

The entrepreneurship of economist engineers in the marketing of computer products (Hardware and software)



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ABSTRACT

This study aims to provide guidance for economist engineers in initiating and developing forms of entrepreneurship as regards the marketing of computer products, using the "case study" as research method. Before proceeding to a subsequent stage, a preliminary theory on the concepts discussed has been developed. The data collection stage is followed by the data analysis stage. At the end of the study, conclusions and bibliography are included. Entrepreneurship in the marketing is regarded both from its perspective as business opportunity (interest) for economist engineers and as a necessity.

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1. Introduction

Economist engineers form the electric, electronic and energetic field have the opportunity to take part to activities conducted in the Laboratory for Entrepreneurial Education and Training. These activities will provide them with the basic knowledge necessary for initiating a form of business, based on a personal idea and directed at initiating entrepreneurship in a field related to their study field. In the laboratory referred to above, they have the opportunity to grasp and internalize ideas included in the "Electronic guide for activities developed within the Laboratory for Entrepreneurial Education and Training" and complete a personal Entrepreneurial Project in the field of marketing of Computer Products (hardware and software products), which will be the proof that they have understood and acquired the knowledge required for initiating and developing a form of entrepreneurship.

The following aspects will be approached and acquired, under the guidance of their tutors, in the Laboratory for Entrepreneurial Education and Training: What is entrepreneurship? How do I start a business? What financing sources are available? The management of business development. Workshops for entrepreneurship and other activities (guidance

and support, counseling and personal development, coaching and professional development) in the Laboratory for Entrepreneurial Education and Training.

In this laboratory, students also have the opportunity to learn about the study case method, which is considered to be the most efficient one in designing a business (entrepreneurship), based on a business idea. This method answers questions such as "how" and "why" and will also be used in these study. From the very first chapter of the paper, the study case method has been used because there is limited control on events and our intention is directed to the phenomenon of the existing "needs, interest and demands for Computer Products (hardware and software products)" on the market, which can be answered by the action of "marketing of Computer Products (hardware and software products)" as a result of developing "the entrepreneurship of economist engineers in marketing of Computer Products (hardware and software products)". In other words, the case-study method is used for approaching the contextual needs defined as "needs, interest and demand for Computer Products (hardware and software products) on the market" with the view of initiating an appropriate form of entrepreneurship. Secondly, since phenomenon and context are always differentiated in real life, data collection and data analysis strategies are employed. The components of the research design are as follows:

The first chapter of the paper includes the description of the case study method. It is made-up of the following sub-sections: the study questions; the study hypothesis; the study analysis units, namely the primary study unit (the marketing of

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Computer Products (hardware and software products), the contextual analysis unit– the existence of the case (needs, interest and demand for oil products) and the embedded analysis unit (the business entrepreneurship of economist engineers in marketing Computer Products (hardware and software products)); linking data to hypotheses; criteria for data interpretation. The first chapter also includes preliminary theories concerning: “The marketing of Computer Products (hardware and software products)”; “Needs, interest and demand for Computer Products (hardware and software products)”; “The entrepreneurship of economist engineers in marketing Computer Products (hardware and software products)”. The second chapter focuses on data collection for: “The marketing of Computer Products (hardware and software products)”; “Needs, interest and demand for Computer Products (hardware and software products)”; “The entrepreneurship of economist engineers in marketing Computer Products (hardware and software products)”. The third chapter includes the data analysis and is followed by the conclusions section. The last stage refers to the simulation of the Entrepreneurship project on the hardware and the software equipment in the Laboratory for Entrepreneurial Education and Training and the completion of this research report.

2. The research method

The following study questions have been set:

1. Why the idea of developing a business in the field of marketing Computer Products (hardware and software products) might present interest for economist engineers?
2. How can one identify needs, interest and demand for Computer Products (hardware and software products) on the market?
3. How can economist engineers initiate business entrepreneurship in the field of marketing Computer Products (hardware and software products)?

2.1. The hypothesis

The established study hypothesis is as follows: If the needs, interest and demand for Computer Products (hardware and software products) have been identified on the market, it means that there is also opportunity (interest) for answering these needs, in the form of marketing Computer Products (hardware and software products), as a result of initiating business entrepreneurship in marketing Computer Products (hardware and software products), by economist engineers.

2.2. The analysis units

The analysis unit is linked to the fundamental problem of defining the case, i.e. the phenomenon of

existing needs, interest and demand for oil products, which are not easily defined as an individual. This study case is about decisions, programs, implementation programs and organizational change. At the same time there is awareness that such themes are not easy to be defined as regards the beginning and the completion of the case. A study on such a theme can reveal: a. variations in defining decisions, programs, implementation processes or organizational change, b. the pre-existing components, which were there before formally nominating them. Therefore, the study should take into account points a. and b. in delimiting the analysis conditions.

The attempt to establish the analysis unit, i.e. the case, is connected to the way in which the initial questions of the study have been formulated, since these aim to identify the needs, interest and demand for Computer Products (hardware and software products) on the market and study how this opportunity can be put into practice, namely the marketing Computer Products (hardware and software products), through the initiation of business entrepreneurship by economist engineers.

