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# Proceedings

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# AN INTERACTIVE WEB BASED PROJECT MANAGEMENT TOOL FOR BUSINESS DECISION MAKING PROCESS

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## ABSTRACT

The common meaning of project is planned set of interrelated goals executed over a fixed period, within certain cost and personnel. Time management is the priority problem in project-based activities in institutions. Successful time management depends on whether communication between project manager(s) and members. If members do not discuss with their manager properly, it is impossible to be efficient in project management; because of several workloads, project members do not interact with their managers. Also in different steps of project, managers or other stakeholders need a report about project process in specific time intervals for effective decision-making. Therefore, project management needs in a space independent manner.

In this study, authors suggest that interactive web-based project management tool. This system allows that project members meet their manager in a web-based platform with space-independent way. The communication between manager and project members conducted by e-mail and instant chat platform. MySQL as database, php and Javascript programming languages used in order to develop this web-based platform. The project management in this tool will be sustainable within the perspective of project life cycle. Staffs can share the parts of their tasks and prepare some contents such as text, picture, timetables, video and links. Manager can take some works that can effect staff's improvement on their task. Also before task completion period, staffs can send a message, which includes some information about their task's last version. Staffs and manager(s) can take a printed material about parts of the task and its contents. In addition, both of them can monitor project tasks progression reports. These reports can be sent to manager by the system. If they do not interest about the reports, system sends a warning message to manager(s) or staffs weekly. By this way, the relation between staffs and manager may be empowered. For effective management, completion rate of every part of project life cycle can be monitored by graphical presentations.

## KEYWORDS

Project management, decision-making process, web-based, business.

## JEL CLASSIFICATION CODES

D83, O22, O32

## 1. INTRODUCTION

Common definition in literature, a project consists of a set of objectives to solve a specific problem, a defined budget and the whole process of realizing it within a certain period with team member. Time management is the priority problem in project-based activities in institutions. Successful time management depends on whether communication between project manager(s) and staffs. If staffs do not discuss with their manager properly, it is impossible to be efficient in project management; because of several workloads, staffs do not interact with their managers. In addition, in different steps of

project, managers or other stakeholders need a report about project process in specific time intervals for effective decision-making. Therefore, project management needs in a space independent manner.

The most important factor affecting the project outputs is how the project is implemented. As a result of proper management is not implemented in development of projects; there are cases where costs far exceed the budget, unexpected time shifts, technical performance under expectations and the targeted benefits are not realized (Laudon and Laudon, 2016). This is sustainable with effective project management. In this study, authors suggest that interactive web-based project management tool for effective project management. Firstly, authors give information about the project management importance with support of project life cycle. Then, the paper continues how the time and communication management built in this project management process. They created an application for effective project management.

## 2. LITERATURE

Project is based on five main variables; clearly specified time, cost, scope, quality and risks (Westland, 2006; Laudon and Laudon, 2016). Project team consists of project manager(s), project members and stakeholders. Specifically, projects are not only created to effect change, but also subject to change (Lester, 2003). Projects are different from standard business activities. They have some specific characteristics (Westland, 2006; Nicholas and Steyn, 2012);

- They are unique. Each project must be different from the previous one.
- Projects have a defined timescale. They start in specific date and finish in end date.
- They have limited budget.
- Resources such as labor, equipment and materials are limited.
- They include some unfamiliar risks and uncertainty.
- Utilizing skills and talents from different professions and organizations.
- They are a temporary activity.
- They are a process of working toward a goal.
- Projects results could be change or improve an organization.

### 2.1 Project Management

The role of management is to plan, organize, and integrate resources and tasks to achieve the organization's goals. Managers' activities are classified as planning, organizing environment and team, leadership, control; and the last one is control how the other functions are doing and where change is needed. In organizing section, communication channel can be created; also for an effective control, the manager must have information about costs, schedules and goal criteria (Nicholas and Steyn, 2012).

Projects are carried out in process. By that reason this process should be effectively manage. Project is different from other organizational activities in business. In that point, project management is gaining importance. Projects need a different kind of management than other classical business management. Padalkar and Gopinath (2016) have shown in their study how the deterministic, explanatory and non-deterministic studies are distributed in 17 themes in project management between the 2000 and 2015. Result of this study shows that performance management is the fourth largest theme focusing on project outcomes and is almost entirely empirically grounded. Additionally, knowledge management is interconnected with organizational processes and human characteristics.

The purpose of project management is to manage a system of tasks, resources, people and organizations to accomplish the project goal; this is what makes it a systems approach to management. Project management is an area that needs increased attention and inclusion in the organizational and professional standards for project management. For project success, the impacts of sustainability in project management have the potential to increase the efficacy and efficiency of projects as well as improve stakeholders' satisfaction. Martens and Carvalho (2016).

The key features of project management are listed below (Nicholas and Steyn, 2012);

1. A single person, the project manager, heads the project organization.
2. The project manager is the person who brings together all efforts to meet project goals.
3. The project manager is responsible for integrating people from the different functional areas.
4. While the project manager focuses on delivering a particular product or service at a certain time and cost, functional managers are responsible for the pool of workers and resources in their areas. As a

result, conflict may arise between project and functional managers over the people and resources allotted to a project.

5. Decision-making, accountability, outcomes, and rewards are shared between the project team and supporting functional units and outside contractors.

6. Although the project organization is temporary, the functional or subcontracting departments from which it is formed are permanent. When a project ends, the project organization is separated and people return to their departments.

Project Management components are a set of skills, a suite of tools and a series of management processes required to undertake a project successfully. These processes are time management, cost management, quality management, change management, risk management and issue management.

A project team or project organization created uniquely for achieving a specific goal; and a single person—a project manager—assigned responsibility for seeing that the goal is accomplished. Beyond these, features of the forms differ somewhat. (Nicholas and Steyn, 2012)

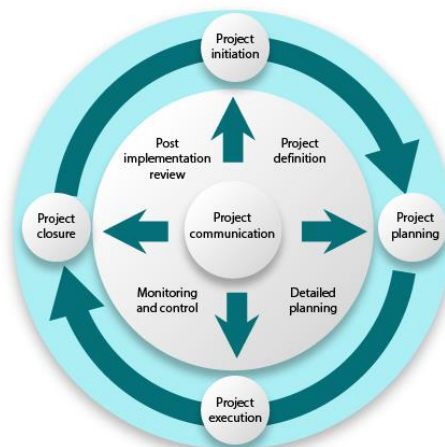
There is always need to organize activities and direct people. The larger the number of people or groups involved and the greater the need to coordinate them, the more project management applies (Nicholas and Steyn, 2012). By dividing, the project brings better control over, focus on different activities in each phase and better connection within the organization (Kostalova, 2015).

In non-project organizations, managers tend to be specialized and responsible for a single functional unit or department. However, a project needs the support of many departments; someone from outside these departments must take responsibility for meeting the project’s goals (Nicholas and Steyn, 2012). The project manager's prior experience plays a prominent role in the project's success (Niazi et al., 2016).

The help of project management with project life cycle stages can increase success of project implementation. Project Life Cycle phases are concept, feasibility tests, evaluation, authorization, implementation, completion, operation revenue and termination of project. Operation revenue and termination are not usually in project life cycle except defense projects. Where these two phases included, the term changed as “extended project life cycle (Lester, 2003). Lester (2003) shows that each organization can define its own phases and life cycle to suit its method working.

Westland (2006) is defined project life cycle phases respectively, project initiation, planning, execution, closure and all this phases are integration with communication phase (Figure 1). Firstly, business problem is identified in project initiation phase. Project manager starts to create project team and establishes a project environment in business. Details of project enter in project planning phase. Resource plan, financial plan, quality plan, risk plan, acceptance plan, communications plan and procurement plan. Communications plan describing the information needed to inform stakeholders. The responsibilities of the persons in the project team and the distribution of information to be obtained are planned at this phase. Preparing the project report is considered in the communication plan.

Figure 1: Project Life Cycle



Resource: Westland (2006)

Plans that created in project planning phase are monitor and control in project execution phases. This includes identifying change, risks and issues, reviewing deliverable quality and measuring each deliverable produced against the acceptance criteria. Management of time, cost, quality, change, risk,

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issue, procurement, acceptance and communications are performed in this phase. Time management is the process of recording and controlling time spent by staff on the project. This will enable the project manager to control the amount of time spent undertaking each activity within the project (Westland, 2006). Communication plan in planning phase get reality in project execution phase. Once all of the deliverables have been produced and the customer has accepted the final solution, the project is ready for closure. Project execution is the longest phase of project life cycle; because project goals are achieved in that phase.

Project closure is the last phase in project life circle. It includes documentation of the project, controlling of usage of resources and communicating with stakeholders of project. The last remaining step is to undertake a post-implementation review to quantify the level of project success and identify any lessons learnt for future projects.

Project management has different forms with different names, including systems management, task force management, team management, ad hoc management, matrix management, and program management. Nicholas and Steyn (2012) classified project environments commercial/for profit, government/non-profit, and military in Table 1.

Table 1: Project Environments

| Commercial/For profit                      | Government/Non profit  | Military   |
|--|--|--|
| Clear End-time                             | Project managers may oversee and coordinate multiple, related project. They like a program manager.                                  | Projects involve testing and evaluating hardware developed by contractors  |
| Motivated by profit criteria               | No profit incentive  | Project is part of a larger systems program  |
| Project manager guides entire life cycle.  | Projects focus on evaluation or testing of products or services procured from commercial contractors or vendors                      | Costs are of lesser importance and profit is not a consideration   |
| After the project completed team dissolved | The project manager’s role is largely administrative.  | Project managers are military officers   |
| Generally Project manager out of a job     | Project managers are frequently reassigned during their projects<br>Project continuity depends heavily upon political considerations | Officers typically do not oversee a project for its full life cycle.<br>Civilians are often employed to provide technical support and managerial continuity. |

## 2.2 Project Management Applications

Kostalova (2015) separated project management application such as simple freeware applications, cloud solutions, more complex applications developed by smaller local software houses, complex internationally available applications, and sophisticated solutions supporting portfolio management with a wide scope of functionality and the possibility of adaptation to user requirements. Kostalova 2015 lists some example for project management applications and software in Table 2.

Table 2: Project Management Applications and Software.

| Simplest Freeware Tool | Web applications in the cloud mode | For simple and complex projects | Complex Application   |
|------------------------|------------------------------------|---------------------------------|---|
| ProjectLibre           | Ganttter                           | MsProject                       | Primavera   |
| GanttProject           | iProject                           | EasyProject                     | PD TRAK   |
| dotProject             | AdminProject                       | MinuteMan Systems               | JIRA  |
| Open Workbench         |                                    |                                 | Hewlett Packard Project and Portfolio Management Software<br>IBM Rational Portfolio Management<br>SAP |

Resource: Kostalova (2015)

More complex and extensive projects, it is necessary to make use of more sophisticated software applications, like MS Project or Primavera. However, their disadvantages include high financial demands, demands on extensive knowledge of project managers and project team members for work with these software applications, and the necessity of reflecting their utilization in a single project

management methodology on the level of the organization (Kostalova, 2015). Authors compare some web based project application in Table 3.

Table 3: Web-Based Project Management Applications

| Asano                     | Wrike   | Active.collab    |
|---------------------------|---|------------------|
| Commercial                | Commercial                                    | Commercial       |
| Task based                | Task based Completed tasks are easily control | Task based       |
| Calendar and chat support | Time Schedule                                 | Calendar support |
| Adding sub-task           | Adding sub-task                               |                  |
|                           | Grafical Complete ratio for project member.   |                  |

Free project management tools perceived as directed towards small projects or businesses is detected as weakness in literature. But with adding new tools to free project management applications, scope of application can be enlarged.

Decision Support Systems (DSS) facilitate a wide variety of decision tasks including information gathering and analysis, model building, sensitivity analysis, collaboration, alternative evaluation, and decision implementation. The global Internet and the World Wide Web are now the primary enabling technologies for delivering computerized decision support (Aydin et al., 2015). Today, the Web is the platform of choice for building DSS. The two most widely implemented approaches for delivering decision support are called data-driven and model-driven DSS. Communication- driven DSS, which is the third type of DSS, have become more widespread and sophisticated because of Web technologies. Communication- driven DSS rely on electronic communication technologies to link multiple decision makers who might be separated in space or time or to link decision makers with relevant information and tools. The Web has expanded this technology (Bhargava et al, 2007). Many managers enable to access and use a common system in web-based DSS. Day by day, web technologies in DSS increased because of independence, remote and simplified.

Communication can generally be categorized as two types: synchronous and asynchronous. By synchronous communication, we mean face-to-face meetings and discussion with team members and clients. Other synchronous and asynchronous communication channels are e-mail, voice mail, instant messaging, teleconferencing and web (Niazi, M. et al (2016). They show that ‘communication’ (62%, and 51%), ‘organizational structure’ (79% and 53%) and ‘project managers’ skills’ (69% and 53%) are the most common success factors in client and vendor organizations.

### 3. IMPLEMENTATION

An Interactive web-based project management application, have been developed in accordance with the phases of project life cycle. Working implementation is consisted by two interfaces. One of them is for project manager (supervisor), and the other one is for project members. Computers, mobile phones or any mobile devices with internet connection can monitor these two interfaces. Main objects of this application are:

- Build an effective project management process.
- Make project planning and designing via project life cycle.
- Increase interactivity between project members and project manager.
- Monitoring and controlling the project easily.
- Monitoring project progress via web based platform.
- Create project parts with some different content materials such as text, picture, videos, url and documents.
- Print project parts and project current situations.

While building this web based project management platform, some web programming languages and database are used. These instruments are html5, php and Javascripts for web programming languages and MySQL for database. Firstly, all users must have user name and password. Otherwise, they cannot be reached the system. Structure of the platform is shown in Figure 2 and main interface of platform is shown in Figure 3. Platform has five different parts. These are project tools, contents, project phases and project member list and project ratio screen.



Figure 2: Structure of Platform

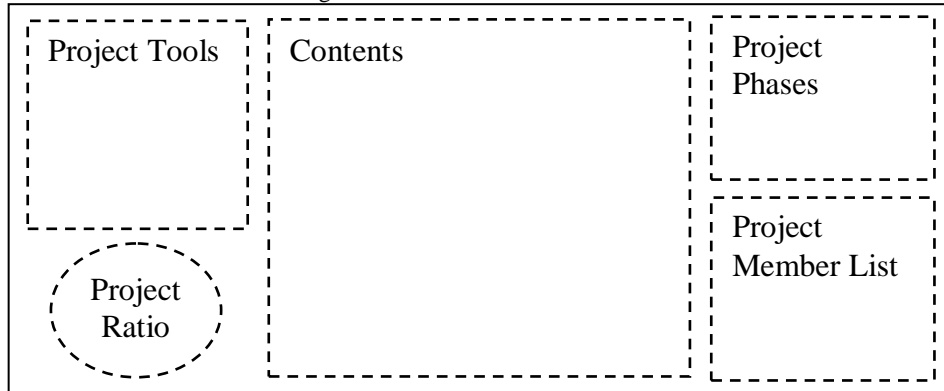
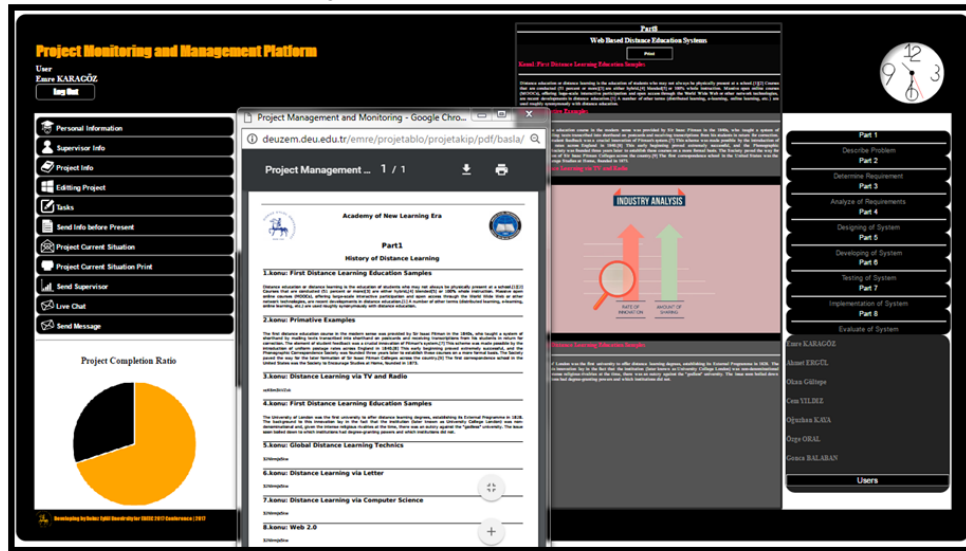


Figure 3: Main Interface of the Platform



*Resource: Prepared by Authors*

Project Tools, which are left side of the picture, are main functions of the platform. These tools grouped as project information tools, report tools and communication tools (Table 4). Project Ratio part, which is sub-left element on platform, is represent project total accomplishment. Depend on the progress of the project, ratio of the indicators change. Project phases are shown on the right side of the platform and project members are shown below part of the project.

Table 4: Project Tools

| Project Information Tools                  | Report Tools                    | Communication Tools  |
|--|---------------------------------|----------------------|
| Project Manager And Members Identity Cards | Send Info Before Present        | Send Project Manager |
| Project Info                               | Project Current Situation       | Live Chat            |
| Editing Project                            | Project Current Situation Print | Send Message         |
| Tasks                                      |                                 |                      |

### 3.1 Project Information Tools

Project manager can see all project members identity card but project members can just see his/her identity cards. These identity cards have some specific information such as role in the project. One of the main functions is Project Info. Project Info function includes basic information of the project. These are Project Name, Project Manager, Project Members, Project Main Object, Project Start Date, Number of Project Parts, Application Areas, Keywords and Project Resources (Figure 4). Project abstract can be print from this tool.

Figure 4: Project Info

The screenshot shows the 'Project Info' section of the 'Project Monitoring and Management Platform'. The user is 'Emre KARAGÖZ'. The project details are as follows:

|                             |  |
|-----------------------------|--|
| <b>Project Name</b>         | Designing of Distance Education System Project   |
| <b>Project Owner</b>        | Orge ORAL  |
| <b>Project Supervisor</b>   | Prof.Dr. Vahap TECİM   |
| <b>Project Start Time</b>   | 2012-10-01   |
| <b>Project Part Number</b>  | 8  |
| <b>Project Main Object</b>  | Creating some steps to design and apply effective Distance Education Systems.  |
| <b>Widespread Influence</b> | International Conference and Academicl Presentation  |
| <b>Application Area</b>     | Specific area to Distance Education  |
| <b>KeyWords</b>             | Distance Education, System Analysis  |
| <b>Project Resource</b>     | Santos G, Aguirre BE. 2004 A critical review of emergency evacuation simulation models. In: Peacock RD, KULIGOWSKI ED, Editors. Proceedings of the workshop on building occupant movement during fire emergencies, 10-11 June 2004. P. 27-52. Xie, Chi. 2008. EVACUATION NETWORK OPTIMIZATION MODELS. SOLUTION METHODS AND APPLICATIONS. Doctorate. A Dissertation Presented to the Faculty of the Graduate School of Cornell University in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy Iisovalainen, Juhana Vastaa Finland. 2010 DYNAMIC AND INTELLIGENT EVACUATION SYSTEM FOR TUNNELS . 5th International Conference "Tunnel Safety and Ventilation" 2010, Graz, Gerchi ve Dişerleri. 2011 Intelligent Navigation Systems for Building Evacuation. DOI:10.1007/978-1-4471-2155-8_43 Source: DBLP Conference: Computer and Information Sciences II - 36th International Symposium on Computer and Information Sciences, London, UK, 26-28 September 2011 Haaovalainen, Juhana Vastaa Finland. 2010 DYNAMIC AND INTELLIGENT EVACUATION SYSTEM FOR TUNNELS . 5th International Conference "Tunnel Safety and Ventilation" 2010, Graz Gerchi ve Dişerleri. 2011 Intelligent Navigation Systems for Building Evacuation. DOI:10.1007/978-1-4471-2155-8_43 Source: DBLP Conference: Computer and Information Sciences II - 36th International Symposium on Computer and Information Sciences, London, UK, 26-28 September 2011 Schultz, Michael 2012. Department of Air Transport Technology and Logistics, Faculty of Transport and Traffic Sciences Zheng ve Dişerleri 2009. Modelling crowd evacuation of a building based on seven methodological approaches Baysal, G, TECİM, V. 2009 Coğrafi Bilgi Sistemleri Teknolojileri ile Simulasyon Tabanlı Acil Tahliye Modellerinin Uygulanması Helbing ve Dişerleri. 2005 Self-Organized Pedestrian Crowd Dynamics: Experiment, Simulations, and Design Solutions. Hankin, B. D. And Wright R. A., 1998. Passenger Flow in Subways. |

On the left, there is a 'Project Completion Ratio' pie chart showing approximately 75% completion. A sidebar on the left contains navigation options like 'Personal Information', 'Supervisor Info', 'Project Info', 'Editing Project', 'Tasks', 'Send Info before Present', 'Project Current Situation', 'Project Current Situation Print', 'Send Supervisor', 'Live Chat', and 'Send Message'. A clock in the top right corner shows the time as approximately 10:10.

Resource: Prepared by Authors

One of the most important functions is Editing Project. With this function, the project members construct parts of the project. From this area, members can add some contents to part of the project. These contents are text, video, picture, Wikipedia, YouTube video and documents. Project manager evaluate part and give a number, which represents success ratio of the part. Figure 5 shows the picture of editing project.

Figure 5: Editing Project Parts

The screenshot shows the 'Part Editing Screen' of the 'Project Monitoring and Management Platform'. The user is 'Emre KARAGÖZ'. The interface includes a sidebar with navigation options like 'Personal Information', 'Supervisor Info', 'Project Info', 'Editing Project', 'Tasks', 'Send Info before Present', 'Project Current Situation', 'Project Current Situation Print', 'Send Supervisor', 'Live Chat', and 'Send Message'. The main area is titled 'Part Editing Screen' and shows a 'Part' dropdown menu set to 'Part 8'. Below this, there is a 'Select subject that you want to edit:' dropdown menu set to 'Orge'. A 'Send' button is visible. The main content area displays a 'Web Based Distance Education Systems' section with a 'Part' dropdown menu set to 'Part 8'. Below this, there is a 'Select content type that you want to edit:' dropdown menu with options: Text, Picture, Image, Video, Local, Youtube, PDF, Word, Excel, PowerPoint Presentation. A 'Start' button is visible. The main content area also displays a 'The New Economy' section with an illustration of people and a sign that says 'INCREASED ACCESS TO INFORMATION'. A clock in the top right corner shows the time as approximately 10:10.

Resource: Prepared by Authors

Project manager can prepare some tasks about the *Project by Tasks function*. Project manager give this task for the project members and they can see these tasks in their “Tasks” section. When they finish the any task from manager, click the window near “Completed” text and then click to “Confirm” button. Thus project manager understand task accomplished or not. Figure 6 presents the picture of the task interface.

Figure 6: Tasks Function

| Weekly Task List |  |            |           | 29 Mart 2017 Çarşamba    |         |
|------------------|--|------------|-----------|--------------------------|---------|
| Task1            | Prepare a plan that you estimate                         | 2017-01-02 | Completed | <input type="checkbox"/> | Confirm |
| Task2            | Examine related project                                  | 2017-01-02 | Completed | <input type="checkbox"/> | Confirm |
| Task3            | Write best organizations that engaged distance education | 2017-01-02 | Completed | <input type="checkbox"/> | Confirm |
| Task4            | Find academical source about the project                 | 2017-01-02 | Completed | <input type="checkbox"/> | Confirm |
| Task5            | Prepare a presentation about road map                    | 2017-01-02 | Completed | <input type="checkbox"/> | Confirm |
| Task6            | Send a report about your working.                        | 2017-01-02 | Completed | <input type="checkbox"/> | Confirm |
|                  |  |            | Completed | <input type="checkbox"/> | Confirm |
|                  |  |            | Completed | <input type="checkbox"/> | Confirm |
|                  |  |            | Completed | <input type="checkbox"/> | Confirm |
|                  |  |            | Completed | <input type="checkbox"/> | Confirm |

*Resource: Prepared by Authors*

### 3.2 Report Tools

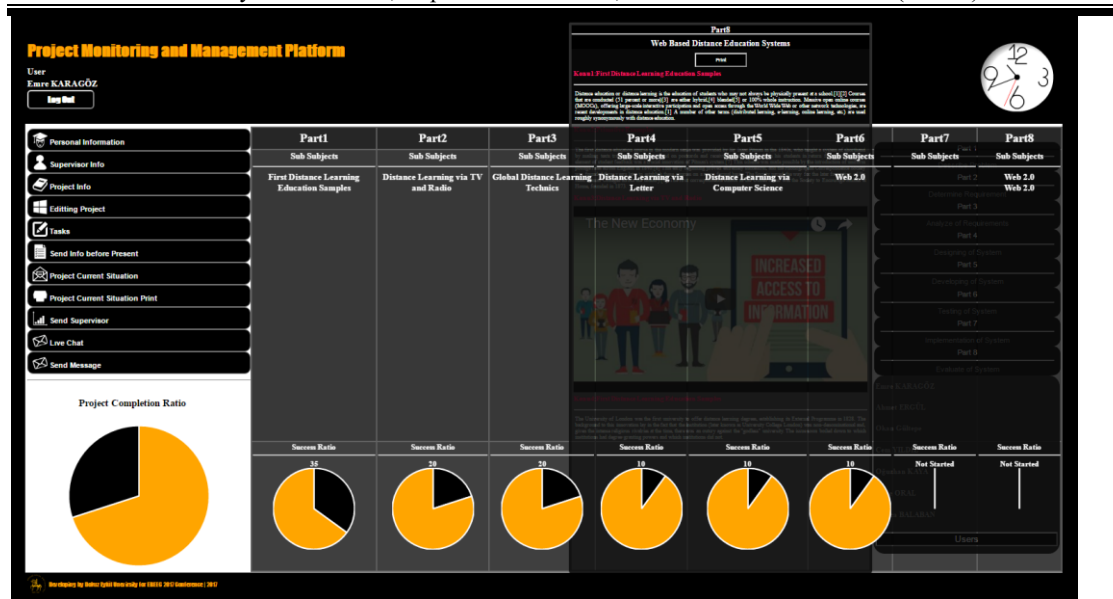
Project members can send some message or text to project manager before weekly presentation with “Send Info before Present” function can be used (Figure 7). Project Members can send all members this report message.

Figure 7: Send Message before Present

*Resource: Prepared by Authors*

Project Current Situation function indicates all parts of the Project with the success ratio. After examine the parts, Project manager decides parts success ratio. Indicators, which are in the left side of the main page, is determined by the parts success ratios. “Project Current Situation Print” function is used to take printed material about Project current situation. If supervisor do not monitor the project current situation, project members can send mail, which includes printed materials about the project current situation. If project manager or one of the project members does not logging to system even one time of the week, platform sends an email to warn him/her. Figure 8 represents the Current Situation function.

Figure 8: Project Current Situation

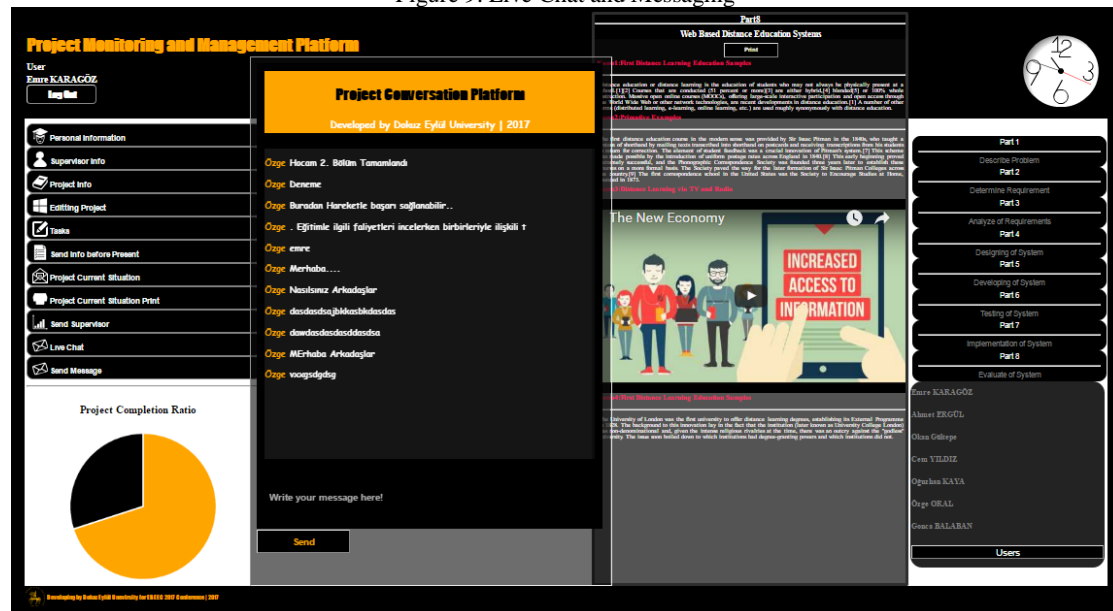


Resource: Prepared by Authors

### 3.3 Communication Tools

Project members and Project manager can converse synchronous and asynchronous via “Live Chat” and “Send Message” functions. This web-based platform can be used in every location where internet connection is on. Therefore, interactivity is connected between project manager and members. Figure 9 includes the Picture of the Live Chat and message.

Figure 9: Live Chat and Messaging



Resource: Prepared by Authors

### 3.3 Project Phases

Right side tools on platform represent the phases of project. Every phases of the project includes sub elements. When users click on one of the phases, its open a new window that is constructed by the contents such as text, videos, pictures and more. Figure 10 represents fully part elements.

Figure 10: Sub-element of Project Phase



Resource: Prepared by Authors

## 4. CONCLUSION

Organizations make projects for decision-making process. For effective decision, projects should manage with project life cycle. Project life cycle includes initiation, planning, execution, closure and communication phases. Time and communication management are important in project life cycle. For that reason web based interactive project management platform was developed based on project life cycle phases. This study is focused on importance of time and communication in project management. This study has some advantages. Project phases automatically report and print separately or completely. Visuality of project phases is increased with graphical project ratios. Communication between project members and project manager is constantly going on. This platform is non-profit, free and space independent management platform. Although this platform has been developed for businesses, it can be adapted for projects in education institute in future studies. This interactive web based project management platform is compatible with mobile devices

## REFERENCES

- Asano (2017). Asana Task Management Tools. <https://asana.com/>. (Access Date: 20.04.2017)
- Active.collab (2017). Active collab Project Management Tool. <https://activecollab.com/> (Access Date: 20.04.2017)
- Aydin, C., Tarhan, C., Tecim, V. (2015). IT Based Vehicle Tracking System for Effective Management in Public Organizations. *Procedia Economics and Finance*. 33:506 – 517. doi: 10.1016/S2212-5671(15)01733-5
- Bhargava, et. al (2007). *Progress in Web-Based Decision Support Technologies*. Decision Support Systems (43): 1083– 1095.
- Kostalova , J. et. Al. (2015). Support of Project Management Methods by Project Management Information System. *4th International Conference on Leadership, Technology, Innovation and Business Management*, Procedia - Social and Behavioral Sciences, 210, 96 – 104.
- Laudon, K.C. and Laudon, J.P. (2016). *Management Information Systems Managing the Firm*. Pearson: USA. ISBN-13: 978-0133898163.
- Lester, A. (2003). *Project Planning and Control, Fourth Edition*. Elsevier Butterworth-Heinemann, London.
- Martens, M.L. and Carvalho, M. M. (2016). Sustainability and Success Variables in the Project Management Context: An Expert Panel. *Project Management Journal*, Vol. 47, No. 6, 24–43.
- Niazi, M. et al. (2016). Toward Successful Project Management in Global Software Development. *International Journal of Project Management*. (34)1553–1567.

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---

Nicholas, J.M. and Steyn,H. (2012). *Project Management For Engineering, Business And Technology, Fourth Edition*. Routledge Taylor&Francis Group, London.

Padalkar, M and Gopinath, S. (2016). Six Decades Of Project Management Research: Thematic Trends And Future Opportunities. *International Journal of Project Management*. (34):1305–1321.

Westland, J. (2006). *The Project Management Life Cycle*. Kogan Page Limited, London and Philadelphia.

Wrike (2017). Wrike Project Management. <https://www.wrike.com/tr/>. (Access Date: 20.04.2017)

## **ADJUSTING EXPENSES TO SALES OF CORPORATIONS IN THE TECHNOLOGY SECTOR FOR THE YEARS 2008-2015**

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### **ABSTRACT**

This study examines the accounting data of the total 20 Société Anonyme (S.A.) corporations listed in the Athens Stock Exchange, which comprise the technology sector of the country. The inter-temporal evolution of (fixed and variable) expenses is compared for each of the S.A. corporations throughout the period 2008-2015. Based on Hellastat surveys, the authors are attempting to illustrate the necessity of adjusting the expenses to the sales made by these corporations in order to achieve profitability at a time of economic crisis.

### **KEYWORDS**

Technology, Economic crisis, Adjusting expenses, Profitability

### **JEL CLASSIFICATION CODES**

G01, G10, G30, M41

## **1. INTRODUCTION**

Access to adequate and exact information is one of the most crucial factors in financial decision-making. This process is facilitated through financial statement analysis, where all relevant data regarding financial position, activities etc. are collected; the formal and structured manner in which this information is presented being instrumental in relating key variables to several financial decisions.

The recent financial crisis, apart from being a prime cause for drastic decrease in profitability for many corporations, has also been instrumental in revealing many of the shortcomings inherent in the process of financial disclosure. Patricia J. Arnold (2009) has attempted to identify the reasons for many of the limitations of accounting reporting and principles, which restrict business analysts in their objective to reach optimal management decisions. In the years preceding the manifestation of the most recent crisis, the role of accounting information systems in corporations faced with financial crisis, although important, was found to be only partially effective in the crisis management (Ezzamel, 1990). Nevertheless, more recent investigations (Iatridis G, Dimitras A., 2013) involving profit management and value relevance for corporations listed in Stock Exchanges of European countries, including Greece, where they are audited by the Big 4 Accounting Firms, conclude that, in periods of crises, the quality of accounting information should be a primary requirement. Indeed, a necessity both for those involved in entrepreneurial decision-making, as well as for those involved in the establishment of accounting rules.

In the present study, we investigate how the profitability of a company, especially in times of crises, is related to its operating leverage and its ability to adjust its Expenses to its Sales, taking evidence from the Greek technology sector. In particular, our sample consists of the total 20 Société Anonyme (S.A.) corporations listed in the Athens Stock Exchange. The technology sector involves firms, which are either active in software/hardware development, manufacture of electronic devices, or provide services related to information technology. As such, the sector under consideration is characterized by increased flexibility and adaptivity, confronting the new economic reality and related challenges through innovating business activities, which are instrumental in generating new added value. It is widely acknowledged that companies revolving around such enterprises feature high levels of

competition, as well as high Research and Development costs. On the other hand, the related products typically have a rather limited life cycle. Therefore, one could argue that the technology sector is among the most representative, when examining Expenses-to-Sales adaptivity, in view of the increased knowledge-intensive entrepreneurship and knowledge-based management involved.

This paper is organized as follows. More precisely, the next section describes the sample under consideration in more detail and charts its development throughout the period 2008-2015 of the recent economic crisis. Our study makes use of data from their Annual Reports and Balance Sheets, as published by the Athens Stock Exchange. Distinguishing between the consistently profitable companies (Group 1) and the remaining ones (Group 2), it is natural to question the reasons for the continuous success of the first Group. Hence, we investigate (Section 2.1) to what extent this difference in performance may be attributed to increased adaptiveness of Expenses to Sales. Our analysis in this direction only gives a partial answer. Then, we proceed in Section 3, recalling the necessary background on Degrees of Operating Leverage and explain the reasoning behind our approach to consider this notion. Then, running an independent samples t-test on our data, our research hypothesis that the magnitude of the Degree of Operating Leverage of a continuously profitable company throughout the period 2008-2015 is statistically lower than that of a company suffering losses in at least one year within the same period is verified. The paper concludes with a discussion on our findings and suggestions for future work.

## 2. PROFITABILITY IN THE GREEK TECHNOLOGY SECTOR IN THE PERIOD 2008-2015

The issue of profitability in times of recession is examined in this study through the prism of the technology sector. More specifically, the period of interest is the most recent financial crisis following 2008 and the sample under consideration consists of the total 20 Société Anonyme (S.A.) corporations listed in the Athens Stock Exchange, which comprise the technology sector of the country (Alpha-Grissin, Altec, Byte, CPI, Compucon, Entersoft, Epsilon Net, Forthnet, Ilyda, Info-Quest, Intertech, Intracom, Logismos, MLS, Nexans Hellas, Optronics Technologies, Plaisio Computers, Quality & Reliability, Space, Vidavo).

A quick glance through their financial statements reveals a noteworthy fact. These 20 Corporations include a distinct subgroup of *four* members, which have remained consistently profitable throughout the period 2008-2015. This is a somewhat surprising observation, when one takes the economically restrictive circumstances into account. Hence, our sample may be roughly partitioned into two groups according to their performance: one consistently profitable (consisting of four companies) and one consisting of those which suffered losses in at least one accounting period during the years under consideration (the remaining 16 companies). More precisely, their members include:

**Group 1.** Entersoft, Epsilon Net, MLS and Plaisio Computers

**Group 2.** Alpha-Grissin, Altec, Byte, CPI, Compucon, Forthnet, Ilyda, Intertech, Intracom, Logismos, Nexans Hellas, Optronics Technologies, Quality & Reliability, Info-Quest, Vidavo

In view of the previous observations, a natural research question emerges; namely, how to account for the difference in performance between the two groups.

### 2.1 Adaptiveness of Expenses to Sales

A natural hypothesis would be to attribute the continuous success of Group 1 companies in an increased ability to adapt their Expenses to their Sales level. This conjecture is also supported by graphical evidence, such as those included in Figures 1 and 2, which depict the evolution of Sales and Expenses for first Group Corporations during the period 2008-2015.

Figure 1. Evolution of Sales and Expenses for “ENTERSOFT” and “EPSILON NET” throughout 2008-2015 (Group 1)



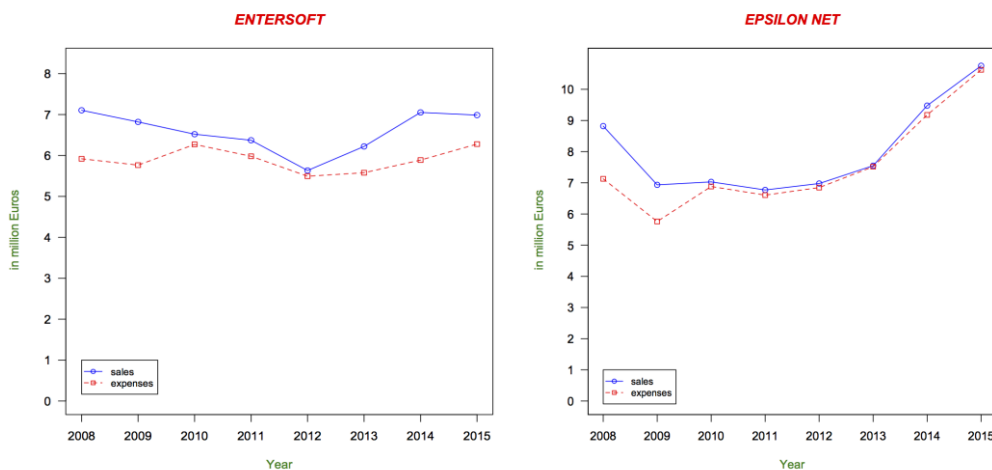
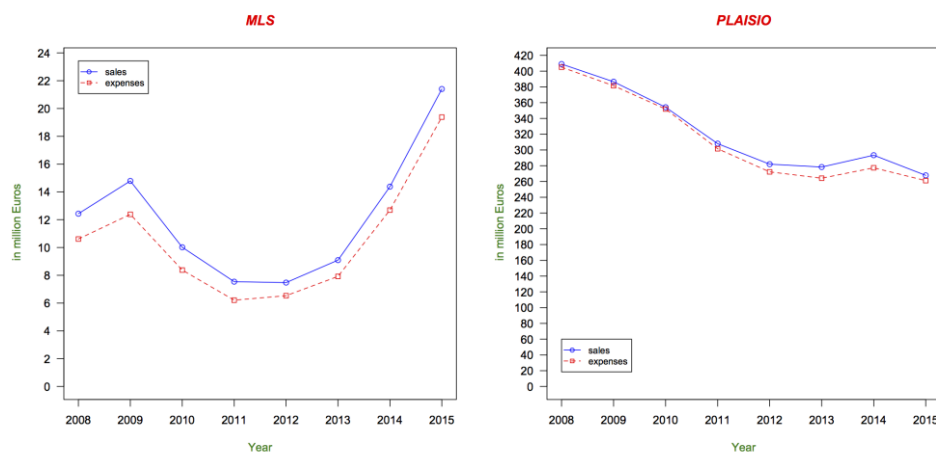


Figure 2. Evolution of Sales and Expenses for “MLAISO” and “EPSILON NET” during the period 2008-2015 (Group 1)



As can be seen from Figures 1 and 2, all companies in the first Group seem to have been able to adjust their Expenses to their Sales with varying degrees of success. Using Pearson’s Correlation Coefficient, it becomes apparent that a positive and indeed strong correlation between Sales and Expenses is verified for this quartet.

Table 1. Pearson’s Correlation Coefficients between Sales and Expenses for corporations in Group 1

| Corporation       | Pearson’s Correlation<br>Coefficient between Sales-<br>Expenses |
|-------------------|---|
| ENTERSOFT         | <b>0,579</b>  |
| EPSILON NET       | <b>0,921</b>  |
| MLS               | <b>0,998</b>  |
| PLAISIO COMPUTERS | <b>0,998</b>  |

Consequently, regression models relating these two variables could be implemented for these companies, having as high a degree of determination as  $R^2 = 99,6\%$ . Hence, in such cases, it is possible to effectively estimate the Sales level of first group members through their Expenses via linear models. See, for example, Figures 3 and 4 for two such instances.

Figure 3. Scatterplot and linear model relating Expenses and Sales for “MLS” (Group 1)

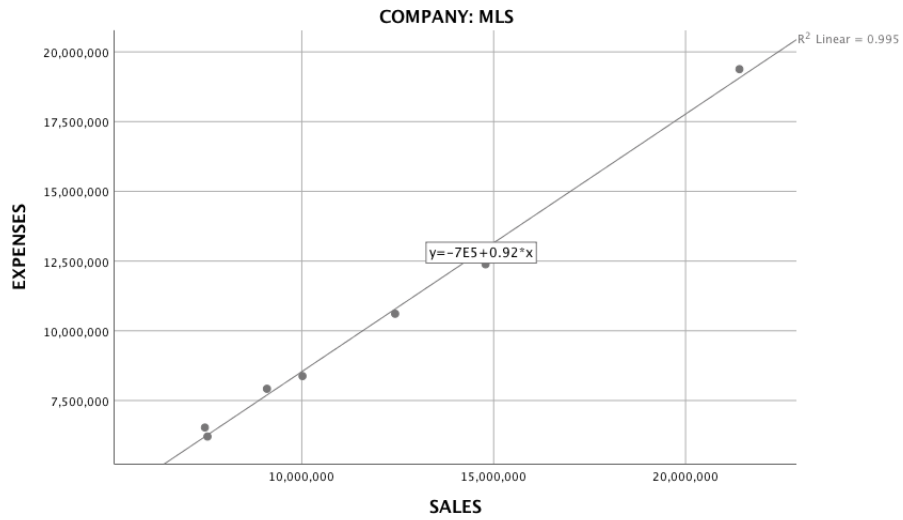
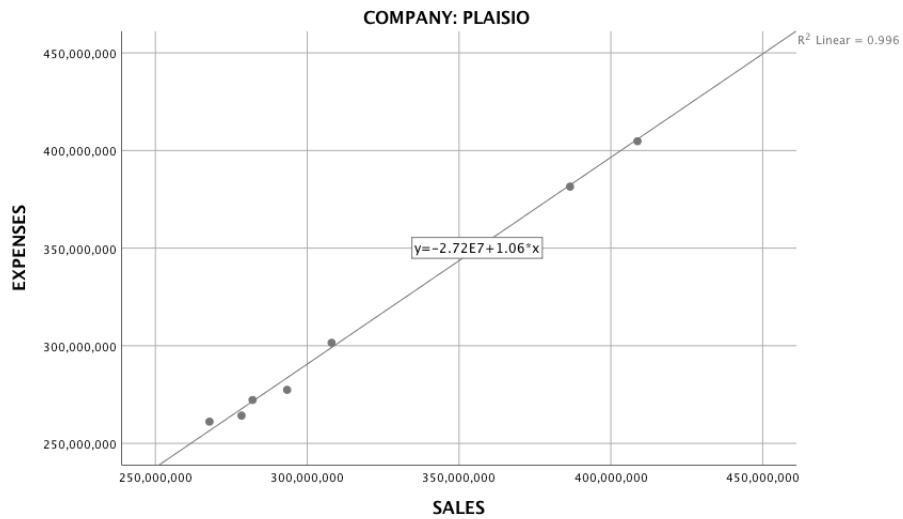
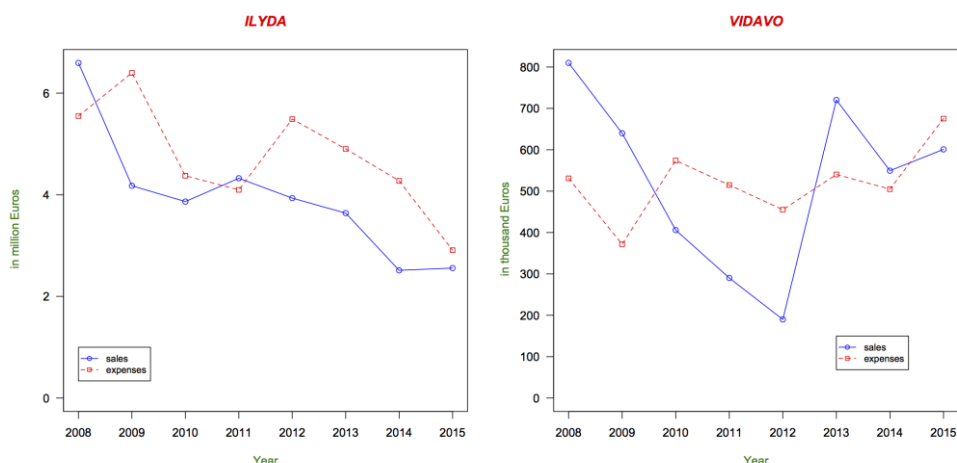


Figure 4. Scatterplot and linear model relating Expenses and Sales for “PLAISIO COMPUTERS” (Group 1)



For purposes of illustration and contrast, Figure 5 depicts the corresponding evolution of Sales and Expenses for certain members of the second Group, suggesting the typical situation encountered therein. This situation is in stark contrast to the preceding one.

Figure 5. Evolution of Sales and Expenses for “ILYDA” and “VIDAVO” during the period 2008-2015 (Group 2)



Unfortunately, this approach has its limitations, since it does not lead to a concrete differentiation of the two Groups in this respect. Indeed, while the Correlation between the variables of Expenses and Sales is indeed greater for members of the first Group it cannot be asserted that this difference is statistically significant. Hence, in what follows, we pursue a different route, recalling the concept of operating leverage and investigating to what extent the differences in profitability between the two Groups could be attributed to this notion.

### 3. OPERATING LEVERAGE AND PROFITABILITY

#### 3.1 Degree of Operating Leverage

The most common indicators of a company's prosperity and risk include such well-known and extensively studied measures, as the Return-on-Equity and Price-to-Earnings ratios. On the other hand, considerable less emphasis has been placed on the concept of *operating leverage*, which, despite being well-understood, has remained somewhat peripheral in the context of financial analysis and operational research.

Operating leverage measures the extent to which revenue growth incurs operating income and, as such, captures the relation between a company's fixed and variable costs, see for instance (Bodie et al., 2007) or (Emery D.R. et al., 2007). A firm is said to be operating with a *high degree of leverage*, when a large proportion of its costs are fixed. In this case, a large profit is earned on each individual sale, yet a sufficient number of sales are required in order to cover its substantial fixed operating costs. On the other hand, a company has *low operating leverage*, when a large proportion of its sales are variable costs, in which case it is possible to earn profit, even at a low level of sales. In this context, operating leverage is intimately linked to the operating risk of a company (McDaniel, 1984). Operating leverage has also been related to the systematic risk (Gahlon and Gentry, 1982) and has been studied in the context of stock market cyclicality, see for instance (Gurio, 2005) or (Mandelker and Rhee, 1984), inter-industry differences (Huffman, 1983) and equity risk (Lev, 1974). In particular, John R. Percival (1974) investigates how substitution of fixed with variable costs could result in exposing the shareholders to increased risk, clarifying the extent to which a corporation might be willing to embark on such a substitution.

Operating leverage can be measured through the *Degree of Operating Leverage* (*DOL*), defined as the ratio of the *percentage change* in Operating Income (also known as Earnings before Interest and Tax - EBIT) that is incurred by a corresponding percentage change in Sales between two periods  $i$ ,  $i + 1$ , i.e.

$$DOL = \frac{\% EBIT}{\% Sales}, \quad (1)$$

where 
$$\%EBIT = \frac{\Delta EBIT}{EBIT_i} = \frac{EBIT_{i+1} - EBIT_i}{EBIT_i}$$
 and

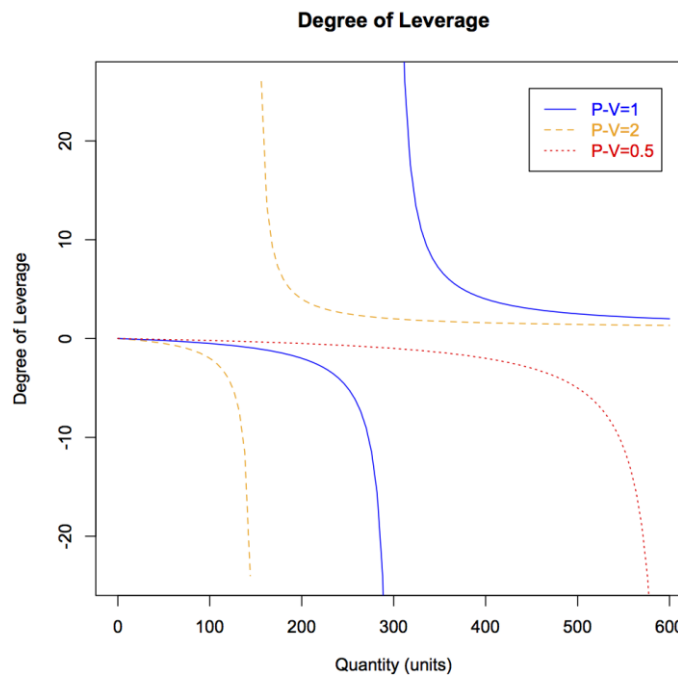
$$\%Sales = \frac{\Delta Sales}{Sales_i} = \frac{Sales_{i+1} - Sales_i}{Sales_i}$$

A simplified and more familiar expression for  $DOL$  may be obtained, assuming mean sales price per unit  $P$ , as well as (fixed and mean variable) costs  $F$  and  $V$  respectively remain constant. In this case, simple algebraic manipulations in (1) lead to

$$DOL(Q) = \frac{(P - V)Q}{(P - V)Q - F}, \quad (2)$$

expressing  $DOL$  conveniently as a *function* of the number  $Q$  of units produced/sold.

Figure 6. Plotting  $DOL$  as a function of units  $Q$  for different values of  $P - V$



Expression (2) is a more *static* version of the initial definition in (1), which is valid only for short-term periods, since one should not expect the parameters  $P$ ,  $F$  and  $V$  to remain constant in the long run. Nevertheless, one can use (2) to verify for fixed  $P$  that  $DOL(Q)$  assumes large values when

the ratio  $\frac{F}{V}$  is large as well, i.e. when the company is operating with a *high degree of leverage*. On the

other hand, when a company has *low operating leverage*, i.e. when the ratio  $\frac{F}{V}$  assumes small values,

(2) results in a low  $DOL(Q)$ . Some interesting characteristics of  $DOL$  as a function of units are immediately revealed through its graph in Figure 6.

- i. It is not defined at the break-even level, which is a root of the denominator of (2). Hence, its graph has a vertical asymptote at this point.
- ii. The break-even point uniquely determines the sign of  $DOL(Q)$ , the degree being negative precisely when the company operates at levels preceding the break-even point.

- iii. For levels beyond the break-even point,  $DOL(Q)$  is always positive and greater than 1, since its graph has a horizontal asymptote at  $DOL = 1$ . (Hence, no values in the interval  $(0,1)$  are allowable for  $DOL(Q)$ )

As revealed by the previous analysis,  $DOL$  is intimately connected to the operational risk of a firm, having multiplicative effects on the variability of its sales. In good times, a high  $DOL(> 1)$  could multiplicatively lead to considerable profit growth, whereas in times of crises could result in an even greater contraction of profits.

It is important at this stage to note that properties i., ii. and iii. are not a priori true for the more general expression of  $DOL$  in (1), which may assume arbitrary real values, however large or small, even negative ones beyond its break-even level or even values in the interval  $(0,1)$ . Additional insights regarding the shortcomings of the short-term formula (2), along with an in-depth comparison of relations (1) and (2) can be found in (Ghorawat and Nirmal, 2013), while an improved technique for estimating operating leverage for growing firms has been proposed in (O'Brien and Vanderheiden, 1987).

### 3.2 $|DOL|$ as a test variable

The exposition above may provide some insight into the relative unpopularity of  $DOL$  in previous research, since the information required for its computation in (2) is typically restricted to analysts working *within* each company. In this study, we will focus on the definition of  $DOL$  in (1), using data collected from published financial statements for successive accounting periods  $i, i + 1$ .

When the market is falling, as in the period under consideration, a conservative approach would be to keep a company immunized with respect to fluctuations of sales. Regarding the Degree of Operating Leverage in (1), an effective management strategy could be to keep the magnitude (absolute value) of

$|DOL| = \frac{|\% EBIT|}{|\% Sales|}$  from being large. In this way, the smaller  $|DOL|$  is, the smaller the

neighborhood around zero that  $DOL$  lies in, which in turn implies a restricted sensitivity of  $EBIT$  to sales variability. Using this reasoning, the continuous success of the first group in this period of crisis could be attributed to the ability of its members to keep  $|DOL|$  from being large.

To determine whether there is sufficient statistical evidence to argue that consistently successful companies are characterized by degrees of leverage of smaller magnitude, we introduce  $|DOL|$  as test variable and apply an *independent samples t-test*. The formal hypotheses may be stated as follows:

$$H_0 : \text{mean } |DOL|_{\text{Group1}} = \text{mean } |DOL|_{\text{Group2}}$$

$$H_1 : \text{mean } |DOL|_{\text{Group1}} \neq \text{mean } |DOL|_{\text{Group2}}$$

To reject the null hypothesis and accept the alternative hypothesis, we set a significance level of  $\alpha = 0.05$ . Recall that the independent samples t-test requires the *homogeneity of variance*, i.e. both groups have the same variance. Levene's test for Equality of Variances is statistically significant, which indicates that the group variances are not in fact equal in the population. To overcome this violation of the assumption of homogeneity of variance, we utilize unpooled variances and an adjustment to the degrees of freedom, using the Welch-Satterthwaite method. In this case, the test statistic is computed as

$$t = \frac{\text{mean}|DOL|_{Group1} - \text{mean}|DOL|_{Group2}}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \quad (3)$$

where  $n_i$  and  $s_i$  denote the sample size and standard deviation of Group  $i$  ( $i = 1, 2$ ) respectively, while the degrees of freedom are “corrected” according to the formula

$$df = \frac{\left(\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}\right)^2}{\frac{1}{n_1 - 1} \left(\frac{s_1^2}{n_1}\right)^2 + \frac{1}{n_2 - 1} \left(\frac{s_2^2}{n_2}\right)^2} \quad (4)$$

Another reason for following this approach is the fact that the two Groups are of unequal size. Indeed, recalling the fact that we consider 8 consecutive accounting periods and Group 1 consists of 4 companies, the remaining 16 forming the second Group, it is clear that  $n_1 = 4 \cdot (8 - 1) = 28$  and  $n_2 = 16 \cdot (8 - 1) = 112$ .

