Virtual Organization as a Chance for Enterprise Development

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ABSTRACT

The theory that enterprise has been developing along with the development of Information Technology and, especially thanks to the possibilities offered by Virtual Organisations (VO) has been presented and proven. This enterprise has both local and global effect. The enterprise development provides for an increase of both small and big organisation competitiveness and also for an opportunity for new organisational entities to enter the market. My own research on enterprise conducted in the group of economy and marketing department students have fully confirmed the conclusions resulting from D.Blanchflower's and A.Oswald's research on enterprise. A significant percentage of the population aim at becoming entrepreneurs (about 75% of the people with university education). The theory that VO is an effective way to become an entrepreneur and to overcome the obstacles listed in the research has been presented. The main obstacles are lack of financial resources and lack of business experience. VO not only helps in becoming an entrepreneur but also, through specially built enterprise labs, provides training opportunities and skill development for those who want to follow this particular career path.

INTRODUCTION

This paper attempt at substantiating the theory that enterprise has been developing along with the development of Information Technology and, especially thanks to the possibilities offered by Virtual Organisations (VO). This enterprise has both local and global effect. The enterprise development provides for an increase of both small and big organisation competitiveness and also for an opportunity for new organisational entities to enter the market. Activities connected with the VO development allow for decreasing unemployment level, especially amongst the people with secondary and higher education. VO has a significant share in the training and skill development within the range of enterprise.

VO also brings significant economic effects. Certain economic, technical and social barriers have to be overcome in order to create VO. The basis for the decision to use VO is constituted by the analysis of the relation between cost and effect. In the paper, this relation will be presented from both macro and micro perspective.

The basis for the presentation will be both theoretical work and research on economic enterprise. The research has been conducted on the basis of the following:

* literature analysis with special emphasis on description of working VO,

* own opinion polling conducted amongst the students (both full-time and working) of management departments,

* interviews with managers of various enterprises.

The survey has been compared with research conducted by D.Blanchflower and A.Oswald [1]. On the basis of the conducted survey, we would like to show the connection of VO with the problem of unemployment, especially amongst the people with higher education. Further research on this particular problem will follow.

1. VIRTUAL ORGANISATION AND ENTERPRISE

The notion of VO can be understood in various aspects. Virtual organisation is a totally new type of organisation which has developed thanks to the development of Information Technology and, especially, the existence of global information networks and big data bases. It can also be treated as a response to free market requirements and the necessity to adjust to its competitiveness.

The notion of VO has not yet been given one, generally accepted definition. This definition must surely be associated with the possibilities provided by modern Information Technology. The first to use the notion of virtual organisation were W.Davidow and M.Malone [3]. However, this notion has not been commonly accepted. Thus P.Drucker [4] defines the organisations described by us as "network organisations", while M.Hammmer J.Champy [6] define them as "post-re-engineering organisations". Quite interesting and somehow surprising is T.Peters' [10] definition, who calls such an organisation "a crazy institution". It seems however, that the term "intelligent organisations" suggested by J.B.Quinn [11] best defines the core of VO functioning.

Virtual reality is usually defined by describing qualities and not the existing physical features. In literature, the following descriptions of virtual organisation can be found:

1. "A temporary network of independent enterprises - suppliers, customers and even previous competitors - connected - by information technology in order to share skills and cost of access to new markets" [2].

2. "An artificial entity which, due to maximum usefulness for customers, and based on individual base competence, introduces integration of independent enterprises in the (chain) processes of creating products and which does not require additional outlays for co-ordination and does not diminish the customer's importance through its virtual reality" [12].

The quoted definitions may be disputed. Doesn't the aim of VO specified in the first definition constrict the notion? Also the definition of temporarily independent organisations is highly disputable. If the organisations act together, their independence must be, to a certain extent, limited.

Also in the second definition, the statement that VO is an "Artificial entity" is slightly ambivalent and the statement that they not require additional outlays for co-ordination is not always true.

In this paper, it was assumed that virtual organisation is an organisation created on the basis of voluntary participation and its participants enter various relations in order to achieve common

objective. Participation in the organisation does not require any legal agreements. The duration of each relationship is defined for each participant who creates the organisation. The decision to liquidate or re-construct the organisation can be made by every participant who first decides that the existence of such relationship is not in his favour and who is first to quit. VO operates in the so-called cyberspace, which allows for a very short duration of the relationship similarly to a very short time required for performing tasks.

