



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

MBA PROFESSIONAL REPORT

**Study of the Hellenic Military Education Buying Process
Using Trend Analysis to Identify Determinant Factors**

**By: Nektarios Gkinakis, and
Anthi Desinioti**

June 2007

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**STUDY OF THE HELLENIC MILITARY EDUCATION BUYING PROCESS
USING TREND ANALYSIS TO IDENTIFY DETERMINANT FACTORS**

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STUDY OF THE HELLENIC MILITARY EDUCATION BUYING PROCESS USING TREND ANALYSIS TO IDENTIFY DETERMINANT FACTORS

ABSTRACT

International students are an important part of the student population at NPS and Greece is one of the major countries sending students to NPS. As an important contributor to the NPS student population, a better understanding of the situation, trends and opportunities is of great value to the NPS Administration.

The objectives of this Master of Business and Administration (MBA) project are to 1) describe the current situation concerning the international student participation at NPS, 2) identify the top three countries with the highest participation through the last four years, and 3) determine the decision making process of the Hellenic military 'buying center' for education and the factors that are affecting this process.

The starting point of this project is to analyze attendance records of international students to identify the top three countries with the largest population of students at NPS. Then the focus of the study will concentrate on analyzing the behavior of the Hellenic military 'buying center' for education and using trend analysis to determine the factors that are driving its decision making process.

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I. INTRODUCTION

A. INTRODUCTION

An important part of the Naval Postgraduate School's student body consists of international military officers. The NPS's new strategic plan recognizes the importance of the school's international customers. According to this plan the NPS mission is:

to provide relevant and unique advanced education and research programs in order to increase the combat effectiveness of U.S. and Allied armed forces and enhance the security of the United States.¹

The strategic plan recognizes that NPS must expand its international leadership role by maintaining and further developing relationships with foreign nations-customers. This expansion and development will enhance the education of our students and assure that our faculty will remain globally competitive in research and teaching.²

International students from a variety of countries account for about 15% of the total student body.³ Through the years there are fluctuations in the number of international students from various countries that are coming to attend NPS. The trends in the number of students from various allied countries are of significant importance because they might be signaling areas of potential problems or opportunities for the entire school.

B. BACKGROUND

The Naval Postgraduate School is an academic institution whose emphasis is on study and research programs relevant to the interests of the Navy and other arms of the Department of Defense. The programs are designed to accommodate the unique requirements of the military. The Naval Postgraduate School has been located in

¹ NPS website: <<http://www.nps.edu/Aboutnps/StrategicPlan/Page4.htm>> Accessed January 2007.

² Ibid.

³ NPS website:<<http://www.nps.navy.mil/ofcinst/sob/sob.htm>> Accessed January 2007.

Monterey, California, since 1947. Nearly 1,500 students attend the Naval Postgraduate School. The student body consists of officers from the five U.S. uniformed services, officers from approximately 30 other countries, and a small number of civilian employees.⁴

Since 1954, over 3600 international officers from 77 countries have graduated from NPS. Many have gone on to achieve positions of prominence within their military services, governments, and private industry. The International Program at NPS serves as an integral link in establishing the long-term military-to-military relationships between the U.S. and international officers.⁵

Thus, the international defense community is one of the market segments that NPS has an incentive to target.

C. PROJECT OBJECTIVES

The objectives of this project are to:

- describe the current situation at NPS by doing research on the current environment and identifying the trends in the number of students coming to NPS from various allied countries.
- identify the most valuable ‘customer’ countries, based on the number of officers attending NPS each year from these countries.
- determine how the Hellenic military decides how many students to send to NPS and what factors influence their decision.

The findings of this study aim to provide the NPS administration with a clear understanding of the situation, trends and opportunities of an important segment of the broad target market of international students, the Hellenic attendance.

D. SCOPE

The scope of this study is to identify the trends in the number of international students attending NPS and identify the countries that most frequently supply students. A

⁴ NPS website: <<http://www.nps.edu/Aboutnps/Navigation/DescNPS.html>> Accessed January 2007.