The primary analysis unit is the marketing computer products (Hardware and software products) on the market.

The contextual analysis unit (The existence of the case) is needs, interest and demand for computer products (Hardware and software products).

The embedded analysis unit is initiating entrepreneurship in business for marketing computer products (hardware and software products), by economist engineers.

2.3. Linking data to hypotheses

The fourth component of the case study design anticipates the data analysis stage and is usually little discussed in case studies, but research design should help build solid bases for this stage of the investigation. There are no clear explanations on how to link data to hypotheses, although this can be done in several ways. The approach chosen is a promising one as regards case studies, i.e. pattern matching, described by [Campbell \(1975\)](#). This technique involves "the use of some pattern matching logic" ([Yin, 2009](#)), which compares an established pattern with empirical bases with an anticipated prediction (or with more alternative predictions), according to [Trochim \(1989\)](#). In this case, if the pattern established on empirical bases (i.e., "the necessity to innovate the continuous entrepreneurial education and training of economist engineers in the current state of Romania's economy"), coincides with the anticipated pattern, predicted by authors, (i.e., „the achievement of the continuous entrepreneurial education and training of the economist engineers"), in order to solve the challenges of the ever-changing labor market, the results can contribute to the qualitative increase of the professional and transversal skills of the economist engineers, demanded on the ever-

changing labor market. In this case the patterns are related to the dependent and the independent variables defined above, namely the predicted pattern with respect to the independent variable is defined before the data collection stage, and the information obtained in this case can be related to the theoretically determined hypothesis.

2.4. Criteria for data interpretation

The alternatives depend on the authors' understanding as regards the conditions in which the new opportunities and discoveries of the study (the marketing Computer Products (hardware and software products) by initiating the business entrepreneurship of economist engineers) can be useful in the context of the existing needs, interest and demand for Computer Products (hardware and software products). We should point out here that, very often, people believe that studies don not have a practical end.

This pattern-matching technique is also useful when a study is explanatory, since patterns can also be linked to both dependent variables, such as, in this case, the need, interest and demand of Computer Products (hardware and software products) on the market, and to independent variables, which in our case are represented by the opportunity of marketing Computer Products (hardware and software products) after the initiation of the business entrepreneurship of economist engineers for the field of marketing Computer Products (hardware and software products). This technique is equally relevant if the study is descriptive as long as the anticipated pattern as regards certain variables is defined before the data-collection stage, which in our case is represented by the opportunity to market Computer Products (hardware and software products) through the initiation of the business entrepreneurship, by economist engineers, in marketing Computer Products (hardware and software products).

This sub-stage, as the last component of the study design, anticipates the data analysis stage. The data obtained through the chosen strategies and techniques represents a constant challenge to perform some valuable analysis, which involved the need to pay attention to and consider all existing data related to the subject. The proofs/data are presented objectively and alternative interpretations have also been given the appropriate interest. In order to interpret findings combined criteria have been employed, especially logical models. "The logical model purposefully stipulates a complex linking of events in time. These are included in repeated cause-effect-cause-effect patterns" (Yin, 2009). In other words, a dependent variable from an initial stage ("needs, interest and demand for Computer Products (hardware and software products)) becomes an independent variable during a subsequent stage (the opportunity of marketing Computer Products (hardware and software products) through the initiation of some business

entrepreneurship for marketing Computer Products (hardware and software products) by economist engineers). The use of the logical model involves the matching of empirically observed events (i.e., the need, interest and demand for Computer Products (hardware and software products)) with the theoretically-predicted events (the opportunity to market Computer Products (hardware and software products) through the initiation of some business entrepreneurship in marketing Computer Products (hardware and software products), by economist engineers).

2.5. Preliminary theories

In what follows we shall approach theoretically the primary analysis unit, which includes: the marketing of oil products. Marketing is defined as the action of marketing and its results, i.e., the selling of goods and the result of this action (Bremond and Geledan, 1990). In the case of marketing Computer Products (hardware and software products), the products are put into circulation as marketing objects, in our case through an entrepreneurial activity that refers to marketing Computer Products (hardware and software products) as part of an integrated process of looking at the needs, interest, demand for products, but also at other elements of the market (customers: individuals and companies), taking orders from customers, buying products from the providers (producers, intermediaries, importers) as economy goods, turning these goods into commodities by selling them to the customers that ordered them, collecting the value of the merchandise, evaluating the action of marketing (the profit). In essence, this is the action of marketing Computer Products (hardware and software products).

Thus, the concept of the market emerges (which is represented by all customers with the same needs or desires (needs) for Computer Products (hardware and software products) (Kotler, 2000; Kotler and Armstrong, 2001), along with the concept customers: those who are willing and able to engage in an exchange relationship to satisfy the above-mentioned need. In fact, the market is the last link of the chain that shapes the concept of product marketing. Here, the concept of the product is assigned to any finished oil product: Computer Products (hardware and software products), and other related services, aimed at meeting a need or a demand. The following concepts are included in this equation: the concept of selling, seen as one of the ways in which the entrepreneur approaches the market, and the process of marketing, which shows the solution for entrepreneurs to solve their own goals, which in turn are related to determining the needs and demands of those consumers interested in the products targeted and delivering the expected satisfaction in a more effective way that the competition is able to do.