VO is constantly changing, entering alliance with other organisations. It is an extremely flexible organisation which, depending on the situation can change the form of functioning and interest. The organisation, as it was mentioned before, remains in the relationship with the entire VO for as long as it is beneficial for it. It means that operating within the organisation lasts for as long as the participants are convinced that it is more beneficial for them than it would be if they operated on their own. VO can operate everywhere where benefits are expected. The benefits in a very broad sense are the objective of this type of an organisation.

Throughout this paper, I use the term VO in a dual meaning: first, as an organisation which performs previously listed tasks and which has its objectives established,second, as a model which allows for managerial skills development and thus develops features determined as enterprise.

Enterprise, according to R.Griffin [5], is a process of organising and conducting business activity and taking risks associated with it. The problem which we are interested in here concerns the answer to the following question: Would a person who wants to become an entrepreneur undertake activities associated with creating VO and it's functioning? According to J.Stoner and partners [13] the function which distinguishes entrepreneurs is their capability to utilise production and capital factors to produce new products and services. Enterprise has always been connected with risk. In this paper, we are investigating whether the people who are not entrepreneurs are inclined to become ones with VO assistance. An entrepreneur can choose from many possible paths of company development. Which one would he/she choose? In this paper, we would like to answer the following questions:

1. Do students completing a specialised course of studies in the field of management takes into account a possibility of organising and conducting, on their own, a business activity connected with VO possibilities?

2. Do studying managers who utilise possibilities provided by VO are inclined to change their professional status and become entrepreneur?

3. Are model solutions associated with VO a good tool for learning enterprise?

2. CONDITIONS FOR CREATING VO AS A PROBLEM OF CHOOSING ENTERPRISE DIRECTION

The influence of VO on enterprise is connected with the fact that to create such a type of organisation and to become an entrepreneur is very simple. According to W.Titz [15], it is enough to "sit at home with six computers and control a 10 billion dollar worth activity". It seems that the quoted specific amounts are disputable. The amounts are of symbolic meaning here. As practice shows, that to become an entrepreneur through using the path of performance with creating VO it is enough to:

* have a computer with access to Internet, have knowledge which your competitors do not have.

On the basis of the analysis of the investment outlays and operating expenses incurred in connection with VO creating and functioning and the comparative analysis of traditional

organisations, their time characteristics may be presented in pictures 1 and 2. Investment outlays and operating expenses.
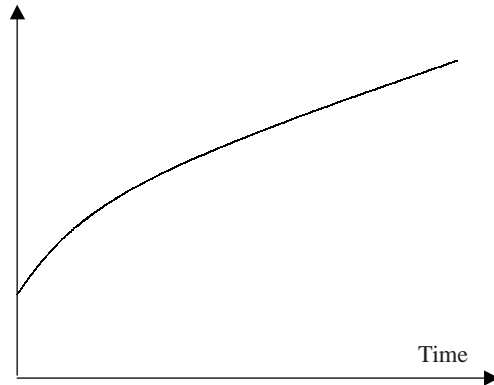
Picture 1. Investment outlays and operating expenses in VO. Investment outlays and operating expenses.
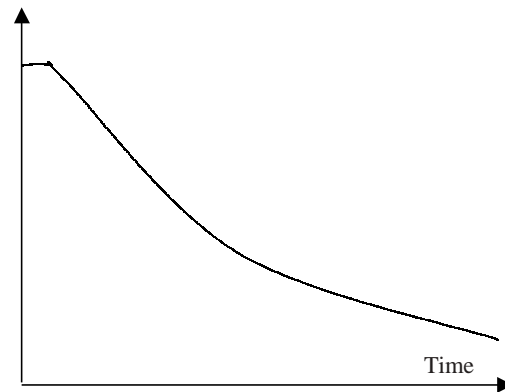
Picture 2. Investment outlays and operating expenses in traditional organization.

The diagrams indicate that a break through point determined as the amount of the invested capital above which the organisation begins to exist and function on the market is much lower for the VO than for a traditional organisation. With time, the VO, in order to be competitive, must adjust to a quick progress in the field of Information Technology. However, the increase of financial outlays is not significantly rapid. It results from the fact, that the speed with which a computer operates increases according to the exponential function pattern while its price increases according to the linear function pattern. In a traditional organisation, significant outlays have to be made on activating production and start the activity. VO outlays do not depend so strongly on the field of activity as it is the case in traditional organisation.

