and perspectives of the population of the case but also the relevant groups of actors or groups of time and their relations. Moreover, this is just one side, which is an outstanding opinion on the distinction that case studies have. They become the voice to the weak and voiceless. For example, countries in Africa, such as mines in Mali, could strengthen the use of case study research methods to develop useful and new theories, open more of its knowledge to the word, and put the knowledge developed in writing from thousands of years of history.

2.1. Classic single case studies

Throughout the task in the single case, the gathering of cases remains mostly in the researcher's thoughts. The targeted case commands most of the attention. However, there is tension since the single case and the collection each vie for more attention.

Conversely, in multi-case studies, however, the cases need to have a standard variable — perhaps a set of companies in the same industry, staff development sessions, clinics, or teachers. For the study of a program in several sites, the gathering may contain all present cases. Nevertheless, more often, it is a selection of cases. During the study of an occurrence such as "highly centralized management," the cases chosen will be several smaller quantities than all cases at present.

Cases are rather unique. The case is defined as a noun, an object, a unit; it is rarely a verb, a participle, a functioning. Schools can be our cases – physical kinds of stuff that are easy to visualize, though difficult they may be to comprehend (Stouffer, 1941).

Nonetheless, confusion on what might be or not a case can also be seen from Stake's (2013) book. In the book, the authors explain what can be considered a case using entity and functioning. Stake

(2013) in the book contended that training modules might be the cases – amorphous and abstract, but still, things, whereas "training" is not. Nurses may be the cases; one usually does not define "nursing activity" as the case. "Managing," "becoming effective," "giving birth," and "voting" are examples of functioning, not entities we are likely to identify as cases. For the cases, one may select "managers," "production sites," "labor and delivery rooms," or "training sessions for voters." With these cases, there are opportunities to examine functioning, but the functioning is not the case (Stake, 2013). Stake (2005) further claimed, as cited by Sake (2013), even when our primary focus is on a phenomenon that is a function, such as "training," one chooses cases that are entities. Functions and general activities lack the specificity, the organic nature, to be maximally useful for the case study.

Stake (2013), in his book on multiple case studies, argued that each case is a specific entity. A national childcare program may be a case. A child services agency may be a case. The reasons for child abandonment or the policies of dealing with foster parents will seldom be considered cases. One thinks of area and policy more as a generality than as a specific thing. Every single case in a multi-case study is a definite entity. Within the social sciences and human services, the specific case often has functioning portions with specific purposes. It is a combined system. Functional or dysfunctional, rational or irrational, the case is a system, in the way that an abandoned child or a foster family or a child services agency is a system.

Stake (2013) again revealed that the reason for making a concern about what is and what is not a case is vital to a qualitative case study. As Yin (1994) also contended, the case study method is the case under study, not the methods or techniques by which the case is undertaking. Hence, the focus should be on the case.

In this regard, from the author's clarification, entity and functioning are distinctive whereby the entity is made out of functioning; the author has his definition on what should be functioning, which this article does not thoroughly concur with. For example, in the case of the nursing activity, managing is understood by the writer as functioning. This management is defined as a case for the definition in the circumstance where a study ought to attempt nursing management efficiency in a hospital on a timeframe (most recent 20 years, for example). Such a study could be founded on periodical correlation and assess the managing efficiency of each period and feature the rationale behind those reasons. Consequently, from that point, managing could be considered as an entity.

Understanding a case qualitatively entails one living through the case's activity as it unfolds in its frameworks and its specific circumstances. The condition is estimated to outline the activity and be subjected to the explanation of the activity. In choosing a case, we almost every time select a study to its circumstances.