The concept of selling is delimited by that of marketing: "the action of selling focuses on the needs

of the seller (the entrepreneur), while marketing focuses on the needs of the buyer" (Kotler, 2000). The process of selling deals with the entrepreneur's need to turn his products into money, while marketing aims at the idea of meeting the buyer's needs with the help of the products and the entire chain of associated activities.

The following conceptualization (theorization) that takes place around the Contextual Analysis Unit (existence of the case, i.e., the needs) is: Needs, interest, demand for Computer Products (hardware and software products). The marketing philosophy is based on people's needs and desires: their need food, water, air, clothing and shelter to survive, but also on their desire to travel by car in order to relax, to have everything modern and automatic, or to travel by train, airplane etc., with well-defined preferences for certain brands, versions of products or services. The needs of modern human beings are unimaginable. A human need is a state when one becomes aware of the lack of elementary satisfaction: the need for food, clothing, shelter, safety, etc. (Kotler, 2000; Kotler and Armstrong, 2001).

Desire represents the aspiration towards certain things that can satisfy needs, such as the needs mentioned above. For instance, an individual needs Computer Products (hardware and software products) in order to move by car. Although the needs are limited, an individual's desires are numerous.

Demand represents an individual's desire for a particular product, doubled by his/her capacity and decision to buy it. Desire turns into demand when it is supported by the ability to buy (obtaining a product using money) (Kotler, 2000; Kotler and Armstrong, 2001).

These differences emphasize one of the frequent forms of criticism associated to the marketing activity. In accordance to such criticism, the marketers themselves create needs that "determine people buy things they do not actually desire", which also happens in case of aggressive entrepreneurship. However, some other people continue to argue that marketers do not create the desires, but merely influence them, since these desires exist before their action (Kotler, 2000; Kotler and Armstrong, 2001). For instance, they can promote the idea that a certain type of Computer Products (hardware and software products) might satisfy the need of an individual with a particular social status. In other words, they are not the ones who create this need, but rather the ones who influence demand, providing the consumers with an adequate, attracting, available product, at a reasonable price.

Thus, the concept of product emerges. People satisfy their needs and desires with the help of goods and services.

In what follows we shall use the word "product" for both Computer Products (hardware and software products) and services related to using Computer Products (hardware and software products), offered with the view of satisfying a need or a desire.

The importance of the products offered lies not only in their possession, but especially in the services associated with the product. None would buy a Computer Products (hardware and software products) if it does not offer a performing function of motors and car engines. In certain circumstances, we might say that products are vehicles that provide different services (Kotler, 2000). Another concept can also replace that of "product", namely "offer", "element for satisfaction" or "resource". Often, people wrongly give more attention to the products sold rather than to the services associated with the respective products, when we consider that a product is sold rather than that it offers a solution for a specific need.

The marketer's duty is not limited to the simple presentation of a product's physical characteristics; it is rather associated to the act of selling the advantages or the services provided by that specific product. For this reason, the ones who sell a material good and do not take into account the customer's needs are considered to suffer from "marketing myopia" (Kotler, 2000; Kotler and Armstrong, 2001).

Marketing is present only when some exchange is performed (Kotler, 2000). "The exchange represents the process of acquiring a desired product, offering something else in exchange". This is a crucial concept for marketing. Five conditions must be fulfilled in order to make the exchange possible: the existence of at least two parts; each part must have something that presents value for the other part; each part must be capable to communicate and make available the product for the other part; each part must have the freedom to accept or refuse the offer; each part must consider that it is desirable or appropriate to deal with the other part (Kotler, 2000; Kotler and Armstrong, 2001).

The transaction represents a two-part exchange of values (Kotler, 2000). In the case of an entrepreneurship, a transaction occurs when the entrepreneur sells to different buyers and collects their value; this is the classic monetary transaction.

The concept of market appears at the end, in order to put into theory (conceptualize) the contextual unit (the existence of the case). The notion of exchange leads to the notion of the market. The market is represented by all customers who have the same need or desire and who are willing and able to engage in an exchange relationship to satisfy that need or desire. In this way the size of the market for a specific product depends on the number of natural and legal persons (individuals and companies) who have the same need, who have available resources and products of interest for others and who are willing to provide these resources in return for what they want. Originally, the term "market" means the place where buyers and sellers were gathered to exchange goods. Economists use the term market to designate a group of buyers and sellers who trade in a particular product or class of products (i.e., hardware, software etc.) Marketers nevertheless make a distinction: they

look at sellers as forming the industry, and at buyers as making up the market.

In what follows we shall establish the theoretical underpinnings for the embedded analysis unit, which includes the initiation of some business entrepreneurship for marketing Computer Products (hardware and software products), by economist engineers.

