

CONFERENCE PROCEEDINGS OF THE 1ST CONFERENCE IN BUSINESS RESEARCH AND MANAGEMENT
UNIVERSITY OF CASTILLA – LA MANCHA, TOLEDO, SPAIN – MAY 26TH–27TH, 2022

This edited book contains the conference proceedings of the “1st Conference in Business Research and Management”, organized by the University of Castilla – La Mancha and the University of Rome “Tor Vergata”. The Conference took place on May 26th and 27th 2022, at the University of Castilla – La Mancha in Toledo. The aim of the Conference was to discuss the most important managerial and organizational implications of the pandemic and the future challenges that public and private organizations will have to face in the coming years, the so-called “New Normal”. The volume contains all the 49 extended abstracts presented during the Conference.

Essays by Alberto ALCALDE–CALONGE, Gianluca ANTONUCCI, Mimoza ARIFI, Alexis Jacobo BAÑÓN GOMIS, Hulusi BINBASIOGLU, Juan Climent BLASCO, Juan Jose BLAZQUEZ–RESINO, María Isabel BONILLA DELGADO, L. Javier CABEZA–RAMÍREZ, Riccardo CAMILLI, M. Carmen CANO VICENTE, Alessia CARECCIA, Katerina Fotova ČIKOVIĆ, Nathalie COLASANTI, María CORDENTE–RODRÍGUEZ, Nicola COZZOLI, Inmaculada CRESPO–MORÁN, Matteo CRISTOFARO, Violeta CVETKOSKA, Nino DEMINASHVILI, Tinatin DOLIDZE, Mario J. DONATE, Chiara FANTAUZZI, Anabel FERNÁNDEZ–MESA, Luis Alfredo FERRER–BAUZA, Rocco FRONDIZI, Fernando FUENTES–GARCÍA, Alejandro GAMÓN SANZ, María Ángeles GARCÍA–HARO, Alejandro GARCÍA–POZO, Pier Luigi GIARDINO, Camilo GIRALDO GIRALDO, María Isabel GONZÁLEZ RAMOS, Thais GONZÁLEZ–TORRES, Marta GOTOR CUAIRÁN, Fátima GUADAMILLAS GOMÉZ, Santiago GUTIÉRREZ BRONCANO, Jannicke Baalsrud HAUGE, Dea HAXHINASTO, Fernando Octavio HERNÁNDEZ VILCHIS, Inés HERRERO, Ivo HRISTOV, Igor IVANOVSKI, Pedro JIMÉNEZ ESTÉVEZ, Evica Delova JOLEVSKA, Erika JONUSKIENE, Yasemin KESKIN YILMAZ, Andromahi KUFO, Jorge LINUESA–LANGREO, Attila LOIBL, Ricardo MARTÍNEZ–CAÑAS, Marina METREVELI, Michele MILONE, José MONDÉJAR–JIMÉNEZ, Juan–Antonio MONDÉJAR–JIMÉNEZ, Miguel GONZÁLEZ–MOHINO, Lior NAAMATI–SCHNEIDER, Aleksandar NAUMOVSKI, Christopher P. NECK, David NEIRA, Quinones NILTON, Beatriz ORTIZ GARCÍA, Gabriele PALOZZI, Susana PASAMAR, Eva PELECHANO–BARAHONA, José–Luis RODRÍGUEZ–SÁNCHEZ, Pablo RUÍZ PALOMINO, Jemma SAAKYAN, Francisco José SÁEZ–MARTÍNEZ, Fiorella Pia SALVATORE, Sandra M^a SÁNCHEZ–CAÑIZARES, Francisco SÁNCHEZ–CUBO, Sergio SÁNCHEZ RAMÍREZ, Hemant SHINDE, Eriona SHTEMBARI, Marija SPASOVSKA, Antoniu STEFAN, Ioana Andreea STEFAN, Julio SUÁREZ–ALBANCHEZ, Dolores Lucía SUTIL, Mariam TKHINVALELI, Nivaldo Vera VALDIVIEZO, José–María VALERO–GARCÍA, Joaquín Alegre VIDAL, Juan–José VILLANUEVA–ÁLVARO, Walter VESPERI, Amarildo ZANE, Anastassia ZANNONI.

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Universidad de
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WHAT SKILLS SHOULD A MANAGEMENT SCIENTIST CONSULTANT POSSESS?

VIOLETA CVETKOSKA¹ AND KATERINA FOTOVA ČIKOVIĆ²

KEYWORDS: Management Science, MCDM, AHP, Consultant, Skills.