Besides common estimation of the case failures to give adequate thought to the techniques, the case cooperates with fellow cases in its environmental factors – its relatives or network leaders (Tierney, 2000). The cooperation inside a case and across cases assists us with perceiving the case as an incorporated system. It is generally simple to distinguish the circumstance of an individual or association; it is harder to recognize the circumstance of working or strategy (Stake, 2013). As the article highlighted earlier, there was a time of use and disuse in the case study method's evolution. Nevertheless, after the quantitative method starts to show its limitation, using the case as a qualitative method to explain a situation where quantitative research could not give a clear explanation becomes more and more prevalent. Therefore, from the evolution, it has been clear that a qualitative case study was established to research the understanding of real cases operating in real circumstances for the scholar(s) or the investigator(s) to understand the case in its situation.

In summary, a single case study is a case study based on a setting, for instance, a company. Towards understanding the Patterns of Industrial Bureaucracy, Gouldner's (1954) study covers the evolution of bureaucracy within a Midwestern manufacturing plant or any other in the literature. Nonetheless, as was discussed earlier, the single case from those explanations can be considered multiple cases even though it is vital to know that their work was based on only one setting. The

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Categorization section of the article will propose a new categorization of the case study method from our understanding of case study research design.

2.2. Classic multiple case study

The particular determination to examine something having several cases, parts, or members is a multi-case study. The authors research those parts, perhaps its students, committees, projects, or exhibitions in different settings. A small group of people, events, rules, strengths, problems, or affiliations is researched in detail. Every case to be researched has its problems and connections. Each case has its own stories to share, and some are contained within the multi-case report, but the formal concern is in the gathering of these cases or the phenomenon shown in those cases.

On the multiple case study method, the benefits highlight by most of the research and scholars is the fact that multiple case studies enable a researcher to analyze the data amongst a circumstance and through diverse situations. Here too, one can see that there is confusion to use that benefit to choose the multiple cases method over the single case because on most of the excellent paper and theory build from single case studies, the researcher highlight that they have based their work on the comparison across the different situation in those cases (Whyte, 1943; Gouldner, 1954; Dutton & Dukerich, 1991).

Along these lines, a summary of multiple case study techniques was primarily investigated in the various literature. This study concurs and accepts the definition given by scholars. However, when assembling with the classic single case method where the disarray on using the distinctive case study starts, the succeeding section will give a precise categorization of the case study method.

3. DISCUSSION

3.1. Categorization of case study

With the evolution of the scientific circle and the use of the case study method growing intensively, many scientific papers were written and published on a case study or using a case study design. Nonetheless, there is confusion on the categorization of cases in the case study method. For example, the argument between (Eisenhardt vs. Dyer and Wilkins) supposed that the authors did not agree on what single case and multiple case studies are. Eisenhardt's (1991) viewpoint has features of the example single cases given by Dyer and Wilkins (1991). Thus, those researches have vigorously relied on the multiple case studies method to build up their theories. Many of those studies will not be feasible without multiple case studies design. Additionally, the qualitative case study research method is viewed as adaptable, making the method flexible (Merriam, 2009; Meyer, 2001; Stake, 1995). The methodology utilized in the study is shaped by the study plan, epitome, and choice of techniques (Gustafsson, 2017). Thus, case studies from the published literature are multiform (Hyett et al., 2014). To add to the preceding arguments, either is a qualitative or quantitative research approach, one form is a sense of single or multiple case study need to be widely used. Consequently, we began reading the other literature on the case study, and we find out that the problem was not only in those two papers but in general, the confusion was all over in the literature. From there, this study attempts to categorize the case study method. As to choose whether or not, a researcher should choose either single or multiple case study method according to the result of Gustafsson's (2017) research findings which avail that "*there are several different opinions if a single case study or a multiple case study is the best choice.*" Therefore, after categorization, in this specific paper, which category of the case study should be undertaken for which result will be highlighted to guide future research on case study design.

3.1.1. Single setting case with single sub-case

Per this study, it is called a single-case method – a study on a single case with sub-case. Thus, any case study research based on one unique case and a unique sub-case make findings after that. For example, if Dutton and Dukerich (1991) investigation was undertaken on the port authority management of the homeless issue in New York and New Jersey using the single case study, their research project would be focusing only on one of the five periods studied.