The concepts and theory for initiating the business entrepreneurship of economist engineers (Măgdoiu and Rada, 2018a) in marketing Computer Products (hardware and software products), in this case, totally follow the theoretical underpinnings and the conceptualization included in the "GUIDE FOR THE SIMULATION OF ENTREPRENEURSHIP IN THE LABORATORY FOR ENTREPRENEURIAL EDUCATION AND TRAINING- The Laboratory for entrepreneurial education and training" (Măgdoiu and Rada, 2018b). The question relating to entrepreneurship looks only at the entrepreneurship in business, since this is the theme we have chosen. The following definitions have been gathered by Ghenea (2011) and we shall present them below:

"An entrepreneur is any person who looks at a problem and sees it as an opportunity, and then acts on it!" definition put forward and translated by Ghenea (2011).

An entrepreneur must adapt, as well as possible, to the existing situation and have the correct intuition of changes that might occur in the future, when he/she possesses and uses entirely the best information. These elements define entrepreneurial arbitration, which involves the availability of a personal system for finding out information more rapidly and in a more efficient way than the competition is capable of doing (Ghenea, 2011).

An essential quality for an economist engineer, who is also an entrepreneur, is the right attitude. Daily actions demonstrate that people with an assertive attitude and nerve obtain more than shy persons, who never ask for their rights (Rada et al., 2018a).

When economist engineers are regarded as entrepreneurs, we associate them with persons who develop their own business plan, based on a personal idea and who assume the risks involved in that project, but who also benefit, at the end, from the results of the business, if this turns out to be a successful one. In fact, there are many fields (society, politics, research, etc.) where economist engineers can start from an idea and develop valuable projects, even if these are not business projects. Thus, economist engineers can become social, political or research entrepreneurs. Sometimes economist engineers demonstrate an exaggerated approach when they speak about their business ideas: "I have an excellent business idea", "I have three or four excellent business ideas", "I have tens of business ideas, all valuable" However, few of the several business ideas are materialized into a real business project (Rada et al., 2018b). It should be understood why economist engineers demonstrate such an attitude when they talk about their business plans

and why they might become paranoiac when they talk about their ideas, so as one might steal and use their ideas; therefore, they often keep such ideas for themselves.

Simple answers: Human beings tend to reduce the large majority of activities to certain essences and unique elements that can be included in a pattern; the tendency for over-appreciating one's own ideas, even when the means for putting such ideas into practice are absent. Media, by presenting success stories, also contribute to such a type of approach (Ghenea, 2011).

The business idea of economist engineers is associated with the "initiation of entrepreneurship in marketing Computer Products (hardware and software products)". Based on all the available knowledge about the value of ideas and the structured way of generating valuable ideas, the distance between a business idea and a real business opportunity should be perceived. In the absence of real, measurable instruments, which would indicate the analyze the opportunity of some business, this becomes very complicated. Reality is the only clear measure for the opportunity of business at the moment when it turns into a successful business, a moment that comes much later than the beginning of the project initiation. If the business does not turn to be a successful one, it does not mean that the opportunity did not exist, but that the failure of the business might have been caused by the inconsistency of the application. However, the business opportunity should be seen, even in the absence of instruments and when one can rely only on entrepreneurial intuition (guts-feeling). In analyzing the way of identifying business opportunities, four ways of identifying opportunities have been found: education, experience, and networking and guts-feeling (Măgdoiu and Rada, 2018c).

The following aspects may be regarded as important hints for understanding the opportunity for a business: the type of the market need ("A market study about need, as related to the business idea - products, ideas themselves, etc. - answers the following questions: is this need ascendant, declining, related to the past, the future, or is it an emergent one? Depending on the answer, the opportunity of the business idea can be recognized" (Kotler and Armstrong, 2001). The timing of the market need ("Is this need a repetitive or a singular need? What is the frequency of this need? Where is this need in relation to its life-cycle? The answer to such questions indicates whether the need as related to our idea is a singular or a repetitive one. The singular ones should be regarded with much attention, since they are hard to be supported as business" (Kotler and Armstrong, 2001). The value offered by the product to the customer versus the perceived costs (risks): "What is the utility, the attractiveness, what are the tastes, motivations and habits of buyers?" (Kotler and Armstrong, 2001). The value offered by the product to the customer versus the perceived costs (risks): "The answer to such

questions help in determining the total value offered to the customer, as well as the other risks and advantages associated to the business idea or the solutions for the improvement of the idea "(Kotler and Armstrong, 2001). The current satisfaction of the customer: "Are there other products or services that might satisfy this need? Can such solutions occur rapidly? Here attention should be directed towards the competition existing on the same market segment, but also towards products and services that in a modified form might satisfy the same need" (Kotler and Armstrong, 2001). The relationship between the price and the value offered (Kotler and Armstrong, 2001).

The business plan has the role of offering the clearest information in an entrepreneurial activity, about what this plan should include, who (and in what way) should write it and what should be made with this plan as the business develops (Ghenea, 2001). The business plan is probably the most important document of a business that is in the start-up entrepreneurial stage". It is the most important instrument for obtaining financial or other types of support (Rada, 2018). If it is well designed and improved, it can become in time the best self-evaluation instrument for the entrepreneur. Business planning never stops, even if the best business plan has been designed at a particular moment.