Using the formulae above and for the significance level of  $\alpha = 0.05$ , a t-test was run on the data, whereby it was concluded that the mean magnitude of the Degrees of Operating Leverage of a continuously profitable company ( $\text{mean}|DOL|_{Group1} = 13.225$ ,  $s_1 = 16.21$ ) is statistically lower than that of a company suffering losses in at least one of the accounting periods ( $\text{mean}|DOL|_{Group2} = 218.331$ ,  $s_2 = 1269.95$ ) during 2008-2015. The computed test statistic was computed in (3) as  $t = -1.701$  whereas the degrees of freedom in (4) are  $df = 110.142$  ( $p = 0.048$ ). Hence, the corresponding Confidence interval  $(5.1, 405.1)$  for the population means  $m_2 - m_1$  emerges from the formula

$$\left(\text{mean}|DOL|_{Group2} - \text{mean}|DOL|_{Group1}\right) \pm t_{\frac{\alpha}{2}, df} \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}},$$

whereby  $\text{mean}|DOL|_{Group1} < \text{mean}|DOL|_{Group2}$  is immediately verified, as asserted.

#### 4. CONCLUSION

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In the present study, we have considered the sample of the total 20 S.A. technology sector corporations listed in the Athens Stock Exchange. The four consistently successful throughout the period 2008-2015 ones are indeed characterized by increased adaptiveness of their Expenses to their Sales. Unfortunately, as attested by our previous analysis, this adjustment does not fully explain the consistent profitability of a company in times of recession. Indeed, even though Group 1 (consistently profitable) presented higher correlation between the variables of Expenses and Sales, when compared to the Group 2 (the remaining 16 companies, suffering losses in at least one accounting period in between the considered time frame), this was not sufficient to verify a statistically important difference between groups.

On the other hand, checking whether the Degree of Operating Leverage *DOL* assumes values of small magnitude seems to be plausible explanation, at least for our selected sample. Our approach reveals that the magnitude of *DOL* is statistically higher in Group 2, providing evidence that keeping the magnitude of the Degree of Operating Leverage under control should be one of the key concerns in business management to attain profitability. This is especially true in periods of crises, when a decrease in sales is in most cases unavoidable.

One of the novel features of the present investigation, and perhaps its most significant contribution, is to introduce the variable  $|DOL|$  in the context of providing an explanation for continuous profitability. This has not been attempted in the related literature previously. Since in the present work our attention was restricted to the case of the Greek technology sector during the years of the most recent crisis following 2008, it would be interesting to investigate in another paper whether our results regarding the significance of  $|DOL|$  may be extended to corporations involved in other sectors, countries or even other periods.

## REFERENCES

- Arnold J.P. (2009) “Global financial crisis: The challenge to accounting research” *Accounting, Organizations and Society*, Vol.34, No. 6-7, pp. 803-809.
- Bodie Z., Merton R. and Cleeton D. (2007), *Financial economics*, 2<sup>nd</sup> Edition, Prentice-Hall, Upper Saddle River, New Jersey.
- Dran J.. and John J. (1991) “A different perspective on Operating Leverage”, *Journal of Economics & Finance*, Vol.15, No. 1, pp. 87.
- Emery D.R., Finnerty J.D. and Stowe J.D. (2007), *Corporate financial management*, 3<sup>rd</sup> Edition, Prentice-Hall, Upper Saddle River, New Jersey.
- Ezzamel M. (1990) “The roles of accounting information systems in an organization experiencing financial crisis” *Accounting, Organizations and Society*, Vol.15, No. 5, pp. 399-424.
- Gahlon J.M. and Gentry J.A. (1982) “On the relationship between Systematic Risk and the Degrees of Operating and Financial Leverage”, *Financial Management*, Vol.11, No. 2, pp. 15-23.
- Gahlon J.M. and Gentry J.A. (1982) “Operating leverage as a determinant of systematic risk”, *Journal of Business Research*, Vol.9, No. 3, pp. 297-308.
- Ghorawat N. and Shah P., Operating Leverage: A New Dimension (May 4, 2013). Available at SSRN: <https://ssrn.com/abstract=2273478> or <http://dx.doi.org/10.2139/ssrn.2273478>
- Gourio F. (2005) “Operating leverage, stock market cyclicity and cross-section of returns”, *Meeting Papers 2005*, 66, Society for Economic Dynamics.
- Huffman A. (1983) “Inter-industry differences and the impact of operating and financial leverages on equity risk”, *Rev. Financ. Econ.*, Vol. 4, No. 2, pp. 141- 155.
- Iatridis G. and Dimitras A. (2013) “ Financial crisis and accounting quality: Evidence from five European countries” *Advances in Accounting*, Vol.29, Issue 1, pp. 154-160.
- Lev B. (1974) “On the Association between Operating Leverage and Risk”, *J. Financ. Quant. Anal.*, Vol. 9, pp. 627-642.
- Mandelker G. and Rhee S. (1984) “The Impact of Degrees of Operating and Financial Leverage on Systematic Risk of Common Stock”, *J. Financ. Quant. Anal.*, Vol. 19, No. 1, pp. 45-57.
- McDaniel W.R. (1984) “Operating Leverage and Operating Risk”, *Journal of Business Finance & Accounting*, Vol. 11, Issue 1, pp. 113-125.
- O’Brien T.J. and Venderheiden P.A. (1987), “Empirical measurement of operating leverage for growing firms”, *Financial Management*, Vol. 16, No. 2, pp. 45-53.
- Papadeas P. (2017) “The conversion of bank Deferred Tax Assets in 2016 to bank shares in 2017”, *EBEEC 2017*.

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University of Macedonia, Department of Balkan, Slavic and Oriental Studies (Greece)

---

- Papadeas P., Goumas S. and Kossieri. Ev. (2017) “The effectiveness of taxation policy in Greece”, *EBEEC 2017*.
- Papadeas P. and Kossieri. Ev. (2017) “The role of leverage to profitability at a time of economic crisis”, *ICBE-HOU 2017*.
- Percival J.R. (1974) “Operating leverage and risk”, *Journal of Business Research*, Vol. 2, No. 2, pp. 223-227.
- Tsitsakis, C., Karasavoglou, A. and Eleftheriadou, G. (2014). “The Cure of a big Patient–An Accountant's Perspective”, *Procedia Economics and Finance*, Vol. 9, pp. 200-207.
- Vassileiou D. and Eriotis N. (2008), *Financial management – Theory and Applications*, Rosili Ed., Athens (*in Greek*).



## **INFORMATION TECHNOLOGY USAGE AND DIGITAL DIVIDE IN EDUCATION: A CASE FROM IZMIR**

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### **ABSTRACT**

This paper outlines a research project that investigated vocational school students’ levels of access to, use of and preferences for new technologies for learning. The study was based in the Technical Programs of Dokuz Eylul University. It sought to look at actual access and use of ICT by current students, and highlights the complexity around concepts of a ‘digital divide’ in relation to their distance learning courses. A questionnaire including both quantitative and open-ended questions was utilized, allowing a mixture of statistical and qualitative data to emerge. This paper focuses on selected aspects of the qualitative data, addressing themes around barriers to ICT, use of learning materials and preferences around online and paper-based learning. A mixed picture of access, use and preference is evident. There is a clear preference for a mixture of online and printed materials, implying a continuing need for a variety of access points to learning materials. As new technologies develop, it is increasingly important to avoid inadvertently contributing to a ‘digital divide’ by excluding students with less than ‘ideal’ access to ICT.

### **KEYWORDS**

Digital divide, distance learning, e-learning, information technology

### **JEL CLASSIFICATION CODES**

O32, O33.

## **1. INTRODUCTION**

Increasing access to and use of information and communication technologies (ICTs) in developing countries is a phenomenon, which is hailed by many as a positive development that would stimulate a knowledge-based economy and society in these countries. The underlying assumption is that higher levels of and more equitable access to ICTs would stimulate economic growth, enhance national, regional, organizational and individual competitiveness, enable democratic participation and foster social equality. However, digital divide, that is, the division of the globe in general and individual countries, regions, organizations, and individuals as “technology haves” and “have-nots”, is casting a long shadow on these hopes. (<http://www.irma-international.org/viewtitle/38312/>, 2017)

Web based distance learning courses promise different learning options anytime and anywhere. However, some students with disabilities are locked out of these opportunities when courses are designed in such a way that they are inaccessible to individuals using assistive technology.

This paper’s case area is in Izmir, Dokuz Eylul University. Associate degree (two years) who raised the level of the intermediate element Izmir Vocational School continues its training activities in two sections, namely Technical Programs with Economic and Administrative Programs. Primarily located in Izmir and 23 programs responding to the needs of our school within the intermediate element of the Aegean region. The total number of students studying in these programs is 10.344 as of October 2016 ([www.imyo.deu.edu.tr](http://www.imyo.deu.edu.tr), 2017).

Izmir Vocational School accepts the students in two ways. If candidate students have vocational high school diploma, they have a right to enroll their departments without university exam. The other students with high school diploma, they must enter the university exam once a year and get the specific point in order to enroll the departments. Additionally, Izmir Vocational School has night training which is realized between 5 pm and 10 pm for especially worked students who are work. These differences

make heterogeneous type in the classes during educational success. All the freshmen students enrolled the university have to take Turkish, English and History classes mandatory. From starting 2017, Izmir Vocational School has implemented web based distance learning system for these three classes. The paper aims to examine the distance learning studies with the respect of digital divide because of the heterogeneous type.

This paper outlines a research that investigated vocational school students’ levels of access to, use of and preferences for new technologies for learning. The study was based in the Technical Programs of Dokuz Eylul University. It sought to look at actual access and use of ICT by current students, and highlights the complexity around concepts of a ‘digital divide’ in relation to their distance learning courses. A questionnaire including both quantitative and open-ended questions was utilized, allowing a mixture of statistical and qualitative data to emerge. This paper focuses on selected aspects of the qualitative data, addressing themes around barriers to ICT, use of learning materials and preferences around online and paper-based learning. A mixed picture of access, use and preference is evident. There is a clear preference for a mixture of online and printed materials, implying a continuing need for a variety of access points to learning materials. As new technologies develop, it is increasingly important to avoid inadvertently contributing to a ‘digital divide’ by excluding students with less than ‘ideal’ access to ICT.

### **Digital divide**

The digital divide can be defined as “*the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access ICTs and to their use of the Internet for a wide variety of activities*” (<https://www.oecd.org/sti/1888451.pdf>, 2017)

UNESCO accepts the gender divide as “*one of the most significant inequalities to be amplified by the digital revolution*” (Primo, 2003). Bimber (2000) found that there is a significant gap between genders in terms of accessing and using the Internet. Broos & Roe (2006) found also gender is one of the major factors structuring the digital divide.

Age is one of the major demographic factors affecting ICT use. It is found that the Internet penetration rate among younger residents is substantially higher than that among elders in both developed and developing countries (Friedman, 2001). There are various studies explored age factor in digital divide literature. For example, Loges & Jung (2001) investigated the digital divide between old and young Americans and they reported significant differences between old and young Americans in Internet access. Vicente & López (2008) analyzed Internet adoption in the new member states and candidate countries of the European Union and concluded that younger individuals are the most likely to use the Internet in all the countries. Even though Internet and e-mail use has greatly increased between 1995 and 2002, Enoch & Soker (2006) found that there remains a steady and significant gap between the different age groups, especially between the youngest and the oldest university students. Many observers believe that the digital divide is basically a generational phenomenon and it will disappear in time as younger computer literate cohorts replace older non-users (Broos, Roe, 2006). However, since ICT is always evolving, new advanced ICTs may cause new digital divides between younger and elder residents.

Vicente & López (2008) found that educational attainment is one of the main determinants of Internet use; education positively affects the likelihood of an individual using the Internet. According to the results of their study, university education has a stronger effect than high school education in terms of Internet usage. Goldfarb & Prince (2008) found that high-income, educated people were more likely to have adopted the Internet by December 2001 in the US.

Today information technology is more accessible and affordable than even before. While the telecommunications infrastructure has grown and ICT has become less expensive and more accessible, today more than ever, the invisible line that separates rich from poor, men from women and the educated from the illiterate also separates the connected from the disconnected (<https://www.hse.ru/mirror/pubs/lib/data/access/ram/ticket/2/1492171177daefd29dbd72071167b72bef313270c7/Markin-Nazarbaeva-Exploring.pdf>, 2017)

Turkey, as a candidate country to the European Union (EU), strives for overcoming the digital divide problem as part of a strategic objective of the i2010 Strategic Plan, parallel to its membership negotiation and integration processes with the EU. To this end, different dimensions of digital divide in Turkey, such as gender, education level, location (urban-rural), and age are evaluated in this chapter, by using the current academic literature, statistical figures provided by Turkish government agencies, and examining strategy documents and current legislation, such as Turkey’s Information Society

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Strategy and Action Plan documents, and the Universal Service Law. (<http://www.irma-international.org/viewtitle/38312/>, 2017)

Table 1 shows the information society statistics of Turkey between 2007 and 2016. According to the table, computer usage and internet access have increasing regularly. However, having website is not the same trend. It is clearly presented in the table; computer and internet usage ratios for female have increasing faster than the male ratios. The significant increasing is in households with access to the Internet ratio, the number of this ratio has increased approximately four times.

Table 1: Information Society Statistics 2007-2016

|  | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|--|------|------|------|------|------|------|------|------|------|------|
| <b>ICT Usage in Enterprises</b>                |      |      |      |      |      |      |      |      |      |      |
| Computer Usage                                 | 88,7 | 90,6 | 90,7 | 92,3 | 94,0 | 93,5 | 92,0 | 94,4 | 95,2 | 95,9 |
| Internet Access                                | 85,4 | 89,2 | 88,8 | 90,9 | 92,4 | 92,5 | 90,8 | 89,9 | 92,5 | 93,7 |
| Having Website                                 | 63,1 | 62,4 | 58,7 | 52,5 | 55,4 | 58,0 | 53,8 | 56,6 | 65,5 | 66,0 |
| <b>ICT Usage in Households and Individuals</b> |      |      |      |      |      |      |      |      |      |      |
| Computer Usage (Total)                         | 33,4 | 38,0 | 40,1 | 43,2 | 46,4 | 48,7 | 49,9 | 53,5 | 54,8 | 54,9 |
| Male   | 42,7 | 47,8 | 50,5 | 53,4 | 56,1 | 59,0 | 60,2 | 62,7 | 64,0 | 64,1 |
| Female   | 23,7 | 28,5 | 30,0 | 33,2 | 36,9 | 38,5 | 39,8 | 44,3 | 45,6 | 45,9 |
| Internet Usage (Total)                         | 30,1 | 35,9 | 38,1 | 41,6 | 45,0 | 47,4 | 48,9 | 53,8 | 55,9 | 61,2 |
| Male   | 39,2 | 45,4 | 48,6 | 51,8 | 54,9 | 58,1 | 59,3 | 63,5 | 65,8 | 70,5 |
| Female   | 20,7 | 26,6 | 28,0 | 31,7 | 35,3 | 37,0 | 38,7 | 44,1 | 46,1 | 51,9 |
| Households with access to the Internet         | 19,7 | 25,4 | 30,0 | 41,6 | 42,9 | 47,2 | 49,1 | 60,2 | 69,5 | 76,3 |

Resource: <http://www.tuik.gov.tr/UstMenu.do?metod=temelist>, 2017

Table 2 presents the number of fixed telephone, mobile telephone and internet subscribers between 1998 and 2016 (TUIK, 2017). The data of 2016 is by the end of June. According to the table, the number of fixed telephone subscribers has decreasing. On the other hand, the numbers of mobile telephone and internet subscribers have rapidly increasing.

Table 2. Number of fixed telephone, mobile telephone and internet subscribers

| Year                | Number of fixed telephone subscribers | Number of mobile telephone subscribers | Number of Internet subscribers |
|---------------------|---------------------------------------|--|--------------------------------|
| 1998                | 16 959 500                            | 3 382 137                              | 229 885                        |
| 1999                | 18 054 047                            | 7 562 972                              | 436 610                        |
| 2000                | 18 395 171                            | 14 970 745                             | 1 629 156                      |
| 2001                | 18 904 486                            | 19 502 897                             | 1 619 270                      |
| 2002                | 18 914 857                            | 23 323 118                             | 1 309 770                      |
| 2003                | 18 916 721                            | 27 887 535                             | 906 650                        |
| 2004                | 19 125 163                            | 34 707 549                             | 1 474 590                      |
| 2005                | 18 978 223                            | 43 608 965                             | 2 248 105                      |
| 2006                | 18 831 616                            | 52 662 709                             | 3 180 580                      |
| 2007                | 18 201 006                            | 61 975 807                             | 4 842 798                      |
| 2008                | 17 502 205                            | 65 824 110                             | 5 804 923                      |
| 2009                | 16 534 356                            | 62 779 554                             | 8 849 779                      |
| 2010                | 16 201 466                            | 61 769 635                             | 14 443 644                     |
| 2011                | 15 210 846                            | 65 321 745                             | 22 371 441                     |
| 2012                | 13 859 672                            | 67 680 547                             | 27 649 055                     |
| 2013                | 13 551 705                            | 69 661 108                             | 32 613 930                     |
| 2014                | 12 528 865                            | 71 888 416                             | 41 272 940                     |
| 2015                | 11 493 057                            | 73 639 261                             | 48 617 291                     |
| 2016 <sup>(1)</sup> | 11 248 495                            | 73 650 996                             | 55 305 748                     |

Source: TurkStat, Ministry of Transport, Maritime Affairs and Communications, Information and Communications Technologies Authority

(1) Data is by the end of June.

## **Distance learning**

Distance education or distance learning is the education of students who may not always be physically present at a school. Traditionally this usually involved correspondence courses wherein the student corresponded with the school via post. The widespread use of computers and the internet have made distance learning easier and faster, and today virtual schools and virtual universities deliver full curricula online. The capacity of Internet to support voice, video, text and immersion teaching methods made earlier distinct forms of telephone, videoconferencing, radio, television, and text based education somewhat redundant. However, many of the techniques developed and lessons learned with earlier media are used in Internet delivery.

Distance learning can expand access to education and training for both general populace and businesses since its flexible scheduling structure lessens the effects of the many time-constraints imposed by personal responsibilities and commitments. Distance education can also provide a broader method of communication within the realm of education. With the many tools and programs that technological advancements have to offer, communication appears to increase in distance education amongst students and their professors, as well as students and their classmates. The distance educational increase in communication, particularly communication amongst students and their classmates, is an improvement that has been made to provide distance education students with as many of the opportunities as possible as they would receive in in-person education. The improvement being made in distance education is growing in tandem with the constant technological advancements.

Barriers to effective distance education include obstacles such as domestic distractions and unreliable technology, as well as adequate contact with teachers and support services, and a need for more experience. Some students attempt to participate in distance education without proper training with the tools needed to be successful in the program. Students must be provided with training opportunities (if needed) on each tool that is used throughout the program. The lack of advanced technology skills can lead an unsuccessful experience. Schools have a responsibility to adopt a proactive policy for managing technology barriers.

The modern use of electronic educational technology (also called e-learning) facilitates distance learning and independent learning by the extensive use of information and communications technology (ICT), replacing traditional content delivery by postal correspondence. Instruction can be synchronous and asynchronous online communication in an interactive learning environment or virtual communities, in lieu of a physical classroom. "The focus is shifted to the education transaction in the form of virtual community of learners sustainable across time. One of the most significant issues encountered in the mainstream correspondence model of distance education is transactional distance, which results from the lack of appropriate communication between learner and teacher. This gap has been observed to become wider if there is no communication between the learner and teacher and has direct implications over the learning process and future endeavors in distance education. Distance education providers began to introduce various strategies, techniques, and procedures to increase the amount of interaction between learner and teacher. These measures e.g. more frequent face-to-face tutorials, increased use of information and communication technologies including teleconferencing and the Internet, were designed to close the gap in transactional distance.

## **2. METHODOLOGY**

Survey method was performed in the study in order to investigate information technology usage in distance learning and digital divide in education. Before the questionnaire was designed, the related literature was examined in depth. Conceptual debates and empirical studies are encountered in current national and international literature. In order to collect data in the survey the scale under three topics were acknowledgement from the literature. In this context, a scale consisting of 25 expressions was designed by the expertise of the literature. Descriptive statistics were used to be analyzed the questionnaire results.

In the questionnaire, the questions are about department, education type, age, gender, high school type, smart telephone and computer owner, social media and distance learning.

Table 3: Survey questions in compliance with factors

| Personal Questions                | ICT Usage                     | Distance Learning                    |
|-----------------------------------|-------------------------------|--------------------------------------|
| Age                               | Mobile phone ownership        | Course taking                        |
| Gender                            | Mobile phone operating system | Course following                     |
| Type of high school diploma       | Personal computer ownership   | Device for course following          |
| Education type in Vocational Sch. | Mobile application choices    | Mid-Term exam entrance               |
|                                   | Social media preferences      | Mid-Term exam problems               |
|                                   | Time consumption for ICT      | Mobile distance learning preferences |

### 3. FINDING AND RESULTS

According to the questionnaire results, in terms of digital divide aspects firstly, personal questions were examined. 74% of the students are men and 26% of the students are women. The average age is 19,6. 63% of the students have vocational high school diploma so they enroll the university without entering university exam. The rest of the students, 37%, have high school diploma.

All students have smart mobile phones. Their operating systems are android – 67% and IOS - %33. Personal computer ownership ratio is 79%. However, 51% of this ratio is using a shared computer in their house. Almost all students have 3G and 4.5G internet packages in their mobile telephones; however, they have not Wi-Fi in home. As mobile application usage, 33% of the students are using e-government applications. Also, 22% are using internet banking and 8% are playing games with their mobile phones. In terms of social media usage, Facebook has 69% ratio, Instagram has 15% ratio and twitter has 10% ratio. The students spend approximately 4 hours/day for social media. They also communicate via Facebook with 72% ratio.

From the distance learning point of view, the students (63%) just follow the courses once before Mid-Term exam. 16% of them has never follow the courses. They use mostly their personal computers (33%) to follow courses. Additionally, 10 % of the students use their friends' computer for courses. The same ratio (10%) use internet café and 11% of them use mobile phone to follow the courses. The university offered a trial exam to the students before Mid-Term exam. 50% of the students took this opportunity. The students use their personal computers (48%) for Mid-Term exam. 20% of them use their friends' computers and 19% of them use their mobile phones to enter Mid-Term exam. In terms of ease of use the graphical user interface usage, 42% of the students have no obstacles to use the system. However, 26% of them could not use the system, because of this, they get low grades from Mid-Term.

As a conclusion, distance learning in especially university level is one of the future education type in the World. However, ICT usage, education level, age, gender etc. factors cause digital divide in terms of students. To inform students and encourage using computers should be the first act in the schools at all levels before universities. Also, the schools have to prepare computer labs in order to be followed the web based distance learning courses.

### REFERENCES

- Bimber B. Measuring the Gender Gap on the Internet // *Social Science Quarterly* (University of Texas Press). 2000. 81 (3). P. 868–876.
- Broos A., Roe K. The Digital Divide in the Playstation Generation: Self-Efficacy, Locus of Control and ICT Adoption among Adolescents // *Poetics*. 2006. 34. P. 306–317.
- Enoch Y., Soker Z. Age, Gender, Ethnicity and the Digital Divide: University Students' Use of Web-Based Instruction // *Open Learning: The Journal of Open and Distance Learning*. 2006. 21 (2). P. 99–110.
- Friedman W. The Digital Divide / *Proceeding of Seventh America's Conference on Information Systems*. 2001. P. 2081–2086.
- Goldfarb A., Prince J. Internet Adoption and Usage Patterns are Different: Implications for the Digital Divide // *Information Economics and Policy*. 2008. 20. P. 2–15.
- [http://www.ifets.info/journals/5\\_3/jung.html](http://www.ifets.info/journals/5_3/jung.html), 2017
- <http://www.irma-international.org/viewtitle/38312/>, 2017

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<http://www.tuik.gov.tr/UstMenu.do?metod=temelist>, 2017

[https://books.google.com.tr/books?hl=en&lr=&id=1VgL5PDcgKYC&oi=fnd&pg=PA83&dq=Web-based+distance+learning+and+the+second+digital+divide&ots=rNVD3\\_CpEa&sig=VV6Ko\\_FYnJuodL7S11OFSygVV8&redir\\_esc=y#v=onepage&q=Web-based%20distance%20learning%20and%20the%20second%20digital%20divide&f=false](https://books.google.com.tr/books?hl=en&lr=&id=1VgL5PDcgKYC&oi=fnd&pg=PA83&dq=Web-based+distance+learning+and+the+second+digital+divide&ots=rNVD3_CpEa&sig=VV6Ko_FYnJuodL7S11OFSygVV8&redir_esc=y#v=onepage&q=Web-based%20distance%20learning%20and%20the%20second%20digital%20divide&f=false), 2017

<https://www.oecd.org/sti/1888451.pdf>, 2017

Loges W., Jung J. Exploring the Digital Divide Internet Connectedness and Age // Communication Research. 2001. 28 (4). P. 536–562.

Primo N. Gender Issues in the Information Society. Geneva: UNESCO Publications for the World Summit on the Information Society, 2003. Retrieved November 23, 2010.

TurkStat, Ministry of Transport, Maritime Affairs and Communications, Information and Communications Technologies Authority, [www.tuik.gov.tr](http://www.tuik.gov.tr) 2017

Vicente M., López A. Some Empirical Evidence on Internet Diffusion in the New Member States and Candidate Countries of the European Union // Applied Economics Letters. 2008. 15. P. 1015–1018.

[www.imyo.deu.edu.tr](http://www.imyo.deu.edu.tr), 2017

# THE EFFECTIVENESS OF TAXATION POLICY IN GREECE, AS A MEMBER STATE OF THE EUROPEAN UNION

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## ABSTRACT

In this article, writers are trying to research the effectiveness of taxation policy in Greece compared with other European Union’s Member-States. The effectiveness of taxation policy in the EU countries is largely influenced by the ineffective tax collection, in particular Value Added Tax (VAT). The inability of Member -States to collect the expected VAT revenues creates a gap between the amount of VAT collected and the Total Tax Liability (VTTL), which is called VAT gap. In our research we examine the correlation between the VAT gap and the Total Tax Liability for Greece as well as for other EU Member -States. It is also attempted to use a linear regression model to estimate the VAT gap for Greece and the EU Member-States with high rates of VAT gap.

## KEYWORDS

Greek Economy, Taxes, Collectability, Effectiveness, VAT gap.

## JEL CLASSIFICATION CODES

H21, M41, O52

## 1. INTRODUCTION

Taxes are defined as the process by which government revenue is collected through contributions by natural and legal persons directly to finance government expenditure. These revenues are called taxes. Taxation of income (direct taxes) depends on the nature of the profession, the level of income and the category of the natural or legal person.

In addition to income tax, tax revenues are increased through indirect taxes paid by citizens who consume goods and accept services. Indirect taxes show the advantage of direct payment by citizens but also have disadvantages, since they are independent of the nature of the profession, the level of income or the category of business.

For the EU’s Member-States, these disadvantages are also affected by the inability of many member countries to collect, notably by failing to issue receipts and invoices, creating the VAT gap.

In the following research the basic VAT rates for the 28 member states of the European Union will be shown. Member-States will then be grouped by means of an observed average VAT rate. For the period 2010-2014 Member-States that appear to have average VAT gap above 19% of the VTTL will be examined for the evolution of the VAT gap. It is worth noting that the method of calculating the expected annual VAT revenues is under review and it is therefore expected that the calculated VAT gap will also be changed.

## 2. VAT AND VAT GAP IN EUROPEAN UNION

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A strong advantage of direct taxes is their steady annual collection, which is based on citizens' ability to pay. One major disadvantage is that large costs are required for the establishment of direct taxes and for their collection.

Another advantage of indirect taxes is that they are easier to be paid from the citizens, and their disadvantage is that they do not adapt to each taxpayer's ability to pay. The main indirect taxation in the European Union (EU) in all member countries is the Value Added Tax (VAT) in accordance with the relevant EU regulations.

In Table 1 and Figure 1 we can see that the standard VAT rates applied in the 28 EU Member States.

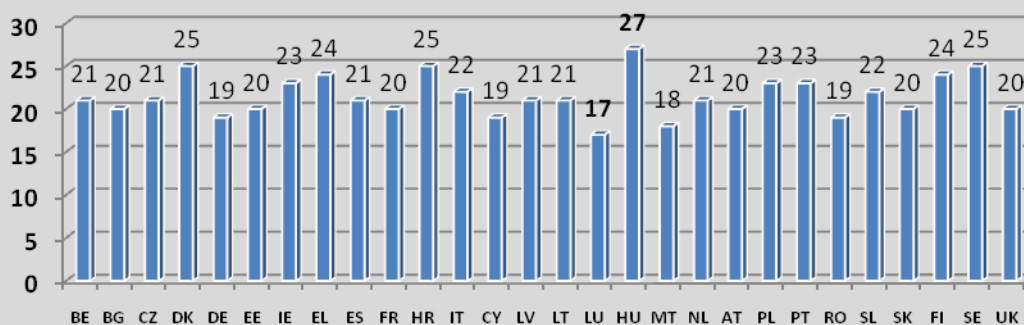
Table 1. List of VAT rates applied in the Member States (in %)

| Member States  | Code | Standard Rate |
|----------------|------|---------------|
| Belgium        | BE   | 21            |
| Bulgaria       | BG   | 20            |
| Czech Republic | CZ   | 21            |
| Denmark        | DK   | 25            |
| Germany        | DE   | 19            |
| Estonia        | EE   | 20            |
| Ireland        | IE   | 23            |
| Greece         | EL   | 24            |
| Spain          | ES   | 21            |
| France         | FR   | 20            |
| Croatia        | HR   | 25            |
| Italy          | IT   | 22            |
| Cyprus         | CY   | 19            |
| Latvia         | LV   | 21            |
| Lithuania      | LT   | 21            |
| Luxemburg      | LU   | 17            |
| Hungary        | HU   | 27            |
| Malta          | MT   | 18            |
| Netherlands    | NL   | 21            |
| Austria        | AT   | 20            |
| Poland         | PL   | 23            |
| Portugal       | PT   | 23            |
| Romania        | RO   | 19            |
| Slovenia       | SL   | 22            |
| Slovakia       | SK   | 20            |
| Finland        | FI   | 24            |
| Sweden         | SE   | 25            |
| United Kindom  | UK   | 20            |

European Comission, 2017



**Figure 1. List of VAT rates applied in the  
 Member States (in %)**



European Commission, 2017

On 11 April 1967, the first two directives on VAT were adopted. VAT has replaced all other taxes in the EU Member States. France and Germany have applied VAT in 1968, the Netherlands in 1969, Luxembourg in 1970, Belgium and Italy in 1973. The new members applied VAT after they enter EU.

VAT is applied in Greece since 1987 based on the law 1642/1986. The Ministry of Finance of our country replaced through the VAT, indirect luxury consumption taxes in the commercial sector and stamp duty the total turnover tax, which is still imposed on the payable insurance and the rights of insurance services.

VAT did not replace municipal and other taxes and duties, special taxes expenses (fuel, tobacco, cars) and import duties, so as not to increase excessively and prevents the common European fiscal policy.

VAT Gap is a measure of VAT compliance and enforcement that provides an estimate of revenue loss due to fraud and evasion, tax avoidance, bankruptcies, financial insolvencies, as well as miscalculations (IHS, Institute for Advanced Studies, 2016)

VAT gap is the difference between the amount of VAT collected and the VAT Total Tax Liability (VTTL), which is expressed in the report in both absolute and relative terms. The VTTL is the theoretical tax liability according to tax law..(Hana Zidkova, 2014)

There are billions of VAT revenues lost by Member States in the EU mostly because of tax fraud and inadequate tax collection systems. The VAT Gap provides an estimate of revenue loss due to tax fraud, tax evasion and tax avoidance, but also due to bankruptcies, financial insolvencies or miscalculations.

The VAT Gap estimation is based on a so-called "top-down" approach. It relies on national accounts data and Own Resource Submissions provided by the Member States to the European Commission. These figures are used to estimate the VAT liability generated by different sub aggregates of the total economy. Due to a mandatory methodological change in the underlying national accounts data, the procedure for estimating the VAT Gap was adjusted in accordance with the new definition of national accounts.

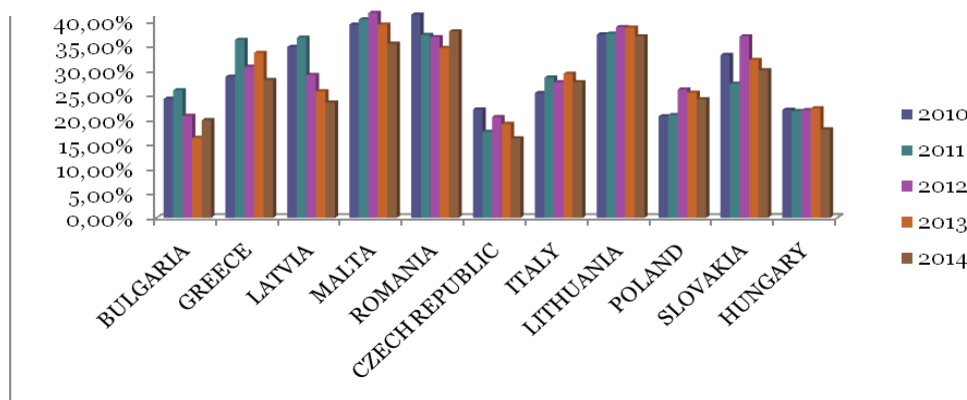
In order to fight against VAT fraud and evasion it is important to gather comparable data and indicators on the scale of VAT revenue losses. As the VAT Gap can be seen as an indicator of the effectiveness of VAT enforcement and compliance, it shows that more needs to be done to increase collectability of the VAT and therefore lower the VAT Gap. (IHS, Institute for Advanced Studies, 2016).

Eleven member countries of EU, that have the largest VAT gap in the period 2010-2014 (average VAT gap >19% of the VTTL) were selected to research the VAT gap in this specific time period. The VAT gap is presented in Table 2 and Figure 2.

Table 2. VAT gap as percent of the VTTL

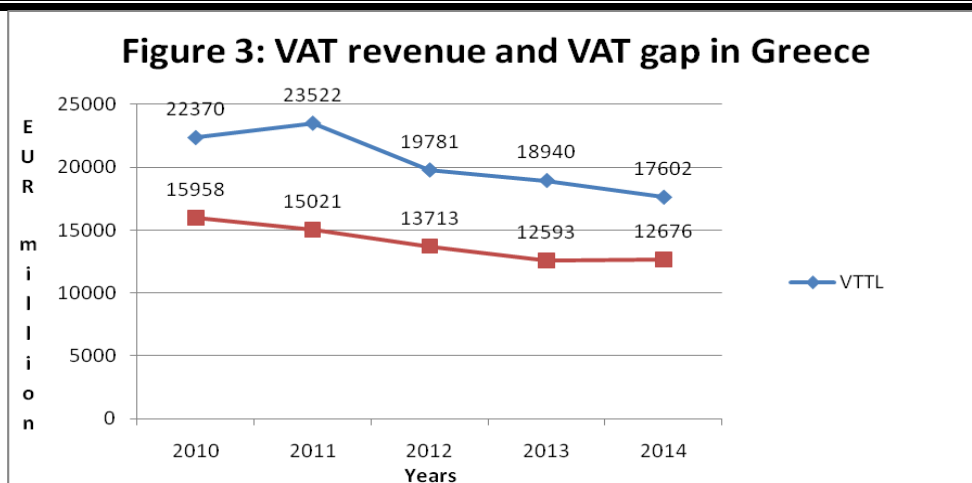
| Year | BULG<br>ARIA | GRE<br>ECE | LAT<br>VIA | MAL<br>TA  | ROM<br>ANIA | CZE<br>CH<br>REP<br>UBLI<br>C | ITAL<br>Y  | LITHU<br>ANIA | POL<br>AND | SLOV<br>AKIA | HUNG<br>ARY |
|------|--------------|------------|------------|------------|-------------|-------------------------------|------------|---------------|------------|--------------|-------------|
| 2010 | 24,16%       | 28,66<br>% | 34,71<br>% | 39,24<br>% | 41,27<br>%  | 22,01<br>%                    | 25,37<br>% | 37,26%        | 20,62<br>% | 33,06%       | 21,93%      |
| 2011 | 25,92%       | 36,14<br>% | 36,59<br>% | 40,30<br>% | 37,16<br>%  | 17,45<br>%                    | 28,48<br>% | 37,43%        | 20,85<br>% | 27,25%       | 21,68%      |
| 2012 | 20,72%       | 30,68<br>% | 29,02<br>% | 41,62<br>% | 36,70<br>%  | 20,49<br>%                    | 27,55<br>% | 38,73%        | 26,06<br>% | 36,85%       | 21,87%      |
| 2013 | 16,23%       | 33,51<br>% | 25,71<br>% | 39,25<br>% | 34,49<br>%  | 19,10<br>%                    | 29,27<br>% | 38,61%        | 25,38<br>% | 32,08%       | 22,24%      |
| 2014 | 19,83%       | 27,99<br>% | 23,44<br>% | 35,35<br>% | 37,89<br>%  | 16,14<br>%                    | 27,55<br>% | 36,84%        | 24,08<br>% | 29,96%       | 17,95%      |

**Figure 2: VAT gap percent of VTTL**



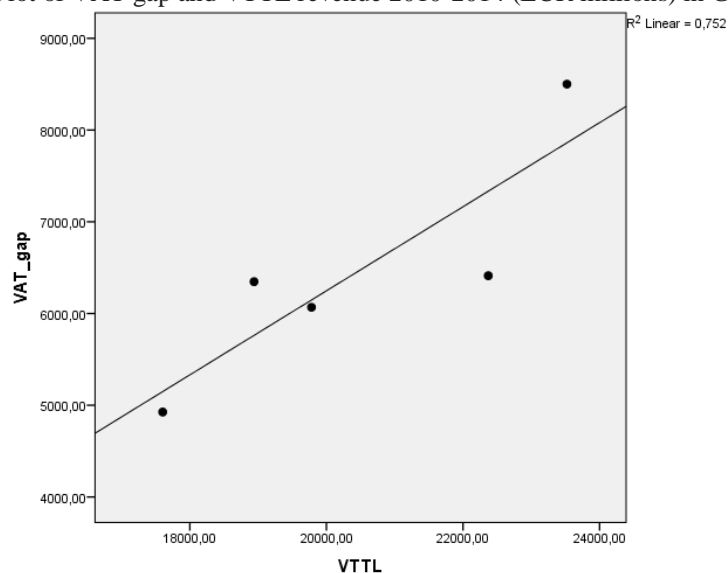
## 2.1 VAT gap in Greece

The VTTL and VAT revenue for the years 2010-2014 in Greece can be seen in Figure 3. The VAT gap is the distance between the red line (VTTL) and blue line (VAT revenue), which has its maximum value in 2011 at 36% of the VTTL. It has a decreasing trend in 2014, when for the first time during the period 2010-2014 it has the minimum price 28% of the VTTL. In conclusion, we can say that the Greek policy for the collectability of VTA seems to have some results



In Figure 4 the correlation between the VAT gap and the VTTL in Greece for the years 2010-2014 is shown. We confirm the strong and positive correlation using Pearson’s correlation coefficient, which is counted 0.867.

Figure 4: Scatter Plot of VAT gap and VTTL revenue 2010-2014 (EUR millions) in Greece



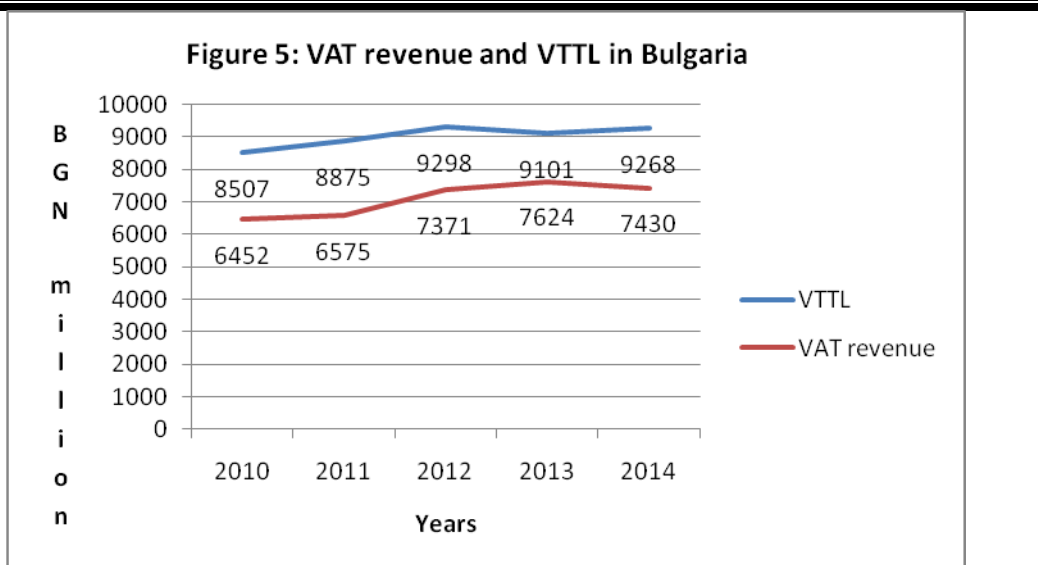
An attempt to estimate the VAT-gap from its relation to VTTL is given by the linear model:

$$VAT\_gap = 0.458 \cdot VTTL - 2915.964$$

The linear model explains the 75.2% of the variability of VAT gap.

## 2.2 VAT gap in Bulgaria

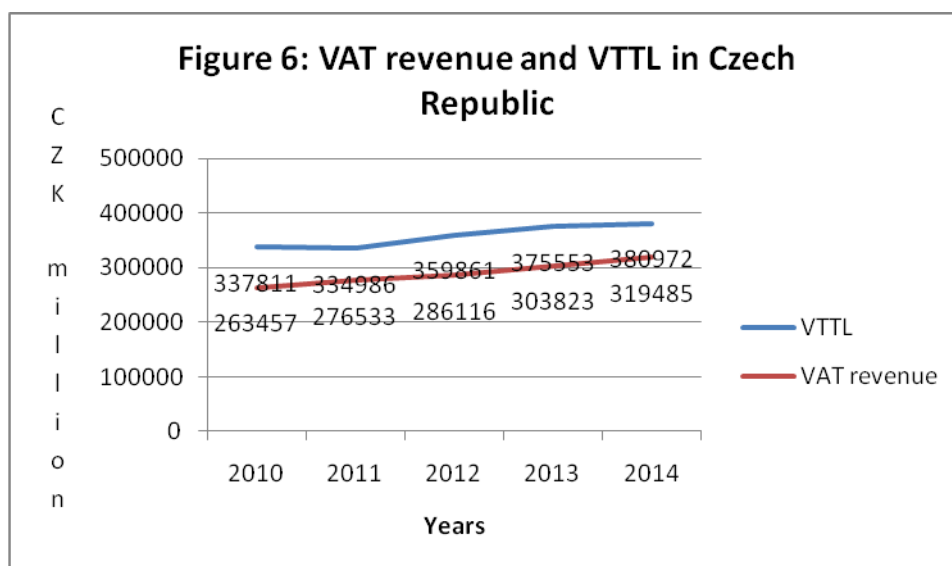
As can be seen in Table 2, Bulgaria for the years 2010-2014 shows a maximum of 25.93% in 2011, while the average VAT gap is 21.37% for the years 2010-2014. The VAT gap is shown in Figure 5 below.



For Bulgaria, there was a moderately negative and a non-statistically significant correlation between VAT\_gap and VTTL.

### 2.3 VAT gap in Czech Republic

For the Czech Republic, the maximum VAT\_gap was presented in 2010 at 22, 01%, while in 2014 it is at 16.14%, well below the average of VAT\_gap for the 2010-2014 five-year period, which was 19. 04% (Figure 6)

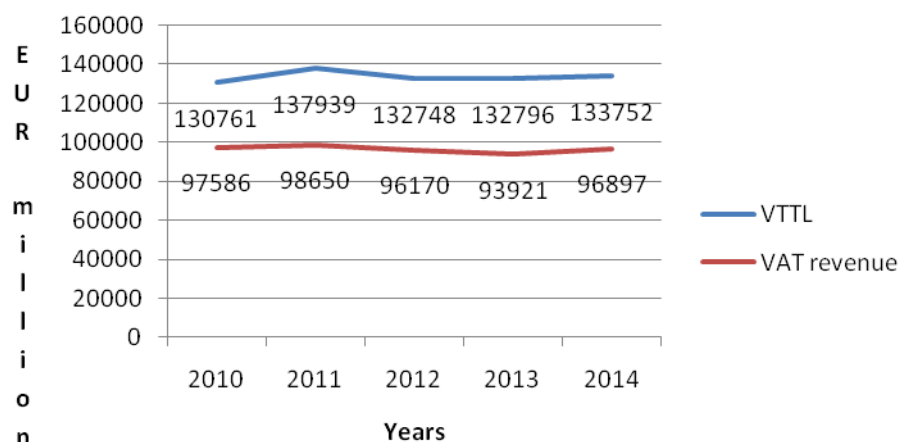


The check for a linear correlation between VAT gap and VTTL did not provide a statistically significant result.

### 2.4 VAT gap in Italy

In Chart 7, we see Italy's VAT gap with an average of 27.65%, and even in the year 2014 there is a slight difference from the mean (27.55%), which reveals the inability to improve the country's Collectability within the five-year period 2010-2014.

**Figure 7: VAT revenue and VTTL in Italy**

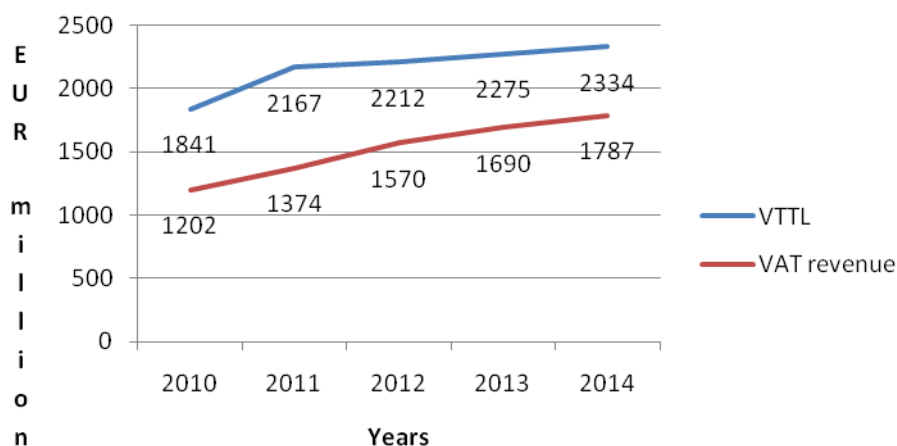


In the case of Italy, there is a high positive correlation of the VAT gap and VTTL with a linear correlation factor of 0.76.

### 2.5 VAT gap in Latvia

Latvia has a steady gradual reduction in the VAT gap with a maximum price in 2010 of 34.71% and a minimum of 2014 with 23.44%, showing significant progress in the VAT Collectability (Figure 8).

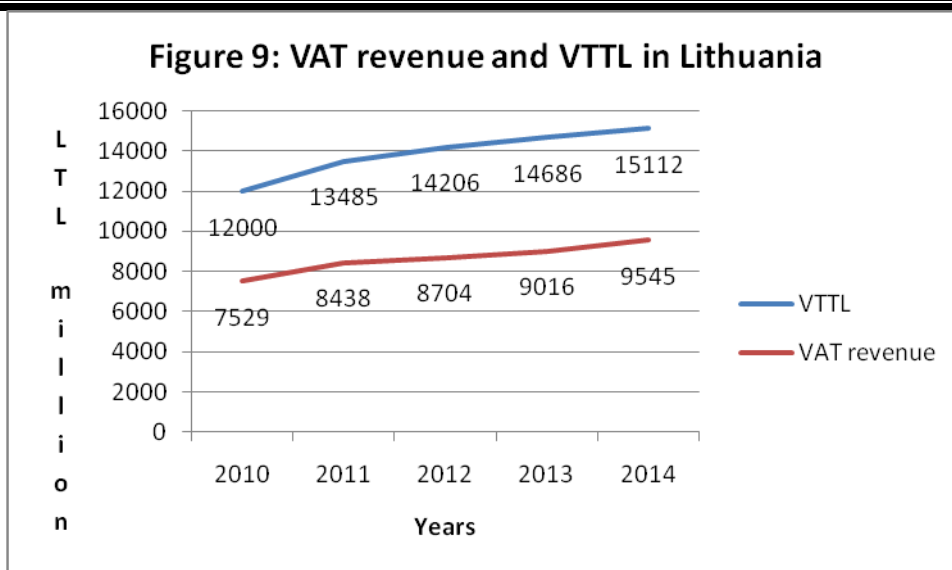
**Figure 8: VAT revenue and VTTL in Latvia**



There is a non-statistically significant correlation between VAT gap and VTTL for Latvia.

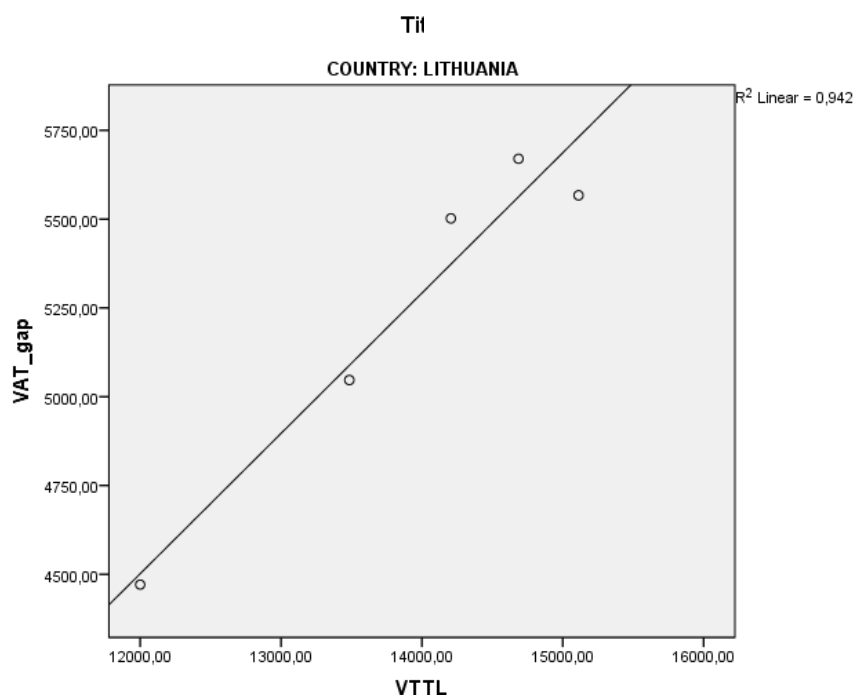
### 2.6 VAT gap in Lithuania

For Lithuania, as shown in the following graph, there is a lack of VAT Collectability, as the VAT gap is growing, as illustrated in Figure 9, with a marginal decrease of around one percentage point in 2014 compared to 2013.



VAT gap and VTTL correlation is high and positive (Pearson’s correlation coefficient=0,97) , as illustrated in the following scatterplot (Figure 9.1)

Figure 9.1. Scatterplot of VAT gap and VTTL in Lithuania, 2010-2014 (LTL millions)

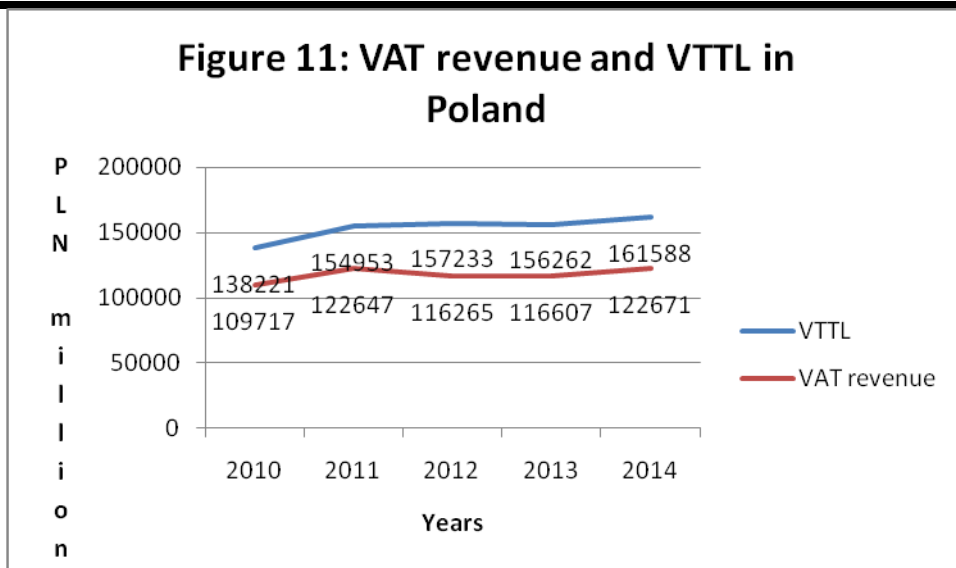


The linear model interpreting 94.2% of the VAT gap variability from its relation to VTTL is given by the equation:

$$VAT\_gap = 0.395 \cdot VTTL - 239.58$$

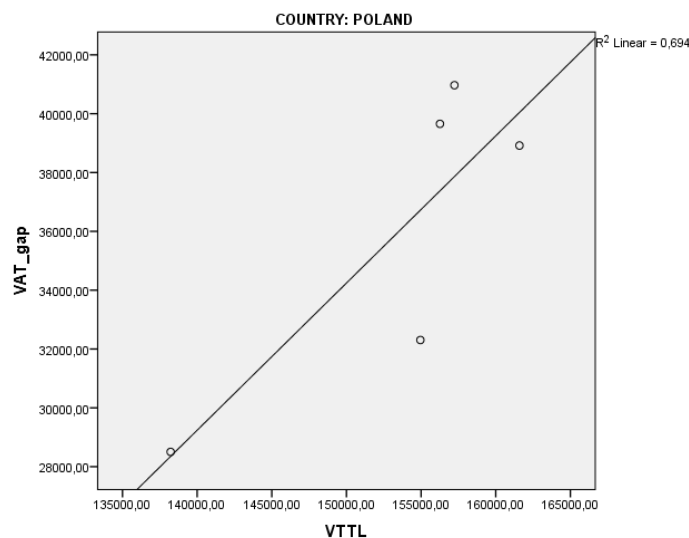
## 2.7 VAT gap in Poland

For Poland, as shown in Figure 11, there is a clear problem with VAT Collectability. However, in 2014, comparing to 2013, it has been succeeded to reduce the VAT gap by 1.2 percentage points



Poland also has a high positive correlation between the VAT gap and the VTTL, counted using a Pearson linear correlation coefficient 0.83. This relationship also appears in the following Scatter Plot (Figure 11.1)

Figure 11.1. Scatterplot of VAT gap and VTTL in Poland, 2010-2014 (PLN millions)



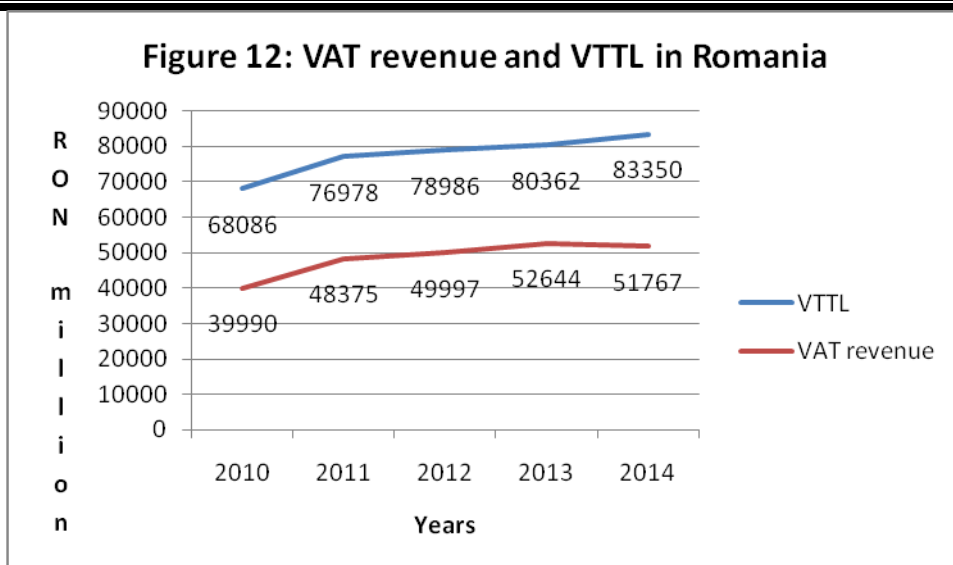
By applying simple linear regression, the model obtained is

$$VAT\_gap = 0.5 \cdot VTTL - 40818.749$$

The liner model has an adjustment of 69,4% to the data of VAT gap and VTTL.

