

METHODOLOGICAL AND EMPIRICAL PLATFORM OF TRIANGULATION IN STRATEGIC MANAGEMENT

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ABSTRACT

The methodological and applied foundations of the application of triangulation in strategic management are defined in the article. The role of triangulation in the structure of a qualitative study of strategic processes and the feasibility of its inclusion in the design of a qualitative study from the point of view of current goals and objectives within the framework of development strategies of the object have been substantiated. The methodological foundations of the interpretation and validation of the results of the application of triangulation in strategic management are studied, author's recommendations on the use of triangulation in the coordinates of strategic management are provided. The empirical study has been conducted highlighting the findings and main recommendations.

Keywords: Strategic Management, Strategic Object, Triangulation Technique, Research Results, Quantities and Qualitative Methods, Interpretation and Validation, Statistical Sampling.

JEL: B41, C02, M1

INTRODUCTION

The problem of choosing research methods in the field of strategic management is always relevant in strength, which can be provided by a profitable and competitive method depending on the managerial or economic situation. A high level of dynamic processes in strategic management requires constant development of research methodology and tools. In many respects, and precisely because of this, one of the key features of scientific research is the limited limitation of possibilities of using the destroyed approaches for choosing a method precisely in strategic management. Under these conditions, one of the main problems of this type is the problem of effective applications of quantity and qualitative methods, as well as the possibility to reveal the results of statistical observations and list groups. In strategic management, it is noted that qualitative research can be defined as the type of research, in which the forms are observed that are determined with the corresponding logic (strategies) of the research object, including missions and knowledge, joining them. Special qualitative methods are aimed at determining causality. In its turn, a quantitative study is investigated on a statistical analysis of the data collected.

LITERATURE REVIEW

Today, there are many interpretations of methodological triangulation. The authors focus on concepts that indicate the main directions of understanding of triangulation in the economy presented in the works (Bendkowski, 2016; Labarca, 2017; Quinton & Reynolds, 2018). This concept is primarily distinguished by internal classification. Triangulation is often viewed as the use of a set of various methods so that to achieve coherent foundations for empirical inferencing (Kostera, 2003). Campbell & Fiske (1959) are forefathers of

viewing triangulation as a blend of diverse methods in one single research. Triangulation, in the authors' view (Jick, 1979), has been, instead of being a method, rather a research strategy, methodological solution (Mathison, 1988), research procedure or behaviour-related procedure (Stańczyk, 2016). In the research practice (Dźwigoł & Wolniak, 2018), triangulation shall mean such action-related methodology which is aimed at selecting the most complementary methods, whereas the methods are destined to provide concurrent results (Dzwigoł et al., 2019). One can indicate two approaches to the methods employed in a single research process, i.e. (Kozmenko et al., 2014; Kawalec, 2014). 5): a) a single-method approach where the entire research is conducted with the use of one selected quantitative or qualitative method, and b) a multi-method approach where, at different stages of the research process, one may have recourse to various methods. Within the scope of the latter, one may distinguish: (1) a homogenous multi-method approach featuring the application of various qualitative and quantitative methods in a single research study, and (2) a heterogeneous multi-method approach which involves collecting and analysing data, and drawing up conclusions, with the simultaneous application of qualitative and quantitative methods. Denzin (2009) underlined that triangulation goes beyond the multi-method approach and method blending – triangulation involves combining various complementing methods.

METHODOLOGY

Methodological triangulation in strategic management is a complex and multifaceted concept. Thus, triangulation should be considered as the use of data collected from different sources by different methods, different researchers and, if possible, all triangulation techniques that have the necessary reliability and reproduce the strategic features of the development of a particular object or process. Methodological triangulation consists of using several methods of collecting information when studying an object.

FINDINGS AND DISCUSSIONS

This type of triangulation is divided into triangulation within a method (especially one method is used to study an object), as well as between methods (different methods are used to study one object) (Jack & Raturi, 2006). Then the point can be fixed as the third point of the triangle with one known side and two known angles (Figure 1).