The business plan: The structure of the business plan: The marketing of Computer Products (hardware and software products). This stage does not represent the business plan proper, it is a mere presentation of the best structure for a business plan.

It is important to know that any entrepreneurial start-up needs financing (Rada, 2018). This importance of financing should be well understood in order to identify all the possible sources of financing available to the entrepreneur, and which of these would be the most appropriate in different contexts or moments of development and how these types of financing can be accessed. However, successful entrepreneurs are those for whom financial motivation is not their most important activity. They are the ones that make a difference not merely by means of money, but through an extraordinary business project that might bring some change. In fact, entrepreneurs are not afraid of risks inherent to their business, which they assumed at the beginning of the enterprise, but have some aversion to money and the financial area. This aspect is reflected by the structure of the management and financial control activity. The aversion towards the financial area can be observed in three directions: 1. When the area is unfamiliar (and there is no attempt to understand it) and therefore it generates fear; 2. It is related to money and financing and he/she intends to fulfill business objectives, not face financial problems; 3. The persons activating in the financial field do not resonate with the entrepreneurial vision, behaving as accountants.

3. The gathering of evidence (data)

For this study, data have been gathered from the following sources: questionnaires, direct observation, and participative observation. In each situation, the methodological procedures have been observed. The effort to collect data was based on the priority principle: "a. multiple sources of evidence (two or more sources that converge towards the same findings); b. a data base (it is about the totality of the data gathered, not the final study report); and c. a logical succession of evidence (explicit connections between the data collected, the questions raised and the conclusions drawn" (Yin, 2009). All these principles have been observed throughout the investigation of the case, with the view of improving the quality of the investigation. All sources have been considered valuable and therefore a large series of methodology of research sources have been read. Interviews and questionnaires have also represented a major source of information for this study.

3.1. Gathering data related to the marketing of computer products

The first step in this respect was the analysis of demand for such products on the market:

Negative demand; latent demand; decreasing demand; fluctuating demand; complete demand; over demand; demand for contraindicated products.

One aspect of the problem is represented by the identification of opportunities of which the entrepreneur can benefit; the other aspect is represented by the existence of the necessary capacity for the valuing of these opportunities. On a periodical basis, the entrepreneur should evaluate his/her strong and weak points, which can be achieved by completing the form presented below. The results obtained by the vertical summing of the points help us identify the strong and the weak points as regards the marketing of Computer Products (hardware and software products). Their analysis means neither that all weaknesses should be corrected, nor that the strong points should be made a title of glory. The real problem is to find whether the entrepreneur should limit himself/herself to the opportunities for which he/she has the necessary forces or whether he/she might concentrate on better opportunities, for whose valuing he/she should develop specific strong points (Table 1).

The economist engineer, as entrepreneur, must rely on a strong marketing informational system. He, as well as his employees, must understand consumers entirely. The need for marketing information is more acute than ever as a result of tendencies manifested at the level of the market. A marketing information system is an assembly made up of a group of specialists, equipment and procedures for gathering, sorting out, analyzing, evaluating and distributing the necessary information, in due time and in a correct way, towards the decision factors (Kotler, 2000).

Table 1: Form emphasizing the strong and the weak computer points of entrepreneurship

	Appreciations				Importance			
	Major force	Minor force	Neutral	Minor weaknesses	Major weaknesses	High	Average	Little
Commercial capacity								
1. The reputation of the firm								
2. The market share								
3. The quality of products								
4. The quality of services								
5. The efficiency of the price policy								
6. The efficiency of distribution								
7. The efficiency of promotion								
8. The efficiency of the selling force								
9. The efficiency of innovation								
10. Covering demand at the geographic level								
Financial capacity								
11. The availability of capital								
12. The monetary flow								
13. Financial stability								
Selling capacity								
14. Means								
15. Scale economies								
16. Capacity								
17. Qualified selling force								
18. Capacity to sell according to the established graph								
19. Commercial aptitudes								
Organizational capacity								
20. Visionary leadership								
21. Involved employees								
22. Orientation capacity								
23. Flexible/dynamic organization								

3.2. Gathering data about the marketing of computer products

With the view of obtaining data about the needs, interest and demand for Computer Products (hardware and software products), the questionnaire can be used. Questionnaires represent the instrument that is most often used for obtaining primary data and it includes a set of questions to which the subjects must give answers. The flexibility of this instrument lies in the fact that one question can be asked in several ways. Any questionnaire needs to be elaborated and tested with great attention and thus the analyst has to choose with great attention the questions, words and the order of questions (Robbins, 2003). A frequent mistake that occurs in some questionnaires is represented by questions with an answer given or suggested, or questions to which the person being asked cannot give an answer, as he/she has no knowledge about the issue. Thus, each question included in a questionnaire must refer to the objective under research and the ones that are less interesting must be eliminated so as not to make the questionnaire too extended and abuse the patience of the one having to give the answers. The way in which a question is formulated can influence the answer. Specialists have identified two types of questions open and closed. The closed questions provide all the possible answers and the subject has to choose the one that he/she considers real. The open questions allow the subjects to give answers using their own words. The open questions can offer much information, thus determining the absence of

constraints in formulating the answer. These questions are especially useful during the exploratory stage of the research, when the researcher tries to understand people's way of thinking and not to identify how many persons think in a specific way. On the other hand, the open questions offer answers that are easier to interpret and register. Types of questions used in this study were shown in Table 2.