## 2.8 VAT gap in Romania

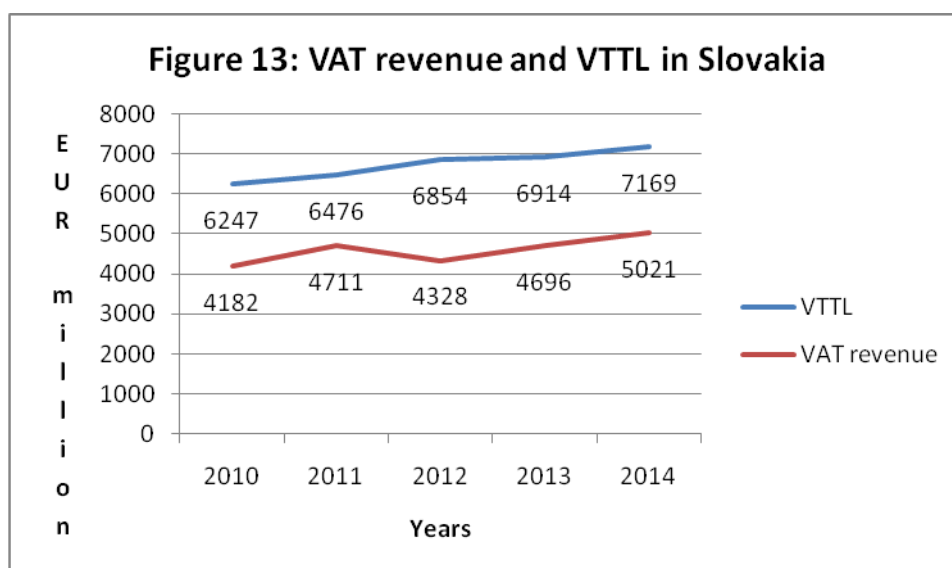
For Romania, we see a small decrease in the VAT gap from 2010 to 2016 (Figure 12), while the average VAT gap is still relatively high 37.5% of the VTTL, which shows the high importance of taking measures to increase the collectability of VAT.



The correlation between VAT gap and VTTL for the case of Romania is moderate and positive.

## 2.9 VAT gap in Slovakia

Slovakia has made an effort to reduce the VAT gap, which was 2011, but again in 2012 it reached 36.85%. (Figure 13)

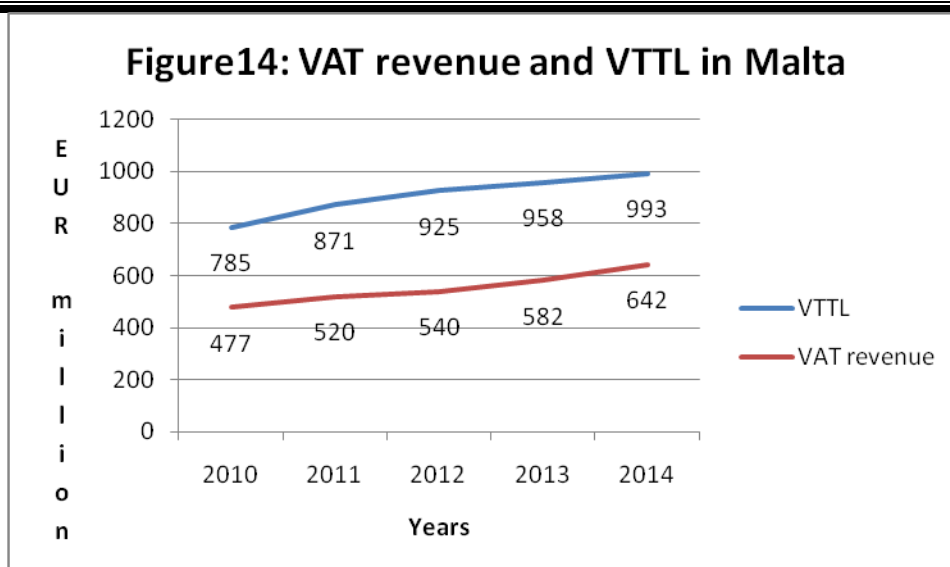


The correlation between VAT gap and VTTL for the case of Slovakia) is moderately and positive.

## 2.10 VAT gap in Malta

In Malta for the period 2010-2014, there is a slight increase in revenue as well as VTTL, as we can see in Figure 14

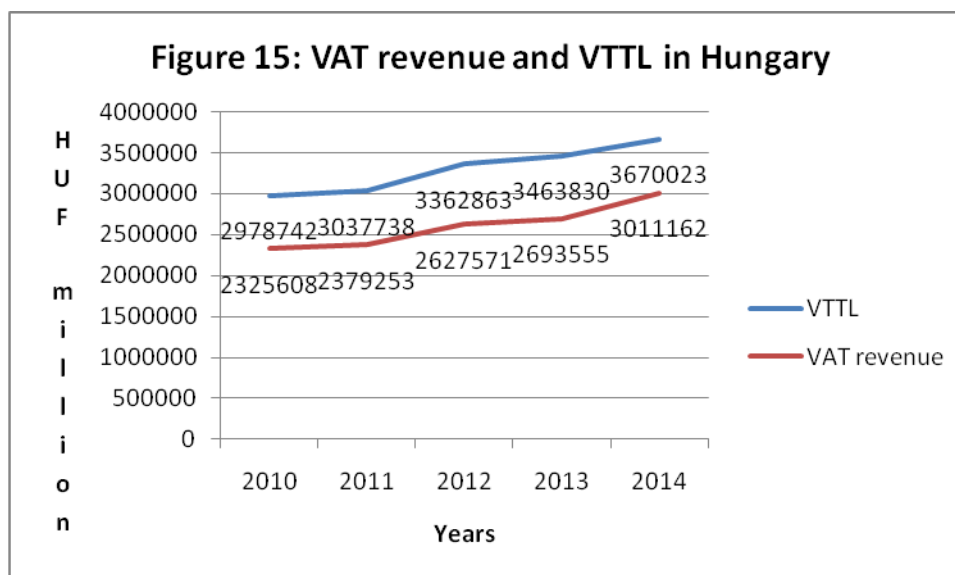




The correlation between VAT gap and VTTL for the case of Malta is counted using Pearson linear correlation coefficient and has been calculated 0.733.

### 2.11 VAT gap in Hungary

For Hungary, we see stability in the VAT gap, while revenues show an upward trend during 2010-2014 (Figure 15). In 2011 and 2013 there was a significant increase in VTTL, which also resulted in an increase in VAT revenues. However, the VAT gap has not been reduced.



The correlation between VAT gap and VTTL for the case of Hungary is low and positive and has been counted using Pearson linear correlation coefficient and has been calculated 0.389.

## 3. CONCLUSIONS

The effectiveness of tax policy in the EU countries is largely influenced by the ineffective tax collection, in particular Value Added Tax (VAT). It is clear from this research that the

EU Member States that have the larger VAT gap than the other Member States are Bulgaria, Greece, Latvia, Malta, Romania, the Czech Republic, Italy, Lithuania, Poland, Slovakia and Hungary. Some of the Member States mentioned above, are making an effective effort to increase the collection of VAT revenue.

For the cases of the Member States Greece, Lithuania and Poland, there was a high positive and statistically significant correlation between the VAT gap. (VAT gap) and Total Tax Obligation (VTTL). For these countries, the simple linear model has been applied, so we can estimate the VAT gap, if we know their Total Tax Liability as calculated by Eurostat.

Of course, all this effort affects the policy pursued by the EU Member States, which is addressed to the citizens of the countries, changing their purchasing power, but also creating austerity conditions that eventually contribute to the more difficult collection of VAT amount. In the case of Greece, the VAT rate has risen repeatedly, creating problems and shrinking the market without suffering the expected increase in VAT revenues.

In a further study, an effort will be made to assess EU Member States' VAT receipts using specific models and to propose fiscal policies to be implemented in order to increase VAT receipts.

Perhaps a change in the EU's overall policy is necessary in order to have an equal fiscal union of states with equal opportunities for all EU member states that will have a positive impact on all EU citizens.

## REFERENCES

- Agha, A., Haughton, J. (1996), "Designing VAT Systems: Some Efficiency Considerations." The Review of Economics and Statistics, Vol. 78, No. 2, pp. 303–308.
- Anson M. (2004). «Accounting and Tax Rules for Derivatives», John Wiley and Sons Ltd.
- Barbone, L., Bird, R. M., Vazquez-Caro, J. (2012), "The Costs of VAT: A Review of the Literature." CASE Network Reports No. 106, pp. 2–66.
- Burman L., Slemrod J (2012). «Taxes in America: What Everyone Needs to Know».
- CASE – Center for Social and Economic Research and Institute for Advanced Studies. (2016). Study and Reports on the VAT Gap in the EU-28 Member States: 2016 Final Report, EU
- CCH Tax Law Editors (2016). «U.S. Master Tax Guide 2017».
- Channer C., Rogers M (2007). «Financial Accounting and Tax Principles», Elsevier Science & Technology.
- ClydeBank Business (2015). «Taxes: For Small Business QuickStart Guide - Understanding Taxes for your Sole».
- Cochrane M.(1999). «Tolley's Accounting Principles for Tax Purposes», Lexis Nexis UK.
- Collison D.(2001). «Tolley's Tax and Accountancy Dictionary», Tottel Publishing.
- Congressional Budget Office (1992). «Effect of Adopting a Value Added Tax», Washington, DC: US Government Printing Office.
- Diamond P.A., Mirrlees J.A.(1971). «Optimal taxation and public production I and II», American Economic Review.
- Eaton G., «Financial Accounting and Tax Principles», Elsevier Science & Technology,
- Edgeworth F.Y. (1959). «The Pure Theory of Taxation», Reprinted in Readings in the Economics of Taxation, ed. Richard A. Musgrave and Carl S. Shoup, Homewood, IL: Richard D. Irwin,.
- Engen E., Skinner J.(1966). «Taxation and Economic Growth», National Tax Journal 49.
- Ernst & Young LLP (2015). «EY Tax Guide 2016».
- Eurostat, 2017, Your key to European Statistics
- Gardino J.(1973). «Accounting, legal and tax aspects of corporate», Prentice-Hall, N.J. USA.
- Hana Zidkova, 2014, "Determinants of VAT gap in EU" . Prague Economic Paper, Vol.4, 2014, pp 514- 530
- Kamoroff B.(2013). «475 Tax Deductions for Business and Self-Employed Individuals».

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- Kohler M.(2011). «What Your CPA Isn't Telling You: Life-Changing Tax Strategies».
- Kohler M.(2015). «The Tax and Legal Playbook: Game-Changing Solutions to Your Small-Business».
- Kotlikoff L.(1987). Summers L., «Tax Incidence», in Handbook of Public Economics, Vol. II, ed. Alan J. Auerbach and Martin S. Feldstein, Amsterdam: North-Holland, chapter 16.
- Lang M., Manning E.(2011). «Federal Tax Accounting», 2nd edition.
- Lasser J.K. Institute (2016). «J.K. Lasser's Your Income Tax 2017: For Preparing Your 2016 Tax Return».
- Papadeas P. (2015). Title Indirect taxation at national & European level. Athens.
- Papadeas P., Rodosthenous M., Katsouleas G. (2017), Adjusting expenses to sales of corporations in the technological sector for the years 2008-2015. 9th International Conference 'The Economies of Balkan and Eastern Europe Countries in the changed World, Piraeus-Athens.
- Papadeas P., Hyz A, Kossieri E. (2016). IASBasel: The contribution of losses to the banks' capital adequacy. International Conference on Business and Economic. ICBE HOU, Athens.
- Papadeas P., Kossieri E. (2017). The role of leverage to profitability at a time of economic crisis. . International Conference on Business and Economic. ICBE HOU, Athens.
- Papadeas P.(2017), The conversion of bank deferred tax assets in 2016 to bank shares in 2017. . 9th International Conference 'The Economies of Balkan and Eastern Europe Countries in the changed World, Piraeus-Athens.
- Patel D. (2015). "Financial Accounting and Tax Principles", Elsevier Science & Technology.
- Piper M. (2014). "Taxes Made Simple: Income Taxes Explained in 100 Pages or Less".
- Rogers M., Dunn J. (2008). "Financial Accounting and Tax Principles", Elsevier Science & Technology.
- Rolfe T.(2008). «Financial Accounting and Tax Principles», Elsevier Science & Technology.
- Sandford C. et al.(1981). «Costs and benefits of VAT», Heinemann, London.
- Sandmo A. (1976). «Optimal taxation: an introduction to the literature», Journ. of Public Economics.
- Scholes M., Wolfson M. (2014), «Taxes & Business Strategy», 5th edition.
- Slemrod J. (1996). «Which the Simplest Tax System of Them All?», in the Economic Effects of Fundamental Tax Reform, ed. Henry Aaron and William Gale, Washington, DC: Brookings Institutions.
- Stamatopoulos D., Klioni A., VAT-Analysis Interpretation, Eforin, Athens
- Tsitsakis, C., Karasavoglou, A., & Eleftheriadou, G. (2014). The Cure of a big Patient—An Accountant's Perspective. *Procedia Economics and Finance*, 9, 200-207.

## INVESTMENT DECISIONS IN AGRICULTURE UNDER ECONOMIC INSTABILITY: EVIDENCE FROM GREECE

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### ABSTRACT

**Purpose:** This paper was mainly focused on the effect of the Greek economy on agricultural investments in this turbulent economic period, which characterize the recent years in Greece. In particular, in this paper, has been identified the main characteristics which affect the internal and external environment of the Greek agricultural economy sector.

**Design/methodology/approach:** For this purpose, a qualitative research took place and particularly a Delphi method was employed, in a group of experts (academics, large farmers and policy makers) who were selected according to the Quadruple Helix model. The data were collected and analyzed using some qualitative and quantitative techniques.

**Research findings:** The results of quantitative SWOT analysis proved the existence of many factors, mainly external, that negatively influence farmer's investment behavior. Furthermore, results indicated that economic instability of the Greek economy and some structural problems of the governmental mechanism do have a negative effect on agricultural investments.

**Research limitations:** Due to the recent rapid change of the Greek agricultural economy every generalization effort should be done with caution.

**Practical/Policy implications:** From a practical point of view, the results of the quantitative SWOT analysis have been used in order to determine the internal (strengths, weaknesses) and the external (opportunities, threats) environment of the Greek agricultural economy sector leading to emerging policy suggestions so as to effectively handle those weaknesses and threats. This is a very important issue which can be used to improve the efficiency of agricultural extension services offering significant benefits to the rural society, policy makers and to agricultural economy in general.

**Originality/Value:** The contribution of this research is in having examined, for first time the parameters of investment decisions in Greek agriculture under economic instability for which there has been longstanding interest in the international literature.

### KEYWORDS

Agricultural Policy, Delphi method, Economic instability, Quantitative SWOT Analysis, investment behavior

**JEL CLASSIFICATION CODES:** O13, O33, Q18

## 1. INTRODUCTION

During the recent last decade, the influence of the macroeconomic factors in determining the contours of the world agricultural landscape has never been so profound. These forces transcend agricultural sectors and geographical boundaries, given the greater interdependence of the world economy. Continuing macroeconomic turbulence has transmitted signals to farmers to allocate more resources and increase agricultural production (OECD-FAO, 2009). Moreover, agriculture is continuously undergoing changing conditions. Climate change, population pressure, new pests and diseases,

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bioenergy, food standards and food price volatility are among the numerous challenges and opportunities faced by farmers. As a result, farm managers have to adapt quickly when challenges occur and to respond readily when opportunities arise (Waters-Bayer & Bayer, 2009; World Bank, 2011).

As a result, farmers face serious global challenges and have to adapt to the new economic and environmental conditions. Thus, it is required to take into account difficult investment decisions, including: which investment to undertake; when; with what intensity; where; how investments are funded (Gallerani *et al.*, 2008). This decision plan may be represented as a cyclical process influenced by the external business environment including government policies (Hay & Morris, 1991). Structural problems are also likely to limit their capacity to produce (OECD-FAO, 2009). In general, the factors that affect the farmer’s investment decisions relating to literature review could be grouped into farmer’s attitudes, technical aspects (farm and investment characteristics), market perceptive, economic aspects and policy (Viaggi *et al.*, 2011). These factors are summarized and presented in Table 1.

**Table 1:** Factors which affect investment behavior

| Studies  | Factors                                      |
|--|--|
| <i>Gallerani et al., 2008</i>  | Uncertainty (-)                              |
| <i>Serra et al., 2008</i>  | Risk averse                                  |
|  | Risk neutral                                 |
| <i>Lagerkvist, 2005</i>  | Political instability (-)                    |
| <i>Enoma &amp; Mustapha, 2010</i>  | Risk averse (-)                              |
|  | Economic instability (-)                     |
|  | Political instability (-)                    |
|  | Legislation                                  |
| <i>Kirwan, 2008</i>  | Financial constraints (-)                    |
| <i>Blancard et al., 2006</i>   | Access to financial markets (+)              |
| <i>Jitea, 2009</i>   | Interest rates                               |
| <i>Gill et al., 2012</i>   | Inadequate funding (-)                       |
| <i>Beazer, 2012</i>  | Bureaucracy (-)                              |
| <i>Alvarez et al., 1998; Hasset &amp; Metcalf, 1999</i>  | Uncertainty according to taxation system (-) |
| <i>Alam &amp; Stafford, 1985; Hodgkinson, 1989; Morgan, 1992; Overesch &amp; Wamser, 2010; Santoro &amp; Wei, 2012</i> | Taxation                                     |
| <i>Hertz, 2009</i>   | Subsidies (+)                                |
| <i>OECD, 2006; Sckokai &amp; Moro, 2006; Viaggi et al., 2011</i>   | Policies (CAP)                               |

+: encourage investments, -: discourage investments

However, Gallerani *et al.* (2008) support that literature on farm investment behavior in both agricultural economics research and microeconomics is limited and especially under economic instability. The main purpose of this paper is the exploration of Greek farmer’s investment behavior in a turbulent economic period which characterize recent years. In particular, has been examined and quantified the main characteristics which affect the internal and external environment of the Greek agricultural economy sector. It is noteworthy that the contribution of this research is in having examined, for first time the parameters of investment decisions in Greek agriculture for which there has been longstanding interest in the international literature.

The rest of the paper develops as follows: the next section describes the data collection and the methodological framework employed in the study, while the third section presents the empirical results and finally concluding remarks in combination with some emerging police suggestions are offered in the last section.

## 2. METHODOLOGY

A qualitative research took place and more specifically a modified Delphi method was applied in a group of experts who were selected according to Quadruple Helix model so as to investigate in depth the internal and external environment of the Greek agricultural economy sector. The Delphi method mainly developed by Dalkey & Helmer (1963) and is used when the availability of knowledge and

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information in a topic is inadequate. It is an accepted method for achieving convergence of opinion concerning real-world knowledge solicited from experts within certain topic areas (Hsu & Sandford, 2007). Researchers have applied the Delphi method to a wide variety of situations as a tool for expert problem solving. Furthermore, it is a technique which attempts to minimize an individual’s knowledge limitations and possible biases (Skulmoski *et al.*, 2007). Depending on the resources available and the depth of the analysis required, focus group discussions can be used to develop scores for each industry sector (Roberts & Stimson, 1998).

A Delphi method, mainly a modified type of Delphi method, has been judged to be a stronger methodology for a rigorous query of experts for several reasons (Okoli & Pawlowski, 2004). Firstly, a Delphi research responds to the complicated question of study more properly since it is required deep knowledge and practical experience from people who extensively understand different economic, environmental, agricultural, social and political issues. Furthermore, a Delphi research requires a limited number of experts without physical convention among them. It also allows a deeper understanding of the difficult research question mainly due to its flexibility to follow-up interviews. Finally, it permits ranking of the items according to their importance and evaluation using Likert-type scale values.

The application of this method had a dual role; firstly, the investigation and quantification of the Strengths, Weaknesses, Opportunities and Threats of the Greek agricultural economy, therefore the quantitative SWOT matrix and then, the identification of policy suggestions in a quantitative form so as to effectively handle those weaknesses and threats.

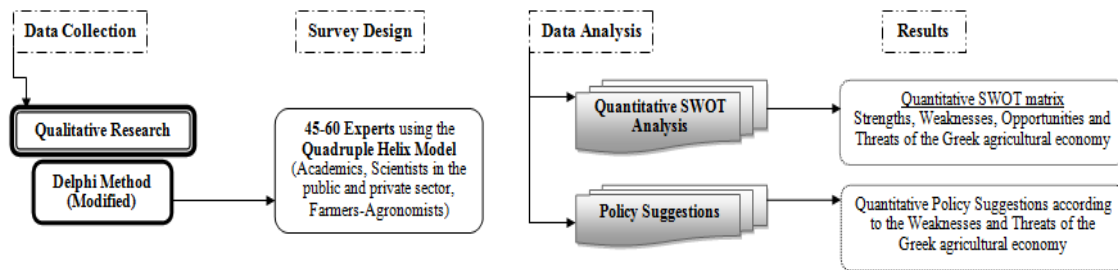
The Delphi method is an appropriate technique for conducting a SWOT analysis as reflected in previous studies (Campos-Climent *et al.*, 2012; Markou *et al.*, 2014; Michailidis *et al.*, 2015). SWOT analysis is a useful strategic planning tool used to evaluate the internal Strengths, Weaknesses and External Opportunities, Threats involved in a specific domain (Cornish, 2005; Dyson, 2007). SWOT analysis was popularized by Andrews (1965) and it has widely been applied until today as a means to systematically analyze an organization’s or sector’s internal and external environments management (Tao *et al.*, 2012).

This qualitative research, Delphi method, was conducted using e-mail during May-September 2015. The Delphi method is based on multiple rounds of questionnaire and in this study had been followed a modified version of the procedure for “ranking-type” Delphi studies outlined by Schmidt (1997). This general procedure basically involve three steps: brainstorming for important factors, narrowing down the original list to the most important ones and ranking the list of important factors. The employed modified version involves one more step; evaluating the most important factors using Likert-type scale values.

In addition, a specific multiple-step procedure (Delbecq *et al.*, 1975; Okoli & Pawlowski, 2004; Markou *et al.*, 2014; Michailidis *et al.*, 2015) had been employed in order to identify, categorize, rank (based on expert’s qualifications) and finally select the 45 suitable experts as the participants in Delphi survey. It is noteworthy that the Quadruple helix model was used as regards the selection of experts which is a research-driven cluster and requires the participation of academia, government or scientific staff of the public sector, industry or the scientists of the private sector (companies) and finally, farmers who are also agronomists with large land holdings and significant farm experience (SuWaNu, 2015).

In the first round of questionnaires, experts had been asked to select at least five important Strengths, Weaknesses, Opportunities and Threats of the Greek agricultural economy and add possible missing items of SWOT (statements). Then, the participants in the second round of questionnaires had been asked to evaluate each item of SWOT using the Likert-type scale value, where 1=strongly disagree and 9=strongly agree. This round of the Delphi method was used to develop the quantitative SWOT matrix according to the experts’ opinion. In the third round of Delphi method, the experts had been asked to find out solutions in accordance with the most important Weaknesses and Threats of the Greek agricultural economy. Finally, the participants had been asked to evaluate all statements (policy suggestions) for each Weakness and Threat using the Likert-type scale value. In Figure 1 is presented the general methodological framework of data collection, survey design information, statistical analysis and expected results.

Figure 1: Methodological Framework

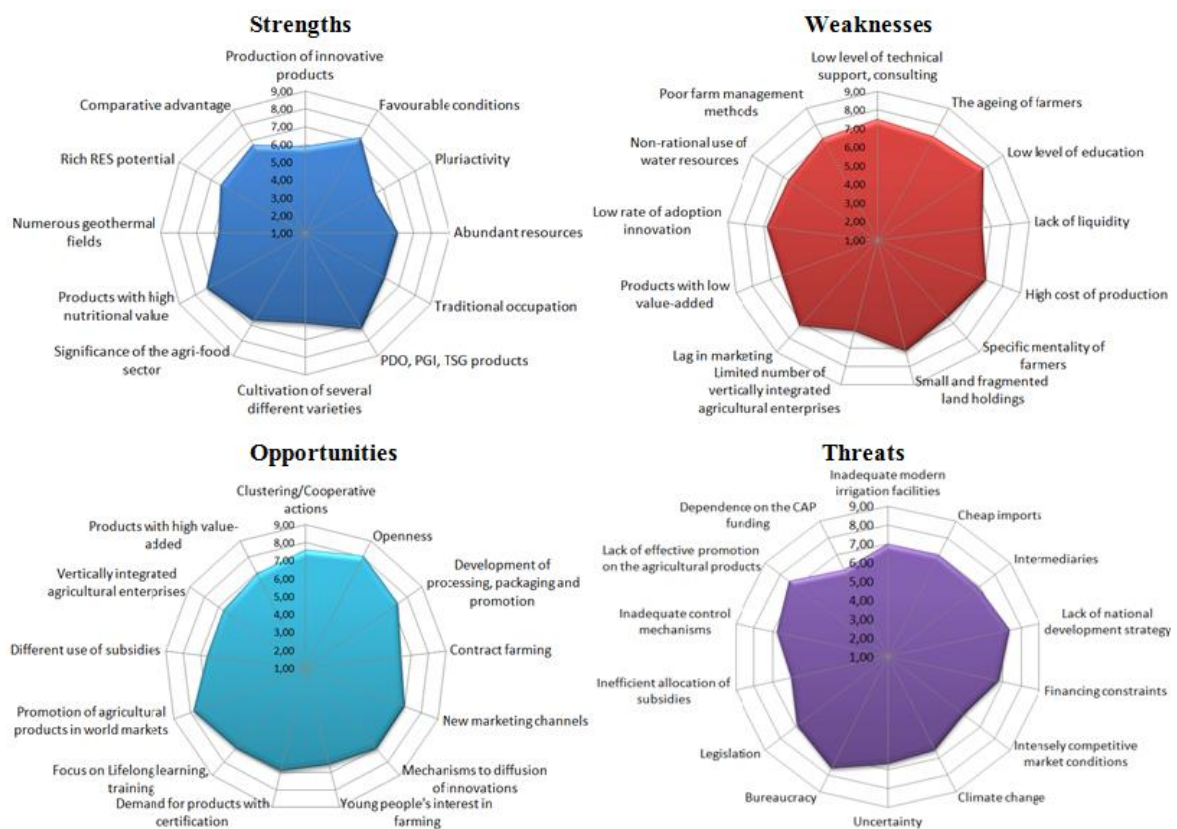


### 3. RESULTS

The results of the quantitative SWOT analysis show that the most important Strengths of the Greek agricultural economy are the production of *Agricultural products with certification (PDO, PGI, TSG)*, the production of *Products with high nutritional value* and then, *Geomorphology, soil and climate favorable conditions*. Moreover, the most significant Weaknesses are the *Low level of education*, the *Low level of technical support, consulting*, and finally, *Ageing of farmers*.

According to the external environment of the Greek agricultural economy, the most vital Opportunities are the *Openness/ Export activities, Promotion of agricultural products in world markets* and the *Clustering/ Agricultural Cooperatives or Producer groups*. Furthermore, the biggest Threats are *Bureaucracy*, the *Ineffective promotion of the agricultural products* and the *Lack of national development strategy*. In Figure 2 is presented the quantitative SWOT matrix.

**Figure 2:** Quantitative SWOT matrix



### 4. CONCLUSIONS

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In this paper, has been identified the main characteristics which cover the internal (Strengths, Weaknesses) and external (Opportunities, Threats) environment of the Greek agricultural economy sector in order to examine the Greek farmer’s investment behavior in this turbulent economic period. For this purpose, a qualitative research took place, a modified Delphi method was employed, in a group of experts (academics, scientists in the public sector/policy makers, scientists in the private sector and farmers-agronomists) who were selected according to the Quadruple Helix model.

According to the results of quantitative SWOT analysis proved the existence of many factors mainly external that negatively influence farmer’s investment behavior. Furthermore, results indicated that economic instability, financing constraints and some structural problems of the governmental mechanism such as bureaucracy, legislation and taxation do have a negative effect on agricultural investments. So, it is important policy makers should seriously take into account these long existing imperfections (structural problems) of the sector and the whole economy, seek for solutions and distinguish the opportunities that can to offer in the current period. Any efforts are made towards the revitalization of the agricultural sector will have multiple indirect impacts to the whole economy and contribute to the economic growth considering that the multifunctional character of agriculture have the potentials to become a stabilizer in this turbulent economic period.

In addition, the results of the quantitative SWOT analysis have been used in order to determine the internal (strengths, weaknesses) and the external (opportunities, threats) environment of the Greek agricultural economy sector leading to emerging policy suggestions so as to effectively handle those weaknesses and threats. This is a very important issue which can be used to improve the efficiency of agricultural extension services offering significant benefits to the rural society, policy makers and to agricultural economy in general.

Consequently, some policy suggestions are the stable taxation system and strict legislation in order to handle uncertainty which dissuade agricultural investments. The policy suggestion according to bureaucracy which is the main threat of the Greek agricultural economy is the development of E-government so as to provide public services to farmers and citizens in general. Another policy suggestion is clustering through agricultural cooperatives or producer’s group so as to farmers undertake better and more favourable financing conditions because the inadequate external funding is one of the threats of the Greek agricultural economy and an investment barrier, too. In addition, experts suggest the generation of a national agricultural development strategy and a well-organized project to promote Greek agricultural products worldwide. The lack of education, the inadequate information, the unskilled personnel and the poor technical support of agronomists are some weaknesses of the Greek agricultural economy and are suggested to strengthen the role of agricultural economist/agronomist and the agricultural extension systems.

Finally, it is worthy to note that as a result of the recent rapid change of the Greek agricultural economy every generalization effort should be done with caution.

## REFERENCES

- Alam, K.F., and Stafford, L.W.T., 1985. Incentives and investment policy: A survey report on the United Kingdom manufacturing industry. *Managerial and Decision Economics*, Vol. 6, No. 1, pp. 27-32
- Alvarez L.H.R. et al, 1998. Tax policy uncertainty and corporate investment A theory of tax-induced investment spurts. *Journal of Public Economics*, Vol. 69, No. 1, pp. 17-48
- Beazer, Q.H., 2012. Bureaucratic Discretion, Business Investment, and Uncertainty. *The Journal of Politics*, Vol. 74, No. 3, pp. 637-652
- Blancard S. et al, 2006. Short- and Long-Run Credit Constraints in French Agriculture: A Directional Distance Function Framework Using Expenditure-Constrained Profit Functions. *American Journal of Agricultural Economics*, Vol. 88, No. 2, pp. 351-364
- Campos-Climent V. et al, 2012. Delphi method applied to horticultural cooperatives. *Management Decision*, Vol. 50, No. 7, pp. 1266-1284
- Cornish, E., 2005. *Futuring: The Exploration of the Future*. World Future Society, Maryland, Usa
- Dalkey, N.C. and Helmer, O., 1963. An experimental application of the Delphi method to the use of experts. *Management Science*, Vol. 9, No. 3, pp. 458-467
- Delbecq A.L. et al, 1975. *Group Techniques for Program Planning: A Guide to Nominal Group and Delphi Processes*. Scott Foresman and Company Glenview, Illinois
- Dyson, R.G., 2007. *Strategic planning: models and analytical techniques*. Wiley, New York



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- Enoma, A. and Mustapha, I., 2010. Factor analysis of investment decision in Nigerian insurance companies. *Interdisciplinary Journal of Contemporary Research in Business*, Vol. 2, No. 8, pp. 108-120
- Gallerani V. et al, 2008. *Investment behaviour in conventional and emerging farming systems under different policy scenarios*. JRC Scientific and Technical Reports, EUR 23245 EN, Institute for Prospective Technological Studies (IPTS), European Commission
- Gill A.S. et al, 2012. The Impact of Debt Policy on the Investment Decision of Small Business Owners in India. *International Research Journal of Finance and Economics*, September(97), pp. 6-13
- Hassett, K.A. and Metcalf, G.E., 1999. Investment with uncertain tax policy: does random tax policy discourage investment? *The Economic Journal*, Vol. 109, pp. 372-393
- Hay, D.A. and Morris, D.L., 1991. *Industrial economics and organization: Theory and evidence*. Oxford University Press, Oxford
- Hertz, T., 2009. The effect of nonfarm income on investment in Bulgarian family farming. *Agricultural Economics*, Vol. 40, No. 2, pp. 161-176
- Hodgkinson, L., 1989. Taxation and Corporate Investment. *CIMA Research Studies*
- Hsu, C.C. and Sandford, B.A., 2007. The Delphi Technique: Making Sense of Consensus. *Practical Assessment, Research and Evaluation*, Vol. 12, No. 10, pp. 1-8
- Jitea, I.M., 2009. Assessing the Impact of Interest Rate on the Farm's Investment Behavior Using a Simulative Approach. *Bulletin UASVM Horticulture*, 66(2)/2009, pp. 1-6
- Kirwan, B.E., 2008. Cash flow and agricultural investments: Evidence from a natural experiment. *Presented at AAEA (American Agricultural Economics Association) Annual Meeting*, Orlando, Florida
- Lagerkvist, C.J., 2005. Agricultural policy uncertainty and farm level adjustments-the case of direct payments and incentives for farmland investments. *European Review of Agricultural Economics*, Vol. 32, No. 1, pp. 1-23
- Markou M. et al, 2014. Exploring climate change issues related to water resources and agriculture in Cyprus, employing a Delphi type method. *Proceeding of 1st ENVECON Conference “Economics of Natural Resources and Environment: Climate Change”*, Volos, Greece, pp. 184-195
- Michailidis A. et al, 2015. Exploring treated wastewater issues related to agriculture in Europe, employing a quantitative SWOT analysis. *Procedia Economics and Finance*, Vol. 33, pp. 367-375
- Morgan, E.J., 1992. Investment behaviour and government tax policy: a survey of the largest UK firms. *Journal of Business Finance and Accounting*, Vol. 19, No. 6, pp. 789-815
- OECD, 2006. The impact on investment and production of different agricultural policy instruments. Principal Findings. *OECD Journal: General Papers*, No.47, 5(11), pp.1-13
- OECD/FAO, 2009. *OECD-FAO Agricultural Outlook 2009-2018*. OECD, Paris
- Overesch, M. and Wamser, G., 2010. The effects of company taxation in EU accession countries on German FDI. *Economics of Transition*, Vol. 18, No. 3, pp. 429-457
- Okoli, C. and Pawlowski, S.D., 2004. The Delphi Method as a Research Tool: An Example, Design Considerations and Applications. *Information and Management*, Vol. 42, No. 1, pp. 15-29
- Roberts, B. and Stimson, R.J., 1998. Multi-sectoral qualitative analysis: a tool for assessing the competitiveness of regions and formulating strategies for economic development. *The Annals of Regional Science*, Vol. 32, pp. 469-494
- Santoro, M. and Wei, C., 2012. A Note on the Impact of Progressive Dividend Taxation on Investment Decisions. *Macroeconomic Dynamics*, Vol. 16, No. 2, pp. 309-319
- Schmidt, R.C., 1997. Managing Delphi surveys using nonparametric statistical techniques. *Decision Sciences*, Vol. 28, No. 3, pp. 763-774
- Skokoi, P. and Moro, D., 2006. Modelling the Reforms of The Common Agricultural Policy for Arable Crops under Uncertainty. *American Journal of Agricultural Economics*, Vol. 88, No. 1, pp. 43-56
- Serra T. et al, 2008. Investment rigidity and policy measures. *Presented at AAEA (American Agricultural Economics Association) Annual Meeting*, Orlando, Florida
- Skulmoski G.J. et al, 2007. The Delphi Method for Graduate Research. *Journal of Information Technology Education*, Vol. 6, pp. 1-21
- SuWaNu, 2015. *Guidelines for developing research-driven clusters in less developed regions*. Sustainable Water treatment and nutrient reuse options. Project no. 319998. Available at:www.suwanu.eu [Accessed 02/10/2015]
- Tao L. et al, 2012. An integrated multiple criteria decision making model applying axiomatic fuzzy set theory. *Applied Mathematical Modelling*, Vol. 36, No. 10, pp. 5046-5058
- Viaggi D. et al, 2011. Farm-Household Investment Behaviour and the CAP decoupling: methodological issues in assessing policy impacts. *Journal of Policy Modelling*, Vol. 33, No. 1, pp. 127-145
- Waters-Bayer, A. and Bayer, W., 2009. Enhancing local innovation to improve water productivity in crop-livestock systems. *The Rangeland Journal*, Vol. 31, pp. 231-235
- World Bank, 2011. *Agricultural Innovation Systems: An Investment Source Bank*. Washington, World Bank, DC

## **FINANCIAL COMPARISON OF IMPORTS AND EXPORTS IN TURKEY**

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### **ABSTRACT**

Nowadays, it is very important for importing and exporting companies to use the right financing methods as well as buying or selling the right goods at the right time. On the other hand, it is very clear that using the wrong financial methods can lead to much greater loss than buying or selling the wrong goods at the wrong time.

Although Turkey's export figures increase day by day, imports and therefore foreign trade deficits are also increasing. Furthermore rising import figures also bring some important structural financial problems. The solution of these problems and the creation of a stronger financial structure is very important for importing and exporting companies.

In this study, financing methods used by importers and exporters in Turkey have been examined. In addition, the financial situation of Turkey in terms of import and export is compared with the statistical data in detail. As a result, this study contains important analyzes and useful information to assist companies in import and export financing.

### **KEYWORDS**

Import, Export, Finance, International Business

### **JEL CLASSIFICATION CODES**

M10, M16, B17

## **1. INTRODUCTION**

International business between countries is increasing and developing day by day. The main reason of this commercial development some goods may be produced in excessive amounts in some countries, but in contrast, less necessary in others. The main reasons for this situation are the uneven distribution of natural resources on the earth, the lack of technical knowledge and expert workforce, and the differences in economic development between countries (ÖZALP, 2009: 3).

We can say that, from the silk way to the mercantilism, from the World Wars to the disintegration of the Soviet block, has affected the trade between the countries. However, the world has become a “global village” nowadays. Companies and organizations in commercial activity now have to think and act globally. Now global market and global customer requirements are now taken into account when setting targets and strategies (Koban and Keser, 2008: 6)

However, rapid developments in international business can negatively affect Turkey and similar countries. The biggest problem that we face here, as foreign trade grows, external deficit is growing. The growing external deficit also increases the current account deficit. This situation raises the risk of economic crisis as it brings dependent, risky and fragile economic structure (IZTO, 2008).

It is possible to come up with the right financing methods based on all these problems. The important thing is that the financing resource obtained is used in the right way as it is for the right merchandise. At this point, payment methods are at the beginning of the most important issues. The financing provided and the payment method selected for international business must be complementary for each other.

## **2. PAYMENT TERMS IN INTERNATIONAL BUSINESS**

In global business operations, companies are using many different types and varieties of payment terms. It is mostly chosen according to the agreement and condition between the buyer and the seller.

But what is important here is who will finance the foreign trade process, which currency will be the riskier, what the cost will be and etc (Yılmaz and Özken, 2011: 116)..

Although many traditional payment methods used so far in international business, we can elaborate the below mentioned basic and the most important methods (Susmuş and Başlangıç, 2015: 322-324);

- a) Cash in Advance; This method of payment is an advance payment and a pre-finance for the exporter before the exportation of the products.
- b) Cash Against Documents; In this payment term, export documents which are necessary to perform customs clearance of goods has been sent by correspondent bank to the issuing bank with collection for the exporting value.
- c) Cash Against Goods; In this type of payment, the export value of the good or service is paid by importer, after a certain time of receipt of the goods. So we can say that ,this payment term is a method of open account payment which is completely based on mutual trust of importer and exporter.
- d) Acceptance Credit; In this method of payment, to ensure the payment to exporter a guarantee policy is issued by the bank, so payment is guaranteed by a bank policy at maturity. We can consider two different types of acceptance credit. These are "Trade Acceptance" and "Bankers Acceptance". If the policy is accepted by the buyer than it is named as a "Trade Acceptance" but if the policy is accepted only by the bank than it is named as a "Bankers Acceptance".
- e) Counter Trade; This payment term is a mutually exchange of goods or services. This method mostly preferred by the countries who has goods to sell but not have enough currency.
- f) Consignations; in this method the value of the goods or services received by importer is effected to exporter after the domestic sales of importer.
- g) Letter of Credit – L/C; this payment term is a conditional bank guarantee and guarantees to exporter that the payment of import value will be done after the fulfillment of mutually agreed certain conditions. There are various types of letter of credit opportunities can be used by exporter and importer. The type of letter of credit must be chosen according to mutually needs of importer and exporter.
- h) Bank Payment Obligation – BPO; this new payment term provides convenient solutions for exporters and importers by simplifying the payment operations. BPO payment term acts as an automated letter of credit and by pass fastly and easily the annoying documentetion formalities in banking operations. As a result of this method buyers and sellers have advantage of assurance in letter of credit and at the same time they have simplicity of cash against goods.

### 3. IMPORT FINANCING METHODS

Banks are able to provide a finance for importers to sell their imported goods until the debt is repaid. The financing of imports by the banks are performed in two stages (Onursal, 2017);

- i. Financing at import stage; in the period of financing until the goods totally become the property of the importer.
- ii. Post-import Financing; in the period of financing until the goods are received by the importer and sold in the domestic market.

Since the type of financing for the importer depends on the method of payment, it is possible to examine some important types of financing as follows (Onursal, 2017):

- a) Letter of Credit; Following the opening of a L/C, it is usually collected from the importer immediately and there is no credit relationship between the importer and the issuing bank. In this case, the importer may open a credit against his L/C from his issuing bank for his own purposes until the goods are delivered or the goods are sold and their prices paid.
- b) Loan Cash Against Documents; When the import is done in CAD, the credit relation is different according to whether the policy drawn up on behalf of the importer is "pay at sight" or "deferred". If importer and exporter agreed on a "pay at sight" policy then the importer has to pay the cost of the goods when it receives. In this case there won't be a credit relationship between the importer and the bank. If the importer and exporter agreed

on a "deffered payment" policy, then no payment will be made until the end of the maturity.

- c) Loan Cash Against Goods; This is a very risky payment term for the seller and according to this term buyer pays the cost of goods after the arrival to destination where specified in the sales contract. This term has emerged in international markets during periods when buyers are dominant than the sellers. In this payment term the seller has financed the buyer until the goods are shipped and delivered.
- d) Aval and Acceptance Loan; in this financing type the goods are delivered to the importer against receipt of a pawn ticket or an another type of guarantee. Then the loan relationship can be transformed into "post-import financing".
- e) Leasing; an agreement that allows a property or an immovable property to be leased for a certain period of time and to transfer the asset to the lessee for a certain amount at the end of the lease term. Leasing is usually a good solution when there is not enough funding available to buy the goods needed.

#### **4. EXPORT FINANCING METHODS**

The majority of exports in Turkey are financed by goods payment and instant delivery. Another method that is very important for export financing is cash against documents and thus the value of financed exports is increasing day by day (Acar, 2017).

It is possible to examine the financing of exports in three separate groups. These are (Onursal, 2017);

- According to the financing schedule (short, medium and long term),
- According to the export stage (before and after shipment)
- According to finance source,

We can examine some important types of export financing methods as follows (Onursal, 2017):

- a) Letter of Credit; This payment method, which the exporter can partially or wholly acquire the commodity prices before invoicing the goods, thus financing the exports, carries an external credit facility at the same time.
- b) Bank Credits; exporter may apply to the bank for financing purposes and provide financing through options such as fixed loans, current account loans and open loans. These three types of credit are applied with different preferences in each country.
- c) Letter of lien; banks take control of the income to be supplied from the sale of the goods with the letter of lien. Even in case of the bankruptcy of a customer, the bank will be able to collect the cost of the goods that the bank has given as credit.
- d) Advance Cash Against Documents; It is the case that the bank gives advance payment to the exporter for the documents that deliver the goods. Since this advance acts in the form of a loan, the amount of interest used is accrued.
- e) Factoring; this type of finance is an activity based on the purchase of short-term seniority rights arising from sales by financial institutions called factoring companies. The factoring transaction is only for short-term receivables, in which trades usually range up to maximum 180 days.

#### **5. FINANCIAL COMPARISON OF IMPORTS AND EXPORTS IN TURKEY**

In this section, the import and export figures in Turkey over the last 5 years will be analyzed. In this context, foreign trade deficits, foreign trade volumes, proportion of imports covered by exports, payment methods used in export and import transactions will be examined.

As seen in table 1, it is understood that both exports and imports have fallen since 2014. Parallel to this, Turkey's foreign trade volume and foreign trade deficit started to fall from 2014. The import coverage ratio of exports has generally been around 60 percent. In 2016, this rate was 71.8%. As compared to 2012, exports in the year 2016 decreased by 6.5%. Imports for the same period experienced a decrease of 16%. As a result, it can be concluded that Turkey has shown a contraction trend in foreign trade volume since 2014.

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Table 1: Foreign trade by years in Turkey, 2012-2016 (Value: Thousand US \$)

| Years | Exports     |          | Imports     |          | Balance of foreign trade deficit | Balance of foreign trade volume | Proportion of imports covered by exports (%) |
|-------|-------------|----------|-------------|----------|----------------------------------|---------------------------------|--|
|       | Value       | Change % | Value       | Change % | Value                            | Value                           |  |
| 2012  | 152 461 737 | 13,0     | 236 545 141 | -1,8     | - 84 083 404                     | 389 006 877                     | 64,5   |
| 2013  | 151 802 637 | -0,4     | 251 661 250 | 6,4      | - 99 858 613                     | 403 463 887                     | 60,3   |
| 2014  | 157 610 158 | 3,8      | 242 177 117 | -3,8     | - 84 566 959                     | 399 787 275                     | 65,1   |
| 2015  | 143 838 871 | -8,7     | 207 234 359 | -14,4    | - 63 395 487                     | 351 073 230                     | 69,4   |
| 2016  | 142 545 946 | -0,9     | 198 616 139 | -4,2     | - 56 070 193                     | 341 162 085                     | 71,8   |

Source: [http://www.tuik.gov.tr/PreTablo.do?alt\\_id=1046](http://www.tuik.gov.tr/PreTablo.do?alt_id=1046) (Access date: 15.04.2017)

The export figures of Turkey in terms of payment types between 2012 and 2016 are shown in Table 2 below. When Table 2 is examined, exports increased between 2012 and 2014. However, after 2014, Turkey's export figures began to fall. Compared to the year 2012, the export figure was 6.5% lower in 2016.

Table 2: Exports by type of Payment in Turkey, 2012-2016 (Value: Thousand US \$)

| EXPORTS by type of payment              | 2016               | 2015               | 2014               | 2013               | 2012               |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|
| Cash against goods                      | 94.873.825         | 94.969.939         | 102.834.175        | 93.795.859         | 87.324.963         |
| Advanced payment                        | 15.533.688         | 13.947.391         | 14.929.437         | 15.136.099         | 21.875.516         |
| Cash against documents                  | 20.613.443         | 21.415.158         | 24.228.910         | 25.878.334         | 24.409.530         |
| Letter of credit payable                | 1.648.093          | 2.103.718          | 2.449.256          | 2.419.749          | 2.518.118          |
| Without waiver                          | 1.423.936          | 1.414.357          | 1.600.707          | 1.369.009          | 984.556            |
| Private barter                          | 3.878              | 7.063              | 18.704             | 620.062            | 717.959            |
| Letter of credit                        | 8.156.453          | 9.694.014          | 11.239.517         | 12.280.664         | 14.328.538         |
| Counter purchase                        | 11.366             | 12.104             | 11.750             | 1.721              | 555                |
| Letter of credit with acceptance credit | 21.575             | 37.860             | 44.238             | 38.254             | 50.325             |
| Documents with acceptance credit        | 157.143            | 140.380            | 139.269            | 131.987            | 145.993            |
| Goods with acceptance credit            | 100.598            | 79.680             | 112.354            | 117.414            | 71.411             |
| Private account                         | 1.950              | 17.209             | 1.841              | 13.487             | 34.272             |
| Total                                   | <b>142.545.946</b> | <b>143.838.871</b> | <b>157.610.158</b> | <b>151.802.637</b> | <b>152.461.737</b> |

Source: [http://www.tuik.gov.tr/PreTablo.do?alt\\_id=1046](http://www.tuik.gov.tr/PreTablo.do?alt_id=1046) (Access date: 15.04.2017)

On the other hand, as Table 3 shows, the most commonly used payment methods for exports between 2012 and 2016 are as follows:

- Cash against goods 63,22%
- Advanced payment 10,88%
- Cash against documents 15,58%
- Letter of Credit 7,44%

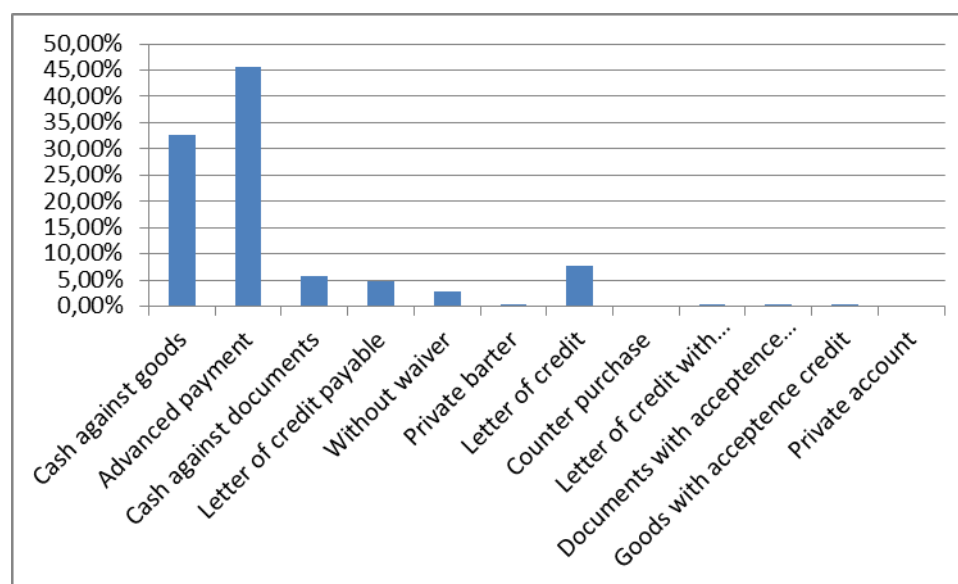
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These three payment methods constitute 89.68% of total exports. According to these results, the majority of exporting companies in Turkey choose cash against goods payment term. However, it should not be forgotten that the exporter may have to accept deferred payment to realize the sales. Even if the advance payments remain at 10% of total exports, it is reinforced that this method is preferred due to the sales effort.

On the other hand, if we assume that the advance payments are at 10,88% , CAD payments are at 15,58% and L/C payments are at 8,96% levels, we can see that approximately 1/3 of our exports are guaranteed to be collected and the rest of our collections can be considered as risky.

Graph 1: Payment Terms in Exports of Turkey



Source: [http://www.tuik.gov.tr/PreTablo.do?alt\\_id=1046](http://www.tuik.gov.tr/PreTablo.do?alt_id=1046) (Access date: 15.04.2017)

Table 3: Exports by type of Payment as percent in Turkey

| EXPORTS by type of payment              | Total Exports                     |             |
|---|-----------------------------------|-------------|
|   | between 2012 and 2016<br>(000 \$) | Percent     |
| Cash against goods                      | 473.798.761                       | 63,32%      |
| Advanced payment                        | 81.422.130                        | 10,88%      |
| Cash against documents                  | 116.545.374                       | 15,58%      |
| Letter of credit payable                | 11.138.935                        | 1,49%       |
| Without waiver                          | 6.792.564                         | 0,91%       |
| Private barter                          | 1.367.666                         | 0,18%       |
| Letter of credit                        | 55.699.186                        | 7,44%       |
| Counter purchase                        | 37.495                            | 0,01%       |
| Letter of credit with acceptance credit | 192.253                           | 0,03%       |
| Documents with acceptance credit        | 714.771                           | 0,10%       |
| Goods with acceptance credit            | 481.456                           | 0,06%       |
| Private account                         | 68.758                            | 0,01%       |
| <b>Total</b>                            | <b>748.259.349</b>                | <b>100%</b> |

Source: [http://www.tuik.gov.tr/PreTablo.do?alt\\_id=1046](http://www.tuik.gov.tr/PreTablo.do?alt_id=1046) (Access date: 15.04.2017)

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The import figures of Turkey in 2012-2016 according to payment types are shown in Table 4 below. When Table 4 is examined, import figures of Turkey have started to decrease since 2013. The highest imports in Turkey were realized in 2013.