A characteristic feature of the VO is a possibility to quickly generate profit. Theoretically, it is possible to generate income in a very short period of time after the organisation becomes to operate. In practice, the time required for generating profit is longer and it depends, like in traditional organisations, on coming into existence on the market. During a survey on various organisation types, on the basis of SWOT strategic analysis, the key factors which are important in the decision to create VO were determined.

It needs to be stressed that, in this particular situation, what is considered to be an opportunity may turn out to be trouble. For example, it is generally believed that the development of Internet may be a big opportunity for the development of virtual organisations. This way, the organisation does operate on a significantly big area. Special wide-spread reach is possible, i.e. Europe,

Australia, New Zealand or Africa. However, there are more and more problems with utilising Internet. The most common problems are as follows:

* long waiting time for connection, especially during high traffic hours,

* matters connected with data protection which are not fully solved. Telecommunication organisations unanimously state that the majority of users causes high traffic on the lines which, in consequence blocks the telephone network. In order to improve this situation, additional high outlays need to be made to improve the infrastructure, which makes the VO possible to use. We shall come back to this problem further in the course of our analysis.

The decision to create a traditional organisation is connected with the optimum product size. Analysing unit cost of manufacturing products we can determine the optimum, i.e. such the production level where unit costs are minimal.

*Table 1. SWOT analysis for the project of creating VO*

Strengths – S		Weaknesses – W	
1.	Big flexibility of operations, bigger than in traditional organisations.	❑	Necessity to have Information Technology which makes transactions possible to realise, including:
2.	Big speed of realising transactions in comparison with most traditional organisations.	a/ global network, b/ big databases.	
3.	Common operating policy in the organisation.	❑	Necessity to trust all the organisations operating within virtual organisations.
4.	Reducing the cost of realising transactions in comparison with traditional organisation cost in this field.	❑	Possibility to join non-competent and not verified organisations.
5.	Reducing investment outlays on organisation development.	❑	Lack of behaviour models.
6.	Minimising legal services associated with transactions		
Opportunities – O		Troubles – T	
1.	Quick reaction to appearance of the so-called niches.	❑	Inefficiency of computer hardware mainly due to the fact that they are not adjusted to transmitting multi-media data.
2.	Realising transactions despite legal and organisational barriers.		
3.	Introducing to common virtual organisation the best of each partner in the area where he is fully professional.	❑	Lack of legal regulations for operating of organisations included in virtual organisation group and their responsibility towards each other and their clients.
4.	Possibility to use the most modern methods and management techniques.	❑	Lack of preparation of both clients and organisations to use virtual organisations.
5.	Possibility of co-operation of such partners who, in the organisational organisation model had not worked together.	❑	Lack of supervision and related to it lack of co-ordination in the field of realising transactions.
6.	Within informational links there are no state duty borders.		

Sources: own analysis

The decision to create a traditional organisation is connected with the optimum product size. Analysing unit cost of manufacturing products we can determine the optimum, i.e. such the production level where unit costs are minimal. In the case of analysing VO, the product size has no influence on the optimum production level. It depends solely on enterprise and the unit cost of manufacture may constantly decrease. This situation is illustrated by pictures 3 and 4.
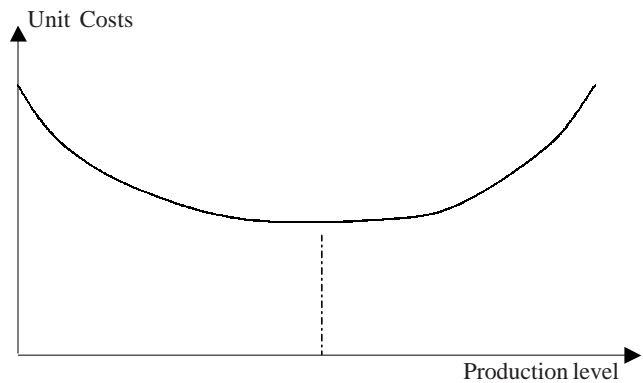
Picture 3. Unit costs in a traditional organisation.
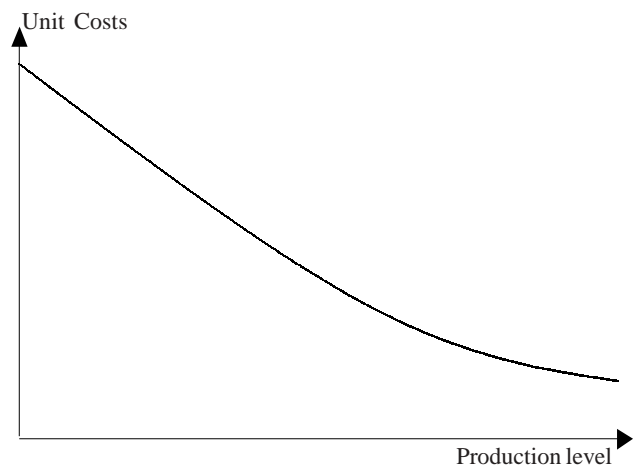
Picture 4. Unit costs in VO organisation (possible scenario).