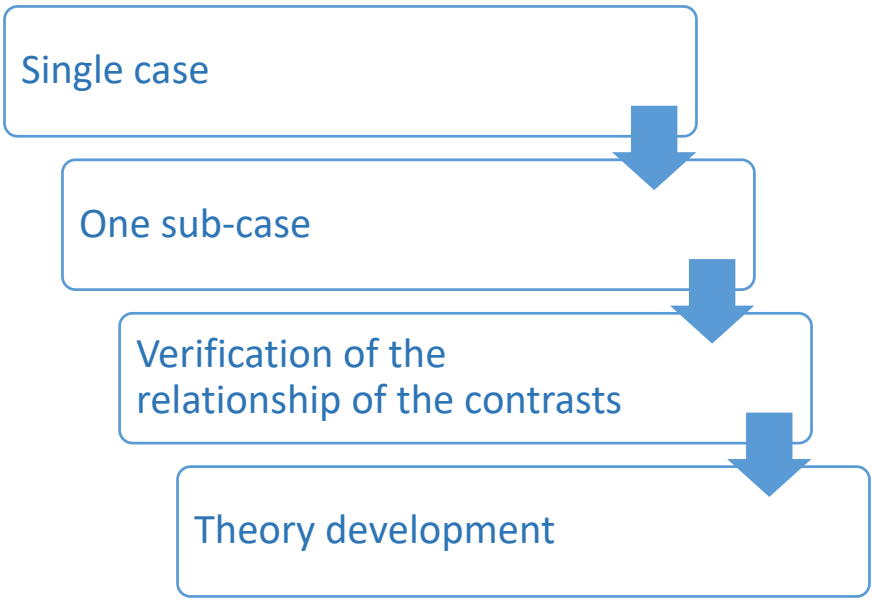

Figure 1. Single case study single sub-case

The position of the paper is that the research method differs from the classic single case studies. The same tool as questionnaire, interview, and observation (direct or indirect) will be used if the researcher(s) deemed it necessary for the study. Our main focus is to explain that, single sub-case focuses on the environment using the case self-background. This technique seems complicated but will help the researcher(s) explain to the reader the sub-case in its environment to create a better story and develop contrasts, from the verification of that contract theory would be made. The theory of such research could be used in the cross-case or cross-sub-case study but in another technique, which is the following one.

To give a better understanding, the examination of Cassel and Humphreys (2015) on a single case – "Ben" – who was treated with formulation-driven psychological therapy using techniques drawn from Cognitive-Behavioral Therapy (CBT) and Acceptance and Commitment Therapy (ACT) for psychogenic amnesia. According to Kozintseva and Skvortsov (2016), analysis on a single patient proved to be necessary for resolving contradictions of the "holistic" and "elementaristic" paradigms of psychology and for the development of theoretical knowledge with the example of a writing disorder. Additionally, Gerring (2004) noticed that case studies are confident in their representativeness. The reason for this model is not necessarily to develop a theory that is summed up. If the theory created could the tested in other studies and be demonstrated valid in a different study, that will be fine. However, as it has been argued by Dyer and Wilkins (1991) that, the page measurement, the number of cases, or the duration of the researchers' staying on the ground, in essence, is not a significant issue. Instead, the significant issue is if the researcher is skilled to describe and comprehend the prospect's framework in question so that the perspective can be comprehensible to the reader and establish a theory in connection to that viewpoint.

3.1.2. Single setting case with multiple sub-cases

A single case study can make the research question longstanding theoretical connections and discover new ones due to the extra vigilant the study made. This also gives the researcher an in-depth understanding of the subject (Dyer & Wilkins, 1991). Consequently, this model is different from the above model, but it uses the next model method illustrated in this study in the following section.