I. Objectives

We live in a world that is becoming more dynamic and complex, and management in companies is faced with a number of challenges related to increased competition, customers that want high quality but are willing to pay as low a price as possible, limited resources, time pressures, rapid changes in technology, recovery from the pandemic COVID-19, and the current war in Ukraine. With the decisions they make, they are responsible for the results the company achieves both in the short and the long term. The change in the nature of the problems and challenges they face also means a change in the nature of the role of those who advise management in the direction of making better decisions.

At the heart of the discipline of operational research (OR) / management science (MS), also known as the science of better, is data. Using analytical methodologies and tools to gain deeper insights from data can lead to recommendations for management to make fact-based and faster decisions.

Multi-criteria decision-making (MCDM) is one of the most important and fastest growing fields in MS. It refers to making a decision when there are several criteria that most often conflict with each other. Koksalan, Wallenius, and Stanley (2011) gave a detailed review of MCDM from its

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early history up to the present. A literature review on MCDM techniques and their applications was conducted by Mardani *et al.* (2015), who found that the most used (in 128 papers) MCDM method is the analytic hierarchy process (AHP). In addition, Emrouznejad and Marra (2017) show that in the period 2013–2015, more than 800 AHP published works have been identified.

When from several alternatives, there needs to be a choice of one that is the best, or to rank alternatives, taking into account several criteria on the basis of which the alternatives are evaluated, AHP can be applied.

The objective of this study is to investigate how much the MS methods and models are used in private and state companies in North Macedonia and to develop an AHP model that will help the management when selecting an MS consultant based on the required skills.

2. Theoretical Background

The skills (fundamental and ancillary practical) that an MS consultant should have are provided by Williams (2008: 227–246).

The fundamental skills of an MS consultant are: being able to look at the problem, being able to relate to the client, comprehending the social geography of the client body, identifying opportunities for analysis in a creative manner, structuring the problem, modeling it, analyzing the developed model, and relating the results to the real situation (Williams, 2008: 226).

Ancillary practical skills are grouped into five fields: 1) marketing, 2) selling, 3) formal communication and reporting, 4) skills in interacting with the client, and 5) computing. In the field of marketing, the MS consultant needs to be a marketer (to be able to look at the needs and wants of possible clients and consider which way is best to meet their needs and wants). In addition, the MS consultant needs to be a seller (where interpersonal skills, analytical skills, and knowledge are considered).

Interpersonal skills are related to active listening and empathizing with the client (to be able to see the situation as the client, question in a way that is structured and analytic and to demonstrate insight). Analytical skills are linked with the ability to conceptualize situations and to identify problem areas that are of key importance. The MS consultant needs to have

knowledge of the way that business operates, domain knowledge of the problem area, and different analytical approaches. Formal communication and reporting are linked with the style of written communications, presentations, and visualization of information through figures, diagrams, charts, timetables, etc.). In the field of interacting with the client and facilitation, the skills are: being personable, friendly, energetic, showing enthusiasm, trust and credibility as the basis of the relationship with the client, and having the necessary skills to hold workshops with a group of clients (to “facilitate” workshops) and to gain information or data from them. Last but not least, is the field of computing, which consists of the following skills: the ability to pick up new software packages in a quick manner, the ability to collect data from a variety of information systems, the ability to be a programmer, and the ability to be a software engineer.

The process of selection of a management science consultant can be considered an MCDM problem that can be decomposed into the following elements: goal, criteria, and alternatives. In order to determine the importance of individual elements that are mainly of qualitative nature, AHP was chosen as the most appropriate method. In the existing literature, we have not found a similar reference, which leads to the conclusion that this is an original application of AHP by which we contribute to the MS and MCDM literature.

3. Methodology

The survey was carried out through a questionnaire on senior managers of private and state companies in North Macedonia and the period was one month (February) in 2018. The respondents needed to evaluate each fundamental and ancillary practical skill on a discrete scale (1 to 5, where 1 is the lowest grade of importance, and 5 the highest). Besides the listed skills, if according to the respondents, an important skill is not included in any category, they need to add it and evaluate it. The total number of received questionnaires is 236. Of these, 17 are incomplete and 219 are analyzed. Out of these 219, 68 are from the state, and 151 from private organizations.

Based on the estimated average grades of importance for fundamental and ancillary practical skills, those with an average grade of equal or higher than 4 will serve as an input for the AHP criteria hierarchy.

The AHP was developed by Thomas L. Saaty in the late seventies of the twentieth century (Saaty, 1977; 1980). The decision-making process with the AHP consists of six steps (Mu and Pereyra-Rojas, 2017:7–8): 1) Create a decision hierarchy; 2) Determine the weights for the criteria; 3) Determine the local priorities for the alternatives; 4) Determine the overall priorities; 5) Conduct a sensitivity analysis; and 6) Make a decision. Details for each step can be found in Cvetkoska (2022: 243–269).