The simplicity of becoming an entrepreneur with the help of VO from the macro point of view is not always easy. Creating VO requires modern infrastructure countrywide or region-wise. A sample analysis of modern management infrastructure in Central and Eastern European countries shows how old-fashioned it is. Capacity and the speed of transferring information within the communication network fall short of the parameters achieved in Western European countries and in the United States and Japan. Also the cost of using the Internet is relatively high. These factors do not favour enterprise development on the path of creating VO. That is why the state policy and activity of telecommunication companies has significant impact on the development of VO creation.

3. ENTERPRISE AND VO; PROBLEMS OF CHOICE - SURVEY RESULTS

Survey on enterprise aimed at providing answers to two basic issues, namely:

* willingness of present and future management staff to

become, in the nearest future, entrepreneurs,

   *   obtaining information whether these people are willing to take into account the use of the possibilities given by VO in the process of building their professional careers.

   The basic question which has to be answered while analysing enterprise is how to define it. It was assumed in the survey that enterprise may be determined according to the standard which defines an employee's or future employee's (student's) attitude - would he prefer to be somebody's employee or self employed. This method is convergent with the method applied D.Blanchflower A.Oswald [1] in their research on enterprise.

   The survey was conducted on the basis of a questionnaire distributed amongst the students of Economic Universities in Poland (Warsaw University, University of Commerce and Polish-Japanese Higher Institute for Information Technologies) in the period of February 1999 – June 1999. The questionnaire was anonymous.

   I have conducted survey on enterprise in three groups of potential entrepreneurs:

   1.   students of economy and management departments who haven't worked in full-time employment but who have had some professional experience or who have worked on temporary contracts (the group constituted 650 people),

   2.   working students of the same departments who study in order to change their status in the organisation or who are considering the decision to change their status from that of a paid employee to an entrepreneur (the group constituted 350 people),

   3.   managers and executive staff who complement their knowledge in post-graduate courses, e.g. MBA. These people graduated from various types of universities and their education is very distant from the field of economy and management. For example, they hold the positions of directors or unit managers in hospitals (the group constituted 80 people),

   <u>Results of the survey for the first group, i.e. students who have not worked in full-time employment</u>;

   The following answers were given to the questionnaire questions relating to enterprise:

   1.   Do you want to set up your own company immediately after graduation?

   Positive answers: 15%.

      2. Would you like to create your own organisation after getting appropriate experience?

   Positive answers: 85%.

   3. Will you work in an organisation owned by your parents or close relatives?   Positive answers: 8 %.

   4. Do you plan, in the nearest future, to work in an organisation, which you do not own? Positive answers: 78%

      Note: 18% of the respondents answered , It is difficult to say, I don't really know: the above questions.

   The questionnaire also asked questions on the opinion on barriers in creating a self-owned organisation

    The students think that the biggest barrier is:

   *   lack of the knowledge needed to become an employer – positive answers: 38 %,

   *   lack of sufficient funds - positive answers: 65 %,

   *   lack of ideas to create an organisation - positive answers: 46 %,

   *   fear of bankruptcy - positive answers: 47 %,

   <u>Results of the survey for the second and third group, i.e. managers and employees working for an organisation and the no-employed</u>.

      Here, the following answers were given. In brackets the answers given by the "non-employed" group were presented.

   1.   Do you want to become an entrepreneur in the nearest future? -   positive answers: 22% (30%).

   2.   If you had sufficient funds, would you want to become an entrepreneur ? -   positive answers- 66 % (75%).

   3.   Do you definitely not want to become an entrepreneur and choose a career in an organisation, which you do not own? - positive answers – 40% (65%).