⁵ NPS website: <<http://www.nps.edu/InternationalStudents/GeneralInfo/Overview.html>> Accessed January 2007.

period of three years will be used as a basis of this analysis, starting from the first quarter of 2004 and continuing up to the first quarter of 2007. After a broad overview, the study will focus on analyzing in more depth the trends for Greece, which is traditionally known as one of the major international customers of NPS.

It is not the intention of this study to track all the allied countries that are customers of NPS, but rather identify the major customers, and analyze only one of them, Greece. More importantly, it is not the intent of this study to criticize the decisions and the policy of the Hellenic ‘buying center’ in any way.

E. METHODOLOGY

The methodology of this study is as follows:

- to describe the current environment of NPS as far as the international population is concerned, data will be collected from official NPS sources and will be used to track and graph the trends of international students through the years.
- to identify the most important customer groups, the data that will be collected will be compared between countries.
- to determine how the Hellenic military decides how many students to send to NPS and what factors influence their decision, data will be collected concerning the Hellenic buying center. Also the trends in the numbers of the Hellenic attendance will be analyzed, aiming to identify potential influential trends and any existing correlation between the trends and those factors that are affecting the Hellenic buying center in determining the numbers of the Hellenic attendance at the Naval Postgraduate School.

F. ORGANIZATION OF THE STUDY

The study is organized in seven chapters. Chapter I is introductory and provides background information as well as an outline of the project objective, the scope of the project, and the research methodology. Chapter II is an overview of the programs offered by the various departments at NPS and also describes the identity of the international student population. Chapter III is a concise outline of the research scope and methodology. Chapter IV presents an analysis of the trends based on the data collected from official NPS sources. Chapter V presents the data collected and an analysis of the

Hellenic ‘buying center,’ that is the end users, buyers, influencers, deciders, and authorizers, and the factors affecting their decisions regarding Hellenic attendance, primarily based on the collection of secondary data. Chapter VI consists of an identification of potentially influential trends by validating and explaining the reasons for several trends by tying them with the data collected concerning the Hellenic ‘buying center’ and its influences. Chapter VII concludes the study and presents recommendations that potentially could be useful for the NPS administration.

II. OVERVIEW OF NPS ACADEMIC ORGANIZATION AND IDENTIFICATION OF THE INTERNATIONAL STUDENT POPULATION

A. INTRODUCTION

The Naval Postgraduate School offers a variety of degree programs and certificates commonly known as curricula. The school's main objective is to educate the next generation of U.S. and international military leaders and prepare them to successfully manage future challenges in the field of their academic knowledge and interest.

NPS has four graduate schools, an interdisciplinary and interdepartmental full-time curriculum in Systems Engineering Analysis, as well as several research and education institutes and centers. The schools⁶ and the allocation of enrolled U.S. and international students for the fall quarter of 2007 are presented in Table 1.⁷

The population of students coming from countries allied to the U.S. accounts for approximately 15 percent of the overall student body at NPS and plays a crucial role in the accomplishment of NPS objectives.

⁶ GSBPP: Graduate School of Business and Public Policy

GSEAS: Graduate School of Engineering and Applied Sciences

GSOIS: Graduate School of Operational and Information Sciences

SIGS: School of International Graduate Studies

SEACC: Systems Engineering Analysis Curriculum Committee

⁷ Table 1 created by the researchers by using the data, from:
<<http://www.nps.navy.mil/OFCINST/SOB/Ssob20071.xls>> Accessed February 2007.