Table 4: Imports by type of Payment in Turkey, 2012-2016 (Value: Thousand US \$)

| <b>IMPORTS by type of payment</b>       | 2016        | 2015        | 2014        | 2013        | 2012        |
|---|-------------|-------------|-------------|-------------|-------------|
| Cash against goods                      | 81 523 456  | 68 796 114  | 71 528 310  | 77 764 400  | 70 734 281  |
| Advanced payment                        | 77 471 519  | 95 343 025  | 119 326 764 | 117 639 578 | 108 000 257 |
| Cash against documents                  | 9 031 207   | 10 690 854  | 14 920 304  | 15 523 196  | 14 985 436  |
| Letter of credit payable                | 9 693 756   | 9 978 845   | 10 542 951  | 12 205 980  | 12 404 823  |
| Without waiver                          | 8 814 441   | 6 870 688   | 6 242 608   | 5 199 614   | 5 645 195   |
| Private barter                          | 16 000      | 18 961      | 32 885      | 850 313     | 1 028 759   |
| Letter of credit                        | 11 236 962  | 14 660 717  | 18 442 201  | 21 271 411  | 22 540 652  |
| Counter purchase                        | 15 676      | 12 027      | 12 797      | 6 161       | 2 389       |
| Letter of credit with acceptance credit | 117 745     | 77 664      | 118 420     | 171 057     | 172 928     |
| Documents with acceptance credit        | 637 311     | 472 735     | 493 065     | 555 348     | 577 619     |
| Goods with acceptance credit            | 57 237      | 312 422     | 516 465     | 473 676     | 452 635     |
| Private account                         | 830         | 263         | 85          | 517         | 166         |
|   | 198 616 139 | 207 234 314 | 242 176 855 | 251 661 250 | 236 545 141 |

Source: [http://www.tuik.gov.tr/PreTablo.do?alt\\_id=1046](http://www.tuik.gov.tr/PreTablo.do?alt_id=1046) (Access date: 15.04.2017)

As can be seen from table 5 below, the most commonly used payment methods for import transactions between 2012 and 2016 are as follows:

- Advanced payment 45,57%
- Cash against goods 32,59%
- Letter of credit 7,76%
- Cash against documents 5,73%
- Letter of credit payable 4,83%

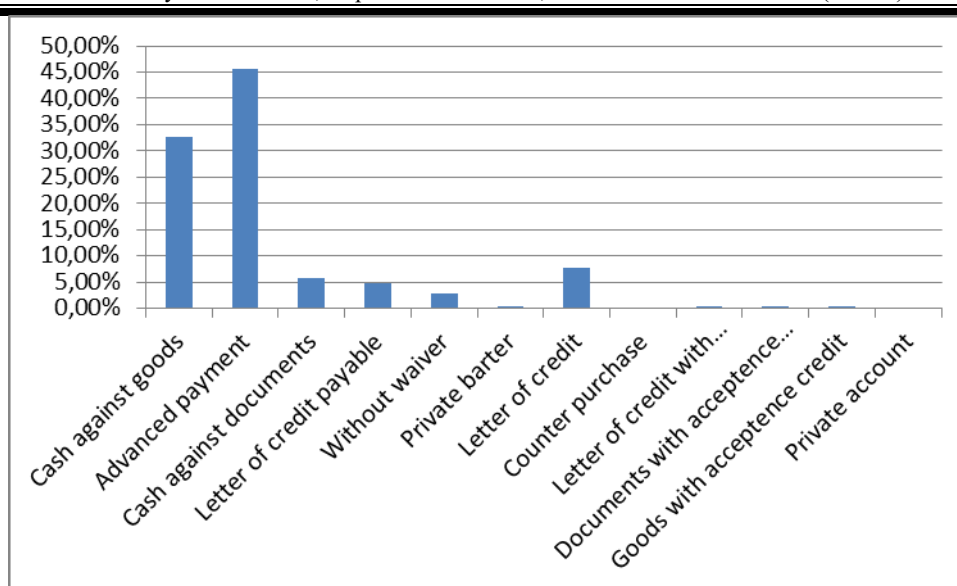
These three payment methods constitute 89.68% of total exports. According to these results, the majority of importing companies in Turkey choose cash against goods. In contrast to our exports we make, we choose mostly advanced payment method in our imports.

The advance payment, which corresponds to almost half of the import we do, shows us that we are also at a great risk in import deliveries. On the other hand, when we add the other bank guaranteed payment methods to our advance payments, we can easily see that we use the financial resources of our vast majority of our imports.

Graph 2: Payment Terms in Imports of Turkey

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Source: [http://www.tuik.gov.tr/PreTablo.do?alt\\_id=1046](http://www.tuik.gov.tr/PreTablo.do?alt_id=1046) (Access date: 15.04.2017)

Table 5: Imports by type of Payment as percent in Turkey

| <b>IMPORTS by type of payment</b>       | <b>Total IMPORTS<br/>between 2012 and 2016 (000 \$)</b> | <b>Percent</b> |
|---|---|----------------|
| <b>Cash against goods</b>               | <b>370.346.561</b>                                      | <b>32,59%</b>  |
| <b>Advanced payment</b>                 | <b>517.781.143</b>                                      | <b>45,57%</b>  |
| <b>Cash against documents</b>           | <b>65.150.997</b>                                       | <b>5,73%</b>   |
| <b>Letter of credit payable</b>         | <b>54.826.355</b>                                       | <b>4,83%</b>   |
| Without waiver                          | 32.772.547  | 2,88%          |
| Private barter                          | 1.946.917   | 0,17%          |
| <b>Letter of credit</b>                 | <b>88.151.942</b>                                       | <b>7,76%</b>   |
| Counter purchase                        | 49.050  | 0,00%          |
| Letter of credit with acceptance credit | 657.814   | 0,06%          |
| Documents with acceptance credit        | 2.736.077   | 0,24%          |
| Goods with acceptance credit            | 1.812.435   | 0,16%          |
| Private account                         | 1.861   | 0,00%          |
| <b>Total</b>                            | <b>1.136.233.700</b>                                    | <b>100%</b>    |

Source: [http://www.tuik.gov.tr/PreTablo.do?alt\\_id=1046](http://www.tuik.gov.tr/PreTablo.do?alt_id=1046) (Access date: 15.04.2017)

## 6. CONCLUSION

The export and import figures of an country are very important. Especially, thanks to the export, cash foreign exchange entry into the country is ensured, contributing to Turkey's foreign exchange deficit. On the other hand, there will be increases in production and services within the country due to the increase in foreign trade volume. As it can be understood from the study, in the last 5 years, proportion of imports covered by exports in Turkey has generally remained above 60 percent. However, Turkey's foreign trade deficit has always existed, so that no Foreign trade surplus has emerged. Turkey's export and import figures have tended to fall since 2014. As a result, foreign trade volume also declined, giving a sign of contraction for the Turkish economy.

It is fixed with this statistical data that Turkey exports as a deferred payment or open account while making payments in advance or bank guarantee in imports. Obviously, this indicates that Turkey is not a strong but a weak side, both in terms of the seller and the buyer in international markets. In this



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case, we need to examine the profitable and competitive nature of the goods and services we produce for foreign markets and create new strategies.

In fact, Turkey, which has a foreign trade deficit in very serious quantities, sells goods or services as deferred and purchases goods and services in advance. This situation greatly increases the effects of foreign trade deficit. On the other hand, this result shows us that the political and financial credibility that may affect the payment term decision is low for Turkey in international markets.

It has been analyzed which payment methods are used for import and export transactions. Accordingly, it is understood that the most commonly used payment method in export transactions is cash against goods. The most used method in import transactions is advanced payment. Cash against goods method is in the 2nd place in import. According to these results, most of the export transactions in Turkey are using cash against goods while the most advanced payment is used in import transactions. For this reason, it can be shown that the institute of credit rating in Turkey is given a low rate by the rating agencies.

In order to contribute to this study, it is possible to carry out more studies in the following subjects and areas;

- Payment Terms and Financing of Turkish Exports,
- Payment Terms and Financing of Turkish Imports,
- Comparison of Payment Terms in Turkey's Exports and Imports,
- Payment Terms in Foreign Trade of Turkey and Factors Affecting Payment Term Decision,
- Import and Export Analysis of Turkey in Terms of Countries.

## REFERENCES

- TUIK, <https://biruni.tuik.gov.tr/medas/?kn=70&locale=tr> (Access date 01.04.2016)
- TUIK, [http://www.tuik.gov.tr/PreTablo.do?alt\\_id=1046](http://www.tuik.gov.tr/PreTablo.do?alt_id=1046) (Access date: 15.04.2017)
- SUSMUŞ, T. and BAŞLANGIÇ, S.O. (2015): The New Payment Term BPO and Its Effects on Turkish International Business; *Procedia Economics and Finance*, V.33, pp 321-330.
- ÖZALP, A. (2009): UCP 600’ın Kullanılması ve Akreditif, 3. Edition, Türkmen Kitabevi, İstanbul.
- YILMAZ, M. and ÖZEKEN, A. (2011): İhracat: Anlamak ve Yönetmek için Bilmeniz Gereken Herşey, 1.Edition, Optimist Yayınları, İstanbul.
- KOBAN, E. and Keser, H.Y. (2008): Dış Ticarete Lojistik, 2. Edition, Ekin Yayınları, Bursa.
- IZTO, [http://www.izto.org.tr/Portals/0/IztoGenel/Dokumanlar/ekonomik\\_kriz\\_belirtisi\\_olarak\\_cari\\_acik\\_buyume\\_o\\_ozbek\\_26.04.2012%2021-22-51.pdf](http://www.izto.org.tr/Portals/0/IztoGenel/Dokumanlar/ekonomik_kriz_belirtisi_olarak_cari_acik_buyume_o_ozbek_26.04.2012%2021-22-51.pdf) (Access date 01.03.2017)
- Erkut ONURSAL, <http://www.tml.web.tr/download/Dis-Ticaretin-Finansmani.pdf> (Access date 10.04.2017)
- Ozan ACAR, <http://www.tepav.org.tr/tur/admin/dosyabul/upload/TR-TEPAV-Ticaretin%20Finansmani%20Raporu.pdf> (Access date 22.04.2017)

## **THE FOOD SERVICE INDUSTRY IN GREEK COUNTIES DURING THE ECONOMIC CRISIS: AN EMPIRICAL STUDY**

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### **ABSTRACT**

In the period of a sustained long-term depression and economic instability in the last few years, Greek entrepreneurship mainly relies on food services, and, most commonly, includes short-lived enterprises.

The present paper, based on an empirical survey on 100 food service enterprises in the four counties of West Macedonia, carried out in August – September 2016, investigates major issues related to business performance in the food service industry in the period of Greek depression. In addition, it explores, on a regional basis, the food service professionals' perceptions and attitudes towards the economic crisis.

The survey was conducted in West Macedonia, which is the gateway of Greece and the European Union to the Western Balkans. The paper was based on data drawn in the Region of West Macedonia with a typical and specific production structure characterized by its high dependency on the power generation industry in the area. On an intraregional basis, West Macedonia is distinguished by wide disparities of per capita GDP, as a result of a relatively low percentage of part-time employment and a relatively and proportionally high percentage of self-employment, and the highest unemployment rates among Greek regions.

The paper investigates a number of variables: a) the business people's views about the effects of the Greek depression on the economy, the food service industry, consumer attitudes, and business future prospects, b) strategy and marketing tools employed by entrepreneurs with a view to coping with the crisis, c) changes in the financial status of enterprises as well as in human resources and management during the economic crisis, d) the effect of consumer attitudes on business status.

The analysis of results demonstrates that, despite any differences among the surveyed counties, for the vast majority of the research subjects, the economic crisis has greatly affected both the Greek economy and consumer attitudes, whereas its effect on the food service industry is to a lesser extent, despite the fact that profits have substantially declined. It appears that, during the crisis, labour demand figures have increased or significantly increased, as a large number of enterprises have reduced staff numbers, without, however, reducing business expenditure on new products or differentiation; it was also demonstrated that the surveyed enterprises tend to opt for inexpensive methods to promote products via the social media and the Internet.

### **KEYWORDS**

Food service, financial crisis, Greek regions, business strategy.

### **JEL CLASSIFICATION CODES**

M10 M14 R10

## **1. INTRODUCTION**

The international, European and Greek economies have been suffering a period of the worst recession since the end of the Second World War, characterized by particular features and implications. The global financial crisis, which began in the summer of 2007 in the USA with severe implications on its economy, culminated in September 2008 after the collapse of the investment bank Lehman Brothers and, thus, forced the global financial system into a period of severe destabilization, with impacts on the global real economy.

This downturn in global economic growth has reduced the demand for goods and services, and, as a consequence, forced enterprises to adapt to the new circumstances, by reducing costs and restructuring corporate strategy, investments and activities (Ulrich et al., 2009).

Remarkably, however, in this adverse financial context, the growth of the food service industry appears to be significantly sustainable worldwide. After the global recession, food service industry sales (2009) came to US \$ 2.1 trillion, accounting for 10% of the Gross Domestic Product and employing one in 10 people of the total workforce (Edwards, 2013). In 2016, total food service value sales grew by 4.6% with similarly expected growth for 2017, suggesting that the industry is stabilizing (Dutton, 2017).

Based on the above considerations, and exploring the impacts of the Greek debt crisis on the food service industry, the present study is comprised of three parts. The first and second parts include an introduction to the research topic and a discussion of the effects of the global crisis on Greece and the food service enterprises in West Macedonia, whereas the last part of the study is focused on the survey and the result analysis.

## **2. THE DEBT CRISIS IN GREECE AND THE FOOD SERVICE INDUSTRY**

### **2.1 The debt crisis in Greece**

Although the concept "financial crisis" has been interpreted in various ways and has been given a number of different definitions, it implies, in general terms, that sudden and unexpected events in the economy have a macroeconomic impact on national economies and, at a microeconomic level, on the operation of enterprises (Erol et al., 2011). In addition, apart from any changes in the economic and business smooth operation, the financial crisis has also affected the social aspects of life, by increasing unemployment rates and job insecurity, reducing average wage rates, causing chain reactions, protests and social discontent (Visvizi, 2012).

In Greece, since the late 2008, the economy has been experiencing a long period of profound debt crisis, characterized by a continuous decline in economic activities and prolonged recession, which has had a direct and profound impact on the operation and performance of Greek enterprises. Under these circumstances in Greece, the impact of deterioration has been reflected in declining turnover rates, reversal of profitability and a shrink in the capital base of trade, as well as in the negative impact on employment rates.

According to Eurostat figures for Greece over the 2008-2015 period, Greece's GDP (current prices) dropped at 27.3 % from EUR million 241,990.4 in 2008 to EUR million 176,022.7 in 2015. Average annual unemployment rates rose from 7.8 % in 2008 to 24.9% in 2015 (they peaked at 27.5% in 2013), although it is also worth noting that the specific figures describe only registered unemployment and do not include unemployment rates of self-employed people who are unregistered. Data analysis also highlights high unemployment rates mainly among women and youth.

According to the Hellenic Statistical Authority, as the Public Debt climbed from 264,775 million euros in 2008 to 309,201 million euros in the first quarter of 2016, social benefits were considerably reduced from 2008 to 2015, as from 45,772 million in 2008, they were estimated at 38,995 million euros in 2015.

The adverse business environment combined with increased taxation on all businesses at 51.9% in Greece, 24.4% in Cyprus and 27% in Bulgaria, as well as the lack of liquidity and increase in business costs have led to a private sector shrink, resulting in either collapse or migration for a vast number of enterprises to more business-friendly neighbouring countries, such as Bulgaria. It is worth highlighting that in the first seven months of 2016, 19,056 enterprises were written off and only 16,478 new ones registered (Eurostat, 2016).

In December 2008, the Greek Consumer Price Index, with harmonized inflation rates, averaged 94.1 Index Points, reaching 100.9 Index Points in September 2016, indicating that the financial crisis in Greece demonstrates a change in consumer patterns as well. Consumers have been more sensitive to price issues and are not willing to sacrifice product or service quality.

### **2.2 The Food Service industry**

The radical changes in consumer patterns, habits and lifestyles in the recent decades, both in the global and domestic markets, have led to a substantial growth in the food service industry.

The food service industry in Greece is comprised of a variety of enterprises in both the food and recreational sector (Sotiriadis, 2000). According to the Greek legislation (Government Gazette 2718 / TB / 08/10/2012), food service implies all enterprises in which food or beverages are prepared or offered to customers, and also food delivery and combines the food and leisure industries. As demonstrated in an ICAP (2012) survey in Greece, the food service industry is characterized by a multitude of enterprises across the country, overlapping in terms of business activity and services.

In the period of a sustained long-term depression and economic instability in the last few years, Greek entrepreneurship mainly relies on food service, and most commonly includes short-lived enterprises. Interestingly, the largest proportion of these enterprises with anonymous "family profiles", share the same type of activities and, thus, struggle to maintain a competitive advantage. The progress of the food service industry in Greece mainly affects factors related to its population and marital status, the country's tourist industry performance, average consumer expenditure as well as financial and other factors, such as an unstable tax legal framework, unemployment rates, and unfavorable Greek state attitudes towards entrepreneurship (ICAP, 2012).

In 2009, average Greek households used to spend € 100 on food and € 38 on food services, whereas in 2015 expenditures were reduced to € 70 for food and € 30 for food services (Aggelopoulos, 2016).

On the other hand, the tourist industry in Greece appears to have made a steady progress since 2013. According to a World Travel and Tourism Council (WTTC) report, there has been a steady rise for the next ten years at least, both in terms of contribution to GDP, and also investment and employment (Kourlibini, 2017). The survey conducted by SETE (2016) demonstrates that the contribution of the tourist industry to GDP is estimated at 9.8% in 2015 (2014: 9.3%, 2013: 8.3%), although domestic tourist services and investment are still very low due to the severe recession and uncertainty about future economic prospects in the Greek economy. Employment rates in the tourist industry, and, in particular, in accommodation and food services, were higher than total employment rates in 2014 and 2015, and, thus, contributed to an increase in the total employment rates at 8,4% in 2014 and 9,0% in 2015, whereas in 2012 and 2013 they were 7.4%, and in 2010 7.0%.

Despite the unfavorable economic environment and the adjusted consumer expenditures as a result of the reduced disposable income rates, the Greek tourist industry appears to be considerably stabilized. In detail, the average annual rate of revenue reduction for the food service industry in the period 2009-2015 remained at 9.2% (Emmanuel, 2017).

## 2.1 The region of West Macedonia and the food service enterprises

The Region of West Macedonia occupies an area of 9,451 sq. km with a population of 283,689 (HELSTAT, 2011). Western Macedonia is one of the thirteen regions of Greece, consisting of the western part of Greek Macedonia. The capital of the region is Kozani with 53,880 inhabitants. Other main towns are Ptolemaida (37,289), Grevena (17,610), Florina (19,985) and Kastoria (16,958), with a typical and particular production structure characterized by a high dependency on the power generation industry. On an intraregional basis, West Macedonia is distinguished for its wide disparities of per capita GDP, as a result of a relatively low percentage of part-time employment and a relatively and proportionally high percentage of self-employment, and also the highest unemployment rates among Greek regions.

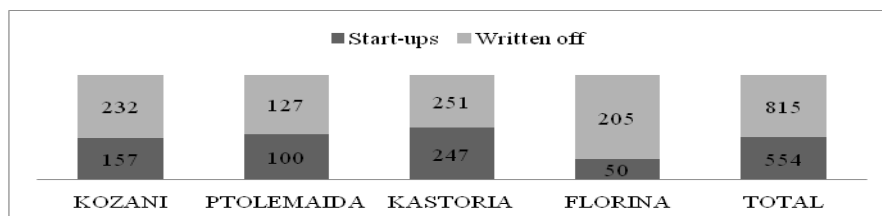
As regards age and family distribution in the area, the county of Kozani is the most populous county; 61% of the total population in the counties of Kozani and Florina are under 50 years old, whereas population in the counties of Kastoria and Grevena is older (58.5%; and 52% respectively). In detail, in the county of Grevena, 23% of the population are over 70 years old. In terms of family distribution, there is uniformity in the categorization of the population of the Municipalities based on family criteria.

Tourism in the Region of Western Macedonia lags behind the rest of the regions. The specific region is the least attractive tourist destination in the whole country and is by far ranked in the last position among the 13 regions of the country, in the category / index 'foreign and domestic overnights in hotel accommodation and camping' (INSETE, 2016).

According to the data provided by the local Chambers about the food service industry (Table 1), over the 2008 and 2016 period, Kozani, Ptolemaida, Kastoria and Florina registered a total of 554

start-ups and 815 written off food service enterprises. In Florina, the number of written off enterprises is four times as high as start-ups (50 start-ups and over 205 written off), whereas in Grevena, the total number of active enterprises in the same period decreased by 551. In total, in 2008 there were 2,700 active food service enterprises, whereas only 2,149 by the end of 2015.

Table 3. Written off – Start-ups in the food service industry in West Macedonia (2008 -2016)



### 3. EMPIRICAL STUDY

#### 3.1 Methodology

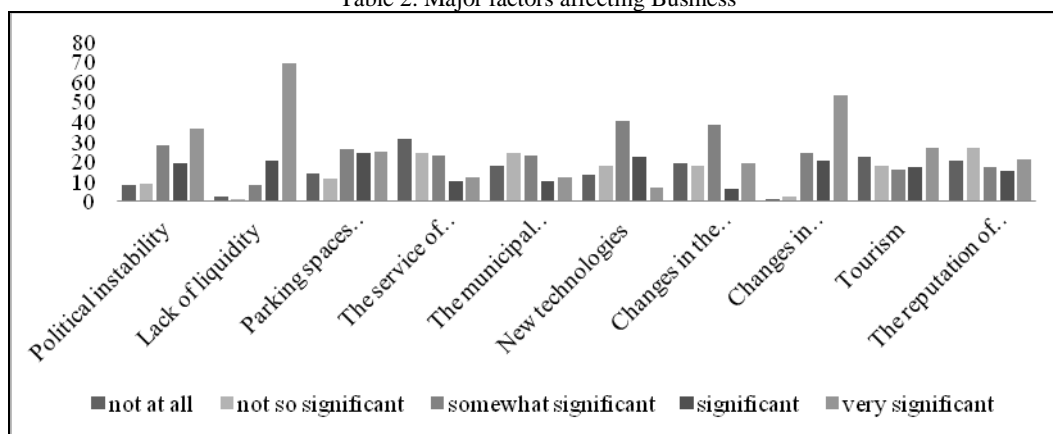
The empirical study was conducted in West Macedonia to investigate a) the views of business people about the effects of the depression on the Greek economy, the food service industry, consumer attitudes, and business future prospects, b) strategy and marketing tools used by entrepreneurs with a view to coping with the crisis, c) changes in the financial status of enterprises as well as in human resources and management during the economic crisis, d) the effect of consumer attitudes on business status.

The research was carried out in August – September 2016 and the corpus of data was drawn with personal interviews based on a structured questionnaire. The sample was comprised of 100 food service enterprises in the four counties of West Macedonia, and is proportional to the number and distribution of the relevant enterprises in West Macedonia, according to data from the local Chambers. Survey questions were formulated in line with the theoretical framework and in combination with six in-depth interviews with food service entrepreneurs. To measure the variables, the five-level Likert scale was chosen, which grades agree/disagree answers to a statement depending on the intensity of feelings of the research subjects.

#### 3.2 ANALYSIS AND RESULTS

Since 2008-2016, the economic recession has affected the Greek economy, entrepreneurship and the

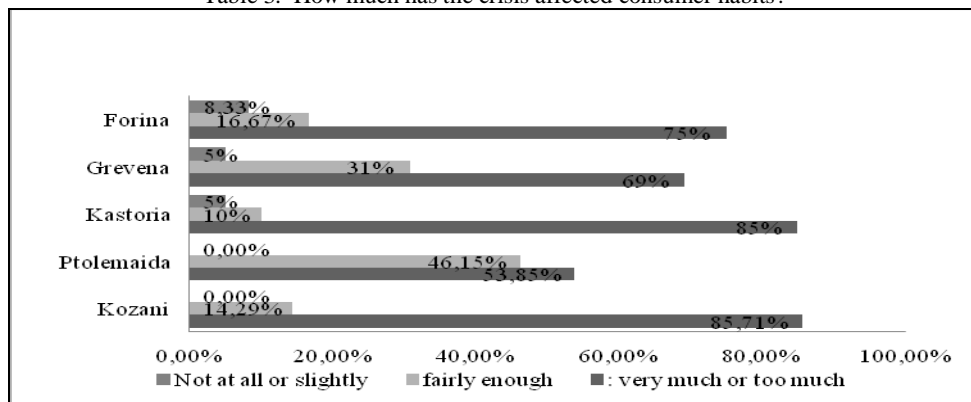
Table 2. Major factors affecting Business



disposable income of households; consequently, it has also affected consumer attitudes. According to the answers given by the subjects involved in the food service industry in West Macedonia, the financial crisis has had a significant or a very significant effect on the Greek economy (87%). The major factor affecting business (Table 2) was lack of liquidity, whereas changes in VAT and political instability were additional constraints. Remarkably, however, the tourist industry and the reputation for the quality of the food service industry in West Macedonia have contributed to a lesser extent.

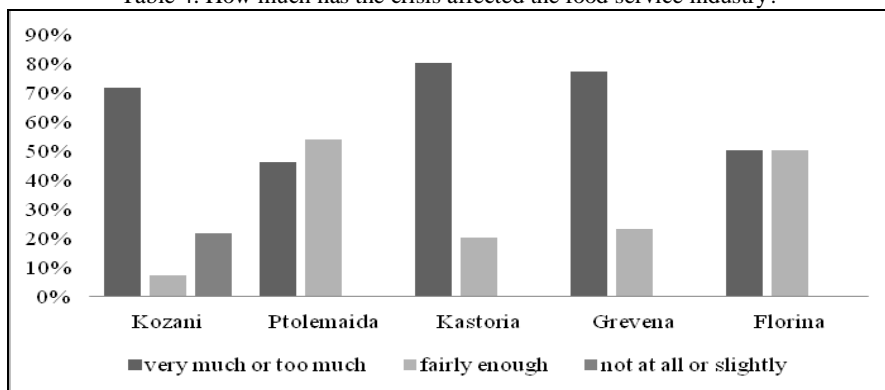
In addition, 24% of the research participants answered that the financial crisis has also affected consumer habits (Table 3).

Table 3. How much has the crisis affected consumer habits?



On the other hand, it seems that 65% of the food service entrepreneurs believe that the crisis affected the food service industry very much or too much (Table 4); of those, only 55% believe that the crisis has affected their own enterprises

Table 4. How much has the crisis affected the food service industry?

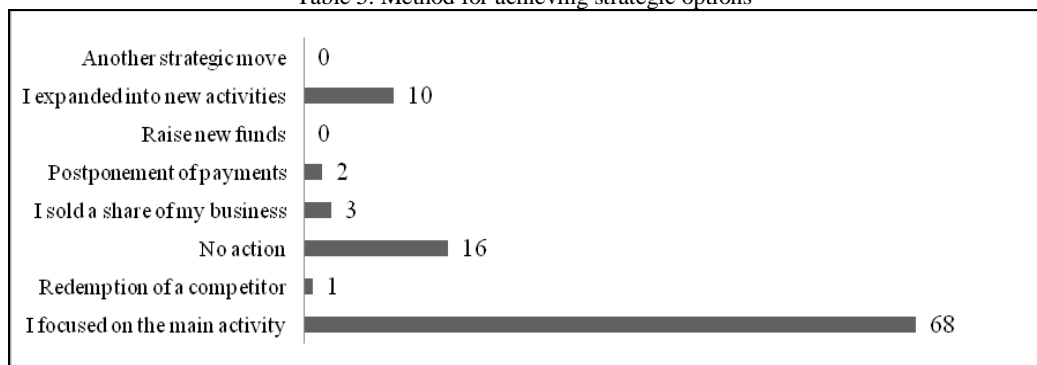


As regards strategic planning, to manage economic recession, the subjects’ strategic policies focused on the analysis of opportunities and threats, whereas the analysis of political and economic developments seems to be of less importance. In addition, no alternative strategic plan has been made by 31% of the sample.

Despite the recession, the subjects answered that they made changes in the field of marketing, and they stated that, although the volume of online orders did not significantly change and only 6% of them reduced the cost of improving packaging, one out of two reduced advertising costs, by significantly increasing the use of cheaper advertising media. Remarkably, 74% of the participating entrepreneurs answered that they use the social media for advertising at least once a week. It is also worth noting that 69% of them eliminated unprofitable products, especially low demand ones.

For 52% of the enterprises, the macroeconomic analysis was the key factor for their choice of strategic planning, whereas for 30% of them, it was the analysis of competition. In addition, 65% of the respondents maintained the initial strategic plan, whereas only 5% changed their original strategy, but the change was wrong. Exploring the way of achieving strategic options, 68% of the subjects focused on the main activity (Table 5), whereas 10% diversified.

Table 5. Method for achieving strategic options



Focusing on changes in the financial data, the participating food service entrepreneurs answered that they had not changed prices, except for those in Kastoria who had made reductions (70%). The research also demonstrated reduction of earnings rate per Euro for start-ups, except for Ptolemaida, where earnings remained unchanged for about 62% of the enterprises. In addition, the subjects stated there were unchanged fixed and variable costs; in Ptolemaida, however, the reduced costs were for 62% of the enterprises, and in Grevena the participating enterprises argued that they had achieved revenue growth.

Overall, food services are considered significant in fighting the increased rates of unemployment in the period of the debt crisis, and may lead either to start-up activity of self-employed individuals or paid work.

As regards the human resources management policies, the research subjects held that rates of new staff employment has not changed in comparison with the period before the crisis. Similarly, the incentives to increase productivity and quality of staff relations have also remained unchanged (56% and 59%, respectively). In addition, it is worth highlighting that an overwhelming 80% of the participating entrepreneurs have not made any changes in staff training programs, whereas 33% of them have reduced or significantly reduced hourly wage, and only 2% have increased it.

The research has also demonstrated that 30% of the enterprises reduced working hours, whereas 64% of them made no changes, despite the fact that labour supply rose or significantly increased, according to 62% of the respondents. On the other hand, 62% of the subjects answered that during the crisis, labour supply increased and 41% of them reduced staff numbers; the highest rate of redundancies was observed in Kastoria. In addition, an overwhelming majority stated that redundancies were the result of non-productive work.

Since in this hard period of crisis it is vital to formulate and implement effective strategies and policies in terms of sales, staff, etc., the research also explored the strategic goals and achievements of the involved enterprises. Thus, as demonstrated by the answers, the most significant strategic objective was the increase in sales and profits; one out of two subjects emphasized the importance of diversification. Price reduction appears to be insignificant, whereas reduction of fixed costs is substantial. However, although the research demonstrated that the majority seems to cope with failure in revenue growth and sales, only 31% managed to differentiate, and 15% managed to reduce prices of A and B materials. Nevertheless, the research identified a high percentage of enterprises which achieved higher quality.

To conclude, the research demonstrated that entrepreneurs appear to be very pessimistic about the future of the Greek economy, the food service industry and financing facilities (i.e. easy access to business loans) although they are still more optimistic about the future of their enterprises.

Overall, the data analysis of the topic areas of the questionnaire shows that turnovers are proportional to setting up an alternative emergency plan. Singularity occurs in turnover and strategic planning ratio (either due to failure or lack of application, or to larger turnovers due to selection of a strategic break).

#### 4. CONCLUSION

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The global economic crisis has generated conditions of irregularity and forced the Greek economy into a prolonged recession, affecting the Greek citizens' everyday lives as well as business viability. The crisis has not only had an impact on business turnovers and sales and caused reversal of profitability rates, investment restrictions and a capital base shrink, but has also changed consumer patterns, because of low disposable incomes, and employment. Through these harsh economic conditions, the food service industry has been flourishing, despite incidents of close-downs, described as an entrepreneurial necessity (Eptekoili, 2017).

The analysis of results demonstrates that, despite any differences among the surveyed counties, for a vast majority, the financial crisis has greatly affected the Greek economy and consumer attitudes. However, according to the subjects' answers, the food service industry has been affected to a lesser extent, despite the fact that profits have substantially declined.

It appears that, during the crisis, the enterprises which mainly focus on the analysis of opportunities and threats of the environment as well as on competition, have strategically managed, mainly after eliminating low demand products and dismissing non-productive staff, to reduce advertising costs significantly, by relying, at the same time, on cheaper methods, especially the social media, in order to promote their business. In addition, as far as the economic data are concerned, the enterprises at issue have kept prices and fixed costs unchanged during the crisis, whereas a vast majority stated that revenues and profits per euro have plunged.

In terms of strategic goals, sales and profit growth appear to be the primary goals for the researched enterprises, despite the fact that the specific goals have not been achieved in the wake of the financial crisis. Thus, lack of liquidity and changes in taxation are considered the most significant minor factors affecting the progress of enterprises. Nevertheless, the participating enterprises do not seem to have changed their strategy plans to achieve a competitive advantage. It is remarkable that apart from the fact that the subjects appear pessimistic about the present situation, they are pessimistic about the future prospects of both the Greek economy, the food service industry and business financing (i.e. business loans). In contrast, they are quite optimistic about future prospects, either because of emotional reasons, or because they are unable or refuse to accept reality, or -to a lesser extent- because strategic planning had effectively met their expectations.

## REFERENCES

- Petrakis P., 2014. *The Rebirth of the Greek Labor Market Building Toward 2020 After the Global Financial Meltdown*. Palgrave MacMillan
- Sotiriadis M., 2000. *Hotel and Catering Management and Catering Recreation*. Book Volume B, EAP, Patras. Greece
- Edwards J.S.A., 2013. The foodservice industry: Eating out is more than just a meal. *In Food Quality and Preference*. Vol. 27, No. 2. pp.223–229.
- Erol M. et al, 2011. Management measures to be taken for the enterprises in difficulty during times of global crisis: An empirical study. *Published by Elsevier, Procedia Social and Behavioral Sciences*, Vol. 24, pp.16–32.
- Visvizi A., 2012. “The crisis in Greece and the EU-IMF rescue package: Determinants and pitfalls”. *Acta oeconomica : periodical of the Hungarian Academy of Sciences*. - Budapest : Akad., ISSN 0001-6373, ZDB-ID 3015919. - Vol. 62, No.1 (1.6.), pp. 15-40
- Aggelopoulos X., 2016. The Food Sector Now. Available from:< <http://www.komep.gr/2016-teyxos-6/o-klados-toy-episitismoy-shmera>> Accessed 30-12-2016 (in Greeks)
- Dutton, S., 2017. Consumer Foodservice 2017: Key Insights. Available from: < <http://blog.euromonitor.com/2017/04/consumer-foodservice-2017-key-insights.html>> Accessed 12.03.2017
- Emmanouil S., 2017.** Food Service Industry- Decreases deceleration. Available from: <<http://www.naftemporiki.gr/finance/story/1248726/klados-estiasis-periorizetai-i-epibradunsi>> Accessed 30-04-2017 (in Greeks)
- Eptakoili, G., 2017. Sandwich Entrepreneurship. Available from:< <http://www.kathimerini.gr/900786/article/epikairothta/ellada/epixeirhmatikothta-toy-santoyits>>. Accessed 30-04-2017 (in Greeks)
- Eurostat (2016). “Business demography by size class (from 2004 onwards, NACE Rev,2) Last update: 23-05-2017. Available from: <[www.appsso.eurostat.ec.europa.eu/nui/show.do?dataset=bd\\_9bd\\_sz\\_cl\\_r2&lang=en](http://www.appsso.eurostat.ec.europa.eu/nui/show.do?dataset=bd_9bd_sz_cl_r2&lang=en)> Accessed 23.05.2017
- Hellenic Statistical Authority, 2011. Population-Housing Census. Available from:< <http://www.statistics.gr/en/2011-census-pop-hous>> Accessed 30-09-2016



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University of Macedonia, Department of Balkan, Slavic and Oriental Studies (Greece)

---

- ICAP , 2012. Annual report 2012 with subject t"the situation and others sme prospects in Greece". Available from:< [http://epan2.antonistiotita.gr/uploads/2014\\_09\\_08\\_EKTHESI\\_2012\\_SYNOPSI.pdf](http://epan2.antonistiotita.gr/uploads/2014_09_08_EKTHESI_2012_SYNOPSI.pdf)> Accessed 30-04-2017 (in Greeks)
- INSETE, 2016, Statistical Data for Regions.Western Macedonia. Available from:< <http://www.insete.gr/en-gb/SETE-Intelligence/Statistics/Statistical-Data>>. Accessed 15-12-2016
- Kourlibini, V., 2017. Tourism boom for the next ten years in Greece. Available from:< <http://www.capital.gr/epikairota/3203884/touristiki-ekrxi-gia-ta-epomena-deka-xronia-stin-ellada>> Accessed 30-04-2017 (in Greeks)
- SETE, 2016. Greek Tourism - Developments & Prospects, Issue 1, June 2016.Available from:< [http://sete.gr/media/5444/periodiki-meleti-ellinikos\\_tourismos\\_teyhos-1.pdf](http://sete.gr/media/5444/periodiki-meleti-ellinikos_tourismos_teyhos-1.pdf)> Accessed 10-12-2016
- Ulrich S. et al, 2009. Promoting Responsible and Sustainable Enterprise-Level Practices at Times of Crisis: A Guide for Policy-Makers. Available from: < [http://www.ilo.org/wcmsp5/groups/public/---ed\\_emp/---emp\\_ent/documents/publication/wcms\\_108420.pdf](http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_108420.pdf) >Accessed 11.02.2017

## SENTIMENT ANALYSIS OF APPLICATIONS ON WEB 2.0 TECHNOLOGIES CONCERNING LEGAL

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### ABSTRACT

In recent years there is much talk about web 2.0 and the way in which web 2.0 applications influence media and change the way people communicate and share knowledge. A huge number of messages are posted every day in web 2.0 sites. Emotions seem to be frequently important in these texts for expressing positiveness or negativeness as part of online arguments. The freedom offered by the web 2.0 as a platform for presenting opinions on any subject, brings with it many new opportunities.

The number of web 2.0 sites in the legal domain is growing rapidly and many potential applications for sentiment analysing and monitoring are arising as an outcome. Sentiment analysis refers to a classification problem where the main focus is to predict the polarity of words and then classify them into positive and negative feelings with the aim of identifying attitude and opinions that are expressed in any form or language. Sentiment analysis over web 2.0 offers individuals and organisations a fast and effective way to monitor the publics' feelings towards their society, government, politics, etc.

This paper critically evaluates existing work and presents a sentiment analysis approach. Entities such as individuals, government and businesses can easily know the general opinion for a judgment or just for a public policy. We also present an approach for semi-automatically enlarging a sentiment lexicon for mining social judgments from text, i.e., detecting opinions on human entities. Overall item sentiment can be expressed based on its sentiment words in general or by specifically identifying its features and the opinions being expressed about them. This can lead to a method for sentiment analysis in any domain in such a manner as to broaden and deepen future research work.

### KEYWORDS

Web 2.0 applications, Blawg, Sentiment analysis.

### JEL CLASSIFICATION CODES

C88, L86, M15, P37

## 1. INTRODUCTION

The trend for the informal consumption, creation, communication and sharing of knowledge via ICTs looks set to increase with the emergence of so-called 'Web 2.0' applications. The term Web 2.0 was made popular by Tim O'Reilly (2005). Web 2.0 is an evolution from passive viewing of information to interactive creation of user generated data by the collaboration of users on the Web. Every facet of Web 2.0 is driven by contribution and collaboration. The evolution of Web from Web 1.0 to Web 2.0 was enabled by the rise of read/write platforms such as blogging, social networks, and free image and video sharing sites. These platforms have jointly allowed exceptionally effortless content creation and sharing by anyone.

Web 2.0 has also dramatically changed the ways people communicate, collaborate, and express their opinions and sentiments. Web 2.0 has also lowered the interaction costs of two-way communication over the World Wide Web, and has democratized the production of information and

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applications across the Internet (Reich, 2008). Verdegem (2011) presents how social media can entail both potential and pitfalls, especially with regard to the difficult relationship between digital and social inclusion. But despite social data on the Web being perfectly suitable for human consumption, they remain hardly accessible to machines.

A blog is a website that contains “regular entries of commentary, descriptions of events, or other material such as graphics or video. Entries are commonly displayed in reverse-chronological order. Blogs (web logs or weblogs) constitute a prominent social medium on the internet that enables users to publish individual experiences and opinions easily (Mutum and Wang, 2010).

Blawg is the term which is used to define a blog about legal issues. A Blawg is a blog focusing on commentary about the law, generally written by a law professor, law student, or lawyer. A portmanteau of law and blog (Young, 2013). Based on the definition given in Blawg Republic, a “Blawg” is a weblog dedicated to law-related issues, or the issues of people in the legal profession, or both. In short, a Blawg is a blog contains law related issues from laws, people to technology aspect. An alternative name for “blawg” is “law blog” or “legal blog” (Watson, 2005). Blawg or rather blawg.com is started by Bill Gratsch in December 2002. Slang term used to describe an online blog that is written by lawyers, or one that is focused on providing legal-oriented content. Legal blogs focus on substantive discussions of the law, the lawyer profession, including law schools, and the process by which court decisions are made. These blogs could also be further sub-divided into different areas. A comprehensive taxonomy by Conrad and Schilder (2007) covering the different topics found in legal blogs can be categorized at: (1) General Legal Blogs, (2) Blogs Categorized by Legal Specialty, (3) Blogs Categorized by Law or Legal Event, (4) Blogs Categorized by Jurisdictional Scope, (5) Blogs Categorized by Author/Publisher, (6) Blogs Categorized by Number of Contributors, (7) Miscellaneous Blogs Categorized by Topic and (8) Collections of Legal Blogs. This taxonomy also shows that Blawgs are not only written by law students discussing their daily experiences in law school but also by legal professionals who can provide in depth analysis of recent court decisions.

Krishnamurthy (2002) proposed a general classification of blogs into four basic types according to two dimensions: personal vs. topical, and individual vs. community. For example, a legal blog discussing a special topic where several users contribute to the blog can be categorized as topical and community. According to Rogers (2012) there some top legal blogs. The selection was based on their great content and recommendations from other bloggers.

As the web2.0 plays a more and more significant role in people’s social lives, it contains more and more information concerning their opinions and sentiments. The distillation of knowledge from this huge amount of unstructured information is a task that has raised more and more interest for purposes such as marketing, customer service, and financial market prediction. Analyzing these data helps to understand the user’s behavioral pattern on the blogosphere, and it supports the development of web services such as recommendation of blogs (Gaudeul et. al, 2010).

In web 2.0, people can more easily express their views and opinions on the Web. They can post reviews at web sites and express their opinions on almost everything in forums, blogs or other discussion groups (Freeman and Hasnaoui, 2011). The opinion information they leave behind is important for both online companies and customers. By collecting the opinion information, companies can decide on their strategies for marketing and products or services improvement. Customers can make a better decision when purchasing products or services. Hence, a sentiment analysis has become a popular topic for many research communities, including artificial intelligence (Ye et al., 2009).

A vital part of the information era has been to find out the opinions of other people. In the pre-web era, it was customary for an individual to ask his/her friends and relatives for opinions before making a decision (Kumar and Sebastian, 2012). Organizations conducted opinion polls, surveys to understand the sentiment and opinion of the general public towards its products or services. In the past few years, web documents are receiving great attention as a new medium that describes individual experiences and opinions. With proliferation of web 2.0 applications such as blogs, forums and social networks came (Reilly, 2005). Reviews, comments, recommendations, ratings, feedbacks were generated by users. With the advent and popularity of web 2.0, where focus shifted to user generated content, the way people express opinion or their view has changed dramatically. People can now make their opinion, views, sentiment known on their personal websites, blogs, social networking sites, forums and review sites. They are comfortable with going online to get advice. Organizations have evolved and now look at review sites to know how the public has received their product or service instead of conducting surveys. This information available on the web is a valuable resource for marketing intelligence, social psychologists and others interested in extracting and mining views, moods and attitude (Tang, 2009).

As an important part of our information-gathering behavior has always been to find out what other people think, with the growing availability and popularity of opinion-rich resources such as blogs, new opportunities and challenges arise as people now can, and do, actively use information technologies to seek out and understand the opinions of others (Kumar and Sebastian, 2012). The sudden eruption of activity dealing with the computational treatment of opinion, sentiment, and subjectivity in text, has thus occurred at least in part as a direct response to the surge of interest in new systems that deal directly with opinions as a first-class object.

This paper proposes a method that promises to directly enable opinion-oriented information-seeking systems and is organized as follows. Section 2 describes the background theory. Section 3 describes the proposed method. Section 4 presents a case study focus on textual information extracted from blogs concerning court decisions. Section 5 presents discussion about the method together with directions in the future.

## 2. BACKGROUND THEORY

Data mining is the search for relationships and patterns that exist in large databases, but are 'hidden' among the vast amounts of data (Witten and Eibe, 2000). Web mining (Srivastava et al., 2000) is a sub-category of data mining. Data mining techniques are applied to extract knowledge from web data. There are three main web mining categories from the used data viewpoint: Web content mining, Web structure mining and Web usage mining (Spiliopoulou, 1999; Kosala and Blockeel, 2000; Bing, 2007). Web content mining is the process used to discover useful information from text, image, audio or video data on the web. Web structure mining is the process of using graph theory to analyze the node and connection structure of a web site. Web Usage Mining is the application that uses data mining to analyze and discover interesting patterns of user data on the web. A special field of data mining is text mining which sometimes alternately is referred to as text data mining and aims to the process of deriving useful information from text.

Intent mining is a special case of text/document analysis whose goal is to assess the attitude of the document author with respect to a given subject (Hu and Liu, 2004). It belongs to sentiment analysis or opinion mining which is the application of natural language processing (NLP), computational linguistics, and text analytics to identify and extract subjective information in source materials. Opinion mining is a kind of intent mining where the attitude is a positive or negative opinion. It actually identifies the author's viewpoint about a subject, rather than simply identifying the subject itself. Sentiment analysis aims to determine the attitude of a speaker or a writer with respect to some topic or the overall contextual polarity of a document (Baccianella et al., 2010).

Opinion Mining (OM) is a field of web content mining that aims to find valuable information out of user's opinion (Pang and Lee, 2008). Mining opinions on the web has grown significantly mainly due to fast growth of e-commerce, blogs and forums. More informally, it's about extracting the opinions or sentiments given in a piece of text. Dave et al. (2003) is credited with coining the term opinion mining appears in a paper that was published in the proceedings of the 2003 WWW conference. According to Dave et al. (2003), the ideal opinion-mining tool would “process a set of search results for a given item, generating a list of attributes of product or service and aggregating opinions about each of them (poor, mixed, good).” Much of the subsequent research self-identified as opinion mining fits this description in its emphasis on extracting and analyzing judgments on various aspects of given items (Liu et al., 2006). However, the term has also been interpreted more broadly to include many different types of analysis of evaluative text (Liu, 2011).

According to Esuli and Sebastiani (2006), opinion mining consists both in searching for the opinions or sentiments expressed in a document and in acquiring new methods to automatically perform such analysis. The authors mentioned three main activities of the field: (a) developing language resources for opinion mining, e.g. building a lexicon of subjective terms; (b) classifying text according to the expressions of opinion contained; (c) extracting from text opinion expressions, taking into account the relationship that links the expression of opinion (the words expressing the opinion) to the source (the author of the opinion statement) or to the target of the expression of opinion (the object the opinion is about) (Kim and Hovy, 2006).

Sentiment analysis is part of the area of text mining (Hearst, 1999). Text mining deals with the identification of general facts contained within texts while sentiment analysis deals with the identification of subjective statements and contained opinions and sentiments (Tsytarau und Palpanas,

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2011). Sentiment analysis is an area of research that analyses sentiments, opinions of people, assessments, examinations, mentalities and feelings towards substances, for example the item administrations, organizing people’s issues, occasion themes, and their characteristics (Montoyo et al., 2012). There are some diverse tasks and names involved in the sentiment analysis, such as the extraction of opinions, sentiment analysis, opinion mining and sentiments, analysis of subjectivity, analysis of influence, analysis of feeling, and mining of survey and so forth. Nevertheless, currently they fall within the group of analysis of sentiment or mining of opinion. The phrase ‘analysis of sentiment’ has been initially used (Riloff and Wiebe, 2005), followed by the phrase ‘mining of opinion’ (Choi et al., 2005). Formally stating sentiment analysis is the computational study of opinions, sentiments and emotions expressed in text (Pang and Lee, 2008). The goal of sentiment analysis is to detect subjective information contained in various sources and determine the mind-set of an author towards an issue or the overall disposition of a document. Typical tasks of sentiment analysis are (1) finding documents relevant for a specific topic or purpose, (2) pre-processing documents and (3) identifying the product or service sentiment. The specificity of sentiment analysis compared to text mining in general is the object of interest within the texts (Srivastava and Sahami, 2009).

The history of the phrase sentiment analysis parallels that of “opinion mining” in certain respects. The term “sentiment” used in reference to the automatic analysis of evaluative text and tracking of the predictive judgments therein appears in 2001 papers by Das and Chen (2001) and Tong (2001), due to these authors’ interest in analyzing market sentiment. Thus, when broad interpretations are applied, “sentiment analysis” and “opinion mining” denote the same field of study, which itself can be considered a sub-area of subjectivity analysis.

Since opinion mining of, analysis of subjectivity and sentiment analysis are interrelated fields of study which use similar strategies taken from NLP retrieved from organized information and mining of unstructured data (Choi et al., 2005). Wiebe et al. (2005) described subjectivity as the linguistic expression of somebody’s opinions, sentiments, emotions, evaluations, beliefs and speculations. The words opinion, sentiment, view and belief are used interchangeably but there are subtle differences between them (Pang and Lee, 2008). Opinion is a conclusion thought out yet open to dispute (each expert seemed to have a different opinion). View is a subjective opinion (very assertive in stating his views). Belief is a deliberate acceptance and intellectual assent (a firm belief in her party’s platform). Sentiment is a settled opinion reflective of one’s feelings (her feminist sentiments are well-known).

Opinion orientation can be classified as belonging to opposing positive or negative polarities – positive or negative feedback about a product or service, favourable or unfavourable opinions on a topic – or ranked according to a spectrum of possible opinions (Ohana and Tierney, 2009). Opinions/comments extracted from web 2.0 applications such as blogs need to be categorized based on its polarity i.e. either positive or negative. A set of subjective words are used as tags for identifying opinionated sentences. Subjective words are marked as “opinionated” and are used in the retrieval phase to boost the rank of documents containing them. The mining of opinions in textual materials such as Web logs adds another dimension to technologies that facilitate search and summarization and can facilitate the communication among different professions (Cambria et al., 2012). These approaches mainly rely on parts of text in which opinions and sentiments are explicitly expressed such as polarity terms (e.g., good, bad, nice, nasty, excellent, poor) and affect words (e.g., happy, sad, calm, angry, interested, bored). (Turney and Littman, 2003; Hu and Liu, 2004).

Sentiment analysis or subjectivity classification can be defined as automated extraction of subjective content from digital text and predicting subjectivity such as positive or negative. It deals with predicting the sense of the post text. For example, if user has written a review for a product or service then sentiment analyser tries to predict whether user is criticizing the product or service or s/he is praising it (Pang et al., 2002). The user can look for reader’s reviews or a feedback for particular aspect of topic or s/he can also search for positive and negative subjectivity of result to directly classify result for sentiment analysis (Petz et al., 2013). The same issue is for trend detection, popularity check, analysing impact of any legal laws, famous Politician and for any product or service review by analysing blogs written on it. Companies, organizations and market researchers may benefit from such tools to understand how their product or service is perceived in public, which will help them to predict and increase sales of their product/service (Pang and Lee, 2008).

García et al. (2012) present a dictionary-based approach, annotating sentences of a review by its polarity, using a dictionary with more than 6,000 words. The sentiment score of each review has been calculated based on the negative and positive words which appear in the review, using the mentioned dictionary.

### 3. METHOD

For the design and implementation of the process of sentiment analysis, the reference model of Hippner and Rentzmann for text mining projects was taken into consideration (Hippner and Rentzmann, 2006). The reference model includes six tasks, namely goal formulation, source selection, source processing, mining, interpretation/evaluation and usage. The proposed method covers all tasks from source selection to interpretation/evaluation. In the case of sentiment analysis, the task mining can be further divided into two subtasks (Liu, 2011). The first sub-task aims to identify the comment property mentioned in the given sentence, and the second task is to identify the polarity of the sentiment. The identification of polarity can again be divided into (1) identifying subjective and objective sentences and (2) identifying the polarity as neutral, positive or negative. The different process steps and especially mining methods are described in more detail in the following sub-sections.

#### Software tool

The software tool used in our case study of the proposed method is based on RapidMiner. RapidMiner is an open-source system for data mining comprising data integration, data analysis and reporting in one single suite (RapidMiner, 2016). It is available as a stand-alone application for data analysis and as a data mining engine for the integration into own products. The main advantages of RapidMiner that motivate us to use it in our method are (a) the intuitive graphical user interface for the design of the analysis processes, (b) the ability to input and handle data from a variety of repositories and formats, (c) the extensive text mining methods implemented and (d) the ability to apply several methods for sentiment analysis (RapidMiner, 2016).

#### Pre-processing

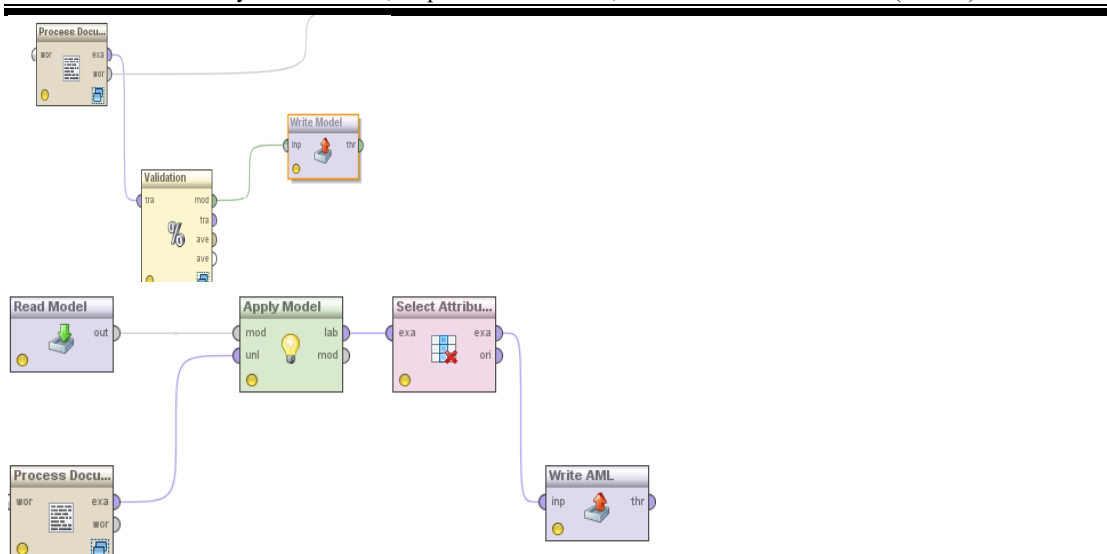
Fully fledged raw data acquired from different sources must be pre-processed before they were analyzed. Some of the preprocessing steps are well-known, such as separating the tokens, word stop removal of parts of text which include tagging, extraction, and representation. Some other techniques were used to break a sentence into images or other important markers, such as highlighting marks, separating the tokens, uprooting words, and expressions. Stop words were not added to the analysis, and subsequently they were removed amid pre-processing steps.

The pre-processing step involves the creation of two separate files. One file contains positive comments and the other the negative ones. Also, two additional files were added. Each file contained the synonyms that could be used to characterize the legal blog topics as positive or negative. A folder “Pos” is finally created containing two files, one with the comments and one containing the “positive words”. The same goes for the folder “Neg”.

#### Design of the processes in RapidMiner

RapidMiner uses processes in order to implement the various tasks. Each process is a sequence of operators. In our case, two processes were created. In the first process we create, train and store the classification model for automatic categorization of text as positive or negative. In the second, we apply this model to new data to automatically be categorized into positive and negative. The processes are depicted in Figure 1.

Figure 1 The two processes for training and applying the automatic categorization model



The first process consists of the operators “Process Documents From Files”, “Validation” and “Write Model”. The “Process Documents From Files” reads the files from the previous step of the method. The operator “Validation” evaluates the performance of the classification model. From the available classification methods the one that was chosen, after testing, was the Naïve Bayes that had the best performance, i.e. more correct prediction compared to the rest available through RapidMiner (Duda and Hart, 1973; John and Langley, 1995). Another reason for choosing Naïve Bayes classification is that it has been found to outperform other classification models in text mining (Mccallum and Nigam, 1998). It must be noted that in order to apply the Naïve Bayes classification model the text is converted to vectors of weights based on the Vector Space Model (Manning and Schutze, 1999; Salton, 1970). With the last Operator “Write Model” we save the model that was created for future use.