As shown in the above figure, this method used only one setting case in another term full case. The process is that the researcher must look for a

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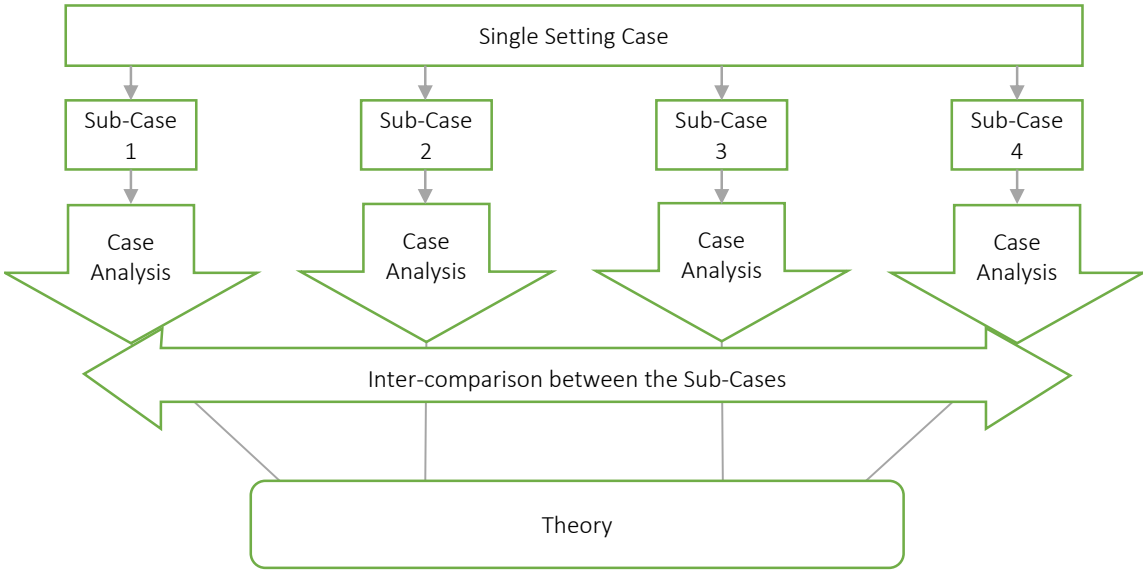

Figure 2. Single setting case and multiple sub-cases studies

few sub-cases in a single case, the number of those sub-cases depending of course on the interest of the research but at least it should be two because anything less than two, the research has to use the single case study single sub-case method.

After selecting the sub-cases, the following step would be to analyze those sub-cases in there on the environment. This analysis helps to understand each sub-case and highlight the particularity of those cases.

Next, the researcher will merge in the inter-comparison between the cases so that the findings from the sub-case analysis will be compared to each other for the development of the theory from that single case.

In conclusion, when researchers follow this method, it is to understand the evolution of a specific issue in different sub-cases and generate theory from the new finding from comparing those sub-cases. However, it is worth noting that this is