Table 1. NPS and Allocation of Enrolled Students for the Fall Quarter 2007

Academic Fall Quarter 2007	NPS	GSBPP	GSEAS	GSOIS	SIGS	SEACC
Overall enrolled students	2713	726	776	795	373	43
U.S. enrolled students	2441	690	683	683	343	42
International enrolled students	272	36	93	112	30	1
Percentage of U.S. students	89.97%	95.04%	88.02%	85.91%	91.96%	97.67%
Percentage of international students	10.03%	4.96%	11.98%	14.09%	8.04%	2.33%
Overall resident enrolled students	1776	382	456	609	286	43
U.S. resident students	1504	346	363	497	256	42
International resident students	272	36	93	112	30	1
Percentage of U.S. resident students	84.68%	90.58%	79.61%	81.61%	89.51%	97.67%
Percentage of international resident students	15.32%	9.42%	20.39%	18.39%	10.49%	2.33%
Overall non-resident enrolled students	612	249	209	67	87	0
U.S. non-resident students	612	249	209	67	87	0
Percentage of U.S. non-resident students	100%	100%	100%	100%	100%	0%
Overall non-degree enrolled students	325	95	111	119	0	0
U.S. non-degree students	325	95	111	119	0	0
Percentage of U.S. non-degree students	100%	100%	100%	100%	0%	0%

This chapter will provide the following:

- an overview of the graduate schools, in order to give the reader an understanding of the curricula, degrees, and programs offered
- a reference to resident population of enrolled international students, as of the fall quarter of 2007

B. OVERVIEW OF NPS GRADUATE SCHOOLS

1. Graduate School of Business and Public Policy (GSBPP)

GSBPP has responsibility for seven resident and non-resident academic programs and awards seven graduate degrees. The defense-focused Master of Business Administration (MBA) program is the principal and largest resident degree program. This full-time program is designed to provide officers from all branches of the U.S. Military, Department of Defense (DoD) civilian employees, and international officers and civilians with professional knowledge, critical thinking, and skills necessary for their future managerial positions within the DoD.

The defense-focused MBA program encompasses six major areas of interest:⁸

- Acquisition and Contract Management
- Defense Management
- Financial Management
- Information Management
- Logistics and Supply Chain Management
- Manpower Management

GSBPP also administers a one-year, full-time, resident Master of Executive Management (MEM) program, providing a defense-focused general management graduate education, and a resident Master of Science in Management (MSM) degree program, designed to directly support the Navy's human resource community of interest.

In addition to the resident graduate education programs, the school has developed faculty, facilities, and capabilities to deliver graduate long-distance programs using methods that range from on-site instruction to two-way video-teleconferencing online education (VTE) systems with multiple connections throughout the world. These programs are exclusively offered to U.S. officers and Department of Defense employees.

Currently, the school offers a two-year, part-time, distance-learning executive MBA program and three specialized Master of Science degree programs focused on particular defense management fields.

The Graduate School of Business and Public Policy also offers an array of non-degree professional development programs consisting of both graduate education and professional courses to be completed in residence or via distance learning methods.

The school is accredited by both the Association to Advance Collegiate Schools of Business (AACSB) and the National Association of Schools of Public Affairs and Administration (NASPAA).

The list of curricula and degree programs of the GSBPP school, as well as the rest of the schools that will be analyzed later, is too great to include in this discussion, but is

⁸ NPS website: <<http://www.nps.navy.mil/gsbpp/mba.htm>> Accessed February 2007.

provided in its entirety in Appendix B. Listing all the curricula and degree programs offered by all four schools is important for the purposes of this study, since trends and patterns that will be presented later on in Chapter IV might be explained by changes in the numbers of enrollments.

2. Graduate School of Engineering and Applied Sciences (GSEAS)

GSEAS provides advanced technical and scientific knowledge and understanding to U.S. officers, civilian employees of the U.S. federal government, and international military officers and civilians.

The school's academic structure is made up of seven departments, two committees, and one academic group:

Department of Applied Mathematics	MA
Department of Electrical and Computer Engineering	ECE
Department of Mechanical and Astronautical Engineering	MAE
Department of Meteorology	MR
Department of Oceanography	OC
Department of Physics	PH
Department of Systems Engineering	SE
Engineering Acoustics Academic Committee	EAAC
Undersea Warfare Academic Committee	UWAC
Space Systems Academic Group	SP

Degree-granting programs are offered by departments, normally at both the master's and Ph.D. levels. The majority of these degree programs are connected to one or more interdisciplinary curricula.⁹

The list of degree programs and curricula administered by GSEAS is presented in its entirety in Appendix B.