The second process consists of the operators “Read Model”, “Process Documents From Files”, “Apply Model”, “Select Attributes” and “Write AML”. The first operator “Read Model” takes as parameter the model which will be applied to the data entered. It is defined the location where the file of previous process was saved. The operator “Process documents from files” was also used in the first process. The difference lies in the fact that we enter new comments that were not used in the training phase of the model for categorization, i.e. comments that we want to apply the model-classifier and categorize them as positive or negative. The operator named “Apply Model” links the previous two operators and applies the selected model to the data that will be categorized. The Operator “Select Attributes” will select the attributes that should be preserved and what should be removed respectively from the introduced file to make the desired prediction.

The file-prediction of sentiments is now available and is in the location where we chose to be stored by Operator “Write AML” and has the specified name. This file contains the characterization positive or negative for each new comment based on the model build at the first process.

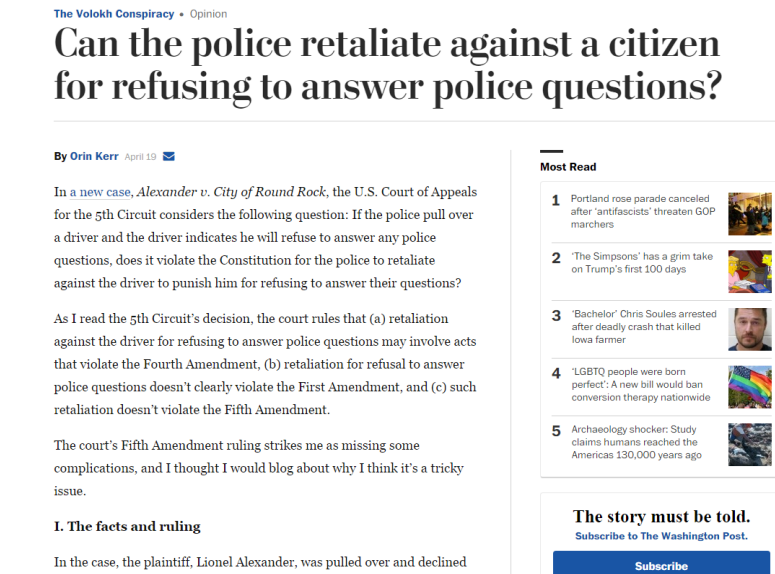
#### 4. CASE STUDY

The proposed method was tested in a legal blog about court decisions. We collected opinions from the users of the blog. After that text mining techniques were applied in order to extract the sentiments opinions concerning court decisions.

##### Legal blog

The blog which was used is depicted in Figure 2. It includes the comments about court decisions. It can be accessed in the address [https://www.washingtonpost.com/news/volokh-conspiracy/wp/2017/04/19/can-the-police-retaliate-against-a-citizen-for-refusing-to-answer-police-questions/?utm\\_term=.e77dfc502819](https://www.washingtonpost.com/news/volokh-conspiracy/wp/2017/04/19/can-the-police-retaliate-against-a-citizen-for-refusing-to-answer-police-questions/?utm_term=.e77dfc502819).

Figure 2 View of the blog about court decisions



When someone wants to post a comment on any blog, s/he should give his/her e-mail and in this way the administrator can avoid the undesirable uploads if s/he detects repetitive/spam posts from a particular email address. Of course one commentator can express his/her attitude more than once since the comments are a kind of dialogue.

As described above, the final outcome of the sentiment analysis process provides valuable information on user reviews and opinions in a structured format. Besides data directly extracted from the review sites, sentiment analysis provides the properties of item that the opinion is linked to, and the orientation of the opinion, i.e. the sentiment. These structured data could be stored in the multi-dimensional data structures of a legal data warehouse and are, thus, available for powerful OLAP analyses and data mining. Fig. 3 shows parts of the structured information directly extracted from the blog.

Words like “prosecute”, “conspiracy”, “punish”, “arrest” etc were found to have negative sentiment, whereas words like “rights”, “privilege”, “respect”, “protection”, etc. were found to have positive sentiment in comments. The comments from the blog of our study were split in half between positive and negative about judgments. In other words our sample was split evenly on feelings.

## Evaluation of the Results

Figure 3 Results of sentiment analysis

| Word  | Attribute Name      | Total Occurrences | Document Occure... | pos | neg |
|---|---------------------|-------------------|--------------------|-----|-----|
| Painful discourage Damage Greed Redundancy Padlock Unemploym              | Painful discourage  | 1                 | 1                  | 0   | 1   |
| Solidarity Prosperity Profitability Success Hopeful Interest vital viable | Solidarity Prosperi | 1                 | 1                  | 1   | 0   |
| blue eye Today the "private" banks, worldwide, constitute a misleading e  | blue eye Today the  | 2                 | 2                  | 1   | 1   |

In figure 3, we see how many times we encountered words with positive and negative emotions in a completely subjective manner chosen. We conclude that the commentators cite as many positive and negative reviews about the court decisions. So we understand that based on our sample it was split evenly on feelings for court decisions.

Considering the whole process of sentiment analysis in RapidMiner, it is obvious that the individual process steps can certainly still be optimized. The following approaches to improve the process were not considered in this research and are, therefore, recommended as possible extensions for future research: (a) Extending the wordlists, especially for infrequent features (b) Using larger sets of training data for the machine learning algorithms (c) Using web services to retrieve reviews from online review sites (d) Dealing with spelling errors by using word similarities.



## 5. DISCUSSION AND CONCLUSIONS

In this study, a general introduction on sentiment analysis, steps of sentiment analysis, sentiments analysis applications, sentiment analysis research challenges, techniques used for sentiment analysis, etc., were discussed. Firstly a good understanding of sentiment analysis and opinion mining research based on recent trends in the field is provided. Secondly, some aspects of sentiment analysis are explained. Thirdly, various sentiment analysis, research challenges are discussed. Finally, the sentiment analysis based on a legal blog was performed through Rapidminer software was performed.

We discussed the type of data used and the text and opinion mining techniques which were used. The proposed method was presented in detail as well as how it can be applied in a blog regarding court decisions. It is actually a ‘Context sensitive Sentiment Analysis’ methodology which provides human like sentiment analysis based on semi supervised learning. The expected benefits of applying such a method are the following: Qualitative presentation of people concerns and recording individuals' problems and opinions concerning topics they are interested in without spatial and temporal restrictions. For example, they can write their opinions in a web 2.0 applications from wherever they are and whenever they like.

In general, by using sentiment mining tool it is easy to categorize reader's views, ideas and demands. This will be helpful for government, market researchers, developers and industries to analyse their opinion or feedback for decision making. Emoticons, such as :) ;) :-) and :(, are frequently used online in social media, IM (e.g., Skype), blogs, forums, and other kinds of online social interactions. Because they are commonly used in online communications and they are often direct signals of sentiment, emoticons in text which can be used for understanding reader's opinion or interest. This work can be extended further for such sentiment which will be used to understand opinions in the blogs in more effective way.

With these details given, it is hoped that researchers will engage in opinion mining and sentiment analysis research to attain more successes correlated to these issues. The research is based on data input from web 2.0, including an application that performs such actions. The main aspects of this study are to statistically test and evaluate the major web 2.0 social network websites:

However there are some limitations in this method. The accuracy can be increased if there is included some WSD (Word Sense Disambiguation) program with this approach, so that the exact sense of each term can be identified and exact synset score can be taken. Furthermore, the method has been only applied to a specific blog. In order to better benchmark it, it must be also applied to other blogs. It is noteworthy that the method can also be applied in other Web 2.0 applications regarding court decisions such as wikis, forums, social networks, etc.

Although the development of the opinion mining methodology for blogs described in the paper is very much work in progress, initial results are promising and we are confident that the semi supervised method used will enable a successful system.

## REFERENCES

- Baccianella, S., Esuli, A. and Sebastiani, F., 2010. SentiWordNet 3.0: An Enhanced Lexical Resource for Sentiment Analysis and Opinion Mining, *Proceedings of the Seventh International Conference on Language Resources and Evaluation (LREC'10)*, p. 2200-2204.
- Bing L., 2007. *Web Data Mining: Exploring Hyperlinks, Contents and Usage Data*. New York, NY: Springer.
- Cambria, E., Havasi, C. and Hussain, A., 2012. SenticNet 2: A semantic and affective resource for opinion mining and sentiment analysis. In: *FLAIRS*, Marco Island, pp. 202–207 (2012).
- Choi, Y., Cardie, C., Riloff, E. and Patwardhan, S., 2005. Identifying sources of opinions with conditional random fields and extraction patterns. *Proceedings of the Human Language Technology Conference and the Conference on Empirical Methods in Natural Language Processing (HLT/EMNLP)*.
- Conrad, J. and Schilder, F., 2007. Opinion Mining in Legal Blogs, In *Proceedings of the 11th International Conference on Artificial Intelligence and Law (ICAIL 2007)*, Stanford University, Palo Alto, CA, ACM Press, New York, p.231-236.
- Das, S. and Chen, M., 2001. Yahoo! for Amazon: Extracting market sentiment from stock message boards. In *Proceedings of the Asia Pacific Finance Association Annual Conference (APFA)*, 2001.
- Dave K., Lawrence S., and Pennock D.M.. 2003. Mining the peanut gallery: opinion extraction and semantic classification of product reviews. In *Proceedings of the 12th International World Wide Web Conference*, Budapest, Hungary.

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- Duda, R. and Hart, P., 1973. *Pattern Classification and Scene Analysis*. Wiley, New York.
- Esuli A. and Sebastiani., 2005. Determining the semantic orientation of terms through gloss classification. *CIKM 2005*: 617-624. F.
- Freeman, I. and Hasnaoui, A., 2011. SOCIETY AND BUSINESS IN THE ERA OF WEB 2.0: STATE OF THE ART AND PROSPECTS. MCIS 2011 Proceedings. Paper 127. <http://aisel.aisnet.org/mcis2011/127>.
- García, A., Gaines, S. and Linaza, M. T., 2012. A Lexicon Based Sentiment Analysis Retrieval System for Tourism Domain. *e-Review of Tourism Research (eRTR)*. 10, 35-38.
- Gaudeul, A. and Peroni, C., 2010. Reciprocal attention and norm of reciprocity in blogging networks. *Economics Bulletin*, 30 (3) p.2230–2248.
- Hearst, M. A., 1999. Untangling text data mining. *Proceedings of the 37th annual meeting of the Association for Computational Linguistics on Computational Linguistics*. p. 3–10.
- Hippner, H., and Rentzmann, R., 2006. *Text Mining*. Ingolstadt: Springer-Verlag.
- Hu, M. and Liu, B., 2004. Mining opinion features in customer reviews. *In Proceedings of AAAI, 2004*: 755–760.
- John, G. and Langley, P., 1995. Estimating Continuous Distributions in Bayesian Classifiers. *In: Eleventh Conference on Uncertainty in Artificial Intelligence*, San Mateo, p.338-345.
- Kim, S. and Hovy, E., 2004. Determining the sentiment of opinions. *In Proceedings of the International Conference on Computational Linguistics (COLING)*, 2004.
- Kosala, R. and Blockeel, H., 2000. Web Mining Research: A Survey, *SIGKDD Explorations*, 2 (1), 1-15.
- Krishnamurthy, S., 2002. The Multidimensionality of Blog Conversations: the Virtual Enactment of September 11. Paper presented at the Internet Research 3.0.
- Kumar A and Sebastian TM., 2012. Sentiment analysis: A perspective on its past, present and future. *International Journal of Intelligent Systems and Applications (IJISA)* 2012; 4(10): 1-14.
- Lento, T. Welsler, H., Gu, L. and Smith, M., 2006. The ties that blog: Examining the relationship between social ties and continued participation in the wallop weblogging system. *In 3rd Annual Workshop on the Weblogging Ecosystem*.
- Liu B., Hu M., and Cheng J., 2005. Opinion observer: Analyzing and comparing opinions on the web, *in Proceedings of WWW, 2005*.
- Liu, B., 2011. *Web Data Mining: Exploring Hyperlinks, Contents and Usage Data*. 2. Edition, Chicago: Springer.
- Liu, B., 2012. *Sentiment Analysis and Opinion Mining*, Morgan & Claypool Publishers.
- Manning, C. D. and Schütze H., 1999. *Foundations of Statistical Natural Language Processing*, The MIT Press.
- Mccallum, A. and Nigam, K. 1998. A Comparison of Event Models for Naive Bayes Text Classification. *In: AAAI-98 Workshop on 'Learning for Text Categorization'*.
- Montoyo A., Martínez-Barco P., Balahur A. 2012. Subjectivity and sentiment analysis: An overview of the current state of the area and envisaged developments, *Decision Support Systems* 53 (2012) 675–679.
- Mutum, D. and Wang, Q. 2010. Consumer Generated Advertising in Blogs. In Neal M. Burns, Terry Daugherty, Matthew S. Eastin. *Handbook of Research on Digital Media and Advertising: User Generated Content Consumption 1.*, IGI Global. p. 248–261.
- O’Reilly, T., 2005. What Is Web 2.0: design patterns and business models for the next generation of software [Online]. Available at: <http://oreilly.com/web2/archive/what-is-web-20.html> [Accessed 27 April 2013].
- Ohana B. and Tierney B., 2009. Sentiment Classification of Reviews Using SentiWordNet. *9th. IT&T Conference, Dublin Institute of Technology*, Dublin, Ireland, 22nd.- 23rd. October, 2009.
- Pang, B. and Lee, L., 2008. *Opinion mining and sentiment analysis. Foundations and Trends in Information Retrieval*, 2(1-2), p. 1–135.
- Pang, B., Lee, L. and Vaithyanathan, S., 2002. Thumbs up? Sentiment Classification using Machine Learning Techniques. *Conference on Empirical Methods in Natural Language Processing*, 79-86.
- Petz G., Karpowicz M., Furschuß H., Auinger A., Strtesky V., and `Holzinger A., 2013. Opinion mining on the web 2.0–characteristics of user generated content and their impacts. *In Human-Computer Interaction and Knowledge Discovery in Complex, Unstructured, Big Data*, pages 35–46. Springer.
- RapidMiner, 2016. RapidMiner Overview [Online]. Available at: <http://rapid-i.com/content/view/181/190/> [Accessed 10 April 2016].
- Reich, J., 2008. *Reworking the web, reworking the world: how web 2.0 is changing our society*. Harvard Graduate School of Education.
- Riloff E. and Wiebe J., 2003. Learning extraction patterns for subjective expressions. *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2003.
- Rogers, 2012. <http://www.businessinsider.com/the-best-legal-blogs-2012-9>.
- Salton G., 1970. *Automatic text analysis*, Science, 168, p.335–343.
- Spiliopoulou, M., 1999. Data mining for the web, *In Principles of Data Mining and Knowledge Discovery, 2nd European Symposium, LNCS*, vol. 1704, (pp. . 588-589). Heidelberg: Springer.

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- Srivastava J., Cooley, R., Deshpande, M. and Tan, P.N., 2000. Web Usage Mining: Discovery and Applications of Usage Patterns from Web Data, *ACM SIGKDD Explorations Newsletter*, 1 (2), 12-23.
- Srivastava, A. and Sahami. M., 2009. *Text Mining: Classification, Clustering, and Applications*. Boca Raton, FL: CRC Press.
- Tang H, Tan S, and Cheng X., 2009. A survey on sentiment detection of reviews. *Expert Systems with Applications: An International Journal*, September 2009, 36(7):10760–10773.
- Tong R. M., 2001. An operational system for detecting and tracking opinions in on-line discussion,” in *Proceedings of the Workshop on Operational Text Classification (OTC)*, 2001.
- Tsytarau, M., and Palpanas, T., 2011. Survey on mining subjective data on the web. Springer, Trento. Witte, R., & Mülle, J. (2006). *Text Mining: Wissensgewinnung aus natürlichsprachigen Dokumenten*. Universität Karlsruhe (TH), Fakultät für Informatik Institut für Programmstrukturen und Datenorganisation (IPD). Karlsruhe.
- Turney P. and Littman M., 2003. Measuring praise and criticism: inference of semantic orientation from association. pages 315–346. *ACM Transactions on Information Systems*.
- Verdegem, P. and UGent, 2011. Social media for digital and social inclusion: challenges for information society 2.0 research & policies, Tripe C. *TRIPLE C - COGNITION, COMMUNICATION, CO-OPERATION. Journal for a Global Sustainable Information Society*. 9 (1). p. 28-38.
- Watson, C., 2005. Keeping Current: Staying Abreast of Legal Topics Plus a Sneak Peek at Emerging Technologies. Presentations (2005): 12.
- Wiebe J., Wilson T., and Cardie C., 2005. *Annotating expressions of opinions and emotions in language*. Kluwer Academic Publishers, Netherlands.
- Witten, I. and Eibe, F., 2000. *Data Mining: Practical Machine Learning Tools and Techniques with Java Implementations*, 2nd Edition, Morgan Kaufmann, San Francisco.
- Ye, Q., Zhang, Z. and Law, R., 2009. Sentiment classification of online reviews to travel destinations by supervised machine learning approaches. *Expert Systems with Applications*, 6527-6535.
- Young, C., 2013. Oh My Blawg! Who Will Save the Legal Blogs? (November 12, 2013). *Law Library Journal* Vol. 105:4 [2013-26]; Rutgers School of Law-Newark Research Paper No. 135. Available at SSRN: <https://ssrn.com/abstract=2353988>.

# **TRANSITION FROM NATIONAL TO GLOBAL ECONOMY AND THE DISSOLUTION OF NATION- STATES**

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## **ABSTRACT**

The socio-economic mainstream in all regions of the world presents a single movement with new qualitative data. Among these distinguished elements, obtained as results of the relation of the subjects of global governance. A transition accomplished, which is particular economical, and it is not followed by a corresponding political process, so that the transition to the globalization of socio-economic systems be asymmetric, ignoring large realities and achievements that have proceeded. The general determinisms of the world now weigh decisively, so that the individual peculiarities do not refute this movement, but should be studied thoroughly at a scientific level and at the level of practical performance. The relationship between regional organizations and international institutions reconsider to the point of national sovereignty, the transformation of production relations of ethno-national to transnational, whereby absorbed the national element from the supranational. At a market level confronted the Europeanism and Atlanticism with the creation of Euroatlantic Union and at the region of the Pacific countries Trans-Pacific union. The overall changes in the world in the last decade of the 20th century are important, but also this is a conjunction of the occurrence of events and do not cancel the historical movement of humanity. These changes encapsulate the meaning of changing the correlation of forces; they are limited in time and form the bond between the self-interested approaches of historical movement with aspirations of conservatism, unattainable in lawful movement towards globalization.

## **KEYWORDS**

Globalization, governance, transitivity, supranational, institutions, dissolution

## **JEL CLASSIFICATION CODES**

F02, F50, P00

## **1. INTRODUCTION**

The dissociation between the objective, deterministic and progressive essence of globalization contrasts with its today form. The acceleration of processes tries to circumvent the transitional processes and subordinated to the principle of supranationality, impinges on deadlocks of national shortage before the relevant procedures, which overcome it, have been accomplished. This form of globalization is removed from the search for a new management of the economy system, based on the transitivity of absorption of nation-states from the regional associations to the global market and the globalization. This process highlights the underlying problems in the absorption of the national element, which although has the corresponding historical background and the global market integration, which is unprecedented and unique in dimensions. In this context, the projection on the economy and the relationships developed by the deficit necessary and competent economic management methods are relevant. The form and substance of the supranational enterprise is the forecast for economic integration, because in it will be absorbed all the previous forms of property, the individual capitalist. The realities that constitute the system and its motion require the corresponding theoretical approach to awareness and recognition of these realities.

## **2. THE ESSENCE OF GLOBALIZATION**

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Global economic integration follows the same pace of the move from national to international and global. In this context the national capital was temporarily recovered from the effects of WWII and created expectations that it could search for its own living space and the corresponding empowerment. The necessity for the control of living space is given, contributing ways for emancipation of the nation-state. The living space was determined from the external conditions of existence of capitalism, since at the east stood the barrier of real socialism, and generally in the world this period the colonial system had collapsed (Ntouskos 2000). The principle of sovereignty is the dialectical counterpart of the principle of self-determination, manifested historically with relevant deficit in the process of the countries in the deepening of capitalistic integration. In the integration of socialist system, the process of integration follows progressive course and applies the law of the equivalence of states. Unlike the colonial era, where the depended countries were economically ascending and were reaching levels of economic development that enabled them to continue their growth path after independence, in the era of integration, the process is different. A unilateral and empirical approach does not objectively interprets the course of nation-states on the process of globalization, namely their absorption by the regional associations or other institutions, initially and their ultimately melting in the globalization crucible. The integration is beneficial to the nation-states since the economic level is about the same, otherwise the strongest economic country becomes subject of governance and weak object of exploitation. The application of this principle is confirmed in European integration, where the weak economic countries of European south de-industrialized and become objects of economic governance from the strong economic countries of the north. This approach, coupled with the fact that the region of Western Europe in the early 50s, but also perennially, has a difference in the level of economic development of capitalism, explains the diversity of theoretical concepts on the EEC-EU issue and rejects uniquely positioning for alleged benefit or harm for everyone, regardless of class position and the homonymous visual angle from which it is viewed or considered the above issue (Ntouskos, 2000). In the ground of socialism the same period the state sector ascending level of importance, at technology (space race, nuclear energy), economy (aid to the third countries) and international relations. Against the socialist achievements, capitalism recourse to Keynesianism and state intervention; this creates two opposing currents within the EU and the world more widely. The two systems however coexist and will coexist for the present period and for the period and the duration of the transition from EU to Euro-Atlantic Union, with Keynesianism to be the dominant economic system as a replacement of the political union. In contrast liberalism is manifesting itself in overall EU constitution. These data gave the opportunity to the national capital to maintain not only its existence but also its superiority. But the situation changed when the priority of supranational over national capital was put. The change in correlation between national and international, with the final end of the rise of the state sector, happened when the capital became supranational. National frameworks become narrow and so become the international and regional. The dialectic between Europeanism and nation-state has now weakened and the interpretation of the issues of the first is now placed in dialectic between Europeanism-Atlanticism (Ntouskos, 2000). But on the side of Atlanticism the corresponding union of North America was not able to meet member-states' expectations, confirming the rule that such associations benefit economically strong states and harm the economically weak ones. At the macroeconomic level the success of NAFTA was recognized by all publications. “Between 1993 and 2000, for example, trade in the NAFTA region increased from \$ 659 billion to \$ 289 billion. Trade flows between the United States and Canada reached \$ 411 billion and between Mexico and the United States \$ 263 billion in 2000. Mexican exports to the United States and Canada increased by an extraordinary 234 percent and 203 percent, respectively between 1993 and 2002. Today, twenty-two US states have Mexico as the first or second market for their exports. For nine other plays Mexico in the third largest exports destination. With respect to total FDI flows between the three countries, which amounted to \$ 63 billion between 1989 and 1994, the period 1995-2000, the total flow increased to \$ 202 billion, by multiplying the volume in dollars” (Dominguez, 2007). The character of capitalist integration is confirmed, in the region of the NAFTA countries, consequently with the necessary distinction between form and content of that reality. In the content of the union the laws of capitalism are also prevailing, that is, between states the strongest economically subjugate the weak. However, despite the success indicated by the macroeconomic data, some criticisms emerge in the interpretation of these numbers. For instance, “in the 12 years since NAFTA was ratified, the yearly U.S. trade deficit with Mexico and Canada has grown from \$9.1 billion to \$110.8 billion. In this vein, a study conducted by the Carnegie Endowment for International Peace shows the following findings: a) NAFTA has not helped the Mexican economy keep pace with the growing demand for jobs (500,000 jobs were created in manufacturing from 1994 to 2002, while the agricultural sector has lost 1.3 million jobs since 1994); b)

real wages for most Mexicans today are lower than when NAFTA took place (caused by the peso crisis); c) there has been an increase in the number of migrants to the United States (although not necessarily as a result of NAFTA)" (Dominguez, 2007). Manifested on this basis, the main feature of capitalist integration, inherent by its nature expansion, as the main line of development and differentiates from that of deepening. Operating deepening and expansion as dialectical duo, and where this contradiction is manifested, in regional associations, prevails the expansion toward deepening, which means asymmetrical growth, inequality (Keynes), in economies, typical and necessary law for the development of the capitalist system.

## 2.1 Peculiarities of imperialistic integrations

Globalization manifests itself in a way that can not be disputed, without concessions and rely on the validity that stems from the general recognition. It has a character historically rising and progressive, independent from ideological approach and not canceled by the operating method of the supranational capital, as coordinator of this procedure, on the verge of the two millennia. The legalization process is not undermined by the form or content of certain policies or certain objectives with specified content in order to build a global political entity. The political and military competition, after the Second World War, between the West and socialism, firstly caused and secondly accelerated procedures and relevant forms of globalization. Globalization is an open process and manifests itself in a transitional ground, which has not taken its final form and disintegrates the nation-states, federations, and political systems. Henceforth, the conflict between the national and supranational is played on the close horizon of national wherever its reserves are maintained. The strong historical community, the core of international relations, under the given conditions is pushed into a violent rather than gradual adaptation to existing and nascent institutions. The same institutions fail, at least in the transitional period to provide sustainable growth and prosperity and to initiate institutional changes to international organizations, so the challenges are to be addressed. Globalization manifests itself violently and creates inconsistencies in its motion based on alternative and not on supplementary procedures. Given the fact that globalization is consistent with the international nature of socialism and stemmed by the narrowness of capitalism, namely private property, deprived of the benefit derived from the character and peculiarities of supplementing between the two systems. Supplementing in the process and in every aspect of globalization, is a necessary element of it and referred to the law of correspondence of the level of the means of production to the level of productive forces. This integration requires the inclusion of depletion of productive resources and the need to be taken into account at global level, by strengthening scientific-technical content of the social product. The meeting of labor power and means of production is implemented in the consolidated market, which in turn leads to a consolidated economy, with scientific terms and prerequisite the scientific programming as the management system of the economy. Globalization, from a philosophically, scientific-theoretical point of view, is the socialization process at the highest level, overcoming all forms of the historical community so far (Ntouskos, 2000). The latter, is in the combination process of individuals, of human consensus, collective desire and of the raising of the barriers that have been put on the road to universal understanding. This potentiality is objective and inevitable, even if neo-conservatism unbearably presses for exclusive governance, towards a "partial" globalization. The universal process started of course by the powerful countries of the west and was first used as a tool to support their claims of global governance, but gradually found acceptance from less powerful countries as a means of asserting their own claims in the distribution of global wealth. The pressure necessarily increases to the extent that supranational capital is leading the process of globalization and the corresponding pursuit of global governance. The configuration of the current state went through three phases-periods; summary can be considered as follows:

- The period in which the theory of value dominated had as its core commodity production. This period lasted from the rise of commodity capitalism and is mainly characterized by cooperation based on the theory of value. It is the period of formation of the bourgeoisie class in a field where three classes with a strong presence simultaneously coexisted. The old aristocracy, the rising bourgeoisie and the proletariat, which constituted the three parties to the conflict and after the absorption of the nobility of the upper bourgeoisie class, to varying degrees, the contradiction between the bourgeoisie and proletariat and simultaneously the character of this period was reshaped.

- The second period is during the domination of imperialistic capitalism with the progressive unification of markets, in the early stages and the final division after 1917. The existence of two opposing socioeconomic systems is defined on the basis of capitalism-socialism, conservatism-radicalism. This pattern prevailed for decades and led to the disintegration of the world economy, especially after the WWII, with the efforts of both systems to overcome the division on class basis. One of the characteristic of this period is the expansion and unification of markets and their division, leading to a realistic treatment of the common goal, with efforts to restructure the system of international relations (Helsinki Final Act) and cooperation with parity rules. The law of value was at the core of the relationship or expressing the equal or unequal exchanges of the transnational capital.
- The last period starts in the late 70s and escalates with the confrontation of socialism-capitalism and this dialectic of the two systems. The neuralgic link in this chain is the ascending significance of STP at the ground of socialism which constitutes for capitalism the measure of its development. The procedures accelerated at socialism, while capitalism in the sphere of economic management geostrategy is ushered, changing the core of the economy, free market competition, in the geostrategic management of supranational capital. The controversy was intensified to such an extent which brought the capital to a position of power and a new balance of power. Market integration starts and unipolar globalization creates the basis of capitalistic globalization.

The typical innovation of the era after the domination of capital is reflected in two features that connected the first by deposition of growth and the rescue of capitalism in the broad development of the Scientific-Technical Progress (STP), which is mainly held by the US, from the countries of the West. This progress has resulted in the rising of labor forces, which follow the rise of the STP, which in order to be absorbed, requires the appropriate specialized labor force. The absorption of STP from the production process is carried out only with the corresponding absorption of skilled labor with the corresponding increase in labor wages. The latter, the increase in wages, in its turn, results to cause the crisis in individual capitalist ownership and only monopoly capital is able to support it, which is not prepared to increase the wages and therefore dissolves the individual enterprise, increases the rate of wage labor and changes labor relations, through market integration agreements. Through these agreements (Trans-Pacific Partnership), monopoly capital is able to maintain the level of wage low and correspondingly absorbs STP with the corresponding exploitation of skilled workforce. This is the arrangement between the monopoly in its modern form, the supranational corporation and labor wages. Studying the essence of the nation-state depreciation we conclude that this is a depreciation of the national production relations to the dimensions of the national base of individual capitalistic property and of labor power. This phenomenon is not confined to the underdeveloped countries, but extends throughout the transition period and to the developed ones. As concerns the underdeveloped countries this applies to the conditions of imperialism, where they are subordinated to the powerful countries, but in developed countries over the process of integration prevails across traditional alliances of strong or relatively developed countries. It is becoming understandable in the European integration with the force exerted by the strongest economic states (Kennedy, 1993), in other member states in the process of national political systems to their absorption (Despotopoulos, 1994) by the overriding supranational integration.

## 2.2 The logic of national nihilism

The entry of England in the EC marks the liberal approach on the side of Atlanticism and the positive or negative attitude of the first depending on the compatibility between Atlanticism and EC. England joined the EEC with the colonialist compatibility and imperialist tradition. The prospect of limiting national sovereignty within the community dictated its negative attitude; while at the same time it is ceded steadily its own superiority in the Atlantic governance. It was this attitude which developed the dynamics in the policy of coiling around Atlanticism, due to deregulation tendencies of the capitalist system during that historical period. The attitude of England constitutes realism which shows the system in times of crises. The move instead of the stated positions (Churchill, 1946) on the federalization of Europe resulted in the annulment of political union. This has resulted in the decline of Europeanism versus Atlanticism with implications that go beyond the boundaries of the European area and expanding worldwide. All the conditions were created in order to reach in national nihilism and the priority of globalization strengthened against the lower forms of institutional organization. The basic ideology of the bourgeoisie class, this of nationalism, transformed into chauvinism, wording in the

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internationalism of capital across with individual derivatives, and from the mid-20th century transformed in cosmopolitanism, and national nihilism (Ntouskos, 2000). The inequality that characterizes the subjects of European integration also characterizes the progress of each subject in any regional integration. The application of this theory, if extended to the global sphere, is a guide to export similar conclusions. Regional integration is used in every form as the maturity stage to the transition from national to international in to global. The historical developing course of the nation-state is suspended and subsequently the objective possibility of movement towards development with sovereignty and independence. The authority moves respectively and from national constitutions passes in supranational institutions and practices through directives becoming law of the member countries of regional unions, or agreements of the economic associations. The management of the economy passes through free competition or state intervention, with the respective variants of neoclassicism and Keynesianism in a peculiar complementary function of these two economic currents. From the point where the management of the economy becomes ineffective, the application to programming becomes a necessary compromise. Geostrategy as extra-economic mechanism to replace the economy management mechanisms followed the novel practices by being introduced into the system of international relations. The geostrategy is subject to the monopoly capital which is its exponent. Monopoly capital in its most developed form transformed to supranational. From the beginning of the 21<sup>st</sup> century it dominates and for the duration of all this period, which is transitional and distinguished by the concentration of power in international institutions such as the UN, IMF, G7, G8, G20, World Bank, with respect to statehood establishment, dominates the competition of the nation-state with supranational element aiming at the ultimate prevalence. Supranational capital is in dialectical unity with the geostrategy, at global level it is in competition and cooperation in correspondence with the movement of competition cooperation, capitalism-socialism and internally in constant competition with the nation-state, regional, politico-economic and economic institutions and associations. The contrast between nation-state and supranational capital brings the second in a position of power and makes it stronger and results at the national nihilism. The future prediction is possible by projecting the historical data in the future and the correspondences generated which have begun to take their future forms. The management system of the economy becomes geostrategic with elements of programming. At another next level of abstraction and at political system level, the state political system adjusts to the supranational level and the positions adopted by the appropriate ratings where regional political associations are higher than the national and the global associations are greater than the regional. In this line prevails the position that the EU and NAFTA are superior entities than the independent states and the WTO and the TPP are superior realities from NAFTA and EU. The theoretical and scientific analysis of the above issues can lead to the conclusion that these positions are realistic, including the corresponding historical upcoming content. In the sphere of ideology political ideals are proclaimed as superior from the national ones, within these neologisms European citizens, citizens of the world, European horizons and world culture, transform nationalism into its opposite the national nihilism. The essence lies in the aspirations of Supranational Capital seeking profits across national borders, based on this ideology which strikes primarily the sphere of the economy, with the expropriation of the economic base of each country. In the sphere of political system crisis manifested under the assumption of the priority of the supranational and extends to the symbols, religion, education, language, culture and history. Monopoly capital is international and operates in accordance with the laws of global market and not by the individual national priorities. The above wording expresses the realistic logic of supranational capital and the sacrifice of national and state-monopoly mechanisms is to rescue the system globally with the proportional dilution of the core of the system carried out by the national nihilism. This embodiment is part of creative destruction, Soumpeterian in nature and lies on the destruction of national structures on the conditions of strengthening the transnational capital, as economic growth factor to be created. The latter operates with the dual role of economic and political domination and the destruction extends to the dissolution of the political class of the countries which are now becoming obsolete. We assume that the inclusion movement in international institutions is the principle of federalism without dissolution of nation states against the strengthening of the political system. The logic of enlargement on regional associations converted to deepening and a balanced developing of the countries' economies. The STP diffused among equivalent and equal states on the basis of reciprocity and solidarity. The management system of the economy remains free competition and state intervention or planning for the socialist states. Earnings of Supranational Capital are reduced and dispersed among the nations. In the transition period the management system of the economy is entrusted to institutional mechanism with broad participation and based on the principle of diversity and the refusal without sanctions. The global governance system becomes multipolar. This process is



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developed evenly in national subjects and maintains the survival of these subjects. There are two ways of transition to the global market and to the globalization and many ways of governance. The economical actions which bring the corresponding results are the most important and are of large scale:

- In the process of supranational capital development with dissolution of the nation-state, the transition to the global market is carried by passing of the movement of capital and labor power in a global economy. The movement of capital differs in the case of the dissolution of the nation-state where it is extensive and moves anarchically and non-scientifically seeking sources of workforce to immigrate immediately, just when a new source provides a higher level of specialized workforce. The fleeing of capital leaves behind depressed economies and in a worse situation that they were before the capital's initial arrival.
- In the second case the reinforcement of the rising course of the nation-state and the strengthening of national sovereignty, the content of working capital and labor force changes and these changes are based on the use of objective programming. By the use of programming, capital works proactively and creates the conditions for development of specialized power without forcing the latter to migrate in search of finding the dialectical counterpart, the movement of capital. Capital itself will move towards specialized working labor force where it has already been developed in order to join it. The process is converted from extensive to intensive and the enlargement is converted to deepening. In global level the capital and labor power is formulated and scientifically distributed in a dialectical unity, with the ability the national element to be shaved which transcends the narrow perception of the nation-state and transitionally its form.

### **3. CONCEPT AND ESSENCE OF INTERNATIONALIZATION**

Internationalisation accomplished worldwide and is different from globalization, since it refers to the growing importance of international relations, international trade and international treaties. It is manifested in the contact points between nation-states and in the interface between different socio-economic systems, which today are capitalism and socialism. The basic unit of international relations remains the nation, even if international relations are developed between groups of nations with historically rising content. Internationalization takes place at the base of parity or inequity according to the given opportunity for expression of such relations and the possibility of imposing power. In its context embodies either the rules of imperialistic domination or the democratic rules of national sovereignty. In the second case, when respect for sovereignty accompanied by parity and mutual benefit is a democratic internationalization while in the first case is internationalization based on unbalanced exchanges. In any case on the basis of internationalization remains the nation-state as the cell of international relations. During the period of imperialistic capitalism, prior to WWI, international relations were developing as a product of the contradictions between capitalist states and between metropolis and the colonies. With the division of the world economy, international relations moved from the territory of trans-imperialistic contradictions on the territory of contradiction between capitalism-socialism and internationalization on the base of equal relations and mutual benefit was borne towards imperialistic globalization. Globalization refers primarily to the integration of national economies into a global economy, triggering the process of “erasure” of national borders since the internationalization is product derived through the diffusion of national to international. The integration means melting of the two parts in a new composition with consequent decomposition of the parts from which it has come. This concerns the form while the process for the content is different, which we will consider below. Commodity capitalism was dominated both on the subject and the object of internationalization. Along with the urban class was surrendered economic domination to the state only to implement the separation and sharing the goods and property of production, ensuring the control of the state. National economies came in contact between each other in international field exchanging national goods, produced in national terms and with the cooperation and confrontation between capital and labor power, in terms that were controlled by each state. When the conditions weighted in favour of one or the other transacting party at international level, protectionism as protective gear was utilized. Accordingly this period the intensity and dynamics of internationalization was determined by the states and therefore from the respective national bourgeoisie class, which exerted control over the state. That was changed when the capital became a monopoly, the period of imperialistic capitalism. The capital becomes international, and invested across national borders; the internationalization of capital is

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accomplished. This movement is historically progressive with developing content, since cooperation at international level replaces the position of the national confrontation. The first period of imperialistic globalization as stated above realized in terms of monopoly capital, meeting at international level from one side the private-individual and the state capital and from the other the labor force either the national or the emigrational labor force, where was imposed. Socialism strengthened the progressive character of internationalization forcing the opponent socioeconomic system, capitalism, to follow the same progressive course. The progressive process of internationalization did not stopped nor the time of Cold War between the two socio-economic systems. On the side of capitalism it is noted new direction towards the industrial cooperation and decolonization. At the same time the isolation of socialism passed into de-politicization level of international relations and international cooperation with developed capitalistic countries, while inner-socialistic strengthening of cooperation between the socialistic countries. The two systems are meeting in the field of cooperation with developing countries, the socialism with the aid for the independence from imperialism, consolidation of national sovereignty, economic independence, expansion of the state sector and development of the working class and the capitalism through strengthening the economies of developing countries, dependence on imperialistic capital and the diverge from the realm of socialism influence. Capitalism is more realistic than socialism; it knows how to mutate into anything that is adequate in order to prolong the survival of the system, and acting on the principle of survival, accelerated democratic internationalization. In the field of internationalization manifested contradiction and cooperation that is the dialectical relationship, which gives to it historically upcoming content. The change came when socialism entered in the field as a partner and rival in world state affairs, it gave to internationalization also progressive content. The course, however, to the democratic internationalization is not straight and without problems, which relates either to the problems at local level and to the economies of developing countries or to the problems between the two socio-economic systems in the principal contradiction of modern era and renamed to international or global problems. Such are the problems of non equivalent exchanges, the right of these countries to manage their national wealth, their claim to be reimbursed a portion of banditry carried out by imperialistic countries against them, in the long period of colonialism and neo-colonialism (Ntouskos, 1988). The international relations system is complicated when the term “modelling” is entered, where the creation of a model is attempted to address the global problems in the sphere of international relations. The international relations system is so complex that any modelling effort stems from the effort of monopoly capital to downgrade the importance of democratic internationalization and the corresponding principles which govern it. Capitalism is suffering from a basic contradiction: from its nature is based on inequality, but at the same time it is required to unfold at international level in a formed international community that constitutes the necessary condition of its own existence. The accumulation of capital does not always correspond to the level of the labor force and this creates imbalances that lead to asymmetric development of various economies where it is exported. The asymmetry is reflected in the economic development of these areas, where the capital is exported compared with the countries that invested. The accumulation of capital based on asymmetry and especially on inequality derived from the distribution. “Europe was socially and economically organized in such a way as to ensure maximum capital accumulation. [...] In fact, it was precisely the inequality of wealth distribution that made possible these vast accumulations of fixed capital and of capital improvements, which distinguished that age from all others. [...] The enormous accumulations of fixed capital of great benefit to humanity, increased during the half century before the war, they could never have come into a society in which wealth was distributed fairly” (Keynes). Instead, the global economy pushes towards parity at all levels and it does the contradiction even more pronounced. To the extent that intensifies the contrasts, system adapts the national production to the world standards.

#### 4. CONCLUSION

Economic growth and the productive forces do not always move together, not actuated automatically and the former does not automatically deploy the second or vice versa, these politico-economic considerations, creating potentially dangerous relationships, which require analysis and adoption of new forms of management and control. The globalization of economic activity affects and is affected by the international division of labour, each country's culture and politics as it faces barriers to regional differences, expressed in different ways, as differences in population density, employment,

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income, the migratory balance, economic structure, consumption patterns, and spatial inequalities north – south and these differences occur both between states and within each state. A governance system is imposed in the global arena, manifested geo-strategically. The aim is to bypass the nation-state as a geo-economic space production and geopolitical space techno-economic development and socio-economic prosperity. In the centre stands the will of the great powers, especially the US, to impose economic and political model, formed upon their geostrategic goals. The traditional structures and institutions of the nation state, replaced with new supranational formations and new systems and standards of production and circulation, quantitatively larger but fragile and vulnerable to economic changes. From the historical-economic aspect these trends evaluated and included in this study depending on their importance and role. The position of this paper lies in the realm of political economy because it is considered this major, the dominant economic systems, economic theories that have been developed, the institutions that have been created and their role in the global politico-economic sphere. This global phenomenon is both topical and complex that requires immediate and complex response. Political, as a science and as an art, is necessary in this case, both in the theoretical analysis, and in that of direct practice. The logic of social progress and the requirements of modern economics dictate the need, rich and contradictory reality with the development and promotion of efficient solutions to be expressed, making the use of these, increasingly effective and appropriate method of analysis and action. The scientific, finally, above assessment and assimilation which is delivered by the ambiguous position that the post-war international institutions must change as they have radically changed the circumstances. In short, the systematic and intact this approach finds practical and multi-level counterpart in Supranational Institutions with democratic participation of states, justified in the general level of the economy and diffuses realism and optimism.

## REFERENCES

- Churchill's Winston, “*Iron Curtain Speech, at Westminster College in Fulton, Missouri on March 5, 1946*”. [Online] Available at: <http://www.historyguide.org/europe/churchill.html> Last Accessed Feb 2016
- Conference on Security and Co-Operation in Europe Final Act, Helsinki 1975
- Despotopoulos, K, I, 1994, “*Ellinika themata istorias kai politismou*”, “*Greek issues of history and culture*” Editions Papazisi, Athens pp. 47-48
- Dominguez, Roberto, NAFTA: “*Will it ever have an EU profile?*” Jean Monnet/Robert Schuman Paper Series Vol. 7, No. 3, April 2007, p. 7, [Online] Available at: [http://www6.miami.edu/eucenter/Dominguez\\_NAFTA\\_WillitEver\\_long07.pdf](http://www6.miami.edu/eucenter/Dominguez_NAFTA_WillitEver_long07.pdf) Last Accessed Feb 2016
- Kennedy, P., “*Germany in Europe Half a Hegemon*”, *New Perspectives Quarterly*, winter 1993, pp 35-38
- Kennen, B., P., 2002, “*The Euro Versus the Dollar: Will there be a Struggle for Dominance?*”, *Journal of Policy Making*, Vol. 24, pp 347-354
- Keynes M., J., 2009, “*The Economic Consequences of the Peace*”, Editions Papazisi, Athens, p 11
- Keohane, R., 1989, “*International Institutions and State Power*”, Westview Press; Simmons B, Martin L, “*International Organizations and Institutions*” 2001 Available at: <http://scholar.harvard.edu/bsimmons/files/SimmonsMartin2002.pdf>
- Kissinger, H. 2005 “*The Spread of Liberty*”, *The STEP*, 18.5.2005, article, p A5
- Kondylis P., 1992, “*Planetarische Politik Nach Dem Kalten Krieg*”, “*Planetary Policy After Cold War*”, “*Πλανητική Πολιτική Μετά τον Ψυχρό Πόλεμο*”, trans. Kondylis, P., editions Themelio, Athens.
- Krugman, P, 2000, “*The Return of Depression Economics*”, Edition Kastanioti, Athens
- Kypriotelis, E, 2016, “*Reorientation of the World Economy and the Unique Case of SE Europe*”, *Advances in Management & Applied Economics*, vol. 6, no. 2, 2016, 97-128 ISSN: 1792-7544 (print version), 1792-7552(online) Scienpress Ltd, 2016 [http://www.scienpress.com/Upload/AMAE/Vol%206\\_2\\_7.pdf](http://www.scienpress.com/Upload/AMAE/Vol%206_2_7.pdf)
- Marx, K., 1996, “*The Kapital*” trans Mavromati, P, Editions Sygchroni Epochi, Athens, pp 368, 371
- Ntouskos, P., 2000, “*Geostrategy and Contemporary World*”, “*Γεωστρατηγική και Σύγχρονος Κόσμος*” Gutenberg, Athens pp 46-47
- Ntouskos, P, 2000, “*The Great Transition*”, “*Η Μεγάλη Μετάβαση*” Gutenberg, Athens, pp 40, 54-55, 82, 291
- Ntouskos, P, 1988, “*Socialization*”, “*Κοινωνικοποίηση*”, publications Gutenberg, Athens, p 181
- “*Obama Pushing Trans-Atlantic Union with EU*”, [online] Available at: <http://www.thenewamerican.com/world-news/europe/item/14612-obama-pushing-trans-atlantic-union-with-eu> Last Accessed Nov 2015.
- Sklair, L, 2000, “*The Transnational Capitalist Class and the Discourse of Globalization*”, *Cambridge Review of International Affairs*, Available at: <https://www.globalpolicy.org/globalization/defining-globalization/27656-the-transnational-capitalist-class-and-the-discourse-of-globalization.html>

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“*TPP agreement*”, Office of the United States Trade Representative, <https://ustr.gov/trade-agreements/free-trade-agreements/trans-pacific-partnership/tpp-full-text>

World Trade Organization, *The World Trade Organization (WTO) is the most powerful legislative and judicial body in the world*, [online] Available at: <http://www.globalexchange.org/resources/wto>

“*Treaty of Amsterdam amending the Treaty on European Union, The Treaties Establishing the European Communities and Certain Related Acts*”, [Online] Available at: <http://www.europarl.europa.eu/topics/treaty/pdf/amst-en.pdf>

## STYDYING MARGINAL ISSUES FOR BUSINESS PLANNING OF BUSINESS ESTABLISHMENT

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### ABSTRACT

Setting up a business is not an easy task, especially nowadays, in the era of economic crisis. The main purpose of this study is to detect the necessary and most of the times complementary role of a business plan (BP) which is directly related into the development of new business in Greece and in particular the establishment of start-up companies.

According to the supporters of this BP plan the new established business that incorporates in the selection process of an attractive and viable investment ideas, and business plans have better development opportunities, not only as for their already existing sustainability, as a business but for their future investment, as well. In other words, it is believed that there is a positive correlation between business development and sustainability and business plan implementation of the companies.

According to this assumption, we tried to detect whether and in what extent, the individual issues of a business plan (BP) as it is the analysis of internal and external environment of the companies, the possibility of financing the business plan and the strong and weak points of the under establishment companies (SWOT Analysis), the reflection/surveying of strategic planning of business plan, the expected financial results (operating account, balance sheet, financial ratios, break even point, cash flow) are indeed addressed within companies. Last but not least, there was also attempted a survey of a questionnaire so as to study the intention of potential users to innovative products of the business.

### KEYWORDS

Business plan, SWOT analysis, Start-up company, Strategic Planning.

### JEL CLASSIFICATION CODES

L21, M13

## 1. INTRODUCTION

The purpose of this study is to highlight the role of the implementation of business plans to develop new business in Greece and particularly in the category of ‘start ups’. Last years this business type promoted within EU countries as well, as in our country. Recently noticed the action «Start-ups Entrepreneurship» of BP «Competitiveness, Entrepreneurship and Innovation» for submitting applications for funding under the National Strategic Reference Framework (NSRF) 2014-2020, (Ministry of FINANCE, DEVELOPMENT AND TOURISM (A.II 667/147/A2).

Initially, it is analyzed the meaning of ‘start ups’ business, the determinants which it is characterized and the critical points which affect the successful outcome or not, related to the development of business ‘start ups’. Subsequently, it will follow a short term analysis of the basic characteristics which related to the BP successful outcome or not of new business action.

The control of the identification of critical points of BP could be achieved through the establishment of business action, where the main factors are focused with particular emphasis in critical factor ‘investigating the demand of these products/services’ in this case study. For this purpose,

attempts have been made to an empirical analysis with a questionnaire. Specific enquiries made in appropriate number of potential household – persons based on three pillars. 1st. Demographic data of people are questioned, 2nd. Current state for the use of related products, 3rd. Estimate the potential demand for the new product.

The study has been carried out by inference effort which is related to the data combination of the theoretical part and the results of this BP case study. According to these conclusions, indicative proposals have been put forward and taken into account at the planning stage and the selection of innovative business concept.

## 2. BACKGROUND THEORY

According to the advertised action «‘start ups’ entrepreneurship», the establishment of new small and very small business is described from the unemployers and the trainees, professional activity which is unrelated to the wage labor (Application guide, chapter 1.1.2.1, Title and description of action) the purpose of which is the support of the development of healthy «‘start ups’ entrepreneurship».

Another related concept with the meaning of early stage businesses is the “start up” company. These companies have as their object to develop a timeless scalable Business model, (<https://www.sba.gov/starting-business/how-start-business>, retrieved in 27/3/17). These “start ups” companies (<http://www.femalefounderstories.com/adora-cheung.html>, retrieved in 13/3/17) came recently in the spotlight and located in the research and development stage for more markets. So, the meaning “start ups” enterprises became known when crowd enterprises with the fate ‘com.’ founded on the internet. Last time, the term is mainly connected with technology companies which have as attitude the big dynamic development.

The term «start ups» in Greece, established widely with the respective NEOFYEIS, however, this expression is not the identical approach of the initial term ‘start up’. It is «innovative (or a new established company) with a timeless scalable B.P».

Generally, investors are attracted frequently, from this kind of business and they distinguish them by ratio Risk/Benefit and the possibilities of scalabilities. That means that have low cost implementation in combination with high risk and high performance, in case of success. The successful “start ups” companies have great possibility of expandability with a typical company whereas can grow rapidly with little capital expenditure and limited needs in labor resources and facilities.

### 2.1 Contents of BP

In a free version the BP is a summary of the movements and activities of a company for the purpose of organized and thorough forecast of all the possible parameters. It is a written plan of the model that the company is planning to follow.

We could also define the BP as a document that describes the way of management a particular business in a given period.. It could also refer to a commercial investment, a no profit organization or charity. As this time, we could consider the first six months of operation of a newly created company, the five years of a company’s life or the whole life of a specific project.

The content of BP may vary according to the activity sector of each company. Nevertheless, it should follow certain standards and include some specific information regardless of the sector and the nature of the business. Some key areas where someone should mention when writing a business plan is the background of the organization, the management team, the product/service obtained, the market on which it is addressed, the technology it uses and economic data and forecasts. (Theodoropoulos, 2003).

In conclusion, we could say that BP is used for the purpose of presenting an organized and detailed analysis of internal projects and plans of a company to a bank or other financial institution (usually for raising finance). The features should be updated over time as the business environment in which a business run and the economy are constantly changing (Patrick and Bruce, 2003).

### 2.2 The purpose of BP

The purpose of the BP is universal. It can be used both internally in the company from its founder, the management team and the staff and by external actors, such as investors, potential partners, consultants and government bodies. (James, 1998; Tsaklaganos, 1997; Theodoropoulos, 2003).

A BP is used mainly as promotional material. The businessman since inspired the idea for the growth of a new activity and shapes the essential team that will also frame him from researches and discussions, reaches in the point of search of required capital. If the capital can't be filled with his own money, then it is needed to approach potential funders of new activities in the market, such as venture capital and Business Angels or banks. It should be presented comprehensive proposal to the prospective investors citing economic data and forecasts, covering all critical issues for which they are interested and want to consider before embarking on any form of financing. It just serves the purpose of BP.

It can also be used to attract investors and it is a prerequisite for ensuring capital. It provides investors with detailed information on all aspects of past, current and future activities of the company.

### **2.3 The usefulness of BP**

Creating a BP is an important and useful tool for both the initial design of a new business activity and to improve the performance of an existing establishment. In recent years, the submission of BP is essential for business loans, EU aid granted and other similar actions.

A BP is useful for any business because it contributes to the following function: structure and organization of the firm, making decisions based on the objectives and business policy, Record, analyzing and understanding of the labor market, consumers and competition. It is a point of reference and demonstrates the achievement or non-goals (James, 1998; Papadakis, 2007).

In light of the above, the following issues provide reasons of why the BP is considered very useful tool. (Alexander Hamilton Institute, 2005; Sarsentis, 1996; Tsaklaganos, 1997): (a) It is a summary and the evaluation of a business idea and the written result of a planning process (b) It is a management tool to guide the new entrepreneur (c) Identify potential customers, consumers, market target and the required volume of sales that the business to be viable (d) Lists the necessary materials and resources and reveals which of them should be obtained and finally it constitutes the point of reference and contact point between the future partners and the basis for the implementation of a business proposal.

The greatest usefulness of the BP is that it prompts the operator to determine the direction which the company will follow in the coming years. Of course, it is absurd to suppose that the BP is a panacea for all the problems facing an enterprise. But anyway, it helps the unit to be well prepared against the potential opportunities and pitfalls that will occur because there is a good knowledge of both the capabilities of enterprise and industry.

This view is further reinforced if we take into account insights from research in the field of corporate venture capital, according to which, around 60% of the BP which are submitted to corporate capital funds, are rejected at the first glance and additionally a 20% is rejected after few hours. This fact, reinforce the need for the entrepreneur to develop a sound BP and do the benefits, advantages of such a document even more powerful.

### **2.4 The advantages of BP**

The advantages arising from the implementation of a BP involved on both sides, the entrepreneur and the investor, which participate in the effort of finding capital for the financing of a new business.

The BP allows the faster and easier dissemination of business proposal in a larger number of potential investors, which would not be possible for the entrepreneurs to approach the candidates.

Moreover, regardless of whether there is a need of financing, the BP does not cease to be a driver for value creation by and for the company. The written plan helps to implement the desired strategy by proposing actions that could lead to their effective implementation. We could therefore say that the BP significantly contributes to the improvement of the business.

The targets are well described in the plan. They include a financial plan with specific financial data and projections for specific periods. Thus, it is given the opportunity to management to monitor and control the extent of their achievement, comparing periodically actual performance data of the enterprise with the corresponding predefined desired items. According to the results obtained from the comparison, proceeds to conclusions about the course of business and objectives and procedures revisions, if necessary (Fanariotis, 1995).

Benefits, however, from the drafting of the BP can arise from potential investors. Specifically, the potential donor has the opportunity to assess the business proposition, the group of potential entrepreneurs, potential market and generally the viability of effort before the investment is made.