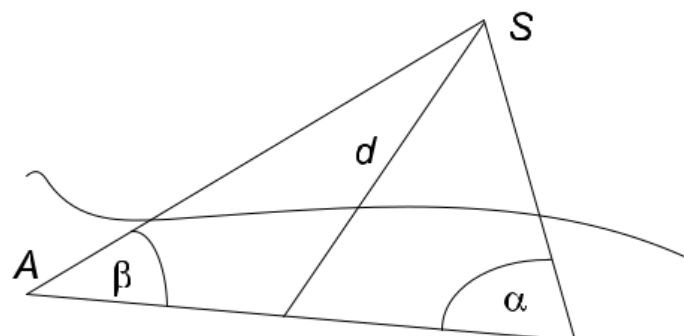


FIGURE 1
TRIANGULATION AS DETERMINATION OF THE PLANNED POSITION IN THE
FRAMEWORK OF THE OBJECT DEVELOPMENT STRATEGY

The figure conditionally shows the definition of the primary strategic location of the object of study. If one can measure L - the distance between the observation points A and B , then from geometric constructions it will be received:

$$L = \left(\frac{d}{\tan \alpha}\right) + \left(\frac{d}{\tan \beta}\right) \quad (1)$$

Simple geometric transformations give an expression for determining the distance d to the location point S :

$$D = L \times \frac{\sin \alpha \times \sin \beta}{\sin(\alpha + \beta)} \quad (2)$$

Triangulation can also refer to the starting point of strategic changes of very large triangles (objects of study), which are called triangulation networks. Network error is minimized by setting the grid of triangles to the most appropriate scale. The points inside the triangles can be precisely positioned with reference to it. The triangulation of the set of points $P \times R_n + 1$ is the partition of the convex hull of points into simplexes so that the first condition from the previous definition is satisfied and the set of points that are the vertices of the simplexes of the partition coincides with P . The triangulation T of the space $R_n + 1$ is the subset $R_n + 1$ by $(n+1)$ - dimensional simplexes of the form: 1) any two simplexes at a point T intersect at the common boundary of an edge or vertex, or do not intersect at all; 2) any bounded set in $R_n + 1$ intersects a finite number of simplexes with T . Delaunay triangulation is the most famous form of triangulation of a set of points. From systemic perspectives, like a system, a trinitarian system is the simplest complex system (Timulak, 2014).

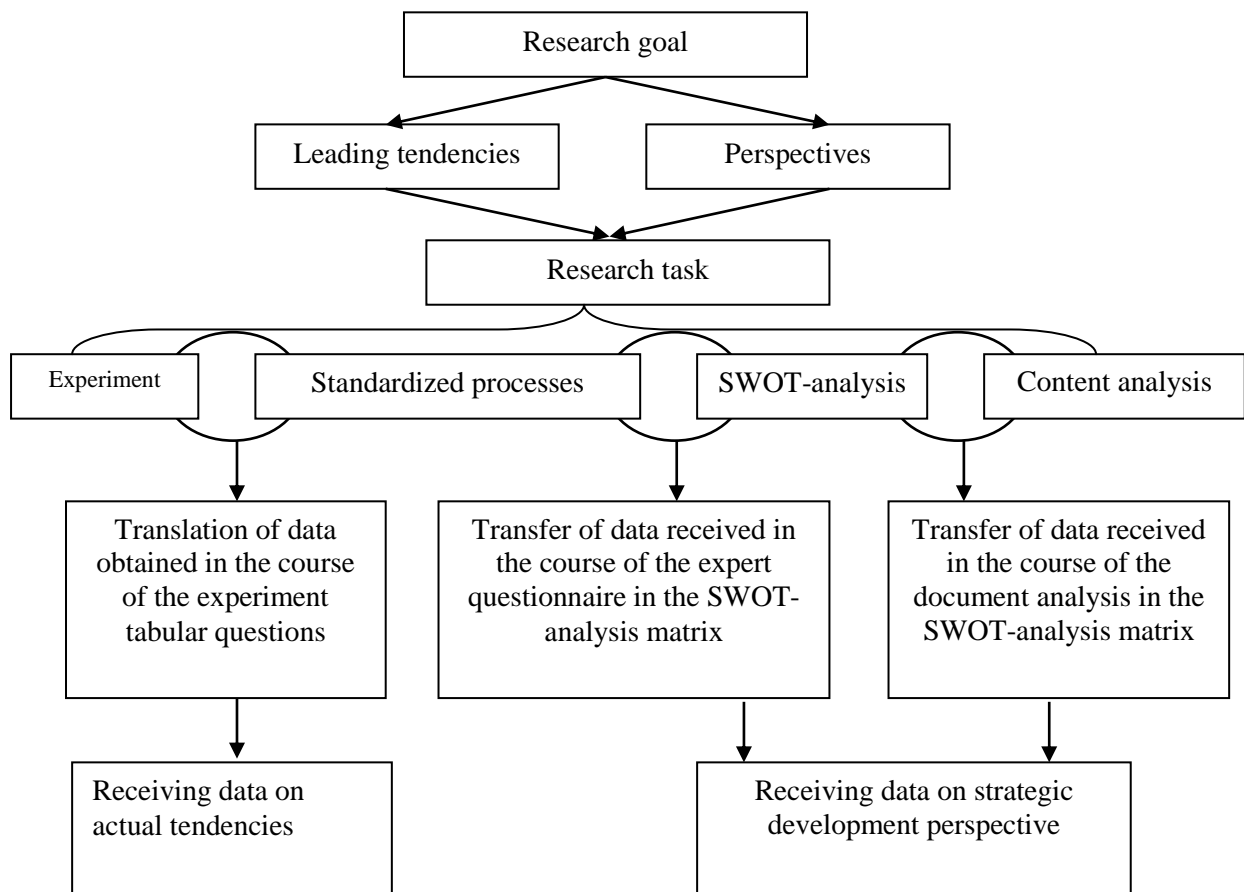
The inclusion of triangulation in the construction of qualitative research should be considered in terms of current goals and objectives. A special point requiring attention is the accounting of time costs associated with triangulation (Table 1).