Sampling: The entrepreneur must draw up a sampling plan, which requires the determination of the following three elements: The observation unit can be expressed by a question: Who is to undergo the research? The entrepreneur must delimit the collectivity from which the sample will be selected.

In the Computer Products (hardware and software products) test, should the sample be drawn from businessmen, companies or other categories? Should buyers under 21 be interviewed? In the case of families, should both spouses be interviewed? Once the observation unit has been established, a selection grid has to be made so that all the components of the collectivity surveyed are represented in the sample; as regards the sample size, the question to be answered is: how many people are going to be investigated? Large samples have a lower margin error than small ones, but conclusive results can also be obtained without selecting a large sample from the target unit, since even samples representing 1% can lead to fairly accurate results if the selection procedure is adequate; As regards the selection process, the question is: how should the subjects be chosen? In order to obtain a representative sample, the degree

of probability that allows the error to be calculated within acceptable limits must be taken into account.

Table 2: Type of questionnaire

A. CLOSE QUESTIONS		
Name	Description	Example
Dichotomy	A question with two answers.	When you made the decision of buying the computer product, did you call at an entrepreneurship selling that product? Yes <input type="checkbox"/> No <input type="checkbox"/>
Multiple choice	A question with three or more answers.	Who is going to accompany you there? None <input type="checkbox"/> , Husband/Wife <input type="checkbox"/> , The entire family <input type="checkbox"/> , Only my children <input type="checkbox"/> , Business partners <input type="checkbox"/> , Friends, relatives <input type="checkbox"/> , Tourists group <input type="checkbox"/> , Others <input type="checkbox"/>
Likert's scale	An answer that indicates the person's agreement or disagreement.	Generally speaking, do small entrepreneurship offer better services than the large ones? Total disagreement <input type="checkbox"/> Dis-agreement <input type="checkbox"/> Indifference <input type="checkbox"/> Agreement <input type="checkbox"/> Total agreement <input type="checkbox"/>
The semantic difference	A scale between two bipolar terms wherefrom the subject chooses the point that indicates his/her appreciation.	From what type of business would you like to buy the product? Large.....Small With experience.....Without experience
The scale of importance	A scale that indicates the importance of a certain feature.	I believe that instruction as regards the buying of computer products is: Extremely important <input type="checkbox"/> Very important <input type="checkbox"/> Quite important <input type="checkbox"/> Not very important <input type="checkbox"/> Not important at all <input type="checkbox"/>
The appreciation scale	A scale on which a specific feature is appreciated by a qualification ranging from „weak” to „excellent”.	The services provided by the entrepreneur are: Excellent <input type="checkbox"/> , Very good <input type="checkbox"/> , Good <input type="checkbox"/> , Average <input type="checkbox"/> , Inappropriate <input type="checkbox"/>
The scale regarding the buying intention	A scale indicating subjects' buying intention.	If the entrepreneur would provide a transport-t-home service, would you use it? Yes, definitely <input type="checkbox"/> , Probably yes <input type="checkbox"/> , I don't know <input type="checkbox"/> , Probably not <input type="checkbox"/> , Definitely not <input type="checkbox"/>
B. OPEN QUESTIONS		
Completely unstructured	A question to which subjects can give any answer.	What is your opinion about the entrepreneurship relating to marketing computer products?
Associations of words	Different words are given gradually and the subjects are asked to write down the first word that comes to their mind.	What is the first word you think of when you hear about: - entrepreneurship? - oil products? - automated systems services?
Completing a sentence	Subjects are given an incomplete sentence that they are asked to continue.	When I choose a specific entrepreneur, the most important element guiding me is
Completing a story	Subjects are given an incomplete story, which they are asked to continue.	I have chosen an entrepreneur and realized that the products sold by him were perfect. That made me think of
Completing an image	Subjects receive a drawing showing two persons, one of whom makes a statement. The subjects are asked to complete the answer of the second character in the image.	
The thematic appreciation test	Subjects are presented with an image and they are asked to describe what they think is going on there.	

There are three types of random sampling (with a known probability), and they will be listed in Table 3. When the time or the calculated cost exceed the

estimated ones, the non-random sampling method (with unknown probability) is used, and in this case there are also three types.