3. Graduate School of Operational and Information Sciences (GSOIS)

GSOIS provides high-level education and conducts study and research in four knowledge areas that are relevant to the Navy's interests, as well as the interests of the other branches of the Department of Defense (DoD).

⁹ NPS Academic Catalog 2007: Graduate School of Engineering and Applied Sciences (GSEAS).

The school administers graduate programs, both resident and distance-learning, and awards Master of Science and Ph.D. degrees through four departments. The four knowledge domains and their relevant departments are presented in Table 2.¹⁰

Table 2. GSOIS Areas of Knowledge and Departments

Area of Knowledge	Department of:	Code
Information Science and Technology	Information Sciences	IS
Military Computer Science	Computer Science	CS
Military Operations Analysis and Research	Operations Research	OR
Special Operations & Related Defense Analysis	Defense Analysis	DA

The list of degree programs and curricula administered by GSOIS is presented in its entirety in Appendix B.

4. School of International Graduate Studies (SIGS)

Established in 2001, SIGS is the newest school within NPS. The school is made up of centers and programs that offer innovative master's degree curricula, resident or non-resident education seminars, workshops, and conferences in order to educate the next generation of U.S. and international military leaders and prepare them for assignments in the fields of defense and foreign policy, international relations, and security cooperation.

These centers and programs are:¹¹

Center for Civil-Military Relations	CCMR
Center for Contemporary Conflict	CCC
Center for Homeland Defense and Security	CHDS
Center for Stabilization and Reconstruction Studies	CSRS
Department of National Security Affairs	NSA
Defense Resource Management Institute	DRMI
International Graduate Programs Office	IGPO

The list of degree programs and curricula administered by SIGS is presented in its entirety in Appendix B.

¹⁰ Table 2 created by the researchers by using the data from: NPS Academic Catalog 2007.

¹¹ NPS website: <<http://www.nps.navy.mil/sigs/centers.htm>> Accessed January 2007.

5. Systems Engineering Analysis Curriculum Committee (SEACC)

SEACC is a unique interdisciplinary and interdepartmental full-time curriculum and awards the Master of Science in Systems Engineering Analysis (MS SEA) degree. The SEA curriculum is designed for unrestricted line officers who aspire to command and seek a graduate degree tailored to enhance their value as combat officers.

The list of degree programs and curricula administered by SEACC is presented in its entirety in Appendix B.

C. INTERNATIONAL STUDENT POPULATION

According to the NPS Academic Administration Office (see Table 1), the overall number of enrolled U.S. and international students at NPS was 2,713 during the fall quarter of 2007. Of these 2,713 students, 1,776, which accounted for approximately 65 percent of the total number of students, were enrolled U.S. and international students, another 612 were exclusively non-resident U.S. students accounting for about 23 percent and the rest (325) of the students, which accounted for the last 12 percent, were non-degree (certificate and continuing education) U.S. students.

Of the 1,776 currently enrolled resident students, approximately 85 percent (1,504) were U.S. students and 15 percent (272) were international students, as presented in Figure 1.