4. Findings

Methods and models of management science are used in 33 companies (25 private and 8 state). The MS model has been developed and solved with the help of an analyst employed in the organization (24 respondents), an MS consultant (5 respondents), and both (4 respondents). A total of 151 organizations responded that they require MS help and intend to hire an MS consultant in the future.

In Figure 1, we present the average grade of importance for the 8 fundamental skills. Based on the results, we can see that the highest grade has the skill to be able to look at the problem, while the lowest grade has the skill to comprehend the social geography of the client body, which is less than four, and therefore this skill will not be part of the AHP model.

The elements of the AHP model for the selection of the most appropriate MS consultant by the management of the companies in the Republic of North Macedonia are presented in Figure 2. As we can see from Figure 2, the goal is to select the most appropriate MS consultant. We have provided two categories: fundamental and ancillary practical skills. In the first category, there are seven criteria, while in the second category, the criteria are grouped into the following five groups: marketing, selling, formal communication and reporting, interacting with the client, and computing, while as alternatives will serve the candidates that apply as MS consultants.

No.	Fundamental skill	Average grade of importance
1	to be able to look at the problem	4.81
2	to relate the results to the real situation	4.77
3	to structure a problem	4.59
4	to analyze the model	4.53
5	to relate to the client	4.40
6	to model the problem	4.35
7	to creatively identify opportunities for analysis	4.26
8	to comprehend the social geography of the client body	3.84

Figure 1 The results of the survey: the importance of fundamental skills. SOURCE: The authors.

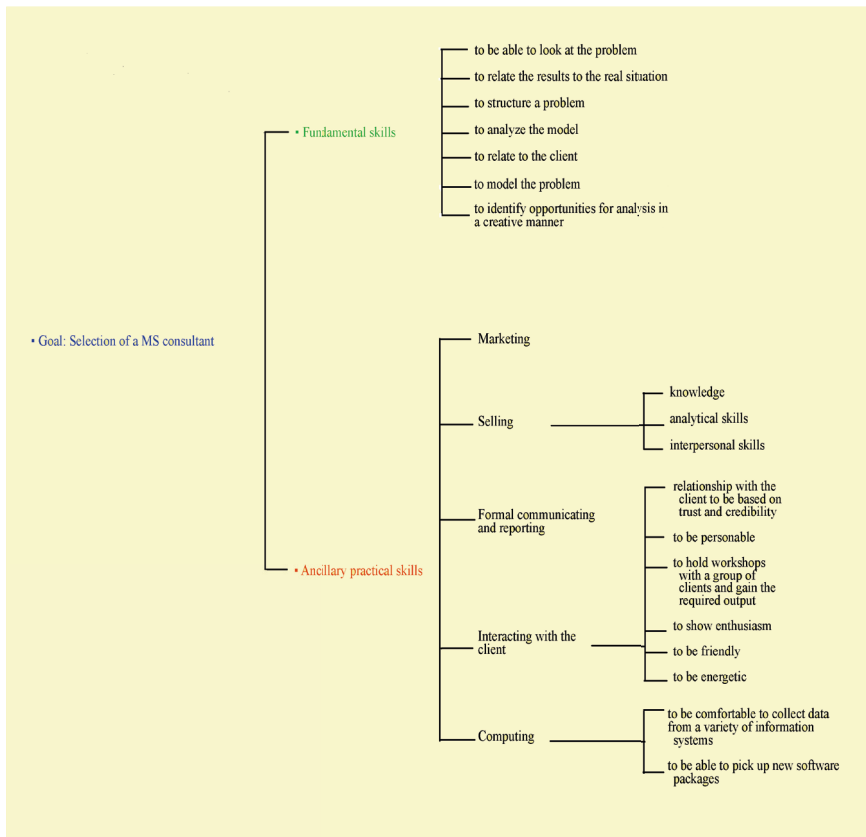


Figure 2 The AHP hierarchy for selecting an MS consultant. SOURCE: The authors.

5. Conclusions

Through the research performed on senior managers of state and private companies in the Republic of North Macedonia, it can be concluded that only 15% of the analyzed companies are using the MS methods and techniques. This poor usage is attributable to a lack of understanding about MS analytical methodologies and tools, as well as the benefits of using them.

Most of the respondents (151) answered that they need MS support and that they plan to engage an MS consultant in the future. Based on the questionnaire results, those fundamental and ancillary practical skills with an average grade of importance greater than four are used as input for mathematical, i.e., multi-criteria modeling. We believe that this modeling will contribute significantly to the selection of the most appropriate MS consultants in the companies, and the proposed AHP model will be tested in both private and state companies in the country.

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