   Note: 23 % (15%) of the respondents answered: "I do not know, I'm thinking about it" to the above questions.

   The questionnaire also asked questions on the respondents' opinion on barriers in creating their own organisation. There were four yes/no/ don't know format questions on this issue in the questionnaire. Both the managers and the employees think that the biggest barrier is:

   *   lack of the knowledge needed to become an employer – positive answers: 15 % (8%),

   *   lack of sufficient funds - positive answers: 80 % (77%),

   *   lack of ideas to create an organisation - positive answers: 17 % (8%),

   *   fear of bankruptcy and reluctance to take risks - positive answers: 43 %   (56%),

   Attention: the answers of the third group are given in brackets.

   The questionnaire was supplemented with direct interviews which, in our opinion, enable us to learn more about the preferences and the mechanism of answering questions by the respondents. In the direct interviews, non-working and working students who wanted to become employers were asked if they consider VO to be the way to achieve their objective. The results are not so precise in this case. Very often the given answer suggested that the candidates are not really certain if they want to become entrepreneurs. Their fears were similar to those discussed in previously surveys presented in Hershey [8]. It may be assumed that 20% of students of full-time studies consider the entrepreneur's career path with utilising possibilities given by VO. Amongst the working students, this percentage amounts to 5% and amongst the post-graduate and MBA students it amounted to 2-3 % only.

   The obtained results suggest that the percentage of people interested in enterprise is quite significant and amounts to 66% up to 85% in the group of full-time students. The obstacles on the path of entrepreneur's career vary. In most cases it is determined as lack of sufficient funds. Most of the respondents consider this particular barrier crucial. The percentage of people who share this opinion amounts to 80%. It is difficult, for a beginning entrepreneur, to obtain a bank loan. That is why, those solutions which do not require big investment seem to be the most interesting ones. As it results from VO features presentation made in the previous point, it is this type of organisation, which seems to be most attractive. The barrier of having big financial resources at the beginning of business activity is not that strong in case of VO. To the contrary, as it was presented earlier, it is a good introduction to enterprise development.

   Comparing the survey results in the group of full-time students with the results obtained from the group of working students it may be seen that the full-time students are more inclined towards taking risks. Young people in general are more inclined towards taking risks. The difference in the answers of full-time students and non-resident students to the question on their plan to become an employer amounts to 20%. The people who achieved high professional status are much more cautious. During the interviews, as it could have been expected, it turned out that it refers particularly to people who work in well known international organisations. Those people see their future career connected with the change of

organisation and participation in competitions for higher positions rather than associating it with the career of an employer, especially in connection with VO.

Although the result analysis indicates how many people want to become entrepreneurs, the results should not be accepted without reservations. Every questionnaire which aims at learning about human behaviour has a significant error margin as it may never be known how the respondents would really behave when they had to make their choice in real life situations. The percentage of people declaring their willingness to become an entrepreneur is usually much higher than the real percentage of entrepreneurs in the group of professionally active people. The indicators of the entrepreneurs share in the number of professionally active people amounts to 12 – 15 %.

During the course of interviews, it turned out that a certain percentage of the respondents (about 1-2%) is interested in creating a small VO. These were especially young women taking care of small children at home. They would like to establish an enterprise at home. They also realise that getting employment in the existing organisation is very difficult. They see the VO as a chance to create an organisation, which enables people to be both a professionally active person and an entrepreneur.

4. VO AS A TOOL FOR TEACHING ENTERPRISE

The questionnaire results indicate that a significant percentage of students (both full-time and working) feel the need to learn about enterprise. The confrontation of attitudes: fear of an entrepreneur's career on one hand and the voiced willingness to become an entrepreneur on the other hand calls for some sort of a compromise. The obtained results were confirmed during the talks with full-time students who expressed their fear whether their studies may prepare them to become entrepreneurs. Also the working students, as well as those participating in MBA courses talked about their anxiety before the change of their position in the world of business. Their anxiety may be defined as fear of making a decision to change their stability of a manager to a risky position of an entrepreneur. That is why, I believe it is necessary to find a way of smooth transformation of a manager to an entrepreneur. For this, we need such a tool which makes learning and improving enterprise possible. This tool should also enable the person willing to become an employer to verify his/her skills.

I strongly believe that an enterprise laboratory may become such a tool. In such a lab, students could fulfil the following objectives:

* improve their skills in the field of enterprise in a traditional sense, i.e. study the mechanisms operating on the market and also within the specific organisations such as a company, a bank or a supermarket.