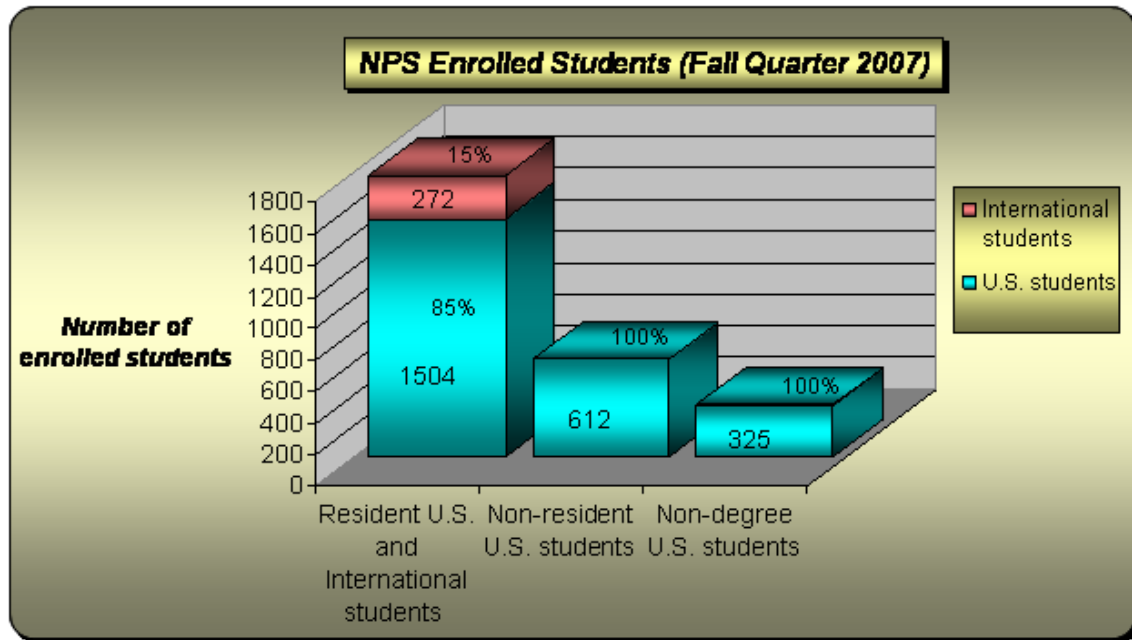


Figure 1. NPS Enrolled Students for the Fall Quarter 2007¹²

Since international students compose an important part of the entire student body, and particularly, during the fall quarter of academic year 2007 they accounted for 272 students, it is interesting to track the distribution of the resident enrolled international students per category of school at NPS. In the following figure a more detailed depiction of the distribution of international students among the four schools of NPS is presented.

¹² Figure 1 created by the researchers by using the data from:
<http://www.nps.mil/OFCINST/SOB/Ssob20071.xls> Accessed February 2007.