As the operator can use the BP, as a means of monitoring the course of his activity and similarly the investor is able by means of the same document, to monitor and control the state of the investment. After making the investment, the financiers are not passive observers and ordinary course of business.

## **2.5 Phases – structure of BP**

The BP should include the following phases in order to cover all the activities of a foundation in business activity (Alexander Hamilton Institute, 2005): (a) Estimating the turnover (b) Product analysis (c) Analysis of work (d) Choice qualifying production equipment (e) Assessment warehouses (f) Needs assessment (g) Founding capital.

Also, it is important that BP is correctly written, analyzing some basics and have a correct structure and flow of information. The following chart is the most common form and structure for the development of BP (Bruce, 2001; Maitland, 2001; Theodoropoulos, 2003): (a) Introduction (b) Internal analysis (c) External analysis (d) Evaluation of existing and establishment of new BP strategy.

## **2.6 Forecasts of financial results, sustainability/profitability ratios**

If the company is interested to implement e-business process, it should understand and glimpse the market reactions and consumers, very systematically. Indicatively, we mention some of the key questions that have to be answered: how is the state of the market on the internet and how it is affected by this, how can it help my online business, what the competition offers online, where the competition is competitive or weak, what is missing from the internet and how do I make use?

## **2.7 Setting targets and visions of BP**

As the design is completed and preparations for the drafting of BP, it is necessary to answer various questions which are born on the basis of this analysis, such as: what has this innovative business idea; what are the potential customers and why to prefer this company; can this proposed product/service to be offered at a competitive price to customers and simultaneously gives satisfactory profit; what size is the potential market and what is the market share that you hope to ensure and why; how to organize the production and finally, what risks exist for achieving the objectives; (Theodoropoulos, 2003; Alexander Hamilton Institute, 2005).

It is also needed, to identify the goals and motivations of the proposed operation. This should be done because as they formed the plan, they should take major decisions on key issues in accordance with the operation of the business. Thinking in advance about these decisions, minimize the time planning of enterprise and direct the activities that will generate income. (Bruce, 2001; Hindle, 2003; Stutely, 2003).

## **2.8 Common mistakes made in drawing up the BP**

In literature often referred some mistakes made in drawing up BP, especially in new businesses. (Miliotis, 2001; Tsaklaganos, 1997): (a) Unrealistic economic forecasts (b) Not clear target group (c) Excessive advertising (d) Poor research (e) Incomplete reference to competition.

## **2.9 The critical points that influence the success or failure of BP**

A new business in addition to drawing up the BP for the organization of the internal functioning should take into account the main external factors (market and competition, financial environment, political and institutional, technological environment, social and cultural environment, suppliers) and internal environment (operation of the production, sales and marketing, financial operation, evaluation of financial operation, systems of enterprise) which affect the business activity (Sarsentis, 1996; Hindle, 2003; Maitland, 2001; Theodoropoulos, 2003).



The successful outcome of sub business ‘start up’ is affected from different factors (internal and external), of which some considered decisive for the final result of the project. In other words, in Greek (Papadopoulos,1986; Katsou,1988; Karvounis,2000; Kiriazopoulou and Terzidis, 2000; Handrinos, 2005; Holevas, 1966; Nikolaidis, 2007) and international bibliography (Gräber, 1979; Royal Dutch/Shell, 1983; Richard et al.,1988; Peters and Waterman,1990; Collins and Porras,1994; Onians,1995; Goddard and Wilson, 1996; Spanos and Lioukas, 2001; Shepherd, 2000; Hunt and Puetz, 2003; Thomas et al.,2013) reference is made to the main factors which must take into account in the process of drawing up a BP.

From the above study and especially for the sub business ‘start up’, the critical points are reflected below: (1) The way of finding the necessary capital for the establishment and operation of the new business activity. (2)The identification of strengths-weaknesses and opportunities-threats of the business idea. (3) The strategic planning of BP. (4) The evaluation of sustainability-profitability of BP. (5) The determination of products/services demand of BP.

### **3. PRESENTATION OF CRITICAL POINTS OF BP IN A SUB BUSINESS ‘START UP’ «THERMODRY S.A.»**

#### **3.1 The sub business ‘start up’ «THERMODRY S.A.» profile**

The presentation of the above critical points of BP will be in a sub business ‘start up’ that has the characteristics of this kind of business activity.

The ‘start up’ business type activity that chosen will be the construction of an inventive electrical device which simultaneously covers needs in heating production and fast way of drying clothes. The product is intended to grate range of users, for example households, students, bachelors’ etc.

Specifically, this device will consist of two panel convectors that provide heat by resistance first in the interior and then it distribute into the room. An air motor and an ultraviolet lamp UV-A are adopted to each panel. The motor of the panel releases hot air by the airways, in the centre of internal part of this device. The ultraviolet lamp will help the drying of the clothes. They will adapt thick cables, the same with these in a common drying loft, vertically on the two panels, so that, the hot air of the motor will assist the fast drying of clothes.

This specific legal form of the company is the operation of S.A. It was chosen for securing funds for the establishment and operation as the chance of participating a large number of members from the management team of the company.

The Industrial area from the prefecture of Rodopi was chosen as a place of establishment because of the main target market of the BP (region of East Macedonia and Thrace) where the climatic conditions are unfavorable (high humidity, high rainfall, cold winter) that break off the fast drying of clothes in winter time but because the demand of product will be bigger in the harsh winter. Additionally, the complementary targets on the market of this BP are areas from the rest of the country, Epirus, West Macedonia (because of the low temperature) and the big cities (Athens, Thessaloniki), mainly deprived areas with many people would prefer this product because of the low cost of operation and high performance.

Finally, on the external market, the target countries of BP are the countries of East Europe because of the low income but the bad winter conditions for many months of the year (October – March). These countries are the Baltic countries and Bulgaria, Romania, Czech Republic. In the second place come the regions showing the same groups in our country as regards the population and also climatic conditions (cold and humidity) are Portugal and Great Britain in which the target market groups are the same with our country.

#### **3.2 The way of finding the necessary capital for the establishment and operation of the new business activity.**

The issue of ensuring the financing of capital of BP is for each new business activity and especially for the type of ‘start ups’ companies, is one of the key issues that merit special attention (Nikolaidis, 2016).

As it is known, the companies and especially the 'start up' ones have a variety of funding options. They are starting from ordinary investors and lead to large venture capital firms, known as Venture Capital. In reality, the most of 'start up' companies are financed by their founders. Some can be supported by Factoring or the Crowd Funding or their integration of their investment projects in a related program ('start ups' entrepreneurship) of ESPA 2014-20.

This sub business as S.A. will have the advantage to turn to shareholders for this search on equity with an increased proportion of own contribution (50%) in the estimated total costs on the investment of 500.000 euro, due to the large number of members (7members). In addition, the rest of the amount estimated to be covered by funding of expected notice of the related investment project (B' cycle) later this year (2017).

### **3.3 The identification of strengths-weaknesses and opportunities-threats of the business idea**

The basic manual for the company to identify its position in the market is «research of position», known as SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats). The SWOT Analysis identify the Advantages/Disadvantages and the Opportunities/Threats that the enterprise faces in the financial environment and from the other companies in the sector. Finally, the goals set can be quantifiable so that to be clear whether the objectives achieved (Brian, 2002; Theodoropoulos, 2003; Theriou, 2005).

According to the above methodology, it was attempting the identification of strengths-weaknesses and opportunities-threats of the sub business 'start up' «THERMODRY S.A.».

#### **3.3.1 Strengths**

- The capability of covering two needs (space heating and clothes drying) with one product, implies the multi-purpose utility.
- It is about an innovative product different both from electrically heated drying racks which are available on the market (Thermody is also a convector) and from the classic convectors which are not designed to use for drying clothes..
- Moreover, the fact that it is odorless and environmentally friendly, still constitutes an advantage over other polluting heating means.
- It is the cheapest option for heating when purchasing, in relation to the air conditioner or heater installation.

#### **3.3.2 Weaknesses**

- Thermody is a company and its product is innovative in the global market, it has not a strong brand name in the market because it is not widespread both the product (thus there are even doubts about its effectiveness) and the company, to trust the reliability of its name.
- It is excluding from the increasing Economies of scale.
- It is fully effective only the cold days of the year without sun and with humidity, rare phenomenon and for a short time in Greece.

#### **3.3.3 Opportunities**

- The economic crisis is turning the shoppers in cost efficient solutions. Thermody is a cheaper solution in heating both the market and in use of this product.
- The public is sensitized with a serial number for quality of life and seeks environmentally friendly solutions but also with human health.
- Urbanization and the fast pace of everyday life, narrowed more than ever leisure of citizens, who may meet their need for easy drying of clothes with the purchase of this product.
- The internet period requires the ability to the people to learn about the product/ services, to learn about the price of it and to make the order from the company. The company is meeting the full requirements. It process and deliver orders to the various sales.
- Both requirements of the product, concern all households so the company addresses to a huge market share.

- It is also an opportunity, the possible cooperation of the company with white electrical appliances companies (for example washing machines) with the objective of creating and integrated product package, meeting two related needs in unbroken sequence.

### **3.3.4 Threats**

- Indubitably the biggest threat of the company is the high competition.
- The economic crisis increasingly intensified in our country, and not only, makes difficult to find funds for the company with any form of loan.
- Thermody has as target to operate in Greece. That means that, it will take into account the high taxation and fluctuations of the country.
- Beyond the inconstancy in taxation, the political instability in the country creates more uncertainly about the evolution of Greece, which affects directly and catalytic many times company's itself.
- Clearly, the bureaucracy constitutes an extra risk for the company where many actions - omissions of nations obstruct the company's development.
- The technological evolution, composes a permanent threat where such kind of evolutions scorn, technologically the product of the company.

## **3.4 The strategic planning of B.P.**

Based on the SWOT analysis, company's management Thermody S.A. has the potential to determine the strategies which will adopt (defensive - aggressive strategies), whose the main points are as follows:

### **3.4.1 Strategy of Products**

- Perpetual effort of the company is to improve the product quality compared with its price with purpose the eldest satisfaction for the customer. This intends to succeed it, either with more systematic productive process, or by finding more qualitative materials at low cost.
- The improvement attribution about the space heating and the fastest drying of clothes constitutes the target for the company and the way for its achievement should be able to use the entire panel as convector in adapting the designing of clothes-horse and keeping at low levels the electricity consumption and the price sale.
- Value of Thermody constitutes the innovation and the solution of any problem that may be created to the customer. For this reason, it aims at creation and sale of spare parts, the entire panel as well as the pieces which constitute it separately and individually.
- The quality control of products will be done by qualified electrical engineer after their production, which will fulfil the predicted certifications (CE, ISO 9001, ISO 14001, OHSAS 18001).
- The company's goal is to maintain low inventories.

### **3.4.2 Marketing and Sales Plan**

- The main target market of Thermody is the middle class of households in the country. Specifically, it will target at consumers who are interested in economic solutions at heating and drying of clothes, as well as, to people who are sensitive to the environment and those who want to support the innovation and the initiatives of Greek Companies.
- Thermody aims to customer satisfaction, providing simple, easy, quick, economic and environmental friendly solutions to everyday tasks which facing every household and to its heating.
- A secondary target of the company is to collaborate and export its product to neighboring countries.
- Finally, the availability of products will be at co-operative stores retailing sale home appliance. Also, by phone and online from the company's site with possibility of shipment at the whole Greece.

### **3.4.3 Pricing policy**

The price of the product at retail trade is 190 € for the device, while the purchase of more pieces will be offered at lower price. Additionally, the transport costs will be free to online orders for some minimum value of these. At the wholesale trade, the device's price will be at 140 €, while at mass will apply a 10% discount.

### **3.4.3 Strategic Management**

The administrative board of Thermody will consist by the seven founding members of the company. Provides motivation for target achievement to the executives and employees, such as cash bonus based on their imputation.

## **3.5 The assessment of sustainability - efficiency of BP**

For the estimation of expected financial results of BP (Indicative bibliography: Karvounis, 2000; Nikolaidis 2016) was made the following reasonable assumptions:

- The revenues were estimated based on the actual production capacity of this new start-up company, 30.000 devices per year and taking the target penetration of its products in the market, 40%, 50%, 60% 70% and 80% of annual real production capacity for the 1st, 2nd, 3rd, 4th and 5th year of operation of the unit after the completion of the investment.
- The cost of sales was estimated at 60% of the equivalent annual revenues.
- The administrative and selling expenses were estimated at 5% and 10% respectively of the corresponding annual revenues.
- The research and development expenses were estimated at 3% of the respective annual revenues.
- The financial expenses to cover the required working capital, whose the annual amount estimates at 20% of cost of sales, were calculated with rate of interest 6% and entirely financed with short-term borrowing.
- The unforeseen operational expenditures were estimated at 2% of the corresponding annual revenues.
- The depreciations were calculated at 15% of the total investment cost.
- The taxation of net profit was estimated with rate of 30%.

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 (Greece)

Table 4. Expected financial results| 1st 5 years after the materialization of B.P.

| Projected Revenues/Expenses of Operating         | Quantity  Device's Pieces Per Year | Target | Unit Price (Average Price Wholesale- Retail) | 1 <sup>st</sup> Year of Function | 2 <sup>nd</sup> Year of Function | 3 <sup>rd</sup> Year of Function | 4 <sup>th</sup> Year of Function | 5 <sup>th</sup> Year of Function |
|--|------------------------------------|--------|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Revenues <sup>1</sup>                            | 30000                              | 40%    | 150  | 1800000                          | 2250000                          | 22700000                         | 3150000                          | 3600000                          |
|  |                                    | 50%    |  |                                  |                                  |                                  |                                  |                                  |
|  |                                    | 60%    |  |                                  |                                  |                                  |                                  |                                  |
|  |                                    | 70%    |  |                                  |                                  |                                  |                                  |                                  |
|  |                                    | 80%    |  |                                  |                                  |                                  |                                  |                                  |
| Cost of Sales <sup>2</sup>                       |                                    | 60%    |  | 1080000                          | 1350000                          | 1620000                          | 1890000                          | 2160000                          |
| Gross Profit                                     |                                    |        |  | 720000                           | 900000                           | 1080000                          | 1260000                          | 1440000                          |
| Administrative Expenses <sup>3</sup>             |                                    | 5%     |  | 90000                            | 112500                           | 135000                           | 157500                           | 180000                           |
| Selling Expenses <sup>4</sup>                    |                                    | 10%    |  | 180000                           | 225000                           | 270000                           | 315000                           | 360000                           |
| Research and Development Expenses                |                                    | 3%     |  | 54000                            | 67500                            | 81000                            | 94500                            | 108000                           |
| Earnings Before Interest, Depreciation and Taxes |                                    |        |  | 396000                           | 495000                           | 594000                           | 693000                           | 792000                           |
| Long-term Loans Interest                         |                                    |        |  | 0                                | 0                                | 0                                | 0                                | 0                                |
| Short-term Loans Interest <sup>5</sup>           |                                    | 20%    |  | 12960                            | 16200                            | 19440                            | 22680                            | 25920                            |
| Unexpected Expenses                              |                                    | 2%     |  | 36000                            | 45000                            | 54000                            | 63000                            | 72000                            |
| Earnings Before Depreciation and Taxes           |                                    |        |  | 347040                           | 433800                           | 520560                           | 607320                           | 694080                           |
| Depreciation <sup>6</sup>                        |                                    |        |  | 75000                            | 75000                            | 75000                            | 75000                            | 75000                            |
| Earnings Before Taxes                            |                                    |        |  | 272040                           | 358800                           | 445560                           | 532320                           | 619080                           |
| Taxes <sup>7</sup>                               |                                    |        |  | 81612                            | 107640                           | 133668                           | 159696                           | 185724                           |
| Net Profit                                       |                                    |        |  | 190428                           | 251160                           | 311892                           | 372624                           | 433356                           |

Finally, estimated based on the expected financial elements from the above table, some performance indicators (1-3) and the time period of investment's settlement (4) :

- Return on equity = net profit 5 years \* 100 / Total equity (in%) = **124.76%**

- Return on total capital = net profit 5 years + long-term & short-term loan interest \* 100 / Total Cost of Investment (in%) = **66.27%**
- Return on turnover = average of net profit 5 years \* 100 / average turnover (in%) = **11.55%**
- Time period of investment payback = Total cost of investment / average of net profit 5 years (in years) = 1.6 years

From the analysis of the above indicators, arises that the testing B.P. is very attractive and viable.

Table 2. Efficiency and viability indicators

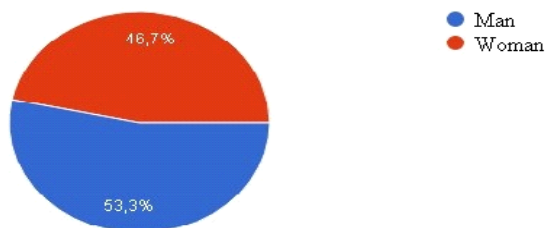
| Projected Revenues/ Expenses of Operating Period  | Total Cost of Investment | Total Equity | Total Aid By ESPA | 1 <sup>st</sup> Year of Function | 2 <sup>nd</sup> Year of Function | 3 <sup>rd</sup> Year of Function | 4 <sup>th</sup> Year of Function | 5 <sup>th</sup> Year of Function | Avg of 5 years |
|---|--------------------------|--------------|-------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------|
| Materialization of B.P  | 500000                   | 250000       | 250000            | 0                                | 0                                | 0                                | 0                                | 0                                | 0              |
| Long-term Loans Interest  |                          |              |                   | 0                                | 0                                | 0                                | 0                                | 0                                | 0              |
| Short-term Loans Interest   |                          |              |                   | 12960                            | 16200                            | 19440                            | 22680                            | 25920                            | 19440          |
| Revenues  |                          |              |                   | 1800000                          | 2250000                          | 2700000                          | 3150000                          | 3600000                          | 2700000        |
| Net Profit 5 years after Materialization of B.P.  |                          |              |                   | 190428                           | 251160                           | 311892                           | 372624                           | 433356                           | 311892         |
| Performance Indicators  |                          |              |                   |                                  |                                  |                                  |                                  |                                  |                |
| 1. Return on equity = net profit 5 years * 100 / Total equity (in%)   |                          |              |                   | 124.76                           |                                  |                                  |                                  |                                  |                |
| 2. Return on total capital = net profit 5 years + long-term & short-term loan interest * 100 / Total Cost of investment |                          |              |                   | 66.27                            |                                  |                                  |                                  |                                  |                |
| 3. Return on turnover = average of net profit 5 years * 100 / average turnover (in%)                                    |                          |              |                   | 11.55                            |                                  |                                  |                                  |                                  |                |
| 4. Time period of investment payback = Total cost of investment / average of net profit 5 years (in years)              |                          |              |                   | 1.68                             |                                  |                                  |                                  |                                  |                |

### 3.6 The demand assessment of products / services

Below, appear with charts the results of the empirical research which conducted with the use of questionnaire by closed type questions to potential - possible users of innovative products at the company's formation «THERMODRY S.A».

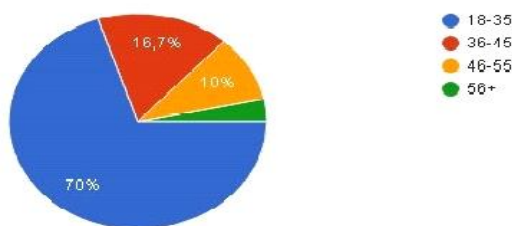
At the first graph appears that the 53.3% of participants were men and the rest 46.7% were women.

Figure 5. The gender of the respondent



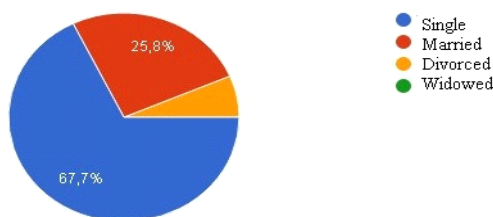
The age of participants appears at the next graph. More specifically, 70% were 18-35, 16.7% were 36-45, 10% were 46-55 and 3.3% over 55 years old.

Figure 2. The age group of the respondent



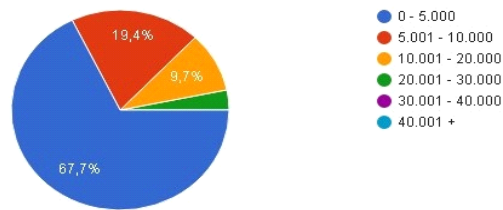
The 67.7% were single, the 25.8% were married and the 6.5% were divorced

Figure 3. The marital status of the respondent



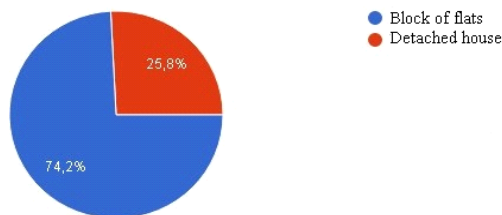
The 67.7% had a total annual income up to 5000, the 19.4% to 10000, the 9.7% had up to 20000 and the 3.2% to 30000.

Figure 4. The total income (annual) of the respondent



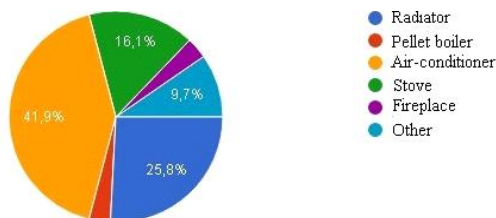
The 74.2% declared that they stay at block of flats and the remaining 25.8% at detached house.

Figure 5. The type of house which the respondent stays



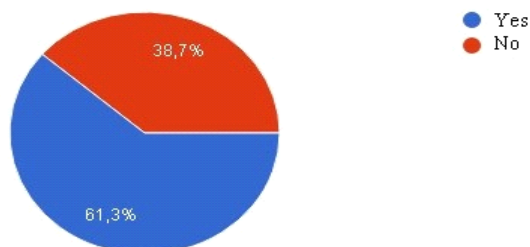
Then, they've been asked about the heating device they use. The 41.9% use air-conditioner, the 25.8% radiator, the 16.1% use stove and the smallest percentages use different heating devices.

Figure 6. The kind of device which the respondent uses for heating.



The 61.3% choose specific places which they want to heat while the 38.7% choose entire house.

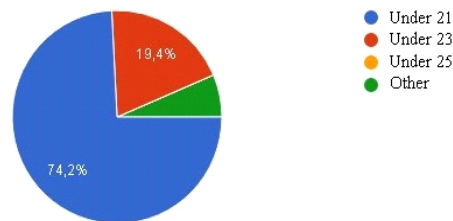
Figure 7. The device of heating which the respondent uses





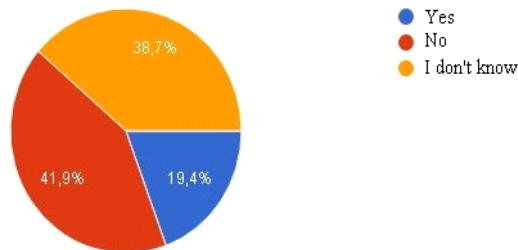
At 8th question, the participants have been asked to answer about the temperature at which they open the heating. The 74.2% responded to temperature lower than 21 and the 19.4% less than 23.

Figure 8. The temperature of heating which the respondent uses



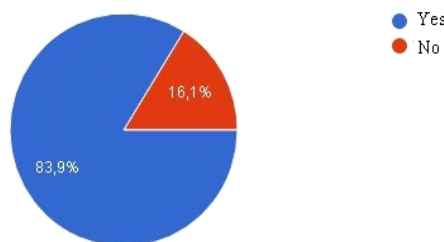
At question (No 9) for possible replacement of the current heating device, the 41.9% answered that they don't think to replace it, the 38.7% weren't sure while the remaining 19.4% responded positively.

Figure 9. The possible replacement of current heating device



At the main menu of question about their possible interest in a new system of simultaneous heating internal area and drying clothes (question No 10), the 83.9% answered positively.

Figure 10. The respondent's interest about this device



Finally, at the last question which they have been asked to answer about the amount they were willing to spare for the device's purchase, the 54.8% answered till 200 euros, the 29% until 400 euros, the 9.7% until 600 euros and the lowest percentages would spare a little bit more.

#### 4. CONCLUSIONS

This paper shows that the role of BP is of crucial importance during the foundation, development and survival of a corporation. More specific, the role of a BP is even more important in the business world of the start-up companies as the latter has increasingly attracted the attention of both academics and practitioners. In

other words, it can be stated that a positive relationship exists between the business foundation, development and survival and the BP’s application, given that its basic requirements (content, purpose, phases – structure design, vision, mission) will be successfully performed.

In addition, this study examines the identification of the BP’s most critical points through the foundation of a ‘start-up’ company (“THERMODRY SA”) and these refer to points such as the possibility of financing the BP, the identification of each company’s SWOT analysis with regards to the BP, the capture of strategic planning, the expected economic results. Moreover, significant emphasis was given on the assessment of the demand for new innovative products through an empirical research by developing a well-structured questionnaire in order to investigate the intentions of potential users.

The aforementioned control of the critical factors highlighted the points that the BP should give emphasis to in order to be feasible with regards to its implementation (experience - knowledge and sufficient financing and other resources) and its sustainability in order to fill the market gap (effective demand - highly acceptable of the new product by potential customers, competitive - innovative product, high performance indicators).

## REFERENCES

- Alexander Hamilton Institute, 2005. *Business planning 2e*, Criterion publications.
- Bruce, A. and Langdon, K., 2001. *Strategic planning*, Hellenic Letters publications.
- Collins, J. and Porras J., 1994. Built to Last: “*Successful Habits of Visionary Companies*”, New York 1994 as assigned from DE GEUS A. (1997), Company an alive organism.
- Fanariotis, P., 1995. *Principles of Business Management*, Stamoulis publications.
- Femalefounderstories, 2017. <http://www.femalefounderstories.com/adora-cheung.html>, retrieved in 13/3/17.
- Goddard, J.A. and Willson, J. O. S., 1996. Persistence of Profits for UK Manufacturing and Service Sector Firms, *The Service Industries Journal*, Vol.16, No2, pp 105-117. Published by Frank Cass, London.
- Gräber, H., 1979. *Die persistenz von Industrianstaltungen: Theoretische Überlegungen und empirische Ergebnisse für die BRD*, Bochum.
- Handrinos, S., Altinoglou, K. and Pepe, A., 2005. *Assessment and Comparison of the Efficiency and Flexibility of Media large processing and production units*, Athens: KEPE.
- Hindle, T. 2003. *Strategy guide: The fundamentals of business strategy from A to Z*, Kerkira publications.
- Holevas, I.K. 1996. *Addressing the problem of reinforcement the small businesses in Greece*, Athens.
- Hunt, R. E. and Puetz, J. E., 2003. *Predicting small business mortality using high risk marketing: an exploratory consideration*, ROCKHURST COLLEGE. [www.usasbe.org/knowledge/proceedings/1998/36-hunt.pdf](http://www.usasbe.org/knowledge/proceedings/1998/36-hunt.pdf).
- James P., 1998. *Total Quality Management, An introduction 2003*.
- Karvounis, S., 2000. *Entrepreneurship and new business activities*, Athens: Modern Publishing.
- Katsou, X. G., 1988. Problematic Enterprises in Greece: cause, Forecast, Prevention and Consolidation. *Scientific Studies* 28, Athens: Planning and Economic Research Centre.
- Kiriazopoulos, P.G. and Terzidis, K.P., 2000. *Management of medium sized enterprises*, Athens: Modern Publishing.
- Milioti, E., 2001. *Business activity planning*, 3rd Edition, Stamoulis publications.
- Ministry of Finance, Development and Tourism, noticed the action «Start-ups Entrepreneurship» of BP «Competitiveness, Entrepreneurship and Innovation» for submitting applications for funding under the National Strategic Reference Framework (NSRF) 2014-2020, A.P.: 667/147/A2 : 11-02-2016.
- Nikolaidis, M., 2007. The Sustainability of the Operation – Development of Manufacturing units and its Contribution to Regional Development: Empirical application in Eastern Macedonia and Thrace, Thesis. Volos.
- Nikolaidis, M., 2016. Manual preparation of technical studies, Disigma publications, 3rd edition. Maitland, Iain (2001) ‘*Successful Business Plans in one week*’, published by Anubis
- Onians, R., 1995. *Making Small Fortunes: Success Factors in Starting a Business*, Amsterdam.
- Papadakis V., 2007. *Enterprises Strategy: Greek and International experiences*, Vol. A, Benos publications, Greece.
- Papadopoulos, D., 1986. *Introduction to Financial and Administrative Business*, Thessaloniki: Paratiritis. Patrick J. Montana & Bruce H. Charnov (2003), ‘Management’, 3rd American Edition, published by Klidarithmos.
- Peters, T.J. and Waterman, R.H., 1990. *Looking for perfection: Lessons from excellent American companies*, Athens: Galileos.

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- Richard, J., Boden, J.R. and Nucci, A.R., 2000. On the survival prospects of men's and women's new business ventures, The University of Toledo, Toledo, OH USA b U.S. Bureau of the Census, Washington, DC USA, *Journal Business Venturing*, Volume 15, Issue 4, pp. 347-362.
- Royal Dutch/Shell, 1983. *Corporate change: A look at How Long-Established Companies Chang*, 9/1983, as assigned from DE GEUS A. (1997): Harvard Business School Press. pp.220.
- Sarsedis, B. N., 1996. *Business Strategy and Policy*, B' Edition, Benou publications, Athens.
- Sba, 2017. <https://www.sba.gov/starting-business/how-start-business>, retrieved in 27/3/17.
- Shepherd, D.A., Douglas, E.J. and Shanley, M., 2000. New venture survival Ignorance, external shocks, and risk reduction strategies', *Journal of Business Venturing*, Volume 15, Issues 5-6, Sept-November 2000, pp.393-410.
- Skoulas N., 2002. *Manual for Small and Medium Entrepreneur: Practical guide to a profitable small business*, GREEK LETTERS.
- Spanos Y.E. and Lioukas, S., 2001. An Examination INTO the Casual Logic of Rent Generation: Contrasting Porter's Competitive Strategy Framework and the Resource-Based Perspective, *Strategic Management Journal*, 22:pp. 907-934.
- Theodoropoulos, A., 2003. *Strategic business planning. How to drive your enterprise to development*, Propobos publications, Athens.
- Theriou N., 2005. *Strategic management*, Kritiki publications.
- Thomas F. D., Gudmundson D., Turner K. and Suhr D., 2013. *'Business Plan Competitions and Their Impact on New Ventures' Business Models*.
- Tsaklaganos, A., 1997. *Budgeting for business decision making*, Kyriakidis Bro publications, Athens.

## CITIZENS’ ATTITUDES TOWARDS MOSQUITOES PROBLEM, VECTOR CONTROL PROGRAM AND SELF PROTECTION MEASURES

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### ABSTRACT

During the period of 2012-2014 a West Nile Virus (WNV) outbreak occurred in the Region of Eastern Macedonia and Thrace in Greece. As mosquito born diseases are an important public health problem this study aims firstly to explore citizens’ attitudes towards this problem and secondly to explore their behavior towards vector control programs and self-protection measures as those actions are the most important for securing the public health. In particular this paper aims, (a) to classify citizens into groups according to their attitudes towards mosquitoes problem, (b) to profile each group according to their demographic characteristic, (c) to identify the attitudes of each group of citizens towards the importance they give to vector control program, (d) to explore the association between the expenses citizens make for self protection measures against mosquitoes bites and (i)their attitudes towards mosquitoes problem, (ii) the period of intense of the mosquitoes problem, and (iii) their demographic characteristics. Multivariate statistical technics including PCA, cluster analysis, discriminant analysis, logistic regression analysis and non parametric tests such as chi-square, performed in this study.

### Key words

West Nile Virus, Consumers attitudes towards self-protection measures against mosquitoes, consumers’ behavior towards mosquito repellents

## 1. INTRODUCTION

Mosquito born diseases are an important public health problem. Generally, mosquito vectors are responsible for transmitting diseases including malaria, dengue, West Nile virus, chikungunya, Japanese encephalitis, lymphatic filariasis (Rosendaal 1997, Raghavendra *et al* 2011, Pandit *et al.* 2010). In particular, West Nile Virus (WNV) outbreak occurred in the Region of Eastern Macedonia and Thrace in 2012-2015. This virus is transmitted by mosquitoes and can cause illness which can be mild resulting in influenza – like symptoms or severe affecting the central nervous system causing encephalitis (Lorono-Pino *et al.* 2014; Jones *et al.* 2014). In many WNV outbreaks reported deaths (Jones *et al.* 2014; He *et al.* 2014) . Hence, WNV not only poses risk to health but diseases in endemic areas place a burden on households, on health services and the economic growth of the local communities (Koenraad *et al.* 2006).. Therefore, citizens’ protection against mosquito bites is very important for *public* health.

Application of insecticides consists of the primary control tool in most of vector control programs throughout the world since early eighteen century (Bremner 2001, Raghavendra *et al* 2011). Nowadays studies have revealed that citizens’ knowledge, attitude, and practice of various methods of personal and household protection against mosquito bites vary in different endemic regions of tropical countries (Pandit *et al.* 2010). Various methods for protection from mosquito bites are used globally including repellent oils, smoldering coils, vaporizing mats, repellent creams, liquid vaporizer (Raghavendra *et al* 2011).

Besides, one of the most important of vector born disease control program is to raise awareness about mosquito bites prevention in general community. Hence many efforts have been made worldwide to educate citizens about the danger of mosquito bites. The motivation is the effective control of the infectious diseases transmitted by the insect particularly mosquito (Pandit *et al.* 2010).

Prevention of the disease through better knowledge and awareness is the appropriate way to keep disease away. Studies referring to knowledge, attitudes and practices (KAP) showed that community contributes significantly in circumventing malaria problem, take vigorous action and spend a substantial amount of money on insecticide consumer products to kill mosquitoes in dengue endemic areas.

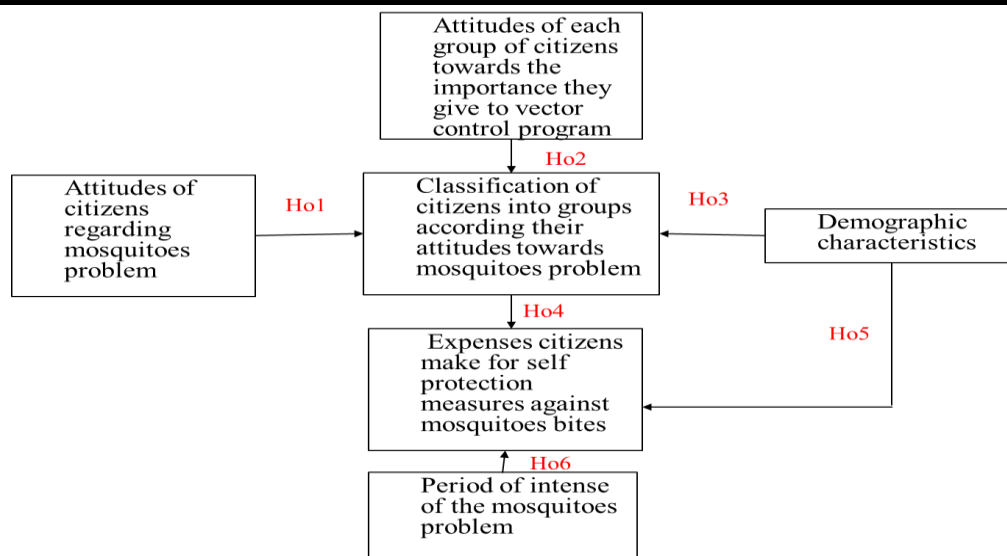
Jones *et al.* (2004) argued that fumigation was perceived the most effective method for preventing dengue in Acapulco Guerrero in Mexico whilst collective community preventing activities including clean up campaigns, destruction of breeding sites and information sharing identified very important. The use of personal or household protection methods are indicators of socioeconomic status, which has been reported as an important factor associated with diseases transmitted by mosquitoes and more particular with malaria (Tyagi *et al.* 2005). They also argued that the high usage of mosquito repellents by urban respondents and the low usage in rural respondents is explained the impact of socioeconomic conditions on the selection of protection means in communities (Tyagi *et al.* 2005). Moreover, education and knowledge of protection from mosquito bites, the promotion of health education and the positive role of women and family members in community interventions must be emphasized, is associated with less malaria infection (Tyagi *et al.* 2005; He *et al.* 2014). Another study aimed to identify the association between demographic characteristics (including age, sex, education, occupation, sub-district), knowledge of the population on symptoms of dengue, vector and prevention against mosquitoes; and practices such as container protection and mosquito reduction (Koenraad *et al.* 2006).

On the other hand, as 154 cases infected by WNV existed in the Region of Eastern Macedonia and Thrace in Greece during 2012-2015, it is crucial to understand the buying behavior of people towards self protection measures against mosquitoes as well as to explore the factors/characteristics affecting such behaviour in order the stakeholders to develop the necessary informative and awareness campaign for the use of such measures.

## 2. METHODOLOGY

A survey was implemented to: (a) classify citizens into groups according to their attitudes towards mosquitoes problem, (b) to profile each group according to their demographic characteristics, (c) to identify the attitudes of each group of citizens towards the importance they give to vector control program, (d) to explore the association between the expenses citizens make for self protection measures against mosquitoes bites and: (i) *their attitudes towards mosquitoes problem*, (ii) *the period of intense of the mosquitoes problem*, (iii) *their demographic characteristics*. More particular figure 1 illustrates the conceptual model used for this study.

Figure 1: The Conceptual Model



Therefore this study examines the rejection of the following research null hypotheses:

- **Ho1:** Citizens' cannot be classified into groups according to their attitudes towards mosquitoes' problem.
- **Ho2:** Citizens' attitudes towards mosquitoes' problem are not related to their attitudes towards vector control program.
- **Ho3:** Citizens' attitudes towards mosquitoes' problem are not related to their demographic characteristics.
- **Ho4:** Citizens' expenses regarding self-protection measures from mosquitoes are not related to their attitudes towards mosquitoes' problem.
- **Ho5:** Citizens' expenses regarding self-protection measures from mosquitoes are not related to their demographic characteristics.
- **Ho6:** Citizens' expenses regarding self-protection measures from mosquitoes are not related to the period of intense of the mosquitoes' problem.

A primary field survey to a random selected sample of citizens live in the Region of Eastern Macedonia and Thrace conducted from the Directorate of Public Health and Social Welfare of Xanthi in 2016 in cooperation with Geotechnoygeionomiki of North Greece. Information were gathered through an interview survey with the use of a structured questionnaire as people are familiar with this kind of research and their educational level is suitable for the use of this kind of survey method (Oppenheim 2000).

Characteristic that affect citizens purchasing behaviour towards self-protection measures against mosquitoes were identified by the researchers after searching the literature. Furthermore they designed a questionnaire in order to meet the research objectives and pre-tested it in academics, experts and consumers. In the next stage the questionnaire was piloted in September of 2016 to 50 consumers. The pilot survey indicated that no modification needed to the questionnaire and therefore the main survey was conducted in October - December of 2016 to a productive sample of 1072 people from the Region of Eastern Macedonia and Thrace. The sample is reasonable representative according to Siardos (1997) methodology ( $z=1.96$  and  $d=5\%$ ).

Multivariate analysis techniques were applied to the responses of the 1072 citizens to reveal the key information these contained. Principal Component Analysis (PCA) was used to identify the variables that accounted for the maximum amount of variance within the data in terms of the smallest number of uncorrelated variables (components). The anti-image correlation matrix, as well as the Bartlett's test of sphericity and the Measure of Sampling Adequacy (MSA) were used, in order to check the appropriateness of the data for subsequent factor analysis. The variables with a high proportion of large absolute values of anti -image correlations and MSA less than 0.5 were removed before analysis. An orthogonal rotation (varimax method) was conducted and the standard criteria of eigenvalue = 1, scree test and percentage of

variance were used in order to determine the factors in the first rotation (Hair *et al.* 1998). Different trial rotations followed, where factor interpretability was used to compare the reduced through PCA 8 variables related to those enterprises main opinion about mosquitoes to a smaller set of underlying factors. These PCA scores were then subjected to both hierarchical and k-means cluster analysis to group citizens with similar patterns of scores into similar clusters regarding their attitudes towards mosquitoes (Hair *et al.* 1998). Quadratic Discriminant Analysis was performed to assess how accurately the key factors identified through factor analysis could predict and discriminate cluster membership. Chi Square analysis was conducted to profile each group citizens (identified in cluster analysis) regarding their demographic characteristics. This analysis also performed to identify the association between citizens’ expenses regarding self-protection measures from mosquitoes and: (a) their attitudes towards mosquitoes’ problem, (b) their demographic characteristics and (c) the period of intense of the mosquitoes’ problem. Logistic regression analysis performed to explore the association between citizens’ expenses regarding self-protection and the factors/characteristics that might influence those expenses. Finally, Friedman Test conducted to identify the association between citizens’ attitude towards mosquitoes’ problem and their attitudes towards vector control program.

### 3. RESULTS

The variables and the two main key factors affecting the attitudes of citizens towards mosquitoes’ problem along with their eigenvalues and the percentage of variance results from PCA and Factor Analysis are portrayed in Tables 1 and 2.

Table 1: Variables affecting the key attitudes of tourism enterprises towards mosquitoes’ problem

| Component | Eigenvalues | % of Variance | Cumulative Variance |
|-----------|-------------|---------------|---------------------|
| 1         | 3.483       | 43.538        | 43.538              |
| 2         | 1.300       | 18.253        | 61.790              |
| 3         | 0.909       | 11.366        | 73.157              |
| 4         | 0.790       | 9.880         | 83.036              |
| 5         | 0.507       | 6.331         | 89.367              |
| 6         | 0.395       | 4.932         | 94.299              |
| 7         | 0.346       | 3.320         | 97.619              |
| 8         | 0.270       | 2.381         | 100.00              |

Table 2. What citizens think about mosquitoes existence in their area

| Main Factors   | Factor Loadings |
|--|-----------------|
| <b>Mosquitoes cause nuisance to them</b>   |                 |
| How important problem consists of the appearance of mosquitoes in your area in the evening?                  | 0.865           |
| How important problem consists of the appearance of mosquitoes in your area from the nuisance point of view? | 0.851           |
| How important problem consists of the appearance of mosquitoes in your area early in the                     | 0.840           |

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|  |       |
|--|-------|
| morning?   |       |
| How big is the problem of the existence of mosquitoes in your area?  | 0.778 |
| How important problem for the touristic development consists of the appearance of mosquitoes in your area? | 0.476 |
| How important factor do you consider the appearance of mosquitoes for the downgrading of quality of life?  | 0.378 |
| <b>They are aware about public health</b>  |       |
| How important hazard for public health do you consider the existence of mosquitoes ?                       | 0.872 |
| How important problem for public health you consider the existence of mosquitoes in your area?             | 0.807 |

KMO MSA = 0.829, Bartlett test of Sphericity = 2,989.260 P <0.001

Hence, PCA identified two main factors that affect their attitudes towards mosquitoes: (a) mosquitoes cause nuisance to them and (b) they are aware about public health.

Hierarchical and non-hierarchical clustering methods (Hair *et al.*, 1998) were used to develop a typology of the citizens regarding their attitudes towards mosquitoes. Cluster analysis was conducted on all 1072 observations, as there were no outliers.

Citizens appeared to fall in three groups according to their attitudes towards mosquitoes (Table 3): (a) those who are aware about public health protection, (b) those who are annoyed by the existence of mosquitoes and (c) uninterested citizens.

Table 3: Classification of citizens regarding their attitudes towards mosquitoes

| Key Dimensions                     | Citizens who are aware about public health protection | Citizens who are annoyed by the existence of mosquitoes | Uninterested citizens | P      |
|------------------------------------|---|---|-----------------------|--------|
| Mosquitoes cause nuisance to them  | 0.00957   | 0.65521   | -1.29223              | 0.0001 |
| They are aware about public health | 1.85086   | -0.8695   | -0.36932              | 0.0001 |
| Number of consumers (n=1072)       | 183   | 589   | 300                   |        |

**Citizens who are aware about public health protection** comprise 17% of the sample. They mainly think that mosquitoes consists of a very important hazard for public health in general and in their area in particular.

**Citizens who are annoyed by the existence of mosquitoes** consist of 55% of the sample. They mainly believe that mosquitoes consists of a big problem for the quality of life and the touristic development in their area. They also think that the appearance of mosquitoes in the evening and early in the morning disturb most of the citizens in their area. **Uninterested Citizens** comprises 28% of the sample. They do not believe that mosquitoes consists of any problem for citizens' life.

Quadratic Discriminant Analysis was performed to evaluate the prediction performance of group membership with the predictors derived from the factor analysis. Initially, the normality of the key strategic dimensions was checked. A summary of the cross validation classification derived through Discriminant Analysis is presented in Table 4.

Table 4: Summary of Classification with Cross - validation

| Actual Classification | Predicted Classification                              |  |                       |
|-----------------------|---|--|-----------------------|
|                       | Citizens who are aware about public health protection | Citizens who are annoyed by the existence of | Uninterested citizens |
|                       |   |  |                       |



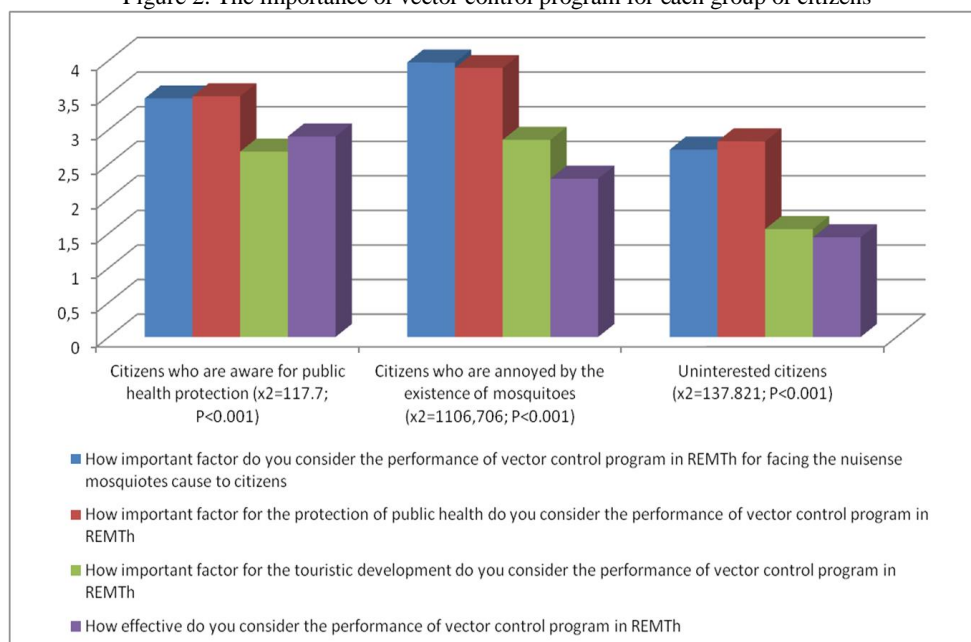
|  |                       | mosquitoes |                                 |
|--|-----------------------|------------|---------------------------------|
| <b>Citizens who are aware about public health protection</b>   | 182                   | 20         | 0                               |
| <b>Citizens who are annoyed by the existence of mosquitoes</b> | 0                     | 539        | 0                               |
| <b>Uninterested citizens</b>                                   | 1                     | 30         | 300                             |
| <b>Total N</b>   | 183                   | 589        | 300                             |
| <b>N correct</b>   | 182                   | 539        | 300                             |
| <b>Proportion</b>  | 99.5%                 | 91.5%      | 100%                            |
| <b>N = 1072</b>  | <b>N correct=1021</b> |            | <b>Proportion Correct=95.2%</b> |

It is evident that, the two attitude dimensions could accurately predict and discriminate citizens' group membership.

Therefore, the hypothesis **H<sub>01</sub>**: “Citizens' cannot classified into groups according to their attitudes towards mosquitoes' problem” can be rejected.

The Friedman non- parametric test was employed to investigate what citizens believe about the importance of vector control programs operated by regional authorities (Figure 2).

Figure 2: The importance of vector control program for each group of citizens



As indicated in figure 2 most of the citizens who are aware about public health protection believe that the vector control program operated by regional authorities is very important firstly for the protection of public

health and secondly for facing the nuisance that mosquitoes cause to them. On the other hand, the majority of the citizens who are annoyed by the existence of mosquitoes, have the opinion that vector control programs operated by the regional authorities are quite important for mainly for facing the nuisance mosquitoes cause to them and secondly for public health protection. Finally, most of the uninterested citizens believe that the vector control program operated by regional authorities is very important firstly for the protection of public health and secondly for facing the nuisance that mosquitoes cause to them.

Hence the hypothesis, **Ho2**: “Citizens’ attitude towards mosquitoes’ problem is not related to their attitudes towards vector control program” can be rejected

Furthermore, chi – square analysis conducted each group of citizens according to their demographic characteristics (Table 5).

Table 5: Profiling of each group of citizens according to their demographic characteristics

| Citizens characteristics |                   | Citizens who are aware about public health protection | Citizens who are annoyed by the existence of mosquitoes | Uninterested citizens |
|--------------------------|-------------------|---|---|-----------------------|
| <b>Regional District</b> | Drama             | 2.2%  | 16.0%   | 20.7%                 |
| $\chi^2=482.061$         | Kavala            | 4.9%  | 17.3%   | 34.7%                 |
| df=8                     | Xanthi            | 59.0%   | 17.0%   | 14.0%                 |
| P<0.001                  | Rodopi            | 32.2%   | 7.0%  | 30.0%                 |
|                          | Evros             | 0.3%  | 42.8%   | 0.7%                  |
| <b>Household members</b> | 1 member          | 6.0%  | 3.1%  | 7.0%                  |
| $\chi^2=71.258$          | 2 members         | 47.5%   | 63.8%   | 37.0%                 |
| df=8                     | 3 members         | 23.0%   | 17.0%   | 24.7%                 |
| P<0.001                  | 4 members         | 21.9%   | 15.6%   | 31.3%                 |
|                          | >5 members        | 1.6%  | 0.5%  | 0.0%                  |
| <b>Occupation</b>        | Private employee  | 8.7%  | 8.4%  | 16.7%                 |
| $\chi^2=116.576$         | Free licensed     | 16.9%   | 13.1%   | 22.3%                 |
| df=12                    | Student           | 1.6%  | 1.5%  | 3.0%                  |
| P<0.001                  | Civil Servant     | 3.3%  | 8.8%  | 4.7%                  |
|                          | Farmer            | 3.9%  | 6.3%  | 24.0%                 |
|                          | Retiree           | 36.6%   | 48.2%   | 25.3%                 |
|                          | Unemployed        | 9.8%  | 6.8%  | 4.0%                  |
| <b>Age</b>               | <40 years old     | 16.4%   | 16.8%   | 19.3%                 |
| $\chi^2=25.735$          | 41-60 years old   | 38.3%   | 34.6%   | 49.3%                 |
| df=4                     | >61 years old     | 45.4%   | 48.6%   | 31.3%                 |
| P<0.05                   |                   |   |   |                       |
| <b>Education</b>         | Primary           | 32.8%   | 22.6%   | 13.3%                 |
| $\chi^2=30.240$          | High school       | 56.3%   | 64.1%   | 76.7%                 |
| df=4                     | University Degree | 10.9%   | 13.3%   | 10.0%                 |
| P<0.001                  |                   |   |   |                       |
| <b>Period of intense</b> | April             | 3.3%  | 0.8%  | 2.0%                  |
| $\chi^2=189.160$         | May               | 10.9%   | 10.4%   | 6.0%                  |
| df=10                    | June              | 12.0%   | 8.5%  | 25.0%                 |
|                          | July              | 12.6  | 19.7%   | 45.7%                 |
|                          | August            | 17.5%   | 21.6%   | 4.7%                  |
| P<0.001                  | September         | 43.7%   | 39.0%   | 16.7%                 |

Therefore, most of the citizens who are aware about public health protection mainly live in the Regional District of Xanthi, their households comprise two members, are retiree, quite old (more than 61 years old), attended the high school and believe that the presence and nuisance of mosquitoes is more intense in September. On the other hand, the majority of the citizens who are annoyed by the existence of mosquitoes are based in the Regional District of Evros, they have households with two members, are retiree, quite old (more than 61 years old), attended the high school and also believe that the mosquitoes’ problem is more

intense in September. Moreover, most of the uninterested citizens live in the Regional District of Kavala, they have households with two members, a quarter of them are retiree and another quarter farmers, they are middle aged, with high school education whilst they believe the problem with mosquitoes is more intense in July.

Hence, **Ho3**: “:Citizens’ attitudes towards mosquitoes’ problem are not related to their demographic characteristics.” can be rejected.

In a second phase citizens have been classified into 3 groups according the amount of money they used to spend for self-protection methods against mosquitoes: (a) Citizens who spend less than 50 euro for self-protection measures against mosquitoes, (b) Citizens who spend between 51-100 euro for self-protection measures against mosquitoes, and (c) citizens who spend more than 101 euro for self-protection measures against mosquitoes.

Table 6. Association between the expenses citizens spend for self protection measures against mosquitoes and their attitudes towards mosquitoes problem

| Citizens expenses for self-protection measures against mosquitoes |                   | Citizens who are aware about public health protection | Citizens who are annoyed by the existence of mosquitoes | Uninterested citizens |
|---|-------------------|---|---|-----------------------|
| $\chi^2=279.514$  | <50€ per month    | 71.0%   | 39.4%   | 95.7%                 |
| df=4  | 51-100€ per month | 23.0%   | 30.8%   | 3.0%                  |
| P<0.001   | >101€ per month   | 6.0%  | 23.8%   | 1.3%                  |

As Table 6 presents the vast majority of the citizens who are either aware about public health protection or uninterested spend less than 50€ per month for repellents and other self-protection measures against mosquitoes whilst about 70% of the citizens who are annoyed by the existence of mosquitoes spend less than 100€ per month for their self-protection against mosquitoes.

Hence, **Ho4**: “Citizens’ expenses regarding self protection measures from mosquitoes are not related to their attitudes towards mosquitoes’ problem” can be rejected

Moreover, logistic regression analysis (Table 7) indicates that the regional district in where citizens live has an impact on the amount of money they spend per month for their self-protection against protection. Moreover, the period during which the mosquitoes problem is considered more intense by citizens seems to affect more those who spend between 51-100€ than those who spend more than 101€ per month for buying repellents and other self-protection measures against mosquitoes.

Table 7. Which factors/characteristics have an impact on citizens expenses for self-protection measures against mosquitoes

|  | Predictors                  | Coef    | P     | Odds ratio |
|--|-----------------------------|---------|-------|------------|
| Expenses 51-100 euro /Expenses >=101euro | Constant                    | 0.0306  | 0.976 |            |
|  | Period of intense           | 0.4661  | 0.001 | 1.59       |
|  | Regional District           | -0.3853 | 0.001 | 0.68       |
|  | Number of children          | 0.0737  | 0.626 | 1.08       |
|  | Number of household members | 0.0318  | 0.818 | 1.03       |
|  | Occupation                  | 0.0372  | 0.538 | 1.04       |

|  | Age                                 | -0.2507     | 0.235    | 0.78              |
|--|-------------------------------------|-------------|----------|-------------------|
|  | Education                           | -0.0527     | 0.812    | 0.95              |
|  | <b>Predictors</b>                   | <b>Coef</b> | <b>P</b> | <b>Odds ratio</b> |
| Expenses =<50 euro /Expenses 51-100 euro | Constant                            | 4.2704      | 0.001    |                   |
|  | Period of intense                   | -0.0569     | 0.384    | 0.94              |
|  | Regional District                   | -0.5044     | 0.001    | 0.60              |
|  | Number of children                  | 0.0847      | 0.528    | 1.09              |
|  | Number of household members         | 0.1788      | 0.140    | 1.20              |
|  | Occupation                          | 0.0203      | 0.704    | 1.02              |
|  | Age                                 | -0.3909     | 0.035    | 0.68              |
|  | Education                           | -0.3348     | 0.085    | 0.72              |
|  | <b>Log-likelihood = -923.708</b>    |             |          |                   |
|  | <b>G=149.303; DF=14; P&lt;0.001</b> |             |          |                   |

The chi-square analysis also indicates (Table 8) that most of the citizens who spend less than 50 euro per month for repellents and other self-protection measures against mosquitoes live in the Regional District of Xanthi, their household consists of two members, are 41-60 years old, and retiree. Most of the citizens who spend between 51-100 euro for self-protection measures against mosquitoes, have similar profile with those who spend less than 50 euro with the only difference that they are based in the Regional District of Evros and are more than 61 years old. The majority of the citizens who spend more than 101 euro have similar profile with those who spend between 51-100 euro.