Stages–levels of qualitative research	Type of triangulation included in the study	Purpose of triangulation as a validation strategy
Data collection level	Data triangulation	Variable sample construction
Data analysis level	Methodological triangulation	Using multiple data collection and analysis methods
Data interpretation level	Theoretical triangulation	Explanation of data from various theoretical perspectives
Data presentation level	Research triangulation	Discussion of data with various expert groups

- 1) Data triangulation involves referring to two or more sources of information to obtain voluminous and multilateral material. A typical scenario in qualitative research is the use of visual (projective images) and verbal data (respondent's statements on certain questions).
- 2) Methodological triangulation is considered, perhaps, one of the most important strategies for validating qualitative research. Using several research methods makes it possible to obtain more reliable empirical data for the reason that each method complements or verifies the others. (Denzin, 2009).

Interpretation and validation of the results of the application of triangulation in strategic management

The mentioned approaches to triangulation in the strategic management of objects indicate the key importance of methodological triangulation as a means of increasing the validity of socio-economic research. In accordance with the identified tasks, the methods are selected: 1) the experimental method will be the first task since it allows you to artificially create conditions in which it is possible to observe the necessary reaction within the object of study; 2) the second method, which corresponds to the task and which allows recording the response of the respondent, on the one hand, within closed questions (in this case, tabular ones), on the other hand, makes it possible to openly express one’s position on a number of questions within the framework of the strategy (Venkatesh et al., 2013). The third method should correspond to the task of conducting content analysis, allows objectively evaluating the information presented within the framework of the array under consideration. The fourth method is the actual use of strategic management tools, as a rule this is the method of SWOT-analysis. Thus, the model of triangulation of research methods in the framework of strategic management is obtained (Figure 2).



**FIGURE 2
THE TRIANGULATION DIAGRAM WITH THE SEQUENTIAL INTEGRATION
OF METHODS IN THE COORDINATES OF STRATEGIC MANAGEMENT**

The presented diagram shows a consistent integration of methods, which can significantly increase the validity of the study, provided by the complementary nature of the data obtained (Silverman, 2015). The share of units with a sign in the size of the entire

population is denoted by p , and the share of units not having this sign is denoted by q . From here:

$$p + q = 1, \text{ and } q = 1 - p. \quad (3)$$

The variation of the alternative attribute is zero for units that do not have this attribute. From here:

$$\bar{x} = \frac{1 \cdot p + 0 \cdot q}{p + q} = \frac{p}{p + q} = \frac{p}{1} = p. \quad (4)$$

The dispersion of the alternative characteristic is equal to:

$$\sigma^2 = \frac{(1 - p)^2 p + (0 - p)^2 q}{p + q} = q^2 p + p^2 q = pq(p + q) = p(1 - p), \quad (5)$$

This is to be proved.