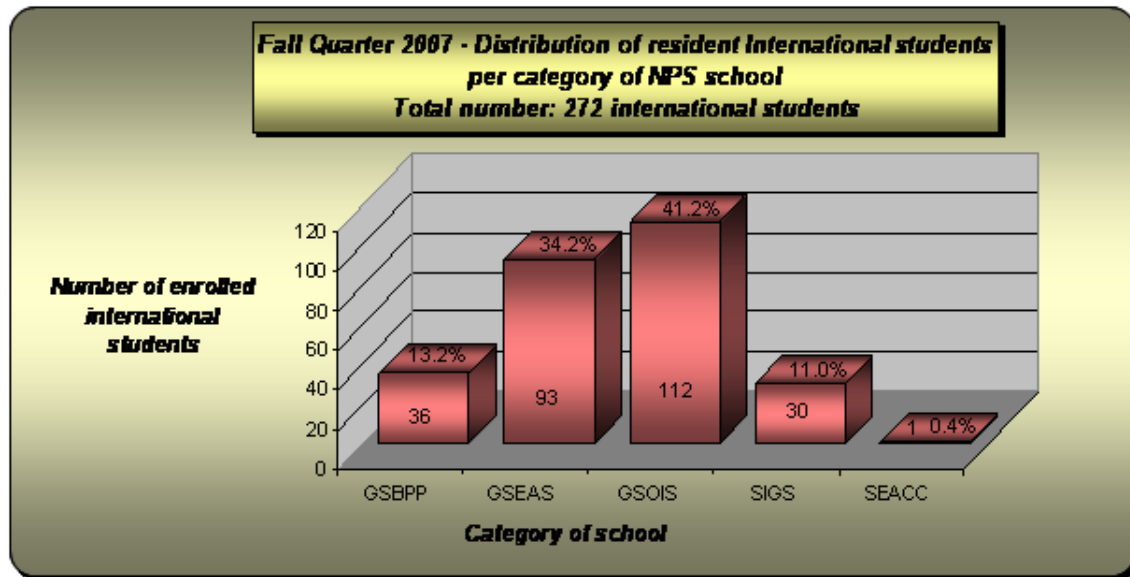


Figure 2. NPS Distribution of Enrolled Resident International Students¹³

As can be seen in the above figure, the school with the highest percentage of international students was the GSOIS, which hosted 41.2 percent of the total number of international students. GSOIS, as of the fall quarter of academic year 2007, had 112 foreign students among its student body. Second was GSEAS with 93 students, which accounted for 34.2 percent of the international participation. And then were GSBPP and SIGS with 36 and 30 foreign students, respectively. The percentage of international representation in these two schools was 13.2 and 11.0, respectively. Finally, SEACC had only one foreign student which represented 0.4 percent of the total international student body consisting of 272 students for the fall quarter of 2007.

¹³ Figure 2 created by the researchers by using the data from:
<http://www.nps.navy.mil/OFCINST/SOB/Ssob20071.xls> accessed March 2007.

III. RESEARCH SCOPE AND METHODOLOGY

A. INTRODUCTION

This chapter outlines the scope and the organization of the research, the methodology used for the collection of data, and the methods of data analysis that were used for this particular study.

B. RESEARCH OBJECTIVES

The primary objective of this study is to identify trends in the number of international students attending the Naval Postgraduate School each year, and to focus on the three countries that more frequently supply the institution with students. The study then analyzes more in depth the trends for Greece, the country with the highest enrollments. Finally, the study analyzes the Hellenic military “buying center’s” decisions, in order to identify the substantial factors that could affect its decision-making process and the number of students sent to NPS.

The objectives of this study are summarized in the following four steps:

- 1) Describe the current levels of enrollment of international students at the Naval Postgraduate School.
- 2) Identify the international customers with the highest participation at NPS, based on the annual enrollments of officers from various countries.
- 3) Describe how the Hellenic military “buying center” for education decides how many students to send to NPS.
- 4) Identify factors that could influence the Hellenic military “buying center” in deciding about the number of students sent to NPS.

C. RESEARCH METHODOLOGY

The methodology that was used to meet these objectives consists of the following four stages.

1. Describe Current Levels of Enrollment

To describe the current situation at NPS, a broad literature review was conducted to identify key NPS official documents that could be considered of significant importance in determining the current international participation in various departments. Government documents available on-line and especially documents that could be found in the official NPS website were searched.

2. Identify Countries with the Highest Participation

To identify the international customers with the highest participation at NPS, official enrollment data from the NPS registrar's office was used. This study was limited to the period that started with the fall quarter of 2004 and ended with the fall quarter 2007, when the collection of data for the purposes of this study was completed.

After the data collection was completed, the number of students enrolled each quarter during the above mentioned period of thirteen quarters was averaged and depicted in a scree chart. This allowed for the comparison of enrollments in order to determine the three countries with the largest population of students at NPS.

3. Describe Hellenic "Buying Center"

After Greece was identified as the country with the highest participation at the Naval Postgraduate School, a trend analysis was conducted on the Hellenic participation at NPS for each branch of the military and for all four of the institution's schools for the period from the fall quarter of 2003 up to the winter quarter of 2007.

To determine how the Hellenic military "buying center" for education decides how many students to send to NPS and what factors influence their decision, this study followed the methodology as described below:

- A broad review of marketing literature on the concept of the buying center, its members, and its purchasing decision processes was conducted.
- A search was conducted of documents of the Hellenic Department of Defense (DoD) available on-line, as well as those suggested by people working for the Hellenic DoD. These documents provided useful

information about the Hellenic military “buying center” for education, its purchasing processes and potential substantial factors that are affecting them, its resources availability and constraints, and also the full spectrum of its suppliers for education, both domestically and abroad.