Table 3: Samples types

Sample types and schemes		
A. Random sampling	1. Simple random sampling	Each component of the collectivity has a selection chance that is known and equal
	2. Stratified sampling	The collectivity is divided into groups based on pre-established criteria (e.g., age) and from each group a random sample to be interviewed is chosen
	3. Group sampling	The collectivity is divided into groups based on specific criteria (for instance Dacia car owners), from which a random group is chosen to be interviewed
B. Non-random sampling	1. Sampling based on accessibility	The analyst selects the most accessible components of the activity that is under research
	2. Sampling based on one's own criteria	The analyst uses his/her own thinking in selecting those components of the collectivity he/she considers as being able to provide correct information
	3. Normed sampling	The analyst identifies and interviews a pre-established number of subjects form several categories

3.3. Collecting data about initiating the entrepreneurship related to marketing computer products

Collecting data about the initiation of entrepreneurship in the marketing of Computer

Products (hardware and software products) is basically the design of the structure of the project before the analysis of the collected data, which will actually be the business plan of the entrepreneur. This subchapter is intended to provide the clearest information on the role of a business plan in an

entrepreneurial activity; it also discusses what such a business plan should contain, by whom and how it should be drafted, and, finally, what should be done with this business plan as the business grows. The business plan. The structure of the business plan: An introductory page; Executive summary; Market and industry analysis; The description of the business; Production and / or operations plan; The marketing plan; The organizational plan; Risk evaluation; The financial plan; Attachments, additional materials.

4. Data analysis

The last chapter of the Entrepreneurial Project is basically the drawing up of the business plan, based on the business idea: The action of marketing Computer Products (hardware and software products), following the stage of collecting the evidence about the three units of analysis and the analysis of the information obtained, goes to the drafting of the business plan. The economist engineer- The entrepreneur, alone or with his/her

consultants, basically proceeds to the elaboration of the business plan.

It is a summary of the business plan (it is written after the plan is drawn up and is introduced at the beginning of the plan). It is of vital importance since most of the ones who receive the business plan (partners, investors, etc.) will not read more than this summary, so it is important that it should contain the most relevant data that might convince one on the value of the business. It is a synthesis.

4.1. Market and industry analysis

The entrepreneur calls for a so-called rate of appreciation on the level of competition in order to improve its competitive position. He/she looks at the most important factors that determine the success of some firms competing with the entrepreneurship related to the marketing of Computer Products (hardware and software products), in the eyes of their customers. Success factors of competing firms were shown in [Table 4](#).

Table 4: Success factors of competing firms

Firm (Entrepreneurship)	The Customer's Image as Regards the Firm	The Quality of the Product	The Availability of the Product	Technical Assistance	Selling Force
Competing Firm 1	E	E	W	W	G
Competing Firm 2	G	G	E	G	E
Competing Firm 3	A	W	G	A	A

4.2. Business description

The idea of a business has emerged from a thought, namely that of initiating entrepreneurship in the field of economics and engineering studies, in order to enable students to continue their studies (at the Master's level), but also to make an effort to get the money needed for the maintenance of such an initiative. It is currently only in the business idea stage, that of initiating a business entrepreneurship in accordance with the present Entrepreneurial Project. First, the market will be tested by using various questionnaires, interviews, etc., presented below in this paper. For this, a sample of potential customers must be established and their needs, desires, requirements for oil products must be defined. The content of the questionnaires will be elaborated and these will be given to potential clients, with the request to provide adequate responses. Potential customers or individuals will be contacted by using the Internet, texting, websites, e-mail, or telephone, with the view of determining them to purchase the Computer Products (hardware and software products), but especially for the services these products offer. To begin with, 3000 questionnaires are launched. If a positive or negative answer is obtained in 70% of the questionnaires and the interviews launched, of which at least 50% are positive, then the idea of the economist engineer is of interest and he/she will proceed to the next step.

The next step is to find and find financial, material and management resources (location, manufacturers of different products that are to be

bought and subsequently sold again to customers). The first financial resource that is generally taken into account relies on the entrepreneur's own savings, generally referred to as "bootstrapping" (translation by Ghenea), tightening the belt as a source of funding; it is in fact a way to secure the sources of financing the business without resorting to external resources, but only ensuring savings by using personal resources, raw materials, money, human resources and other resources as efficiently as possible. This source is usually used in the start-up phase of small entrepreneurial business. In fact, it can be used in any business, regardless of its structure or its stage of development. It is used as an "art" without affecting the business results and turning against the entrepreneur. In practice, any space the entrepreneur has available and for which he/she does not have to pay rent can be used; one can buy everything in the barter (for example: rent vs. maintenance services). The costs are very low compared to the services provided or the products sold, which have a very high added value. The second funding source that we have thought of is that of accessing a National Start-up Program, whereby the state provides a certain amount of money for opening non-reimbursable start-ups. The two sources will be calculated up to the sum of 100,000 euros. The human resource will consist of an entrepreneur and two faculty colleagues.

After analyzing the questionnaires and interviews and arranging the managerial processes described above, the entrepreneur will be able to take orders from potential customers; if possible,

obtaining some advance would be recommendable. Simultaneously with taking orders from potential customers, with the specified or implied requirements, the entrepreneur launches these orders to the producers (refineries), importers, trying to get the most advantageous deliveries and, if possible, a certain discount. Advance and discount are parts of financing through savings.