Empirical study results

Conclusions derived from an ongoing analysis of national and foreign literature dealing with the methodology of conducting a research process showed a need to carry out an in-depth analysis of methods blending within research processes. Thus, the research problem was defined as follows: Is methodological triangulation a necessary condition in research processes in management sciences? With reference to the foregoing, the following research questions were posed:

- PB 1. Does the methodological triangulation support research processes?
- PB 2. Is it necessary, after defining a research problem, to analyse selected qualitative and quantitative methods in order to make a preliminary selection?
- PB 3. Does combining qualitative and quantitative methods in research processes within management sciences improve research quality and make research results more credible?
- PB 4. Which qualitative and quantitative methods have been extending a new management paradigm within the scope of the science- economic practice relationship?

Giving answers to such a research question will allow verifying the following hypothesis: *“The methodological triangulation supports research processes within management sciences”*.

The questionnaire consisted of three parts. The first part contained questions about the importance of approaches, processes, methods and techniques in a research process within the scope of management science (5 questions). The second part consisted of questions related to the problem of the improvement of a research process (33 questions). The third part contained demographics (3 questions). The structure of the questionnaire in the research part involved both open, rank questions, and questions based on the 5-point Likert scale. Within the scope of the latter, the respondents were obliged to classify a particular answer as: strongly agree (5), agree (4), neither agree nor disagree (3), disagree (2), strongly disagree (1), with reference to each of proposed assumptions (Dźwigoł, 2018).

As far as the questionnaire is concerned, it consisted of an introductory part in the form of a letter of intent, two open questions and closing information with acknowledgements and addresses under which the answers were to be sent. The questions asked to responders were as followed: “*Does combining qualitative and quantitative methods in research processes within management sciences improve research quality and make research results more credible?* ” and “*Which qualitative and quantitative methods have been extending a new management paradigm within the scope of the science- economic practice relationship?* ”

Quantitative research (questionnaires) covered theoreticians of management sciences, being a target group. The group consisted of: 272 foreign universities having faculties and/or units dealing with management sciences; 21,024 foreign academic staff connected to the management sciences; 93 national universities having faculties and/or units dealing with management sciences; 2,307 national academic staff connected to the management sciences;

- 52 foreign companies; 183 national companies.
- The size of a research sample, necessary to determine a representative character of the research, was determined on the basis of the following assumptions: the p fraction ratio was set to 50% (This approach shall be admissible, should the population volume be unknown); the amount of an error related to the fraction ratio was set to 5%; statistical significance $\alpha = 0.05$.

On the basis of the above-mentioned assumptions, the requested sample size formula will be simplified, and look as follows (Maxwell, 2013):

$$n_p = \frac{u_\alpha^2 \cdot p(1-p)}{b_p^2} = \frac{u_\alpha^2}{4b_p^2} = \frac{1,96^2}{4 \cdot 0,05^2} = 384,16 \quad (6)$$

Where:

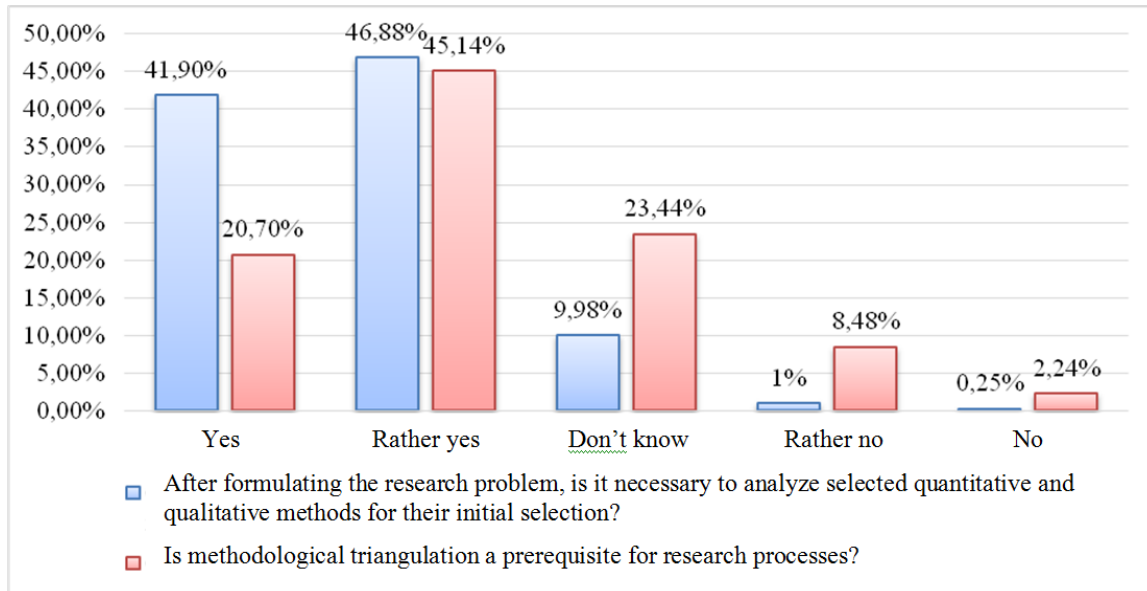
- n_p – requested sample size,
- u_α – amount of cumulative normal distribution derived from statistical tables,
- p – fraction ratio,
- b – the size of the fraction ratio error.