Table 8. The association between tourism citizens demographic characteristics and their expenses for self-protection measures against mosquitoes

| Enterprise's characteristics                                    |            | <50 € expenses per month for self-protection measures against mosquitoes | 51-100 € expenses per month for self-protection measures against mosquitoes | >101 € expenses per month for self-protection measures against mosquitoes |
|---|------------|--|---|---|
| <b>Regional District</b><br>$\chi^2=169.184$<br>df=8<br>P<0.001 | Drama      | 14.9%  | 19.8%   | 6.5%  |
|   | Kavala     | 20.6%  | 19.0%   | 19.4%   |
|   | Xanthi     | 27.7%  | 18.7%   | 12.9%   |
|   | Rodopi     | 23.4%  | 11.9%   | 3.9%  |
|   | Evros      | 13.3%  | 30.6%   | 57.4%   |
| <b>Household members</b><br>$\chi^2=20.885$<br>df=8<br>P<0.05   | 1 member   | 6.5%   | 3.0%  | 0.0%  |
|   | 2 members  | 46.5%  | 61.9%   | 68.4%   |
|   | 3 members  | 22.5%  | 17.9%   | 14.2%   |
|   | 4 members  | 24.0%  | 16.4%   | 16.8%   |
|   | >5 members | 0.5%   | 0.2%  | 0.1%  |

|                   |                  |       |       |       |
|-------------------|------------------|-------|-------|-------|
| <b>Occupation</b> | Private employee | 6.5%  | 12.7% | 18.7% |
| $\chi^2=62.415$   | Free licensed    | 46.5% | 15.7% | 11.6% |
| df=12             | Student          | 22.5% | 0.0%  | 0.6%  |
| P<0.001           | Civil Servant    | 24.0% | 7.1%  | 9.7%  |
|                   | Farmer           | 0.5%  | 7.5%  | 5.2%  |
|                   | Retiree          | 34.1% | 48.9% | 48.4% |
| <b>Age</b>        | <40 years old    | 18.2% | 18.3% | 12.9% |
| $\chi^2=12.371$   | 41-60 years old  | 42.1% | 31.7% | 41.3% |
| df=4              | >61 years old    | 39.8% | 50.0% | 45.8% |
| P<0.015           |                  |       |       |       |

Hence, **Ho5**: “Citizens’ expenses regarding self-protection measures from mosquitoes are not related to their demographic characteristics.” can be rejected

Moreover as presented in Table 9 most of the citizens who spend less than 50€ and between 51-100€ per month for self-protection measures believe that the mosquitoes’ problem is more intense during September whilst those who spend more than 101€ per month believe that the mosquitoes problem is more intense during August.

Table 9. Association between the expenses citizens spend for self protection measures against mosquitoes and the period of intense of the mosquitoes’ problem

| Period of intense |           | <50 € expenses per month for self-protection measures against mosquitoes | 51-100 € expenses per month for self-protection measures against mosquitoes | >101 € expenses per month for self-protection measures against mosquitoes |
|-------------------|-----------|--|---|---|
| $\chi^2=176.265$  | April     | 2.3%   | 0.7%  | 0.0%  |
| df=10             | May       | 9.1%   | 3.7%  | 19.4%   |
| P<0.001           | June      | 19.9%  | 4.9%  | 3.2%  |
|                   | July      | 29.3%  | 16.4%   | 27.1%   |
|                   | August    | 9.4%   | 23.5%   | 31.6%   |
|                   | September | 30.0%  | 50.7%   | 18.7%   |

Hence, **Ho6**: “Citizens’ expenses regarding self-protection measures from mosquitoes are not related to the period of intense of the mosquitoes’ problem” can be rejected

#### 4. DISCUSSION

Citizens of the Region of Eastern Macedonia and Thrace can be classified according to their attitudes towards mosquitoes into 3 groups: (a) those who are aware about public health protection, (b) those who are annoyed by the existence of mosquitoes, (c) those who are uninterested.

Most of the **citizens who are aware about public health protection** believe that vector control program performed by the Region of Eastern Macedonia consist of a very important factor mainly for the protection of public health and secondly for facing the nuisance that mosquitoes cause to citizens. They also think that this program is very effective. Most of them mainly believe that the problem is very intense mainly in September, they are based in Xanthi whilst from demographical point of view are mainly retired, quite old, graduates from high school and their households have two members. Most of the **citizens who are annoyed by the existence of mosquitoes** believe that vector control program performed by the Region of Eastern Macedonia consist of a very important factor mainly for facing the nuisance that mosquitoes cause to citizens and secondly for the protection of public health. They also think that this program is very important for touristic development . Most of them mainly believe that the problem is very intense mainly in September, they live in Evros Regional District whilst from demographical point of view are also mainly retired, quite old, graduates from high school and their households have two members. Most of the **uninterested citizens** believe that vector control program performed by the Region of Eastern Macedonia consist of a moderate important

factor mainly for the protection of public health and secondly for facing the nuisance that mosquitoes cause to citizens. Most of them mainly believe that the problem is very intense mainly in July, are based in Regional District of Kavala whilst from demographical point of view are mainly retired, middle-aged, graduates from high school and their households have two members.

In a second phase citizens have been classified into 3 groups according to the amount of money they used to spend for self-protection methods against mosquitoes: (a) Citizens who spend less than 50 euro for self-protection measures against mosquitoes, (b) Citizens who spend between 51-100 euro for self-protection measures against mosquitoes, and (c) citizens who spend more than 101 euro for self-protection measures against mosquitoes. Citizens who **spend less than 50 euro** for self-protection measures against mosquitoes are in their majority uninterested in mosquitoes problem, they think that the problem is more intense in September, they are mainly based in Regional District of Xanthi, are middle aged, retired and their households is comprised from 2 members. Most of the citizens who **spend between 51-100 euro** for self-protection measures against mosquitoes are annoyed by the existence of mosquitoes, they think that the problem is more intense in September, they are mainly based in Regional District of Evros, are old, retired and their households is comprised from 2 members. The majority of the citizens who **spend more than 101 euro** for self-protection measures against mosquitoes are aware about public health protection, they think that the problem is more intense in August, they are mainly based in Regional District of Evros, are old, retired and their households is comprised from 2 members.

A limitation however of this survey needs to be mentioned. The adopted statistical methodology although it explored the factors that affect consumers' buying behaviour, which is useful for marketing analysis and strategy development cannot measure the demand of a product or determine the importance of the characteristics of a product that affect consumers' behaviour. These measurements can be made with the use of other statistical techniques such as conjoint analysis and contingent valuation

Nevertheless, the value of the current study is incontestable, since according to the knowledge of the authors, this is the first attempt to explore the consumers' attitudes towards the self – protection measures against mosquitoes, as well the main factors that affected their attitudes. Hence, as the use of self protection measures including repellents and people awareness in order to use those measures consist of the most important factors for citizens' protection against diseases that are spread through mosquitoes. Actions for people awareness for the use of self protection measures against mosquitoes should be undertaken from local and regional authorities. Those actions should target mainly to people who are uninterested and to people who are annoyed by the existence of mosquitoes. From demographical point of view local authorities should focus and adjust their campaigns to the citizens who mainly live in Xanthi and Evros, are more than 41 years old, have households with two members and attended the high school.

## REFERENCES

- Breman JG (2001) “The ears of the hippopotamus: manifestations, determinants and estimates of the malaria burden” *Am. J. Trop Med Hyg* Vol. 64, pp. 1-11.
- He C., Hu X., Wang G., Zhao W., Sun D., Li Y., Chen C., Du J., Wang S. (2014). “Eliminating *Plasmodium falciparum* in Hainan, China: a study on the use of behavioural change communication intervention to promote malaria prevention in mountain working populations”, *Malaria Journal*, Vol. 13:273.
- Jones C.H., Benitez-Valladares D., Guillermo-May G., Dzul-Manzanilla F., Che-Mendoza A., Barrera-Perez M., Selem-Salas C., Chable-Santos J., Sommerfeld J., Kroeger A., O'Dempsey T., Medina-Barreiro A., Manrique-Saide R. (2014). “Use and acceptance of long lasting insecticidal net screens for dengue prevention in Acapulco, Guerrero, Mexico”, *BMC Public Health*, Vol. 14:846
- Koenraad C., Tuiten W., Sithiprasasna R., Kijchalao U., Jones J., Scott T. (2006). “Dengue Knowledge and Practices and their Impact on *Aedes Aegypti* Populations in Kamhaeng Phet, Thailand”, *Am. J. Trop Med. Hyg.* vol. 74, No. 4, pp. 692-700

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- Lorono-Pino M. A., Chan-Dzu Y.N., Zapata-Gil R., Carrillo-Solis C., Uitz-Mena A., Garcia-Rejon J.E., Keffe T.J., Beaty B.J., Eisen L. (2014). “Household use of insecticide consumer products in a dengue-endemic area in Mexico” *Tropical Medicine and International Health*, Vol. 19, No. 10, pp.1267-1275.
- Oppenheim A.N. (2000). *Questionnaire design, interviewing and attitude measurement*. Continuum, New York, 2000.
- Pandit N, Patel Y, Bhavsar B. (2010) “Awareness and practice about preventive method against mosquito bite in Gujarat”. *Healthline* Vol. 1: 16–20.
- Raghavendra K, Baril TK, Reddy BPN, Sharma P, Dash AP (2011) “Malaria vector control: from past to future” *Parasitol Res.* Vol. 108 pp. 757-779.
- Rozendaal JA (1997) *Vector Control: methods for use by individuals and communities*, World Health Organization, Geneva.
- Siardos, G. (1997). *Methodology of Agricultural Sociological Research*. Ziti Publications, Thessaloniki,
- Tyagi P, Roy A., Malhotra M.S. (2005). “Knowledge, awareness and practices towards malaria in communities of rural, semi-rural and bordering areas of east Delhi (India)” *J. Veet Bonne Dis.* Vol. 42, pp.30-35, March 2005

## **WINE DRINKING HABITS AND PREFERENCES OF THE RESIDENTS IN THE REGIONAL UNIT OF DRAMA**

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### **ABSTRACT**

In the agricultural sector of Drama Regional Unit viticulture holds a prominent position historically, and in recent years it has been characterized by a new dynamic with famous wines of the region that have internationally renowned recognition. The Wineries in this region have contributed to this recognition, with modern and high standard facilities, processes and standards. The purpose of this research, which is carried out by the method of questionnaires, is to record by means of random checks wine drinking habits and preferences of the residents in the Regional Unit of Drama.

### **KEYWORDS**

Wineries, wine drinking habits and preferences, consumption differences

### **1. INTRODUCTION**

The aim of the present study is to record the contribution of the citizens of Drama to the local market, as well as their preferences on wine. All the data was gathered through a Questionnaire containing 16 questions, to which 200 subjects responded.

In Drama there are a lot of temples dedicated to Dionysos, the most important of which can be found on the peak of Mount Falakron. The ancient history of the area is abundant with myths and the temple is a jewel of the area. The discovery in 1968 of grape seeds in a neolithic settlement at Sitagroi, by an English-American excavating team of archaeologists, indicates that it is the first wine producing region in Greece (Vekios a.o. 1994, <http://www.wineroads.gr>. 2011). The tradition has continued to the present day, and wine producers of Drama are comparable to foreign 'giants' in France, Spain and Italy (Karipidis 2006, Koussoulas, 1995).

### **2. BIG WINE-PRODUCING UNITS IN PRESENT DAY DRAMA**

Today there is a total of seven wineries in the Prefecture of Drama, which produce excellent wines whose reputation goes beyond the boundaries of the Prefecture (Spinthiropoulou 2009, Tsakiris 2010, <http://www.keosoe.gr>. 2011).

Briefly, they are the following:

- ☞ Chateau Pavlidis at Kokkinogeia, Drama, has been in business for over a decade (<http://www.ktima-pavlidis.gr>, <http://www.newwinesofgreece.com>. 2011).
- ☞ Chateau Nikos Lazarides at Agora, 15 klm from Drama and it is the first organized wine-producing unit in the area (<http://www.nicolazaridi.gr>, <http://www.winesurveyor.weebly.com> 2012).
- ☞ Chateau Kosta Lazarides at Adriani, Drama, with the biggest vineyards in the region and the most international awards and distinction (<http://www.domaine-lazaridi.gr>, <http://www.winesurveyor.weebly.com> 2012).
- ☞ Chateau Art of Wine, near the square of Mikrohori, which has given life to an old family vineyard (<http://www.wineart.gr>, <http://www.houseofwine.gr> 2011).
- ☞ Chateau Manolesaki- Gennima Psychis, which is also located at the village of Adriani, producing excellent quality wines (<http://www.manolesakis.gr>).
- ☞ Chateau Michailidis, with only 8 years of operation, a small unit producing high quality, award winning wines (<http://www.domaine-michaelidi.gr>).



☞ FEGGITES OINOGENESIS winery at Adriani, with only 4 years of operation.

### 3. Field Research

#### 3.1 Methodology

As mentioned above, the aim of the current study is to establish whether the residents of Drama support the local wine market, what their opinion regarding the local wines is and what their wine preferences are.

More specifically, the questionnaire was selected as the most appropriate research method, as it is a valid medium of gathering data and primary reference material.

200 Questionnaires were distributed in the area of Drama and they were answered by the residents of the broader area. The questionnaire consists of 16 questions and it is divided into two parts, the former of which contained questions regarding the Demographic Characteristics of the residents, whereas the latter concerned their attitude towards wine.

In order to make the statistical analysis and processing of data gathered from the sample survey, the answers given were codified and recorded in the statistical EXCEL working sheets.

The results were presented using graphs and diagrams, one for each question.

#### 3.2 Survey results

During primary research, a representative sample of questionnaires was gathered, while the participants were in equal parts, i.e. 100 men and 100 women were surveyed.

##### *SEX OF THE PARTICIPANTS*

In the present thesis, it was considered expedient for reasons of validity and accuracy that both sexes participate equally, so we surveyed 100 men and 100 women.

##### *AGE OF PARTICIPANTS (Table 1)*

The participants were divided into three age groups: Those aged 18-25, those aged 25-35, and, finally, those who are over 35 years old. The greatest number of the people surveyed belonged to the 18-25 age group, reaching 42% of the total number of participants, while people belonging to the over 35 category amounted to only 23.5% of the total. Regarding their sex, more men comprised the 18-25 age group, whereas most of the women surveyed belonged to the 25-35 age group.

Table 1: Age of Participants

| Gender      |       |        |
|-------------|-------|--------|
| Age group   | Male  | Female |
| 18-25       | 22,5% | 19,5%  |
| 25-35       | 13,5% | 21%    |
| 35 and over | 14,5% | 9,5%   |

##### *ANNUAL INCOME*

The annual income of the participants ranged from 0 to 10.000 euros, from 10.000 to 20.000 euros and from 20.000 euros and above. From the corresponding graph, we can deduce that the greatest percentage of those surveyed fell into the first two categories. The female participants had a higher income in comparison with the male participants in the first two categories, while there are more male participants in the last category. This may be due to the fact that men have more managerial, highly paid positions than women.

##### *WHICH MUNICIPALITY DO YOU RESIDE IN?*

Most participants are citizens of The Municipality of Doxato, amounting to 49% of the total, followed by Municipality of Drama at 22%, while the other three municipalities lag behind. This is, obviously, due to the fact that the citizens of Doxato and Drama are more interested in and more familiar with the local wines, since most of them are produced in their region.

##### *ARE YOU FAMILIAR WITH THE REGION'S WINERIES? (Table 2)*

91% of the participants were familiar with the region's wineries. Only 9% were unaware of the wineries. In total, 47.5% of female participants were familiar with the wineries, followed by the 43.5% of the male

participants. Most of those unfamiliar with the region's wineries are men at 6.5%, with only 2.5% of the women surveyed

being unfamiliar with the region's wineries.

Table 2: know the wineries

| Gender            |       |        |
|-------------------|-------|--------|
| know the wineries | Male  | Female |
| Yes               | 43,5% | 47,5%  |
| No                | 6,5%  | 2,5%   |

#### WHICH COMPANY'S PRODUCTS DO YOU PREFER?

Most people from Drama have a preference for Chateau Kostas Lazaridis at 27.5%, closely followed by Nikos Lazaridis winery at 25%, while OINOGENESIS, the newest establishment of all, comes third in people's preferences at 15.5%

#### DO YOU CONSIDER THE REGION'S WINES TO BE EXPENSIVE? (Table 3)

77% of the people asked do not consider the region's wines to be expensive, as opposed to 23% of those asked who believe the opposite to be true. It is worth noting that only 8.5% of the women asked consider the wines to be expensive, as opposed to 41.5% of the women who do not. Accordingly, 14.5% of the men surveyed consider the wines to be expensive, while 35.5% of them do not.

Table 3: Considered expensive

| Gender               |       |        |
|----------------------|-------|--------|
| Considered expensive | Male  | Female |
| Yes                  | 14,5% | 8,5%   |
| No                   | 35,5% | 41,5%  |

#### HOW MUCH MONEY WOULD YOU PAY FOR A BOTTLE OF WINE? (Table 4)

51% of the people asked responded that they would pay between 5 and 10 euros for a bottle of wine. 37% would be willing to spend between 10 and 20 euros, while only 12% would spend over 20 euros on a bottle of wine. Most women surveyed would pay 5 to 10 euros, at 30%, while most men would pay 10 to 20 euros, at 23%.

Table 4: Pay for a Bottle of Wine

| Gender            |       |        |
|-------------------|-------|--------|
| How much money    | Male  | Female |
| 5-10 euro         | 21%   | 30%    |
| 10-20 euro        | 23,5% | 13,5%  |
| More than 20 euro | 5,5%  | 6,5%   |

#### DO YOU PREFER BOTTLED WINE OR WINE IN BULK? (Table 5)

It is worth noting that a mere two thirds or 66% of the people asked, said that they would prefer wine in bulk. More specifically, only 15% of the men surveyed expressed a preference for bottled wine, as opposed to 35% preferring wine in bulk. Of the women surveyed, only 19% prefer bottled wine, while 31% prefer wine in bulk.

Table 5: bottled wine or wine in bulk

| Gender               |      |        |
|----------------------|------|--------|
| bottled or bulk wine | Male | Female |
| bottled              | 15%  | 19%    |

|      |     |     |
|------|-----|-----|
| bulk | 35% | 31% |
|------|-----|-----|

**WHICH TYPE OF WINE DO YOU PREFER REGARDING ITS COLOUR? (Table 6)**

The majority of the participants in the survey, namely 53.5%, have a preference for white wine. Red wine lovers follow at 38%, while only 8% prefer rosé wine. 27% of the women surveyed and 26.5% of the men would rather drink white wine. 3.5% and 20% of the female participants prefer rosé and red wine respectively, whereas the corresponding percentage of male participants in the same categories is 5% and 18%.

Table 6: Preference for white, rose or red wine.

| Gender         |       |        |
|----------------|-------|--------|
| How much money | Male  | Female |
| White          | 26,5% | 27%    |
| Rose           | 5%    | 3,5%   |
| Red            | 18%   | 20%    |

**WHICH TYPE OF WINE DO YOU PREFER REGARDING ITS SUGAR CONENT? (Table 7)**

Studying the results of the survey, we notice that most participants prefer dry and semi-sweet wine at a rate of 36% and 36.5% respectively. Next in people's preferences comes sweet wine at 19%, followed by semi-dry wine at 8.5%. Most male participants prefer to drink dry wine, at 23.5%, whereas most female participants, a 19.5% of the total show a preference for semi-sweet wine.

Table 7: Preference Type of Wines.

| Gender       |       |        |
|--------------|-------|--------|
| Type of wine | Male  | Female |
| Dry          | 23,5% | 12,5%  |
| Semi-Dry     | 5%    | 3,5%   |
| Sweet        | 4,5%  | 14,5%  |
| Semi-Sweet   | 17%   | 19,5%  |

**HOW MANY TIMES A WEEK DO YOU DRINK WINE?**

The survey shows that 42% of the people asked drink wine 2 to 3 times a week. The people who consume wine once or twice a week amount to 31%, whereas those drinking wine more than three times a week amount to 28% of the total. It is worth noting that more women than men consume wine 2 to 3 times a week, with more men doing so once or twice a week. This may be due to the fact that men also show a preference for other types of alcoholic beverages.

**DO YOU CONSIDER THE RPOMOTION AND ADVERTISING OF DRAMA'S WINE TO BE ADEQUATE? (Table 8)**

42% of the people surveyed consider the promotion and advertising of Drama's wine to be quite effective. The graph also shows that 20% of the participants in the survey believe that the promotion and advertising of Drama's wine is inadequate and ineffective.

Table 8: Promotion and Advertising of Drama's Wines

|          | Gender |        |
|----------|--------|--------|
|          | Male   | Female |
| A little | 12%    | 8%     |
| Moderate | 19,5%  | 18,5%  |
| A lot    | 18,5%  | 23,5%  |

**WHICH DO YOU CONSIDER TO BE THE BEST MEDIUM OF ADVERTISING THE REGION'S WINERIES?**

Most people surveyed, at a rate of 59.5%, answered that the best way of promoting the region's wine is by word of mouth. Of those, 31% are women and 28.5% are men. The press follows at 29%, of which 15.5% are women and 13.5% are men. Only 11.5% of the participants considers advertising on the Internet to be an effective way of promoting the region's wine, however in this category men outnumber women with 8% and 3.5% respectively.

**DO YOU BELIEVE THAT THE ECONOMIC CRISIS HAS AFFECTED THE SALES OF WINE? (Table 9)**

50.5% of the people surveyed believe that the economic crisis has moderately affected the sales of wine. Of those, 22.5% are women and 28% are men. A total of 26.5% - 14% of the women and 12.5% of the men surveyed – believe that the sales of wine have greatly been affected by the economic crisis, whereas 23% of the sample, 13.5% of the women and 9.5% of the men surveyed, believe that the economic crisis has not affected the sales of wine in the area.

Table 9: The economic Crisis

| Gender   |       |        |
|----------|-------|--------|
|          | Male  | Female |
| A little | 9,5%  | 13,5%  |
| Moderate | 28%   | 22,5%  |
| A lot    | 12,5% | 14%    |

**DO YOU PREFER LOCAL PRODUCTS?**

We notice that an overwhelming percentage of 89.5 of the region's residents prefer local products. 46% of those are women and the rest 43.5% are men. Only 10.5% of the people asked, 4% of the women and 6.5% of the men, claim not to support the local market.

## 4. CONCLUSIONS

Based on the data collected, we can deduce the following:

Most of the Prefecture's residents are middle class and, according to the data, very few of them have an annual income that exceeds 20.000 euros.

A great percentage of the people surveyed are familiar with their region's wineries and prefer to buy local products.

Although, they do not consider wine to be expensive, they do not spend much money on wine, since they try to cover other, more urgent needs.

They particularly prefer to buy wine in bulk, since it is cheaper than bottled wine.

Most local residents have a preference for white wine, followed by red and rosé wine.

Men generally prefer dry wine, as opposed to women, who would rather drink semi-sweet wine.

Women consume wine more often, twice or three times a week, whereas men only drink wine once or twice a week, since they usually prefer other alcoholic beverages.

Most residents consider the promotion and advertising of local wines to be adequate, and they believe that the best way to do so is by word of mouth.

Finally, the participants believe that the economic crisis has greatly affected the sales of wine, the fact that they are trying to support the local market by consuming local products notwithstanding.

## REFERENCES

- Karipidis Nikolaos, (2006) Prefectural Enterprise of Cultural & Tourist Development of the Prefecture of Drama, Wine Aroma.
- Koussoulas I. Kostas (1995), Viticulture, Athens.
- Spinthiropoulou Haroula: Wine Vineyards of the Greek Vineyard, 2009.
- Tsakiris Argyris, Hellenic Winegrowing, Publications INIOCHOS LTD., 2010.
- Vekios Giorgos, Koukis Dionisis and Tsakiris Argyris (1994), The Book of Wine, Greek Academy of Wine.
- Central Cooperative Union of Wine Products, (2000), retrieved on 02-11-2011, by <http://www.keosoe.gr>

National Interprofessional Organization of Vine and Wine (2001), retrieved on 15-12-2011 from <http://www.newwinesofgreece.com>

Wine Roads of Northern Greece (1993), retrieved on 02-11-2011, by <http://www.wineroads.gr>

Makris Giorgos, "Wine Explorations", Retrieved on 06-01-2012, by <http://www.winesurveyor.weebly.com>

Newsletter, (2010) Issue 12, retrieved on 10-12-2011 from <http://www.houseofwine.gr>

<http://www.ktima-pavlidis.gr>

<http://www.nicolazaridi.gr>

<http://www.domaine-lazaridi.gr>

<http://www.wineart.gr>

<http://www.manolesakis.gr>

<http://www.domaine-michaelidi.gr>

### APPENDIX

#### Questionnaire

*(The present questionnaire is aimed at supporting my thesis, entitled "Wine Production in the Prefecture of Drama")*

1. SEX:

MALE  FEMALE

2. AGE:

18-25  25-35  Over 35

3. ANNUAL INCOME:

0-10.000  10.000-20.000  OVER 20.000

4. RESIDENT OF:

a. DRAMA

b. DOXATO

c. KATO NEVROKOPI

d. PARANESTI

e. PROSOTSANI

5. ARE YOU FAMILIAR WITH THE AREA'S WINERIES?

YES  NO

6. WHICH COMPANY'S PRODUCTS DO YOU PREFER?

a. CHATEAU PAVLIDI

b. NIKOS LAZARIDES

c. CHATEAU KOSTA LAZARIDI

d. CHATEAU ART OF WINE

e. CHATEAU GENNIMA PSYCHIS

f. CHATEAU MICHAILIDIS

g. CHATEAU OINOGENESIS

7. DO YOU CONSIDER YOUR AREA'S WINES TO BE EXPENSIVE?

YES  NO

8. HOW MUCH MONEY WOULD YOU PAY FOR A BOTTLE OF WINE?

5-10 EUROS  10-20 EUROS  OVER 20 EUROS

9. DO YOU PREFER BOTTLED WINE OR WINE IN BULK?

BULK  BOTTLED

10. WHICH TYPE OF WINE DO YOU PREFER REGARDING ITS COLOUR?

WHITE  ROSÉ  RED

11. WHICH TYPE OF WINE DO YOU PREFER REGARDING ITS SUGAR CONTENT (*sweetness*)?

9<sup>th</sup> International Conference

EBEEC 2017 - "The Economies of the Balkan and the Eastern European Countries in the Changing World"

Eastern Macedonia and Thrace Institute of Technology – Department of Accounting and Finance (Greece), University of Macedonia, Department of Balkan, Slavic and Oriental Studies (Greece)

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- a. DRY   
b. SEMI-DRY   
c. SWEET   
d. SEMI-SWEET
12. HOW MANY TIMES A WEEK DO YOU DRINK WINE?  
1-2 TIMES  2-3 TIMES  OVER 3 TIMES
13. DO YOU CONSIDER THE PROMOTION AND ADVERTISING OF DRAMA'S WINES TO BE ADEQUATE?  
A LITTLE  AVERAGE  A LOT
14. WHICH DO YOU CONSIDER TO BE THE BEST ADVERTISING MEDIUM OF DRAMA'S WINERIES?  
WORD OF MOUTH  THE INTERNET  THE PRESS
15. DO YOU BELIEVE THAT THE ECONOMIC CRISIS HAS AFFECTED WINE SALES IN YOUR AREA?  
A LITTLE  MODERATELY  A LOT
16. DO YOU PREFER LOCAL PRODUCTS?  
YES  NO

## **BUSINESS MODEL FOR A GRASSROOTS SUSTAINABLE INNOVATION COMPANY**

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### **ABSTRACT**

Advances in technology and economy have a significant impact on companies. On the other hand, sustainability and green economy form a new landscape where grassroots inventions and innovations exist.

Companies nowadays cannot be competitive anymore because of their industry or their labor advantages (cost). They can remain competitive if they focus on the sustainability. Their direct environment (natural and social) has different characteristics and grassroots inventions can take advantage of it.

The companies get involved not only for economic effects. There are also reasons such as development of potential markets, marketing strategies, public relations (to avoid bad press and create good image), so the environmental and social reasons may be also important. However, companies are not not-for-profit-organizations; the measurement of the economic effects is also useful, although it is hardly possible to evaluate these. Grassroots innovations might promote a business model which will be more suitable to fulfill business needs by reducing costs without compromising quality and environmental integrity and even to make profits.

The present study aims to contribute to this direction by proposing a business model for such a company. The business model Canvas is the basis for the design, development and success of the model. Also, the proposal of a schema where an organization, like a network/an agency which might select ideas and link the grassroots innovators to specific companies and/or research centers is essential for the effectiveness of this project.

### **KEYWORDS**

Innovation, Sustainability, Grassroots, Business model canvas

### **JEL CLASSIFICATION CODES**

L21, Q55

## **1. INTRODUCTION**

New technological and social innovations have emerged to deal with society's problems, especially regarding the sustainability of various systems (Martiskainen, 2017). The literature is rife with attempts to define sustainability (Robinson, 2004) and there are many terms used in the literature such as sustainable development, human sustainability, social sustainability, ecological sustainability, environmental sustainability, and corporate sustainability as well as aligned concepts of corporate social responsibility and corporate citizenship. The most cited definition of sustainability comes from the World Commission on Environment and Development (WCED) report (1987), which touches on environmental, social, and economic aspects of sustainable development such as the notion of resource limits (energy, materials, waste, and land); equitable access to constrained resources; intergenerational and intragenerational equity; and a

progressive transformation of economy and society (Stubbs and Cocklin, 2008). A sustainable organization expresses its purpose, vision and/or mission in terms of social, environmental, and economic outcomes. Profits are a “means” to achieve sustainable outcomes—sustainable organizations must make a profit to exist but they don’t just exist to make a profit (Bocken et al., 2014).

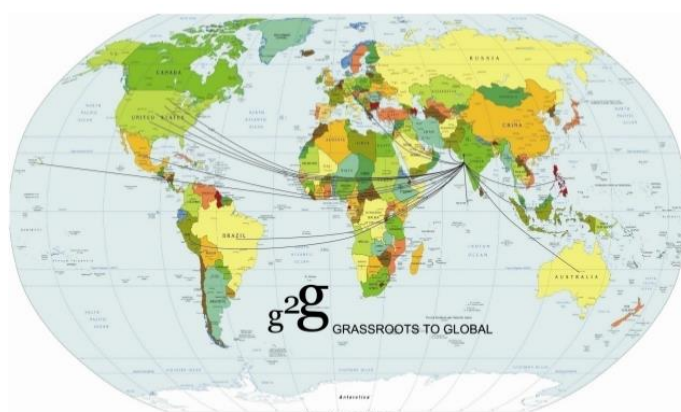
Innovation is defined as ‘the successful exploitation of new ideas – incorporating new technologies, design and best practice which is the key business process that enables businesses to compete effectively in the global environment (DTI, 2005). An innovation is often distinguished from an invention by the additional condition of successful market introduction, the actual way through which firms succeed in bringing an invention to the market is relatively unexplored (Chesbrough, 2010). Innovation is an interesting focus of study in this respect, as technology and society come together, as do culture, economy and politics, to create hybrid socio-technical networks (Latour, 1993).

Sustainable innovation could be defined as innovation that improves sustainability performance, where such performance includes ecological, economic, and social criteria (Carrillo-Hermosilla et al., 2010). Sustainable innovation is a process where sustainability considerations (environmental, social, and financial) are integrated into company systems from idea generation through to research and development (R&D) and commercialization. This applies to products, services and technologies, as well as to new business and organizational models” (Charter et al., 2008; Charter and Clark, 2007).

Grassroots innovations are “networks of activists and organisations generating novel bottom–up solutions for sustainable development; solutions that respond to the local situation and the interests and values of the communities involved” (Seyfang and Smith, 2007). Grassroots innovations differ from technology or market innovations in a sense that they usually have motives for creating social good rather than pure monetary profits (Seyfang and Smith, 2007). Grassroots innovations usually have a solution-focused approach to local problems, involving both technological and social innovation and motives for the development of “new products and services that address social needs”, which “help to build more sustainable, cohesive and inclusive societies” (Grimm et al., 2013; Zhang, 2013).

Grassroots innovations differ from mainstream, business reforms; they practice quite different kinds of sustainable development (Hilmim, 2012). The social, economic and environmental dimensions of sustainable development are traded off differently (Smith, 2006). Grassroots innovation is also referred as grassroots creativity, comprising of traditional knowledge and skills, which are translated into innovation by the poor and marginalized people of the rural areas (Letty et al., 2012; Paunov, 2013). Indian grassroots innovation predominantly uses either traditional knowledge or involves an adapted use of modern technology that is affordable and convenient to lower-income groups (Gupta, 1996; Jain and Verloop, 2012). Figure 1 depicts that grassroots innovations originate from India.

Figure1. Origination of Grasroots innovations (Gupta, 2006)



The concept of business model first appeared in the 1950s but only became prevalent in the 1990s with the advent of the Internet (Teece, 2010; Yip, 2004). Business model refers to the logic of how a firm does business (Magretta, 2002; Osterwalder and Pigneur, 2010), and describes how the firm captures, creates and



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delivers value (Richardson, 2008; Zott et al., 2011). Each firm has some form of business model, either explicitly or implicitly (Magretta, 2002; Reim et al., 2015; Teece, 2010). The concept of business model is closely linked to the concept of value in most business model literature. For some authors, such as Osterwalder and Pigneur (2010) and Teece (2010), value in business models predominantly refers to business benefits (e.g. revenue, reputation, market access) and the exchange with customer benefits (e.g. functionality, health and safety, convenience). Business model innovation is an emerging research area. An increasing number of researchers have seen business model innovation as a crucial part of the approach to improve sustainability for entrepreneurs and managers (Boons and Lüdeke-Freund, 2013; Girotra and Netessine, 2013). Technology always needs suitable business models to achieve its commercial potential (Chesbrough, 2010) and to improve its sustainability (Foresight, 2013).

This study proposes a business model for a grassroots innovation company. The business model Canvas is the means for the design, development and success of the model. As a basis to evaluate existing business models, it is necessary to determine certain countries to choose models from. To do so, a quantitative analysis is performed and three European countries stood out. Finally, we propose a business model for companies to pick up grassroots innovations and produce these innovations by focusing on the company’s point of view.

## 2. BACKGROUND THEORY

The Business Model Canvas - BMC (Osterwalder and Pigneur, 2010) is a tool that can be used to visualize an existing or potential business model in a single page. The tool can be used by individuals and organizations to facilitate design and re-design of business models as it provides a shared language of business model terms and clarifies their relations. The BMC includes nine basic building blocks and visualizes a logic for how an organization creates, delivers and captures value, covering the four main areas of a business: customers, value offer, infrastructure, and financial viability. The building blocks are briefly described below (Franca et al., 2016).

*Customers segments* describes the different groups of people or organizations an enterprise aims to reach and serve. The focus is on exploring, understanding and delineating specific customer needs. Examples of customer segments are: mass market, niche market, segmented market, diversified market, and multi-sided market.

*Value proposition* describes the bundle of products and services that create value for a specific customer segment. Examples of aspects that can contribute to customer value creation are: newness, performance, customization, ‘getting the job done’, brand/status, price, cost reduction, risk reduction, accessibility, convenience, and usability.

*Channels* describes how a company communicates with and reaches its customer segments to deliver a value proposition. These customer touch-points play an important role in the customer's experience. The channels serve several functions, including: raising awareness among customers about a company's products and services, helping customers evaluate a company's value proposition, allowing customers to purchase specific products and services, delivering a value proposition to customers, and providing post purchase customer support. Channels can be direct or indirect through partners. Examples include: own sales force, own stores, web stores, partner stores and wholesalers.

*Customer relationships* describes the types of relationships a company establishes with specific customer segments. Customer relationships can range from personal to automate and are driven by the following motivations: customer acquisition, customer retention, and boosting sales (upselling). The customer relationships deeply influence the overall customer experience. Several categories of customer relationships can be distinguished, e.g., personal assistance, dedicated personal assistance, self-service, automated services, communities, and co-creation.

*Revenue streams* describes the revenue streams, i.e., the cash a company generates from each customer segment. Costs are subtracted from revenues to calculate earnings. This way, it can be deemed whether the business model is profitable (i.e. successful) or not. A business model can involve two different types of revenue streams: transaction revenues resulting from a one-time customer payment and recurring revenues

resulting from ongoing payments. There are several ways to generate revenue streams, including: asset sale, usage fees, subscription fees, lending, renting, leasing, licensing, brokerage fees, and advertising.

*Cost structure* describes all costs incurred to operate a business model. It includes costs for creating and delivering value, maintaining customer relationships, and generating revenue. Many business models fall under two broad classes of cost structures: cost-driven and value-driven. Cost structures can have the following characteristics: fixed costs, variable costs, economies of scale, and economies of scope.

*Key resources* describes the most important assets required to make a business model work. Key resources can be physical, financial, intellectual or human. Key resources can be owned or leased by the company or acquired from key partners.

*Key activities* describes the most important things a company should do to make its business model work successfully. Key activities are required to create and offer a value proposition, reach markets, maintain customer relationships, and earn revenues. Examples of some categories of key activities are production, problem solving, and network related activities.

*Key partners* describes the network of suppliers and other partners that make the business model work. Some main types of partnerships are: strategic alliances between non-competitors, strategic partnerships between competitors (competition), joint ventures to develop new business, and buyer-supplier relationships to assure reliable supplies. Some motivations for creating partnerships are: optimization and economy of scale, reduction of risk and uncertainty, and acquisition of particular resources and activities.

### 3. APPROACH

As a basis, existing business models were evaluated. For this step, it is necessary to determine certain countries to choose models from. To do so, a quantitative analysis is performed and three European countries stood out. The analysis is based on criteria out of three different sections, which are innovation, entrepreneurship and sustainability. Those three were chosen because they are considered prerequisites for countries to perform sustainable innovations (Baldsarre et al. 2017). The three sections had to be split up in comparable key performance indicators for all countries of the European Union. These key performance indicators (as described in the table 1) were evaluated individually to create a ranking from 1 (best) to 28 (worst) per section. This means there were independent rankings for the sections “innovation”, “entrepreneurship” and “sustainability”. After the evaluation of each indicator, a sum was drawn for each section and a ranking for this section was determined. At the end three weighted rankings were established and they were combined to an overall ranking (OECD Green Growth Indicators, 2016; The World Bank, 2016). The ranking of the European countries is shown in the following table.

Table 6. Ranking of the European countries regarding innovation, entrepreneurship and sustainability

| Country        | Final Position | Average Total | Ranking Innovation | Ranking Entrepreneurship | Ranking Sustainability |
|----------------|----------------|---------------|--------------------|--------------------------|------------------------|
| France         | 1              | 4,00          | 1                  | 2                        | 9                      |
| Finland        | 2              | 6,67          | 6                  | 12                       | 2                      |
| United Kingdom | 3              | 6,67          | 12                 | 1                        | 7                      |
| Portugal       | 4              | 9,00          | 8                  | 9                        | 10                     |
| Sweden         | 4              | 9,00          | 2                  | 14                       | 11                     |
| Cyprus         | 6              | 9,67          | 10                 | 16                       | 3                      |
| Malta          | 7              | 10,00         | 14                 | 3                        | 13                     |
| Greece         | 8              | 10,33         | 11                 | 19                       | 1                      |
| Poland         | 8              | 10,33         | 16                 | 7                        | 8                      |
| Austria        | 10             | 11,33         | 3                  | 17                       | 14                     |
| Netherlands    | 10             | 11,33         | 5                  | 25                       | 4                      |
| Croatia        | 12             | 11,67         | 17                 | 13                       | 5                      |
| Spain          | 13             | 13,33         | 4                  | 21                       | 15                     |
| Italy          | 14             | 14,33         | 13                 | 5                        | 25                     |
| Bulgaria       | 15             | 15,33         | 18                 | 6                        | 22                     |
| Germany        | 16             | 15,67         | 9                  | 26                       | 12                     |
| Luxembourg     | 17             | 16,67         | 25                 | 8                        | 17                     |

| Country        | Final Position | Average Total | Ranking Innovation | Ranking Entrepreneurship | Ranking Sustainability |
|----------------|----------------|---------------|--------------------|--------------------------|------------------------|
| Latvia         | 18             | 17,33         | 26                 | 20                       | 6                      |
| Belgium        | 19             | 18,00         | 23                 | 10                       | 21                     |
| Slovenia       | 19             | 18,00         | 24                 | 4                        | 26                     |
| Czech Republic | 21             | 18,33         | 15                 | 24                       | 16                     |
| Denmark        | 22             | 19,00         | 7                  | 27                       | 23                     |
| Ireland        | 23             | 19,33         | 20                 | 11                       | 27                     |
| Slovakia       | 24             | 20,00         | 19                 | 22                       | 19                     |
| Estonia        | 25             | 21,33         | 22                 | 18                       | 24                     |
| Lithuania      | 25             | 21,33         | 21                 | 15                       | 28                     |
| Romania        | 27             | 23,00         | 28                 | 23                       | 18                     |
| Hungary        | 28             | 25,00         | 27                 | 28                       | 20                     |

The top three European countries with the best score are France, Finland and United Kingdom.

## 4. CASE STUDY

### 4.1 Analysis of three European Business Models of Sustainable Innovation

According to the results from the quantitative analysis, business models from Finland, France and United Kingdom were analyzed. First, the basic concept of each business model is explained. After that, the detailed analysis is based on the business model canvas which consists out of the following parts: *Key activities*, *Value Proposition*, *Customer Relationship*, *Customer Segment*, *Revenue Stream*, *Channels*, *Key Resources*, *Costs* and *Key Partners*.

#### *Finland*

In order to support the government’s key goals, Finland is launching a digital platform called *KokeilungPaikka*. This platform provides small and local innovators with an opportunity to present their ideas and initiatives to develop public services. This also directly links the innovators with reformers and sources of funding. Furthermore, this enables the country to divide complicated challenges into smaller more manageable parts (OECD, 2017).

#### *France*

For a long period, the production of energy was centralized in France. The market was dominated by two big companies EDF (Electricité de France) and GDF (Gaz de France). Due to this dominance in the energy sector, more and more regional problems occurred for local farmers in different areas in France, especially in Le Mené. Not only agricultural aspects but also challenges in other sectors, led to the emergence of the grass root project of Le Mené. Le Mené tried to combine the challenges of all sectors to unify them and encourage them to develop innovative ideas for an independent energy production. This collaboration of a lot of different characters, created a unified and strong identity, which finally led to an independent production of fuel oil, wind energy (Yalçın-Riollet et al., 2014; Riollet et al., 2014).

#### *United Kingdom*

In the process of developing grass root innovations, a very important part is the so-called community leadership. A community can be created through a shared vision, similar problems or nationality. In the United Kingdom communities tried to do community energy projects. These projects are done by civil society actors to develop either or both energy saving and renewable energy generation measures. By offering incentives for community leaders the development of grass root innovation can be increased (Seyfang et al., 2014).

Table 2. Analysis of three business models

|                               | Finland  | France   | United Kingdom  |
|-------------------------------|--|--|---|
| <b>Value proposition</b>      | Digital Platform Kokeilun<br>KokeilunPaikka provides the citizen of Finland with an opportunity not only to present their own innovative ideas, but also with the chance to help another innovator by funding their ideas. This also offers a huge collection of collective knowledge for new innovators.  | French Case: Le Mené<br>The governmental representatives of Le Mené offered their citizens from different sectors a central way to combine their innovative ideas, in order to develop new projects and policies.  | Community Innovation for Sustainable Energy<br>Since the context of grassroots innovations comes from the bottom-up, it has consequences for the viability and resourcing of putative actor and for the policy context in which they operate. The nature of the protection benefits from the challenge of niche-development. The diffusion and influence of wider energy systems. |
| <b>Customer Relationships</b> | The platform allows users to browse content, obtain ideas for their own project, and communicate with each other to help market and share their innovations. Since the platform was launched only recently, it is too early to gauge impacts or assess results.  | All people that live in the French region of Le Mené, are customers that could possibly benefit from an independent production of energy. People that moved to Le Mené due to the creation of jobs for the independent production of energy.                               | The actors who work within the community energy sector including dedicated energy intermediaries, policy actors such as local and national government, and private sector organizations such as energy utilities and independent consultants.   |
| <b>Customers Segment</b>      | The goal at this level is to identify and support the best results from local and regional experiments and ultimately to test them on a larger scale. Finally, at the grass root level, municipalities, academics, civil society organizations and citizens can use the application to promote their innovation, with each actor individually monitoring their own activities. | The customer segments are the people that live in Le Mené but also people that are just working in this region, since they contribute to the production of energy.   | The community energy and other grass-roots practitioners aiming to build robust influential niches, and for policy makers.  |
| <b>Revenue Stream</b>         | The users will be joined and stay involved, so there will be indirect revenues. However, it is hard to estimate the exact revenues, since there will be eventually many partners.  | Since this project is rather a social approach to be more economic and independent, than creating revenue, the revenue stream must be seen differently. Other than money this project provided Le Mené with way and tool to push further innovative ideas of local people. | Local household, community and school efficiency.   |
| <b>Channels</b>               | The platform will connect innovators and this is the means for the communication. It is believed that users will reach into the thousands, and that the platform will enable innovators to establish links with support and funding networks.  | Actors, which were at the origins of pioneering projects, are the references in this area. Social innovation networks help to provide encouragement for citizens who come across similar obstacles. The municipalities which harbor these civic projects.                  | Voluntary organizations, cooperatives, informal associations, and partnerships with social enterprises, schools, businesses, faith groups, local government or utility companies.   |
| <b>Key resources</b>          | The huge amount of possible users, provides all the necessary resources. Such as funding, connections, other ideas and most important direct feedback.   | The willingness of the local actors (e.g. farmers, municipalities, citizens) to participate in the project. The integration into the central system and the critical relationship with national authorities  | Sharing learning is an important activity for this case. The engagement in networking activities in a variety of ways, with a diverse set of partners, to gain support, information, and share their experiences. The development of shared expectations and visions is considered a pre-requisite for the development of local projects.   |
| <b>Cost</b>                   | The cost is relatively low. It is  | The cost was reduced since the   | Grant funding needed to carry out the   |

|                       | Finland   | France   | United Kingdom  |
|-----------------------|---|--|---|
|                       | Digital Platform Kokeilun<br>hoped that the replicability in other countries will reduce the final cost.  | French Case: Le Mené<br>farmers limited their purchases and replaced them with their own production. Beneficial cost reduction derived from the local development with the creation of jobs, the fight against exclusion, protection of the environment, etc.) | Community Innovation for Sustainable Energy<br>project, to buy equipment & pay for key staff.   |
| <b>Key Activities</b> | The main activity is to offer a central platform for innovators. Furthermore, the finish government offers expertise and guidance for innovators.                               | The government of Le Mené acted as link between different sectors in order to push forward grass root innovation. Another huge activity was the building of a network for further partnerships.  | The most important activity in this case was the introduction of incentives. This led to a rise in motivation for people to become a community leader and bring forward grass root ideas. |
| <b>Key Partners</b>   | Apart of non – governmental users such as organizations, municipalities, academics, civil society and citizens will contribute individually by monitoring their own activities. | Native leaders who declared themselves to be mainly motivated by their love for the region. People who did not come from Le Mené, but who had chosen to live and /or work there, bringing their technical, economic, managerial and social skills to projects. | Intermediary organizations which influence and support in framing and coordinating the project.   |

## 4.2 The proposed business model canvas

In order to establish this business model a combination of the most important aspects of the three models mentioned above has to be done. The main service of the business model will be a platform like the one of the Finnish business model. This aspect allows us to shorten the distance between innovators and companies, by using the Internet for a fast exchange of information. The second aspect will be provided by the French business model. This facet bears the idea of building a central basis for communication not only between companies and innovators, but also between two innovators by offering a huge list of former innovators. Such a central basis allows innovators to cooperate and create even better innovations such as the farmers did in the business model of France. The last but very important part for our business model is provided by the case study of the United Kingdom.

The business model will include two evaluation stages for the idea to pass. It is also important to note, that the submitted ideas will not be publically displayed. The first stage will have three members of an evaluation committee to check if the submitted innovation is worth investing in. After the idea was evaluated worthy, a second committee will evaluate the submitted innovation. After this final stage the innovation is ready to go into further work and development. In order to get rid of the innovator’s fear all of the mentioned members of the committee will be bound to contracts similar to non-disclosure agreements. Additionally, as a further motivator for innovators to share their ideas, the business model will include monetary incentives for the ideas that successfully make it through the first stage to the second committee. The following paragraphs describe each section in detail.

### *Value Proposition*

The business model provides fast access not only to the company that owns the platform. By using the offered platform, the innovator can get access to funding, a team for further development and the needed capacity in order to produce the innovation. This aspect is highly sensible, in consideration of the short product life cycle of grass root innovations. The platform also offers access to previous innovators, if wanted. On voluntary basis, the innovators can ask for immediate feedback from the company and other innovators, which could provide the grass root innovators new information.

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*Target customers*

The target customer for companies, applying the business model, are clearly innovators at the bottom of the pyramid. These people are an excellent customer segment to provide new ideas to companies, because they have a better understanding of the problems, as well as the resource constraints in their everyday life. In a broader sense, also Non Governmental Organizations (NGOs) can be a customer segment, which may help to get into contact with grass root innovators.

*Channels*

As grass root innovators can get into contact with the company via a platform, obviously, this online platform will be the first and most important channel. To promote the platform, buzz marketing will be of high importance. After the ideas got chosen from the company to be developed, a cross functional team will go to India and negotiate how the further business relationship will look like. The various compensation systems will be described later on.

*Customer Relationship*

The grass root innovators are the most important sources of ideas for the companies. Hence, a good relationship with them is much needed. The platform helps to establish a first contact and relationship. Once the idea was picked up from the company, a personal face-to-face relationship will be established. As it was one of the main findings of the interviews, that innovators face problems in trusting the companies, there should be a special focus on being a constant flow of information. The incorporation of the grassroots innovator into the process should be strong as required by the innovator himself. This helps to build trust and show the innovator that his/her idea is valuable and appreciated.

*Key activities*

The activities of the companies can be guided by the described four phases in the first chapter. Companies should start with an observational phase, to see which ideas are submitted to the platform. Companies can learn about certain problems, customer needs and requirements. This phase also provides the basis for the next one: Conceptualization. During this phase the potential of the idea is evaluated and the companies will experience the advantage of introducing the innovation. This enables them to set market boundaries, rules and regulation for potential customers. Thus, a competitive advantage on a certain market can be achieved. In the third phase, the development of the product starts. As it was one finding of the interviews, that most ideas are not developed to their full potential, this is when the idea can be transformed into a high-quality product. After the development, the product is ready for the production. As the companies want to sell in the future, also market preparation, like marketing, is a key activity. Besides that, the constant support, maintenance and review of the platform and the submitted ideas is another key activity.

*Key partners*

A very important part of our business model canvas are the key partners. These are people or organizations, that are related to the companies' activities to develop grass root ideas. Identified partners are of course the innovators themselves, since they are the source of any idea. As already mentioned also organizations can be seen as key partners, therefore we identified manufacturing companies in India as key partners since the production will most likely happen in the target country. The last group of identified partners are NGOs that can recommend new innovators to the companies.

*Key resources*

As per definition, key resources are all necessary resources to find, develop and sell grass root innovations. In the case of our best practice business model these are of course the internet, since it is necessary to run the central basis. Furthermore, the Indian grass root innovators and their know-how. Another resource is the committee that is needed to evaluate the submitted ideas. Very important for the development of the ideas are free capacities within the company or at manufacturers in India. In order to provide the innovators incentives, money is seen as a central resource. Lastly the network of previous innovators can be seen as a very valuable key resource.

*Revenue Stream*

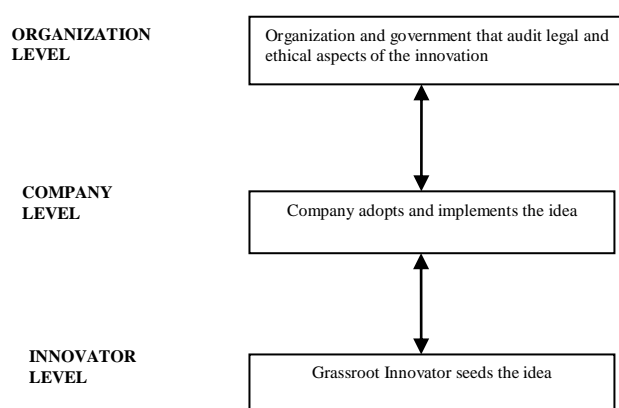
Since this business model is established to improve the collaboration between companies and grassroots innovators, no source of revenue in the sense of money can be determined. Only ideas and knowledge can be identified as a “revenue”. The revenue in monetary value of the innovated products is generated later on during selling the product on the target market.

*Cost structure*

Concerning the cost structure, various factors have to be taken into account. Obviously, the company will have expenditures caused by the support of the platform and the intensive support of ideas through the innovation committee. Also, research and production costs need to be considered. Those costs can be considered normal costs, which every company has to cope with. But working with grassroots innovators, more costs occur. Depending on which model of collaboration is chosen, different expenses have to be covered. One option is a one-time compensation: It is possible, that the company buys all intellectual property rights related to the idea and patent by paying one time a certain amount of money. Another option would be a royalty: With this option, the company has monthly or annually expenses, because the grassroots innovator is paid a certain amount regularly. The third option would be an investment into the grassroots innovator, to enable him to develop and produce the product himself. What also has to be considered as an expense, are the incentives for the best innovation ideas.

In order to secure the profits and rights of all parties is suggested (Figure 2).

Figure2. The 3-level approach



## 5. DISCUSSION AND CONCLUSIONS

This study proposes a business model for European companies to successfully pick up innovations from the grassroots level. A quantitative analysis based on criteria of entrepreneurship, sustainability and innovation for all European countries was carried out to determine the top three countries namely Finland, France and United Kingdom. The developed business model for European companies is based on existing ones from the aforementioned countries.

It was observed that European companies need to pay special attention to the short lifecycle of products as well as to a good relationship with the innovators. The way of collaborating and compensation is a highly sensitive process in picking up ideas from grass root level. The research also revealed, that a collaboration between European companies and innovators is highly required. The developed business model considers the observed factors and is therefore providing a solid basis for European companies to successfully pick up innovations from grassroots level.

The findings show that a model is very much required by people at the bottom of the pyramid as well as organizations. Both the parties would love to be part of such collaborations if their respective interests and rights are protected. Apart from financial and logistical advantages, such projects will also place companies at high moral ground. When people are questioning and debating over ethical practices of the organizations, connecting themselves with grass root people will give organization high moral advantage and social satisfaction. It can help them to improve their image in the market and can also create a sense of loyalty among customers. It was found that a middle path needs to be created which is beneficial for organisations and grass root innovators. Environment of mutual trust should be developed between both the parties. Innovators must understand the pressure on companies to make profit on their investment as well as companies should understand the desires of innovators to be financially independent.