4. Identify Factors That Could Influence the Decision-Making Process of the Hellenic “Buying Center”

Finally, trends in the collected data were analyzed in order to identify substantial factors that are affecting the buying center’s decision-making processes, which in turn affect the trends of the Hellenic participation at the Naval Postgraduate School.

In conclusion, this methodology is designed to provide some useful insights to the NPS administration concerning its Hellenic customers’ fluctuating participation at the school and provide some general understanding of the factors that might be affecting the enrollments of NPS’s international customers.

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IV. TRENDS ANALYSIS

A. ANALYSIS OF THE TRENDS OF THE INTERNATIONAL ATTENDANCE AT NPS

International students at NPS account for nearly 15 percent of the total student body. Since the international students are a substantial percentage of the total student population, this study tracks the distribution of this population among the four schools. The following tables present a summary of the data collected concerning the number of students enrolled during the fall quarter of 2007, and they show the distribution of the international students within the four schools and the Systems Engineering Analysis Curriculum Committee (SEACC).

Table 3. Distribution of International Students Enrolled in GSBPP¹⁴ (Fall Quarter 2007)

<i>Region</i>	<i>Country</i>	<i>No. of Students</i>	<i>Percentage (%)</i>
Europe		14	39%
	Czech Republic	1	3%
	Germany	2	6%
	Greece	8	22%
	Lithuania	1	3%
	Poland	1	3%
	Ukraine	1	3%
Africa		0	0%
Australia and Oceania		1	3%
	Australia	1	3%
Asia		20	56%
	Bangladesh	1	3%
	Japan	1	3%
	Korea	2	6%
	Singapore	2	6%
	Taiwan	2	6%
	Turkey	12	33%
North and South America		1	3%
	Colombia	1	3%
Overall number of international students:		36	100%

¹⁴ Table 3 created by the researchers by using data from: <<http://www.nps.navy.mil/ofcinst/sob/sob.htm>> Accessed March 2007.

As can be seen in Table 3 above, international students in the GSBPP, as of the fall quarter 2007, numbered thirty-six (36) and represented fourteen (14) countries in total. The highest participation was from the country of Turkey with twelve (12) students enrolled, with Greece coming second with eight (8) students enrolled.

Table 4. Distribution of International Students Enrolled in GSEAS¹⁵ (Fall Quarter 2007)

<i>Region</i>	<i>Country</i>	<i>No. of Students</i>	<i>Percentage (%)</i>
Europe		44	47%
	France	2	2%
	Germany	1	1%
	Greece	36	39%
	Netherlands	1	1%
	Portugal	3	3%
	United Kingdom	1	1%
Africa		0	0%
Australia and Oceania		1	1%
	Australia	1	1%
Asia		40	43%
	Bahrain	1	1%
	Korea	3	3%
	Pakistan	1	1%
	Singapore	22	24%
	Taiwan	6	6%
	Thailand	1	1%
	Turkey	6	6%
North and South America		8	9%
	Canada	3	3%
	Chile	2	2%
	Mexico	3	3%
Overall number of international students:		93	100%

Similarly, international students in the GSEAS, as of the fall quarter of 2007, numbered ninety-three (93) and represented seventeen (17) countries in total. The highest representation came from the country of Greece, with thirty-six (36) students, followed by Singapore with twenty-two (22) students.

¹⁵ Table 4 created by the researchers by using the data from:
<<http://www.nps.navy.mil/ofcinst/sob/sob.htm>> Accessed March 2007.