* Get acquainted with the rules for moving and making decisions in cyberspace where there are cybercorporations, virtual organisations, electronic money and electronic markets.

A new era of information society will most certainly require a change in the attitude towards enterprise. According to J.Martin [9], the motto of modern organisations is " Small, Bright, Fast and Virtual". This is what a student should learn in the enterprise lab. The difficulties of creating such a lab result from the fact that reality should be presented in a perfect way. The applied models should also allow for projecting future.

Many universities undertake the attempt to build such labs. The forerunners in this field are computer labs in which both businesses games and simulation model software for making decisions in various types of organisations is used. The students learning about enterprise should feel as if they were in a real world

where they have to make their decisions. Only then, they can see the results of their own decisions. Multi-media computers enable the student to see the real world and its digital description along with a graphic description. The lab should allow for work of a few teams who have various specific objectives to achieve. It is good to create such organisational solutions in which the teams have no visual contact (thus the teams should be placed in separate rooms). Communication between the teams should be made through data transmission networks.

The recommended technical conditions should allow each team to use, through the Internet, various databases and knowledge bases, in particular the data base of the stock exchange. A sample model of an enterprise lab operation is presented in picture 5.
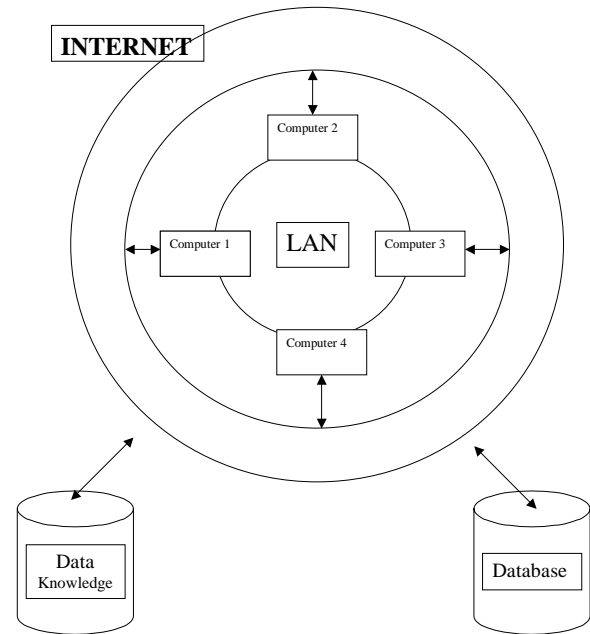
Picture 5. Enterprise lab structure.

Technical equipment in the lab (computers and their peripheries) and the software should correspond to operational standards. I think, that for modelling an enterprise the following software is of great advantage: ERP (Enterprise Resource Planning), CRM (Customer Relationship Management), SCM (Supply Chain Management), teamwork systems of workflow type and specialised software enabling reality simulation and entering co-operation of each simulated organisation with other organisations. The weakness of enterprise teaching in a lab is that it will always be operating not in the real world but on a model. Even the best model does not fully reflect the reality. Also the decision making process is different in the case of spending your own money than in the case of spending unreal money.

Virtual reality and VO models allowed to create very useful tools for teaching enterprise. No such effective tools had existed before. The survey conducted in this field confirmed their usefulness and effectiveness. It is a solely philosophical question whether enterprise, unlike management, may be learnt or it is encoded in the genes. This undoubtedly interesting question is however not the subject of this paper.

5. CONCLUSIONS

VO is a very effective way to become an entrepreneur. The effects of applying VO are significant and universal. For the countries under transformation, the difficulties may be associated with

lack of the appropriate infrastructure (network) and also relatively high cost of using the Internet. That is why, the countries which want to follow the path of enterprise increase should supplement their will with the appropriate policy.

My own research fully confirmed the conclusions resulting from D.Blanchflower's and A.Oswald's [1] survey on the inclination to become en entrepreneur shared by a significant number of people (about 75% of the people with higher economic education). We believe, that VO is the best way to overcome obstacles and fear people face while creating their own institutions (i.e. lack of funds and experience). It seems that VO is the best method to overcome financial barriers and to learn enterprise as such. This organisation makes it possible to become an entrepreneur and also, through special enterprise labs provides possibilities for training and improvement for those people who want to choose this type of a career.

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