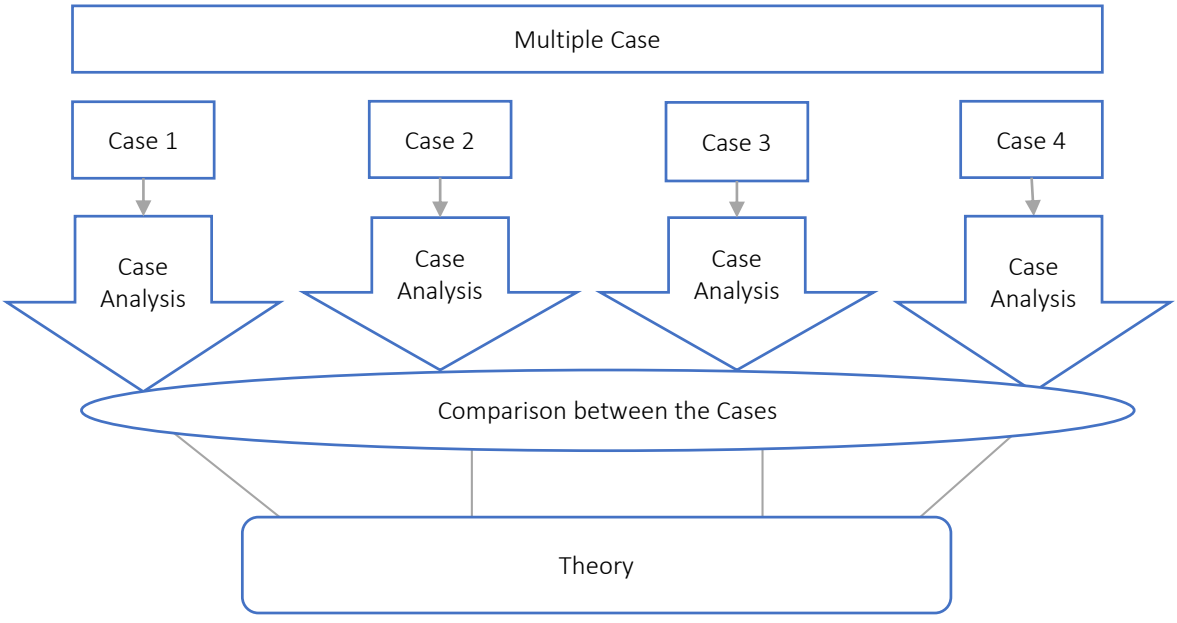

Figure 3. Multiple case study

not a new method; throughout the literature, the method could be identified.

3.1.3. Multiple case studies

As explained earlier, the multiple case studies are an outstanding effort to scrutinize something with lots of cases, sections, or affiliates.

So, Figure 3 can show the step to follow on using the multiple cases. It is the standard method used in most of the multi-case study methods. In this paper, we followed and approved the multi-case study from the literature, for example, Eisenhardt's (1989) publication on "Making Fast Strategic Decisions in High-Velocity Environment." In this study, the author compares height firms that she categorizes into two different groups: the fast decision-maker and the slow decision-maker. The study helps to comprehend the speed of resolution-making and its importance to the development of a firm.

So, in conclusion, for the multiple case studies, it could be agreed that there are three parts in general: the selection of the cases (this selection can be inter or intra industry). After selecting the cases, the analysis parts follow; this part requires a rigorous method (data collection, data analyses, contrasts development and story building) and a clear definition of what is going to be compared. Lastly, most of the time, this method is used when the theory is generated from the case's compare sum, and this method has a strong generality feature.

CONCLUSION AND LIMITATIONS

From the argument engineered by Eisenhardt (1989, 1991) vs. Dyer and Wilkins (1991), we got inspired to write this study to fill in the gap relative to case study categorization. We based our research on the different literature existing on case study research to birth a new categorization.

In essence, this paper's categorization of case study research design aims to bring out a clear difference between single setting case study with single sub-case, a single setting case study with multiple sub-cases, and multiple case studies. The article finds out that there is a real misunderstanding, especially on research based on single case studies.

From this three-case study design, it can be seen that the line is drawn to understand the differences between each study design. With this new categorization, it can be understood that Eisenhardt's (1989, 1991) vs. Dyer and Wilkin's (1991) argument will be much more precise. This is because the explanations that were given by Eisenhardt (1991) on the different case that hinges upon the single case is in a new categorization: single setting case and multiple sub-case studies design which already given a determination above.

In terms of scholarly contribution, this paper seeks to separate the classic single case studies into two-part for clarification, the steps to follow, and when to use this different method. Also, it was observed that classic multiple case studies were preserved as the literature because the argument from the literature on that is in line with the article reviewed on multiple case studies research design.

As for the limitation, this investigation mainly used secondary data through literature review. To this end, future researchers could undertake quantitative research by utilizing a questionnaire to gather some information from a scholar who utilizes the case study design.

AUTHOR CONTRIBUTIONS

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Formal analysis: Khalifa Ababacar Sy Diop.

http://dx.doi.org/10.21511/kpm.04(1).2020.01

Funding acquisition: Ersi Liu.
Methodology: Ersi Liu.
Project administration: Ersi Liu.
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Writing – original draft: Khalifa Ababacar Sy Diop.
Writing – review & editing: Khalifa Ababacar Sy Diop.

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