As a result of the research effort, 401 representatives of management science theorists were surveyed, thus the condition determining the representative character of the research sample was met (The results have been elaborated on the basis of 597 returned questionnaires, excluding the ones which were unsuitable for further processing) (Figure 3).

In the surveyed group of scientists, Polish universities amounted to 32%, whereas foreign universities accounted for 33%. As to the remaining part of the research group (35%), no academic unit was indicated. The most common areas of sciences in which the researchers were involved where, among others: strategic management, company management, knowledge and innovation management, as well as methodics of the research on organisations.

In the sample in question, 82.29% of respondents claimed that methodological triangulation supported the research process. What is more, 69.08% of surveyed researchers emphasised that the triangulation was a precondition in the management sciences. The achieved findings were also confirmed by an extensive literature study referring to the research methodology. It was stated in the said literature that the employment of numerous differentiated methods in the research process allowed adopting a complex approach to a research problem, while providing it with a broader image (Dźwigoł, 2018; Pająk, 2010).

While analysing the achieved results (Figure 3) one can unequivocally claim that following the determination of a research problem, it shall be necessary to analyse selected qualitative and quantitative methods. The said analysis is aimed at performing a preliminary selection of methods, which has been confirmed by 88.78 respondents. It is also necessary, before undertaking the research study, to analyse selected methods in terms of character of an ongoing study (Drobnyazko et al., 2019; Thomas, 2017; O’Leary, 2017).



Source: the author’s own work.

FIGURE 3
METHODOLOGICAL TRIANGULATION VERSUS RESEARCH PROCESS –
RESEARCH FINDINGS

RECOMMENDATIONS

The recommendations are that working with the triangulation strategy in its four main forms provides both a designation of the goals that the researcher wants to achieve by referring to several methods for collecting and analyzing data, theories or expert positions, and formulating criteria for comparing them. The authors believe that triangulation can be the basis of a validation strategy for qualitative research in the practice of strategic management and research on the behavior strategies of certain objects or processes. Triangulation can implement the theoretical and methodological principles of polyparadigm in the plane of research practice, that is, in considering the subject under study from several conceptual positions. It allows developing a deeper and more complete understanding of it and reflecting their own conclusions from turning to additional theories, methods or data. Triangulation becomes, in fact, a form of planning a qualitative research in strategic management, reflecting the main provisions of a qualitative methodology.

CONCLUSION

It has been determined that various strategies are used to validate qualitative research but triangulation, which provides for simultaneous access to several sources of data, methods, theories, and expert opinions, is of primary importance. The practical application of triangulation depends on the professional competencies and experience of the researcher, and the results of the triangulation application correspond to the general specificity and basic

criteria of validity in the qualitative methodology of strategic management. It is proved that the main validating function of triangulation is that it stimulates the creative research process, forces to look for new options and ideas for sampling, methods of analysis and interpretation of data. In addition, triangulation develops a critical attitude to the conclusions and preliminary hypotheses about the phenomenon being studied by referring to additional information and, possibly, contains “*negative cases*”, which may not agree with the logic of the analysis. The triangulation diagram was presented, which, in addition to ensuring validity, is distinguished by manufacturability and adaptability. In this case, manufacturability was manifested in a sequential process of transferring theoretical data to a practical level in the form of “nodes” that provided the necessary relationships between structural elements.

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