As the concept is quite new, only future will tell if picking up grass root innovation will become a common and successful business model for European companies.

## REFERENCES

- Baldassarre B., Calabretta G., Bocken N.M.P. and Jaskiewicz T., 2017. Bridging sustainable business model innovation and user-driven innovation: A process for sustainable value proposition design. *Journal of Cleaner Production*, 147, 175-186.
- Bocken, N.M.P., Short, S.W., Rana, P. and Evans, S., 2014. A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, 65, 42–56
- Boons, F., Lüdeke-Freund, F., 2013. Business models for sustainable innovation: state-of-the-art and steps towards a research agenda. *J. Clean. Prod.* 45, 9e19.
- Carrillo-Hermosilla, J., del Río, P., Könnölä, T., 2010. Diversity of eco-innovations: reflections from selected case studies. *Journal of Cleaner Production*, 18, 1073e1083.
- Charter, M., Clark, T., 2007. *Sustainable Innovation*. The Centre for Sustainable Design. Farnham.
- Charter, M., Gray, C., Clark, T., Woolman, T., 2008. Review: the role of business in realising sustainable consumption and production. In: *Tukker, A., Charter, M., Vezzoli, C., Stø, E., Andersen, M.M. (Eds.), Perspectives on Radical Changes to Sustainable Consumption and Production. System Innovation for Sustainability*. Greenleaf, Sheffield, pp. 46e69.
- Chesbrough, H., 2010. *Business model innovation: opportunities and barriers*. Long. Range Plan. 43, 354e363.
- DTI, 2005. Innovation. Available at: [www.innovation.gov.uk](http://www.innovation.gov.uk) (accessed 24 March 2017).
- Foresight, 2013. The Future of Manufacturing: a New Era of Opportunity and Challenge for the UK.
- Franca, C. L., Broman, G., Robert, K. H. and Basile, G., 2016. An approach to business model innovation and design for strategic sustainable development. *Journal of Cleaner Production*. Advance online publication. <http://dx.doi.org/10.1016/j.jclepro.2016.06.124>.
- Girotra, K. and Netessine, S., 2013. OM forumdbusiness model innovation for sustainability. *Manuf. Serv. Oper. Manag.* 15 (4), 537e544. INFORMS.
- Grimm, R., Fox, C., Baines, S. and Albertson, K., 2013. Social innovation, an answer to contemporary societal challenges? Locating the concept in theory and practice. *Innov.: Eur. J. Social Sci. Res.* 26, 436–455.
- Gupta, A. K., 2006. From sink to source: The Honey Bee Network documents indigenous knowledge and innovations in India. *Innovat. Technol. Govern. Globaliz.*, 1(3), 49–66.
- Gupta, A.K., 1996. Getting Creative Individuals and Communities Their Due: A Framework for Operationalizing Article 8 J and 10 C, Paper presented to CBD secretariat. Ahmedabad: Society for Research and Initiatives for Sustainable Technologies and Institutions. Mimeo.
- Hilmim M.F., 2012. Grassroots Innovations from the Bottom of the Pyramid. *Innovation and Entrepreneurship*. 1(2).
- Jain, A. and Verloop, J., 2012. Repositioning grassroots innovation in India's S&T policy: from divider to provider. *Current Science* (00113891), Vol. 103, No. 3, pp. 282-5.
- Latour, B., 1993. *WeHaveNeverBeenModern*. HarvardUniversityPress, Cambridge, MA, USA
- Letty, B. Shezi, Z. and Mudhara, M., 2012. An exploration of agricultural grassroots innovation in South Africa and implications for innovation indicator development, UNU-MERIT Working Paper 23.
- Magretta, J., 2002. Why business models matter. *Harv. Bus. Rev.* 80 (5), 86e92.
- Martiskainen, M., 2017. The role of community leadership in the development of grassroots innovations, *Environmental Innovation and Societal Transitions*, 22, 78–89.



## 9<sup>th</sup> International Conference

### EBEEC 2017 - “The Economies of the Balkan and the Eastern European Countries in the Changing World”

Eastern Macedonia and Thrace Institute of Technology – Department of Accounting and Finance (Greece), University of Macedonia, Department of Balkan, Slavic and Oriental Studies (Greece)

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- OECD Green Growth Indicators, 2016. *Database Documentation*. Retrieved March 11, 2017, from <http://stats.oecd.org/>
- OECD, 2017. Embracing Innovation in Government: Global Trends: Case Study: Citizen as Experts. Retrieved March 18, 2017 from <https://www.oecd.org/gov/innovative-government/embracing-innovation-in-government.pdf>.
- Osterwalder, A. and Pigneur, Y., 2010. Business Model Generation: a Handbook for Visionaries, Game Changers, and Challengers, vol. 5.
- Reim, W., Parida, V. and Ortqvist, D., 2015. Product-service systems (PSS) business models and tactics - a systematic literature review. *J. Clean. Prod.* 97, 61e75.
- Richardson, J., 2008. The business model: an integrative framework for strategy execution. *Strateg. Change* 17, 133e144.
- Riollet M., Garabau-Moussaoui I. and Szuba M., 2014. Energy autonomy in Le Mené: A French case of grassroots innovation. *Energy Policy*, 69, 347-355.
- Robinson, J., 2004. Squaring the circle? Some thoughts on the idea of sustainable development. *Ecological Economics*, 48, 369-384.
- Seyfang G. and Smith A., 2007. Grassroots innovations for sustainable development: towards a new research and policy agenda. *Environmental Politics*, 16, 582-603.
- Seyfang G., Hielscher S., Hargreaves T., Martiskainen M. and Smith A., 2014. A Grassroot sustainable energy niche? Reflections on community energy in the UK. *Environmental Innovation and Societal Transitions*, 13, 21-44.
- Smith, A., 2006. Green niches in sustainable development: the case of organic food in the UK, *Environment and Planning C: Government and Policy*, 24: 439–58.
- Stubbs and Cocklin, 2008. Conceptualizing a Sustainability Business Model. *Organization & Environment*, Volume 21 Number 2, 103-127, Sage Publication.
- Teece, D.J., 2010. Business models, business strategy and innovation. *Long. Range Plan.* 43 (2e3), 172e194.
- The World Bank, 2016. *World Bank list of economies (July 2016)*. Retrieved March 11, 2017, from [http://iccmoot.com/wp-content/uploads/2016/08/World-Bank-list-of-economies\\_July2016.pdf](http://iccmoot.com/wp-content/uploads/2016/08/World-Bank-list-of-economies_July2016.pdf)
- World Commission on Environment and Development, 1987. *Our common future*. Oxford, UK: Oxford University Press.
- Yalçın-Riollet, M., Garabau-Moussaoui, I. and Szuba, M., 2014. Energy autonomy in Le Mené: A French case of grassroots innovation. *Energy Policy*, 69, pp.347–355. Available at: <http://www.sciencedirect.com/science/article/pii/S0301421514001050>.
- Yip, G.S., 2004. Using strategy to change your business model. *Bus. Strategy Rev.* 15 (2), 17e24.
- Zhang W., 2013. Grassroots Innovations to help inclusive Development. *Colloquium* , 38, 118-120.
- Zott, C., Amit, R., Massa, L., 2011. The business model: recent developments and future research. *J. Manag.* 37 (4), 1019e1042.

## **EU FOREIGN ECONOMIC POLICY IN EASTERN MEDITERRANEAN: IN QUEST FOR (ENERGY) SECURITY**

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### **ABSTRACT**

The formation of EU foreign economic policy until late '90s was a result of an intergovernmental process. However, the creation of a common foreign policy frame as well as the initiation of an overall strategy for foreign policy issues in 2003 inserts the question whether EU foreign economic policy is now a result formed according to the directions and priorities of its foreign policy. Through the study of EU foreign policy under critical geopolitics theoretical framework in correlation with the data derived by EU's external economic relations in Eastern Mediterranean from 2005 to 2015, through which foreign economic policy is expressed, the aim of this paper is to answer the above question as well as which foreign policy priority directs economic foreign policy. Through this study, the paper concludes that EU foreign economic policy since 2005 is indeed formed according to the directions and priorities of its foreign policy and in particular the development of close economic relations between EU and Eastern Mediterranean countries is driven by EU's need for energy security; an inference that confirms the research hypothesis of this paper.

### **KEYWORDS**

EU foreign economic policy, EU foreign policy, EU external economic relations, Eastern Mediterranean, energy security, critical geopolitics.

### **JEL CLASSIFICATION CODE**

F59

## **1. INTRODUCTION**

The development of European Union's (EU's)<sup>1</sup> external economic relations until late '90s was more the result of an intergovernmental process.<sup>2</sup> Since the 90s, however, an institutional framework for a common foreign policy of the EU was created (Christiansen 2005, p. 582) and a comprehensive strategy for foreign policy (European Security Strategy-ESS) was initiated.<sup>3</sup> These developments insert the question whether EU foreign economic policy has become today a result formed according to the directions and priorities of its foreign policy and furthermore, which is the foreign policy priority that directs foreign economic policy. In front of these questions, the study hypothesizes that the need of EU for energy security motivated the development of close economic relations between EU and the countries of Eastern Mediterranean.

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<sup>1</sup> The European Union (EU) was founded in the late 1950s as EEC and it was primarily an economic organization. Under the Maastricht Treaty in 1992, it was renamed to European Union (Christiansen 2005). However, only the name "European Union" or more the abbreviation "EU" will be used in this paper.

<sup>2</sup> This intergovernmental process for the Union's external economic relations policy making was taking place on the basis of the common needs and interests of the EU member states.

<sup>3</sup> The first efforts of cooperation between EU members on foreign policy issues emerged in the 1970s. These efforts resulted in the establishment of a Common Foreign and Security Policy (CFSP) in 1992 with the Treaty of Maastricht, while in 1999 a High Representative for foreign policy issues was appointed according to the Treaty of Amsterdam (Missiroli 2016, pp. 18-22, Christiansen 2005, p. 582). However, since the introduction of the European Security Strategy (ESS) in 2003, EU foreign policy acquires a specific framework of priorities and guidelines.

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The aim of this paper is to study EU’s external economic relations, through which foreign economic policy is expressed, along with EU foreign policy. The scope of this study is geographically limited in the Eastern Mediterranean region while the time period of study is limited between 2005 and 2015.<sup>4</sup> The study is distributed in three stages. In the first stage, EU foreign policy is studied through the texts of foreign policy documents. This study searches for the objectives and priorities contained in these texts and for this end it adopts the theoretical framework of critical geopolitics. In the second stage, the paper studies the external economic relations of the EU in the Eastern Mediterranean through the international trade with Egypt and Israel. In the third stage, the data derived from the previous stages are studied together to highlight the connection of EU foreign economic policy with its foreign policy in the region.

Consequently, in the following section is needed first to shed some light on the critical geopolitics theoretical framework. Then, the third section studies EU foreign policy and analyzes its objectives and priorities. The fourth section sets out the external economic relations of the EU in the Eastern Mediterranean through the international trade with Egypt and Israel. The fifth section studies together the foreign policy and financial data derived from the previous two sections to draw conclusions which support the hypothesis of this paper and therefore answer the research question. The last section closes this work with the key points and conclusions of the study as well as with a few valuable suggestions for further research.

## 2. EU FOREIGN ECONOMIC POLICY: A THEORETICAL FRAMEWORK OF ANALYSIS

Since foreign economic policy constitutes a part of the foreign policy of an actor in the international system, the paper studies EU foreign economic policy as a part of EU foreign policy. Therefore, the study of EU foreign economic policy can be more fruitful if conducted through the lenses of a theoretical framework which focuses on the analysis of foreign policy.<sup>5</sup> In this case, critical geopolitics offers the appropriate framework for an in depth critical analysis of EU foreign policy. This analysis will help to extract those elements of EU foreign policy that reveal its essential goals and which refer directly to the foreign economic policy of the EU.

These elements are in fact mental constructions, such as geographic assumptions and images, which compose the geographic representation of a state’s external environment. The geographic representation, however, involves political motivations and goals. Consequently, critical geopolitics perceive this geographic

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<sup>4</sup> This time scope is chosen because it involves a period during which an overall and concrete frame of directions and priorities for EU foreign policy is in effect and as a result its economic foreign policy could refer to this frame. The study period begins a year after the presentation of the ESS, allowing in this way the effects of ESS be presented on the financial data of the economic relations of the EU with Eastern Mediterranean. The study period ends in the year for which financial data are available. The geographical scope of Eastern Mediterranean is chosen because, as implied in the sections below, this region plays a decisive and vital role for the EU interests.

<sup>5</sup> The paper considers that EU foreign economic policy is directed by its foreign policy priorities as this is the case in the foreign economic policies of states (Okamoto 2010, pp. 9-10, Bozyk 2006, p. 4). In most cases, however, foreign economic policy is studied by scholars especially through the lenses of economics omitting, however, the scientific field of foreign policy analysis. For example, many scholars, who apparently come exclusively from the field of economic science, perceive foreign economic policy as an economic policy which simply refers to the external environment of the country, and not as a foreign policy that refers to economic matters, as do scholars coming from the field of political sciences and international relations. This is partly due to the fact that political science and international relations scholars have not been so deeply involved in the economic dimension of foreign policy, leaving the field of science free to economists to study it as they perceive it. This discrepancy in the perspective of foreign economic policy has become apparent in terms of its formulation and implementation with the economy and foreign ministries to fight for its diligence. In many countries, however, the final undertaker of foreign economic policy is the ministry of foreign affairs (Tsardanidis 2008, 501-502). This situation is also observed in the case of EU, where a limited number of studies on its foreign economic policy are primarily conducted in the light of the economics science, or at least, of global political economy (Woolcock 2011, Meunier and Nicolaïdis 2006). Nevertheless, in recent years a few studies emerged that approach EU foreign economic policy in the light of political science touching, though, only the limits of foreign policy and, thus, avoiding the deepening of study in the light of foreign policy analysis (Young 2000, Smith 1994).

representation as a deliberate political action of inscribing geographic space into foreign policy texts. In other words, this geographic representation reflects the geopolitical reality as it is perceived and understood by the decision makers who shape foreign policy. In essence, into this geographic representation are recorded the ultimate goals and objectives of a state's foreign policy (O'Tuathail 1996).

Sequentially, this deliberate inscription of geographic space is used intentionally by the state itself in its foreign policy to exercise power in its external environment and, ultimately, to serve its goals and aspirations. Critical geopolitics investigates, then, the extent to which a geographic representation influences the decisions and behavior of the state in foreign policy and security issues (Heraclides 2000, pp. 186-88, O'Tuathail, 1996, 1998, Dalby and Tuathail 1998, Dodds 2005, Dodds and Sidaway 1994, Kuus 2016). Through such a study, critical geopolitics can reveal the essential goals and objectives of a foreign policy.

Therefore, in order to find and extract these elements of geographic representation, critical geopolitics focuses on the critical study of foreign policy texts (discourse). These elements of geographic representation are put then into a structure of five parameters which compose the geopolitical code of a state's foreign policy. A state's geopolitical code determines the way in which this country orients itself in the world, while, the parameters of the geopolitical code constitute the main guidelines on which foreign policy is shaped.

Specifically, these parameters indicate the priorities of challenges that a foreign policy is facing, the ways in which it can deal with these challenges, the available alliances or potential alliances that can cultivate as well as how it can cultivate such alliances. The last parameter concerns the way in which the previous four parameters can receive credibility by the people (Flint 2011, pp. 55-59). The formation of the geopolitical code of foreign policy contributes to an in depth critical analysis of foreign policy revealing its essential goals, objectives and priorities as well as the means that it intends to implement them. The next section analyses EU foreign policy through the theoretical framework of critical geopolitics.

### **3. EU FOREIGN POLICY AND ITS GEOPOLITICAL CODE OF ENERGY SECURITY**

#### **3.1. Introduction**

As it has been mentioned in the analysis of critical geopolitics in the previous section, in order to analyze foreign policy, the key tool is the official foreign policy texts. These texts are here the main subject of study and analysis. Through them the essential elements of foreign policy will be extracted, such as the geographic images and assumptions as well as the geopolitical code of foreign policy.

In the case of EU foreign policy, official foreign policy documents issued since 2003, on which the architecture of EU foreign policy is based, will be used. Specifically, these documents include the European Security Strategy (ESS) issued in December 2003, which constitutes the foundational 'map' of the EU foreign policy on which all the rest foreign policy documents were composed according to its guidelines, the report on the implementation of the ESS issued just five years later, in December 2008, the two annual reports from the High Representative of the EU for Foreign Affairs and Security Policy to the European Parliament issued in 2010 and 2012 respectively, and the Global Strategy for Foreign Affairs and Security Policy of the EU issued in 2016.<sup>6</sup>

Right below, the second subsection analyzes the geopolitical representation of EU foreign policy as this emerges from the official texts of EU foreign policy documents. The third subsection analyzes the energy security as a priority of EU foreign policy, and, at the end, a summary, according to which the geopolitical code of energy security is formed, closes this section.

#### **3.2. The Geopolitical Representation of EU Foreign Policy**

The European Security Strategy (ESS) of 2003, as it is mentioned above, outlined the main guidelines on which EU foreign policy was built and developed in the following years. This Strategy appointed the general context of foreign and security policy and for the first time identified the upcoming challenges and the main

<sup>6</sup> In this study of foreign policy, the year 2016 is also included because it is considered that the deliberations for a development or a change in foreign policy takes place much earlier and as a result it can influence the external economic relations, respectively.

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threats facing the EU and the ways in which EU could deal with them setting hierarchically its strategic objectives.

As the title indicates, the main aim of the ESS is 'security'. Although security is not described separately, e.g. in a paragraph in the text, the meaning is pervasive throughout the text. Everything described in the ESS (vision, mission, priorities, objectives) aims to consolidate security, not only within the EU but also in the near and far abroad, since in order to ensure security in EU there should be security abroad, too. So, the EU has "... a share of responsibility for the security of the world" (p.1). Accordingly, the EU scale of action and, therefore, of its foreign policy, is global. Thus, the EU is "... inevitably a global player" (p.1). In this context of security quest, therefore, the geopolitical representation of EU foreign policy is formed.<sup>7</sup> This representation reflects the geopolitical reality as it is perceived and understood by decision makers who shape EU foreign policy.

According to this representation, the EU peripheral region, or neighborhood as it is mentioned in the ESS document, is perceived as a turmoil area. For this reason, ESS (third chapter, second section) refers to the building of security in the EU neighborhood (Russia and Eastern Europe, Central Asia, Middle East and North Africa). More specifically, "... in the eastern and Mediterranean borders of the Union...a ring of well-governed countries" should be established with which the EU has to have "...narrow and harmonious relations of cooperation." In short, in the text are displayed the geographical assumptions of a "troubled neighborhood" in the region of the EU periphery which must be converted into a ring of well-governed countries. Finally, as already been mentioned, the geopolitical representation of this ring may be realized through close cooperation between EU and countries in this ring, in this case and for this study countries of the Eastern Mediterranean.

### 3.3. Energy Security as a Priority of EU Foreign Policy

As it has been made clear in the above subsection, the main objective throughout ESS is 'security'. Therefore, the general priority that covers not only the ESS, but also all the official EU foreign policy texts issued up to 2016, is that of 'European security'. Although the good of security is a reasonable objective, questions are also reasonably raised about what threatens (if indeed threatens) the EU so as to need to operate an undoubtedly costly global action. The answer is offered by the ESS in the section which refers to the global challenges. As stated on page three, "special concern for Europe is our energy dependence." Although energy security is not among the main threats, it is well understood that this is the most important challenge for the EU and it constitutes a fundamental priority of its foreign policy. As it is mentioned at the same point in the ESS text, 50% of EU energy needs is covered by imports while in 2030 this need is estimated to reach at 70% according to the ESS and 75% according to the Report on the implementation of the ESS of 2008. Therefore, if the EU will not ensure the passages and the supply of these energy quantities, it will face serious vital problems. Besides, in the report of 2008, the energy security objective acquires a separate place in the text and, as a result, it is classified and ranked third among the other main threats and challenges of the EU.<sup>8</sup>

Therefore, the energy security objective constitutes the fundamental priority of EU foreign policy and it is the most important geopolitical priority, not only in the ESS, but also in all other official EU foreign policy documents until 2016. As stated above, the energy security from a vague status in the ESS of 2003, it is upgraded to a fundamental threat in the Report of 2008, which ranks it third, and remains on the list of the key threats till the adoption of the Global Strategy of 2016. Although in the two Annual Reports of 2010 and 2012 the energy security objective is ranked fourth, in the Global Strategy of 2016 is placed first under the general title "Safety of our Union" (see Figure 3.1). Thus, the geopolitical code concerning the fundamental

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<sup>7</sup> Since a geographic representation involves political motives and goals, as it has been mentioned in the previous section, in essence it is a geo-political representation of the external environment. In this paper, when the term geographic representation or geopolitical representation is used, it means exactly the same thing.

<sup>8</sup> The other priorities mentioned in the foreign policy texts, since the European Security Strategy onwards, concern mainly a number of specific issues (such as terrorism, proliferation of weapons of mass destruction, regional conflicts, state disruption, and organized crime); however, these are also aiming generally at security. The present paper is concerned only with the issue of energy security as a priority of foreign policy since it is argued that this is the fundamental priority of EU foreign policy.

priority of EU foreign policy, which will be described immediately below, is that of energy security and sets the ground for the EU to quest for it.

### 3.4. Conclusion: the formation of the geopolitical code of energy security

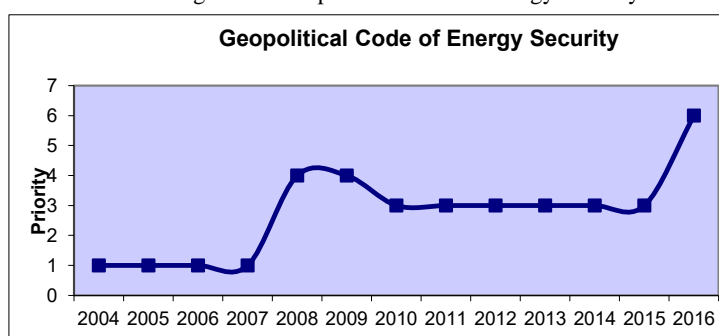
The fundamental priority of EU foreign policy, as found out above, is that of energy security. Consequently, since the first parameter of the geopolitical code, as outlined in section two, concerns the priorities and challenges of foreign policy, energy security constitutes also the main content of the geopolitical code. Thus, energy security characterizes the geopolitical code of EU foreign policy and it could be now named as the geopolitical code of energy security.

The second parameter of the geopolitical code concerns the ways of dealing with the challenges and threats. In order to reach energy security, as defined in EU foreign policy, EU needs first to establish security in its external environment and especially in its "neighborhood", i.e. the Eastern Mediterranean. Therefore, EU should transform this troubled region, as it is characterized, into a "ring of well-governed countries," or, in other words a security ring. In this respect, EU, as defined by the third parameter concerning the alliances that should be formed, has to ally with the countries located in this ring and in this case with the Eastern Mediterranean countries.

In order the EU to build these alliances, according to the fourth parameter concerning the ways that these alliances can be cultivated, it must build "close relations of cooperation" and more specifically, effective relations of economic cooperation, which will be studied in the next section. This parameter is essentially the point of articulation connecting the geopolitical code of energy security with the external economic relations of the EU, or otherwise, it is the link between EU foreign policy and its foreign economic policy.

These four aspects of the geopolitical code find justification, as the last parameter concerning the justification of EU foreign policy by the people requests, in the reasoning that as long as "the EU is inevitably a global player" it has to spread then European values in order to create "a world with justice and opportunities for all..." as such a world would "be more secure for EU citizens." Besides, as it is mentioned, security is also a prerequisite for development (ESS, pp. 1-2, 10, 13). Therefore, EU by establishing close relations of economic cooperation with Eastern Mediterranean countries can spread such values and establish a secure environment. An indicative example of the EU's geopolitical representation realization is the economic relations with Egypt and Israel, which are examined below in the next section. These financial data together with the geopolitical code data will be studied later in section five. Figure 3.1 below shows the evolution of the geopolitical code of energy security as a priority EU foreign policy yearly from 2004 to 2016.

Figure 3.1 Geopolitical Code of Energy Security<sup>9</sup>



<sup>9</sup> In Figure 3.1, grades are interpreted as follows: priority grade 1 = Vagueness (i.e. the concept of energy security is diffused in foreign policy texts but without being classified as a priority rank), priority grade 2 = 5th Priority in EU foreign policy, priority grade 3 = 4th Priority in EU foreign policy, priority grade 4 = 3rd Priority, priority grade 5 = 2nd Priority, priority grade 6 = 1st Priority in EU foreign policy. The figure does not include the year 2003 as the ESS was issued only in mid-December, while includes the year 2016 since it is considered that deliberations for a development or a change in foreign policy takes place much earlier and can therefore affect respectively other areas such as external economic relations.

## 4. EU ECONOMIC RELATIONS WITH THE EASTERN MEDITERRANEAN: THE CASE OF INTERNATIONAL TRADE WITH EGYPT AND ISRAEL

### 4.1. Introduction

This section examines EU's economic relations in the region of Eastern Mediterranean through the prism of international trade. The following subsections deal with the cases of Egypt and Israel, respectively.<sup>10</sup> Initially, these subsections examine the geopolitical position of each country in line with the content of the European Security Strategy. Then, an analysis of the financial data concerning bilateral trade during 2005-2015 is following. These data focus on the EU ranking as a trading partner of these countries, on the EU share in the Egypt's and Israel's world trade, on the kind of commercial dependency (that is, if the country is a supplier of the EU or mainly a consumer), as well as the level of the bilateral trade. Finally, the last subsection gathers the most important elements and conclusions of this analysis which will be particularly useful in the next section.

### 4.2. EU trade relations with Egypt

Egypt is the country with the most significant geographic location in the south of the Eastern Mediterranean and, as a result, it has a key role on issues concerning international trade, international and regional security and energy security.<sup>11</sup> Therefore, Egypt plays a particularly important role in EU foreign policy and moreover in its external economic policy. This position of Egypt in EU's geopolitical representation is reflected upon EU's trade relations with Egypt.

As shown in table 4.2.1 below, indeed, from 2005 to 2015, EU is the top trading partner of Egypt. Although Egypt's world trade grew more than three times, from almost € 24 billion in 2005 to approximately € 82 billion in 2015, EU had always held a share of over one third of these transactions.

Table 4.2.1 EU share in Egypt's total trade with the world, 2005-2015, in % and mill. €

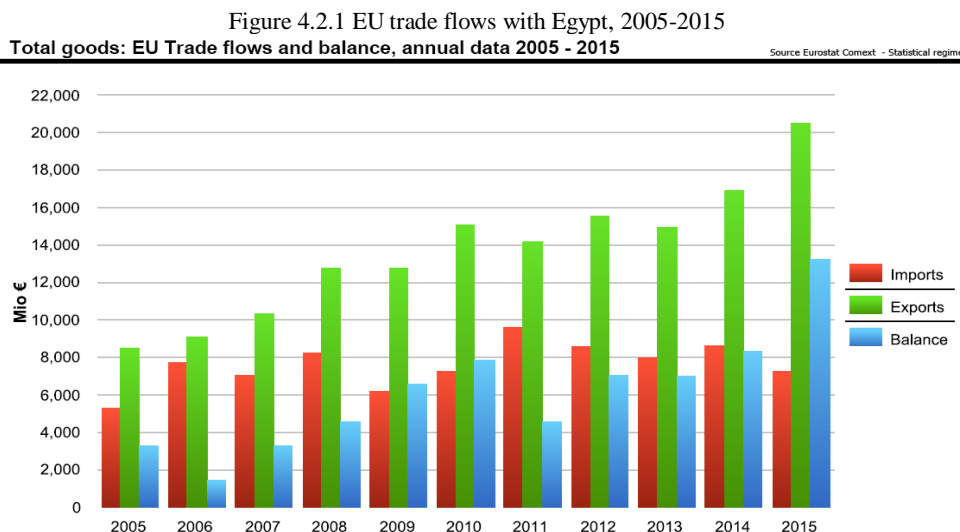
| <i>Years</i> | <i>Egypt's total trade with the world</i> | <i>Egypt's total trade with the EU</i> | <i>EU share in Egypt's total trade</i> | <i>Rank of EU as Egypt's trade partner</i> |
|--------------|---|--|--|--|
| 2005         | 24.307                                    | 13.741                                 | 56,49 %                                | 1  |
| 2006         | 26.999                                    | 16.726                                 | 61,96 %                                | 1  |
| 2007         | 31.141                                    | 17.382                                 | 55,87 %                                | 1  |
| 2008         | 53.378                                    | 21.019                                 | 39,46 %                                | 1  |
| 2009         | 49.284                                    | 18.939                                 | 38,46 %                                | 1  |
| 2010         | 60.399                                    | 22.309                                 | 36,90 %                                | 1  |
| 2011         | 67.302                                    | 23.735                                 | 35,21 %                                | 1  |
| 2012         | 75.313                                    | 24.053                                 | 31,95 %                                | 1  |
| 2013         | 70.812                                    | 22.913                                 | 32,36 %                                | 1  |
| 2014         | 71.420                                    | 25.460                                 | 35,59 %                                | 1  |
| 2015         | 81.936                                    | 27.639                                 | 33,67 %                                | 1  |

Source: European Commission, Directorate-General for Trade, Trade in goods with Egypt (pp. 3, 8) and own calculations.

<sup>10</sup> International trade is chosen as the most important and dominant factor that affect international economic relations in general. Egypt and Israel are considered as the most important factors for developments in the wider region of the Mediterranean and, consequently, for security and energy security matters which are of major concern in EU foreign policy. In this respect, the study of EU's international trade with Egypt and Israel outlines EU's economic relations in the region and, ultimately, reflects the intentions of EU foreign policy for the same area.

<sup>11</sup> Egypt's position in the center of the Arab world at the point where North Africa and Middle East (Mahremb-Mashrek) meet each other offers a very important role to Egypt which is related to the control of trade and military routes upon the east-west and north-south (Suez) corridors. Correspondingly to this central geographic position, Egypt's central role in the political affairs of the Arab world offers Egypt a very important role in the region's politics. In addition, its direct access to the newly discovered rich energy deposits in the Eastern Mediterranean basin composes the image of a country with particular geopolitical and geostrategic importance.

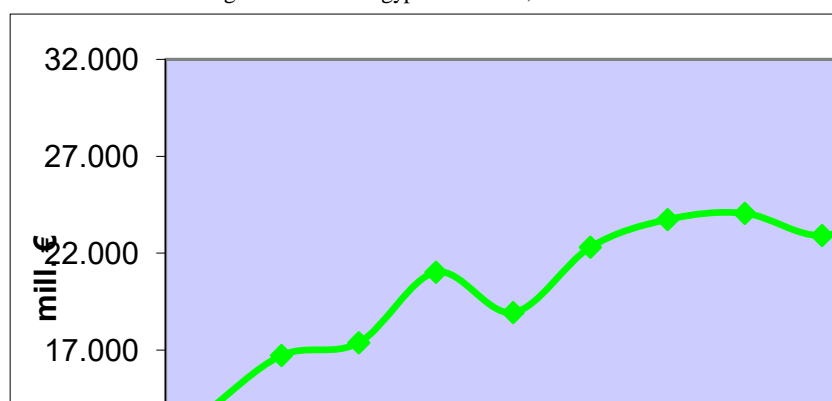
In their bilateral transactions, as shown in Figure 4.2.1 below, the trade balance is always positive for the EU. Bilateral trade reached almost € 13 billion in 2015, showing that EU is the main supplier of products to Egypt, thus making Egypt highly dependent on the EU, especially, in terms of its imports from the EU as well as in terms of growth of its overall trade, in general.



Source: European Commission, Directorate-General for Trade, Trade in goods with Egypt, p. 3.

The total trade of the EU with Egypt from 2005 to 2015, as shown schematically in Figure 4.2.2 below, is steadily rising and substantially doubled, from approximately € 14 billion in 2005 to almost € 28 billion in 2015. This trend presents a few slight fluctuations which, however, are due to external or internal political factors and not related to EU-Egypt relations.<sup>12</sup> The next case concerning Israel, in the following subsection, presents many similarities with this of Egypt.

Figure 4.2.2 EU-Egypt total trade, 2005-2015



Source: European Commission, Directorate-General for Trade, Trade in goods with Egypt, pp. 3.

<sup>12</sup> The most recent of these fluctuations is observed in 2013, when there is a slight decrease in total EU-Egypt trade of approximately a billion euro due to internal political upheavals that occurred at that time in Egypt and which have their roots in the general outbreak of the Arab spring in 2011. The greatest decrease, however, is observed in 2009. While there was a steady increase in total EU-Egypt trade between 2005 and 2008, in 2009 it was decreased to almost 19 billion € from 21 billion that was in 2008. This decrease was due to the global financial crisis that started in 2007 from the United States and reached the other side of the Atlantic the following year. The worsening of this financial crisis is reflected in the Mediterranean countries mainly in 2009.



### 4.3. EU trade relations with Israel

Israel, like Egypt with which it is neighboring, is also a country with a significant geographic location in the southeast corner of the Mediterranean.<sup>13</sup> Consequently, Israel is a very important factor in matters related to international trade and energy security. Taking into account the guidelines of the ESS and the geopolitical code of energy security of EU foreign policy, it is easy to realize that Israel plays an equally important role with that of Egypt's in EU foreign policy. As in the case of Egypt, this position of Israel in EU's geopolitical representation is also reflected upon EU's trade relations with the Israel.

Indeed, as shown in Table 4.3.1 below, from 2005 to 2015 EU is the top trading partner of Israel. Throughout this period, EU had held a share of almost one third of Israel's world trade. In their bilateral trade,

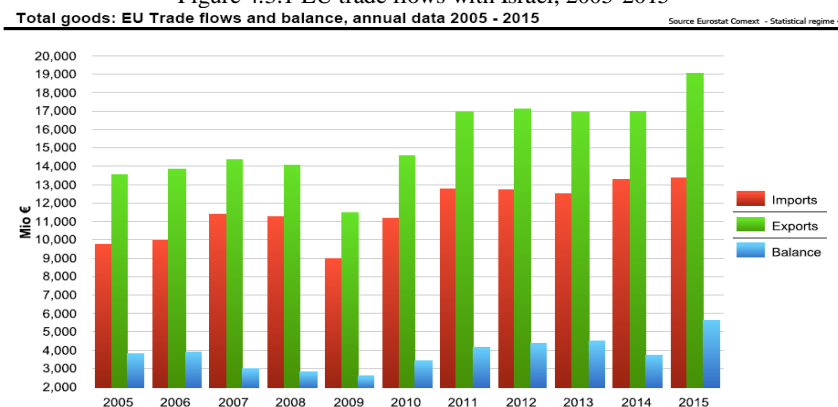
Table 4.3.1 EU share in Israel's total trade with the world, 2005-2015, in % and mill. €

| Years | ISRAEL'S TOTAL TRADE WITH THE WORLD | Israel's total trade with the EU | EU share in Israel's total trade | Rank of EU as Israel's trade partner |
|-------|-------------------------------------|----------------------------------|----------------------------------|--------------------------------------|
| 2005  | 70.297                              | 23.255                           | 33,08 %                          | 1                                    |
| 2006  | 75.012                              | 23.816                           | 31,75 %                          | 1                                    |
| 2007  | 80.734                              | 25.642                           | 31,75 %                          | 1                                    |
| 2008  | 86.023                              | 25.319                           | 29,41 %                          | 1                                    |
| 2009  | 68.162                              | 20.406                           | 29,94 %                          | 1                                    |
| 2010  | 88.718                              | 25.670                           | 28,90 %                          | 1                                    |
| 2011  | 101.147                             | 29.660                           | 29,33 %                          | 1                                    |
| 2012  | 106.095                             | 29.767                           | 28,09 %                          | 1                                    |
| 2013  | 104.270                             | 29.411                           | 28,21 %                          | 1                                    |
| 2014  | 106.309                             | 30.228                           | 28,43 %                          | 1                                    |
| 2015  | 115.408                             | 32.349                           | 28,01 %                          | 1                                    |

Source: European Commission, Directorate-General for Trade, Trade in goods with Israel (pp. 3, 8) and own calculations.

as figure 4.3.1 shows below, the trade balance is always positive for the EU. This balance shows that the EU is a major supplier of products to Israel, reaching € 20 billion in 2015. However, imports from Israel are also quite significant, surpassing in that same year the amount of € 13 billion. Taking into account Israel's close relations with the United States and the fact that Israel is a very important investor in the EU (UNCTAD), these data show more a situation of economic interdependence than a situation of unilateral dependency.

Figure 4.3.1 EU trade flows with Israel, 2005-2015

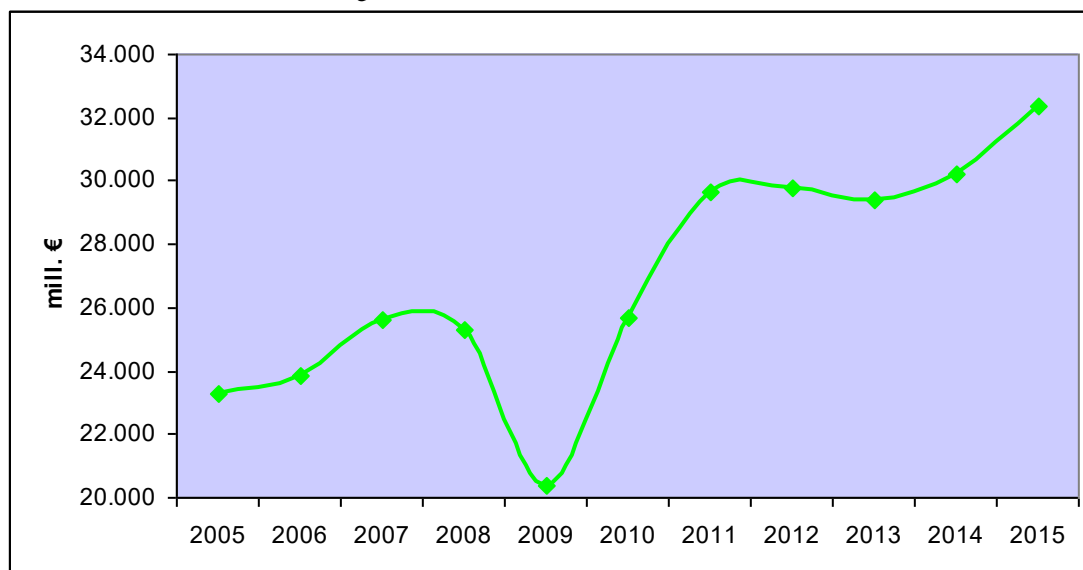


Source: European Commission, Directorate-General for Trade, Trade in goods with Israel, p. 3.

<sup>13</sup> Israel's position at the crossroads of the Middle East and North Africa offers it a very important role concerning the control of commercial corridors. Although a non-Arab country, Israel plays a very important role in the political affairs of the Arab world as it is one of the two sides of the conflict over the Middle East issue. Its direct access to the energy resources of the Eastern Mediterranean offers Israel a particular geopolitical significance.

The total trade of EU with Israel for the period 2005 to 2015, as shown schematically in Figure 4.3.2 below, is steadily increasing, having eradicated an overall increase of almost 40% since 2005. The only exception is the year 2009 when, as in the case of Egypt, due to the global financial crisis, the overall EU-Israel trade is recording a huge decrease falling to almost € 20 billion from € 25 billion that was in 2008. As mentioned above, these fluctuations are due to exclusively external or internal political factors and not due to EU-Israel relation at all. Thus, in 2010 EU's total trade with Israel returned to the same level as it was in 2008 and continued growing to approximately € 32 billion in 2015.

Figure 4.3.2 EU-Israel total trade, 2005-2015



Source: European Commission, Directorate-General for Trade, Trade in goods with Israel, pp. 3.

#### 4.4. EU Trade Relations in the Eastern Mediterranean: critical and useful conclusions

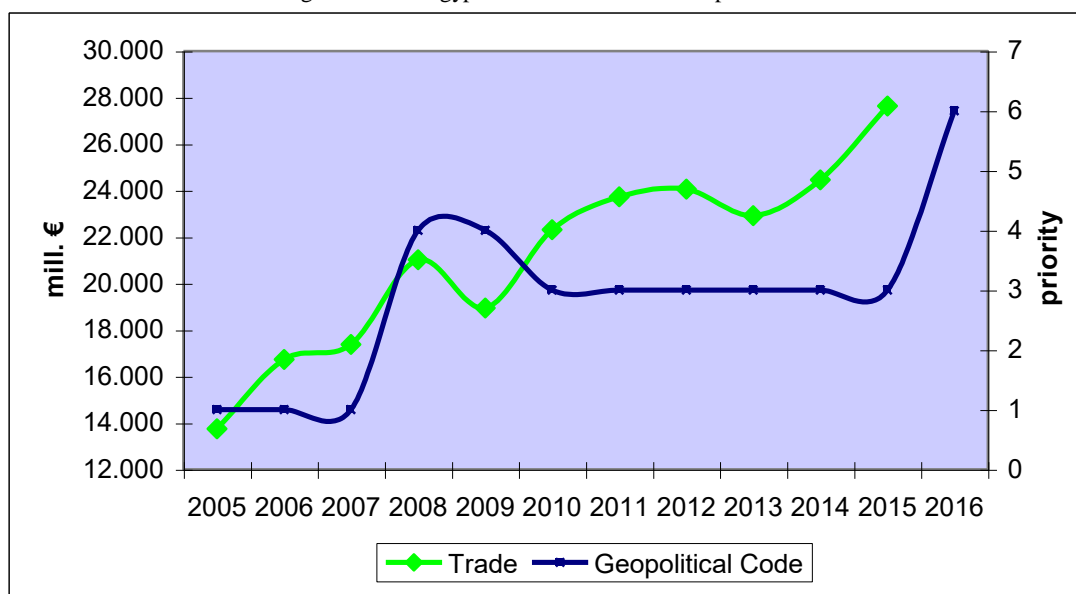
The economic relations of the EU with Egypt and Israel, as outlined above through the prism of international trade, have a particularly increasing potential. In particular, trade between EU and these two countries, as outlined in figures 4.2.2 and 4.3.2 above, is increasing steadily from 2005 to 2015. The EU in both cases holds the largest share of their world trade and of course always holding the first place as a trading partner of Egypt and Israel. These data have created a frame that includes the EU-Israeli interdependence relations on the one hand and the EU-Egypt high dependence relations on the other.

In other words, in the economic field, EU has created an environment of "close cooperation ..." (ESS, p. 8) with countries in the Eastern Mediterranean. Taking into account the particular geopolitical position of these two countries on security and energy security matters, which are of particular concern to the EU, it is clear that the above mentioned economic framework that has been created during the recent years in the Mediterranean reflects the intentions of EU foreign policy in this area. This relationship of the intentions of EU foreign policy with the constructed economic environment in the region is being developed further in the next section with the use of figures 4.2.2 and 4.3.2 as well as figure 3.1 that was presented already in section three.

### 5. EU ECONOMIC RELATIONS WITH THE EASTERN MEDITERRANEAN AND THE GEOPOLITICAL CODE OF ENERGY SECURITY

The research question of the paper, which has already been raised in the introduction, is in fact twofold and seeks to find out whether EU foreign economic policy has become today a result formed according to the directions and priorities of its foreign policy and furthermore, to identify the foreign policy priority that directs foreign economic policy and, consequently, EU's external economic relations in the Eastern Mediterranean. To approach this research question, the study combines in this section the data derived from the analysis of EU foreign policy and its geopolitical code of energy security as well as the financial data derived from EU's external economic relations with Egypt and Israel. In this respect, the study makes here use of Figure 3.1 of the geopolitical code of energy security and of Figures 4.2.2 and 4.3.2 of the overall trade between EU, Egypt and Israel, respectively. Figures 5.1 and 5.2 below illustrate this data combination.

Figure 5.1 EU-Egypt total trade with the Geopolitical Code



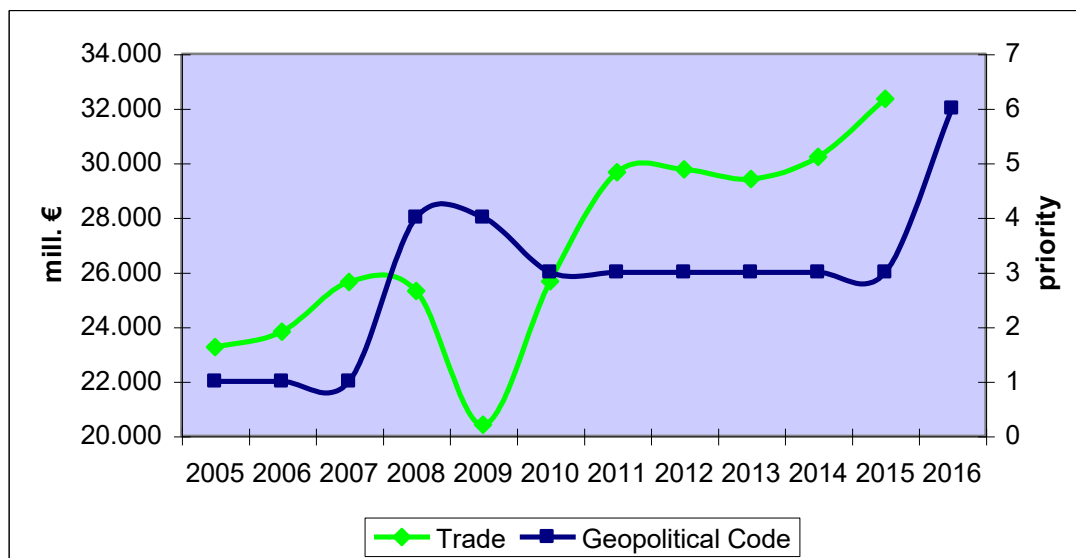
More specifically, figure 5.1 above illustrates the curve of the geopolitical code of energy security together with the curve of the overall trade between EU and Egypt. In this figure is made possible to compare and ascertain whether and to what extent total EU-Egypt trade follows each time the upgrading of the geopolitical code of energy security through the period 2005-2015. In particular, the figure shows that by 2005, approximately one year after the issuing of the ESS, EU-Egypt trade follows an upward trend up to 2015. While between 2005 and 2007 total trade with Egypt rises enough, from 14 bn. euros to almost 17 billion. (i.e. approximately three billion euros in three years), in 2008, the year when the report on the implementation of the ESS was issued and while the issue of energy security was upgraded from the vague status of the previous years to a high priority status (third out of five), bilateral trade shows then a rapid rising up to 21 billion, that is four billion increase in just one year. In 2009, although the energy security remains in third place, trade decreases, however, due to external factors, such as the global financial crisis.

The return of the trade line in the same and slightly higher level in 2010 and the maintenance of that level (between 22 and 24 billion), with the simultaneous maintenance of the geopolitical code, in a lower level though but firmly in the fourth grade until 2013, shows the existence of a pulling force derived from the geopolitical code of EU foreign policy. In other words, the figure shows that the geopolitical code of energy security is the gravitational axis around which trade between EU and Egypt develops. This is also supported by the fact that in the years after 2013 there is a steep rise in the value of total trade, from around 23 billion to around 28 billion, similar to the steep increase observed in 2008 when the issue of energy security had changed from vagueness to the third priority status. Until 2015, while the geopolitical code remains in the

fourth place, bilateral trade rises up to almost 28 billion influenced by the status change of the geopolitical code from the fourth place to the first which came in 2016.<sup>14</sup>

The above analysis of EU-Egypt total trade in relation to the geopolitical code of energy security of EU foreign policy could be considered as an exceptional one. However, this cannot be hold as true since in the case of the EU's total trade with Israel the pattern is exactly the same with the EU-Egypt case. In Figure 5.2, below, the curve of the total EU-Israel trade is presented along with the curve of the geopolitical code of energy security.

Figure 5.2 EU-Israel total trade with the Geopolitical Code



As observed in the figure, the overall trade follows an upward trend until 2015. In particular, the curve starts in 2005 with an upward trend until 2008, when the issue of energy security is upgraded from the vague status to the third priority status in foreign policy. In 2009 bilateral trade is decreased due to the global financial crisis, as in the EU-Egypt case, and returns to the same level in 2010, apparently because of the gravity that the geopolitical code line exerts on the evolution of the EU's external economic relations. Finally, while between 2011 and 2013 bilateral trade remains constant around 29.5 billion euros alike the geopolitical code which remains also stable, in 2014 and 2015 total trade rises again in response to the fermentations that led to the upgrade of the geopolitical code of energy security in the first priority status in 2016.

To conclude, there is no doubt that the economic environment that has been created in recent years by the EU in the Eastern Mediterranean reflects the intentions of its foreign policy. Thus, it is clear that EU foreign economic policy is directed according to the objectives and priorities of EU foreign policy. The figures in this section showed clearly this relationship confirming the paper hypothesis which assumed that the EU need for energy security has motivated the gradual development of close economic relations between EU and countries of the Eastern Mediterranean. As it can be inferred from the figures above, as far energy security takes a specific and clear form in the texts of EU foreign policy and it is upgraded as a priority of EU foreign policy, external economic relations of the EU in the Eastern Mediterranean were also upgraded and evolved at a same rate, respectively.

## 6. CONCLUSION

<sup>14</sup> Until 2015, the geopolitical code remains in the fourth place. However, given that fermentations for an evolution or change in foreign policy takes place earlier and may therefore affect external economic relations, the figure also includes the year 2016 when the EU Global Strategy was adopted. In this document the issue of energy security was launched in the first place as a top priority. Accordingly, as shown in the same figure, EU-Egypt trade line follows these fermentations in foreign policy.

This paper studied EU's external economic relations in the Eastern Mediterranean, through its trade relations with Egypt and Israel, and explained the development of these relations based on the study of EU foreign policy. Critical geopolitics and the formation of the geopolitical code of energy security helped to conclude that the EU need for energy security has motivated the gradual development of close economic relations between EU and the countries of the Eastern Mediterranean confirming in this way the paper's hypothesis. In simple words, the foreign economic policy of the EU directed the development of close economic relation with neighboring countries and regions in order to serve its essential foreign policy priority for energy security. This policy was expressed clearly through EU's external economic relations in the Eastern Mediterranean.

However, the study of EU foreign economic policy does not end here at all. It is interesting to study EU's external economic relations also with other Mediterranean countries in combination with the geopolitical code of energy security. Such studies could reinforce the above conclusions or add new, different, valuable data. Research could also extent further ahead with the study of EU's external economic relations in other areas such as the eastern neighborhood, central, southern and eastern Asia, and Latin America. In addition, research could move further on other levels of analysis by studying, for example, the underlying causes of a geopolitical code formation and, consequently, of foreign economic policy, seeking such causes in the level of decision-making processes. In any case, the issue remains open for further in-depth and fruitful research.

## REFERENCES

- Bozyk, P., 2006. *Globalization and the Transformation of Foreign Economic Policy*. Hampshire: Ashgate. Available at: <https://books.google.gr/books?id=KVw85lp99BwC&pg=PA9&dq=foreign+economic+policy+definition&hl=el&sa=X&ved=0ahUKEwjjxfvFmrbSAhUG1RQKHZWFDCMQuwUIHZA#v=onepage&q=foreign%20economic%20policy%20definition&f=false>
- Christiansen, T., 2005. European integration and regional cooperation. In *The Globalization of the World Politics*. Baylis, J. & Smith, S., eds. Oxford: Oxford University Press, pp. 579-97.
- Dalby, S. & O' Tuathail, G., 1998. *Rethinking Geopolitics*. London: Routledge.
- Doods, K. & Sidaway, J., 1994. Locating Critical Geopolitics. *Society and Space* 12, pp. 515-24.
- Dodds, K., 2005. *Global Geopolitics: A Critical Introduction*. Pearsau.
- European Commission, Directorate-General for Trade, *Trade in goods with Egypt*, 2016. Available at: [http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc\\_113375.pdf](http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113375.pdf)
- European Commission, Directorate-General for Trade, *Trade in goods with Israel*, 2016. Available at: [http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc\\_113402.pdf](http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113402.pdf)
- European Commission, Directorate-General for Trade, *Israel – Foreign direct Investment*, 2016. Available at: [http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc\\_111672.pdf](http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_111672.pdf)
- European Council, 2016. *European Union Global Strategy – Shared Vision, Common Action: A Stronger Europe - A Global Strategy for the European's Union's Foreign And Security Policy*. Brussels: European Union.
- European Council, 2010. *Annual Report of the High Representative of the Union upon the foreign and security policy to the European Parliament concerning the main aspects and choices of the CFSP*. Brussels: European Union. (Greek document)
- European Council, 2008. *Report on the implementation of the European Security Strategy – Security in a changing world*. Brussels: European Union. (Greek document)
- European Council, 2003. *European Security Strategy – A Secure Europe in a Better World*. Brussels: European Union. (Greek document)
- Flint, C., 2011. *Introduction to Geopolitics*. Routledge, 2<sup>nd</sup> ed., 2012.
- Iraklidis, A., 2001. I Diethis Kinonia kai i Theories ton Diethnon Scheseon: mia kritiki peridiavasi (International Society and International Relations Theories: a critical assessment). Athens: Sideris.
- Kuus, M., 2016. An Introduction to Critical Geopolitics. In *The Ashgate Companion of Critical Geopolitics*. Dodds, K., Kuus, M., ... eds. Ashgate.
- Meunier, S. & Nicoaidis, K., 2006. The European Union as a Conflicted Trade Power. *Journal of European Public Policy* 13 (6), pp. 200-218.
- Missiroli, A. (ed.), 2016. *The EU and the world: players and policies post-Lisbon – A handbook*. Paris: European Union Institute for Security Studies.
- Okamoto, J., (2010). *Australia's Foreign Economic Policy and ASEAN*. Singapore: ISEAS (Institute of South East Asian Studies) Publishing. Available at: <https://books.google.gr/books?id=bqF3yL6CMmUC&pg=PA304&dq=foreign+economic+policy+definition&hl=el&sa=X&ved=0ahUKEwjjn0PK6irbSAhXDuhQKHc4sB1kO6AEIKDAC#v=onepage&q=foreign%20economic%20policy%20definition&f=false>

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- O’ Tuathail, G., 1996. *Critical Geopolitics: the Politics of writing Global Space*. University of Minnesota Press.
- O’ Tuathail, G., 1998. Thinking Critically about Geopolitics. In *The Geopolitics Reader*. London: Routledge, 2<sup>nd</sup> ed.
- Smith, M., 1994. The European Union, foreign economic policy and the changing world arena. *Journal of European Public Policy* 1 (2), pp. 283-302.
- Council of the European Union, 2012. *Main aspects and choices of the CFSP – 2011 – Annual Report of the High Representative of the European Union for Foreign and Security Policy to the European Parliament*. Brussels: European Union. (Greek document)
- Tsardanidis, C., 2008. Ikonomiki Diplomatia (Economic Diplomacy). In *Diethnis Schesis: Sinchroni Thematologia kai Prosegisis (International Relations: Current Issues and Approaches)*. Triantafyllou, D., Yfantis, K. and Chatzivasilou, E., eds. Athens: Papazisi.
- Woolcock, S., 2011. European Union Trade Policy. In *The new Palgrave Dictionary of Economics*, Online Edition: Palgrave Mcmillan.
- UNCTAD, *BILATERAL FDI STATISTICS – ISRAEL, 2001-2012*, AVAILABLE AT: [HTTP://UNCTAD.ORG/SECTIONS/DITE\\_FDISTAT/DOCS/WEBDIAEIA2014D3\\_ISR.PDF](http://unctad.org/sections/dite_fdistat/docs/webdiaeia2014d3_isr.pdf)
- Young, A., 2000. The Adaptation of European Foreign Economic Policy: From Rome to Seattle. *Journal of Common Market Studies* 38 (1), pp. 93-116.