Thereafter, the entrepreneur, together with his/her team, distributes and manipulates (if applicable) the Computer Products (hardware and software products) to the customer, collects the value of the products and/or labor. The production and/or operations plan: Depending on the type of activity, a detailed production plan is only necessary if the business to which the plan relates is one with

specific production activities; a business relating to commerce, services or other fields of activity will include, in the production plan, details on operations, even if many of the services or products that are sold also go through a minimal production process (wrapping, assembly, packaging and delivery, or other aspects similar to the production process). Processes, suppliers and relationships with suppliers, raw materials or goods used, operations in all production or sales areas, workflows, the technologies used, etc. will be described.

The marketing plan. The 4 key-words: Product, Price, Market, Promotion, analyzed at the level of the business, will lead to the development of a relevant marketing plan, in the context of a general business plan (Table 5).

Table 5: The general business plan

Section	Objectives
I. Introductory presentation	A study will be conducted on potential customers, with the view of selling about 50 units of products at an estimated price of 2000 euro per shipment with handling. This target is followed by the purchase of 50 units of products with implicit or explicit customer specifications, which will be purchased directly from the manufacturer at an estimated price of between eur 1500-1700 per units with a discount of at least 3%. Ensuring the units of the products at the address indicated by the customer. Manipulation of products, at the customer's request, by calculating the work according to the employee's qualification and the required work performed. Putting into storage. Receiving the value of products and labor. All this is done on the basis of a contract between the entrepreneur and the client. For purchases the contract will be signed by the entrepreneur and the producer.
II. The current situation of the market	Relevant data concerning the situation of the market, of the products and the macro-economic environment. These are presented in the data collection section, for the situation of the entrepreneurship start-up. Of the tests done with the help of questionnaires and interviews, on a sample of 100 potential clients, it follows that: 70 respondent gave either positive or negative answers, of which 50% responded affirmatively, thus resulting that, in the start-up situation, there are both occasions for this entrepreneurship and competition threats already on the market. The strong points of this type of entrepreneurship are the fact that it has proposed a form of financing based on savings and making use of national financial sources to finance start-ups, but also by the fact that it addresses a specific market segment. The weaknesses are generally those characteristic of the beginning of a business, such as uncertainty, hesitations, lack of experience, lack computer, etc.
III. Analysis of opportunities and problems the entrepreneur has to face	The main objective is the selling of 50 units of oil products. During the first cycle of the start-up, a % of orders for products, with or without manipulation. Order of 50 units from the producer and transport ensured by courier, at the address indicated by the customer. The manipulation of at least 80% of the product at the customer. The placing in a storage place of all products. Receiving the counter value for all operations. Payment of debts to providers and employees. Making payments to the state.
IV. Objectives	
V. The marketing strategy	In order to achieve his/her own goals, the entrepreneur will resort to adequate promotional marketing, the opening of a web page, the use of all the advertising and promotional items that are cheaper. Promoting entrepreneurship from person to person. Using databases that can be bought, including email, web-pages, phone numbers, etc. To submit offers and information about entrepreneurship. Other marketing strategies. The entrepreneur or a consultant will perform a study on the customers' needs and desires for products, starting with the first day when making the decision to initiate entrepreneurship. The costs of such an action will rise up to 10% of the management expenses. Offers will be launched to prospective customers. Orders will be issued to manufacturers, importers by the contractor and hired personnel immediately after receiving the order from the customer. Such actions are part of the service assignment of the contractor and the employee responsible for marketing, and costs fall into wage costs.
VI. Action programs	The transport of the products at the address indicated by the customer will be ensured by the marketing officer, since such an action is part of his / her duty and the costs are included in the salary costs. Products will be manipulated and placed in the storage place, as indicated by the customer, by the sales officer, as part of his/ her service duties, and the costs are considered part of the salary costs. The estimated capital required in the start-up phase is € 70,000 from sources such as savings and all means that can be used by the entrepreneur for attracting start-up finance. Salary costs: 600 euro / month / employee.
VII. Profit and expenses	Selling 50 units of products / year at a price of 2000 lei per transport. Purchase of 50 units at a price of maximum 1800 lei per transport. Estimated 10% profit on revenue minus expenses.
VIII. Means of control	The application of the plan: This will be supervised by the entrepreneur by the daily filling and analysis of the board book, a necessary managerial instrument.

5. Conclusion

Entrepreneurship is the structural managerial-economic mechanism that allows economist

engineers from the electric, electronic and energetic domain to turn from job seekers into job providers. The entrepreneurship in the marketing of oil products has been approached because these

products relate to energy and therefore to the professional domain of economist engineers studying in the electric, electronic and energetic domain.

Economist engineers from the electric, electronic and energetic field acquire, besides technical knowledge from the engineering domain, additional competences from the managerial-economic field that relate to structured business, during their initial training. The performance related to such competencies is further improved by their continuous training, which can take place as part of Master's programs in the field of engineering and management (specialization management and communication in engineering), or can be stimulated by initiating other Master's programs in the same field, based on entrepreneurial formation and training.

It is imperative to introduce in the curriculum of economist engineers, both at the initial (bachelor) and at the continuous (master's level) training, disciplines such as: Entrepreneurship, The management of small and medium enterprises. It is also necessary to create the Entrepreneurship Education and Training Laboratories for economist engineers.

Compliance with ethical standards

Conflict of interest

The authors declare that they have no conflict of interest.

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