Table 5. Distribution of International Students Enrolled in GSOIS¹⁶ (Fall 2007)

<i>Region</i>	<i>Country</i>	<i>No. of Students</i>	<i>Percentage (%)</i>
Europe		30	27%
	Bulgaria	2	2%
	Czech Republic	1	1%
	Germany	6	5%
	Greece	14	13%
	Norway	2	2%
	Romania	2	2%
	Spain	1	1%
	Sweden	2	2%
Africa		7	6%
	Algeria	1	1%
	Ethiopia	1	1%
	Kenya	1	1%
	Nigeria	1	1%
	Tunisia	3	3%
Australia and Oceania		3	3%
Asia		64	57%
	Bahrain	3	3%
	Bangladesh	1	1%
	India	4	4%
	Israel	1	1%
	Jordan	1	1%
	Korea	3	3%
	Lebanon	1	1%
	Pakistan	3	3%
	Philippines	1	1%
	Saudi Arabia	2	2%
	Singapore	16	14%
	Taiwan	3	3%
	Thailand	1	1%
	Turkey	22	20%
	Uzbekistan	1	1%
	Yemen	1	1%
North and South America		8	7%
	Brazil	1	1%
	Canada	2	2%
	Colombia	1	1%
	Honduras	1	1%
	Mexico	3	3%
Overall number of international students:		112	100%

¹⁶ Table 5 created by the researchers by using the data from:
<http://www.nps.navy.mil/ofcinst/sob/sob.htm> Accessed March 2007.

For the fall quarter of 2007, the school with the highest portion of internationals in its student body appears to be the GSOIS, with the number of international students enrolled totaling one hundred and twelve (112), representing thirty-five (35) countries all over the world. The highest representation came from the countries of Turkey, Singapore, and Greece, with twenty-two (22), sixteen (16), and fourteen (14) students enrolled, respectively.

Table 6. Distribution of International Students Enrolled in SIGS¹⁷ (Fall Quarter 2007)

<i>Region</i>	<i>Country</i>	<i>No. of Students</i>	<i>Percentage (%)</i>
Europe		17	57%
	Bosnia	1	3%
	Germany	5	17%
	Greece	1	3%
	Hungary	1	3%
	Moldova	1	3%
	Poland	3	10%
	Romania	2	7%
	Switzerland	1	3%
	Ukraine	2	7%
Africa		0	0%
Australia and Oceania		0	0%
Asia		13	43%
	Indonesia	1	3%
	Jordan	1	3%
	Korea	3	10%
	Mongolia	2	7%
	Pakistan	1	3%
	Turkey	4	13%
	Yemen	1	3%
North and South America		0	0%
Overall number of international students:		30	100%

¹⁷ Table 6 created by the researchers by using the data from:
<<http://www.nps.navy.mil/ofcinst/sob/sob.htm>> Accessed March 2007.

The SIGS had an enrollment of thirty (30) international students in total during the fall quarter of 2007, as seen in Table 6, whereas the lowest representation of international students appears to be in the SEACC which had only one (1) enrolled student as presented in Table 7 below.

Table 7. Distribution of International Students Enrolled in SEACC¹⁸ (Fall Quarter 2007)

<i>Region</i>	<i>Country</i>	<i>No. of Students</i>	<i>Percentage (%)</i>
<i>Europe</i>		<i>0</i>	<i>0%</i>
<i>Africa</i>		<i>0</i>	<i>0%</i>
<i>Australia and Oceania</i>		<i>0</i>	<i>0%</i>
<i>Asia</i>		<i>1</i>	<i>100%</i>
	Singapore	1	100%
<i>North and South America</i>		<i>0</i>	<i>0%</i>
<i>Overall number of international students:</i>		<i>1</i>	<i>100%</i>

Overall, the geographical distribution of international students, as it appears in Figure 3 below, reveals that the majority of the international students in the fall quarter of 2007 came from Asia, accounting for 50 percent of the international student body. Second was Europe, representing 39 percent, followed by North and South America, Africa, and Australia and Oceania with 6.0, 3.0 and 2.0 percent, respectively.

¹⁸ Table 7 created by the researchers by using the data from:
<<http://www.nps.navy.mil/ofcinst/sob/sob.htm>> Accessed March 2007.

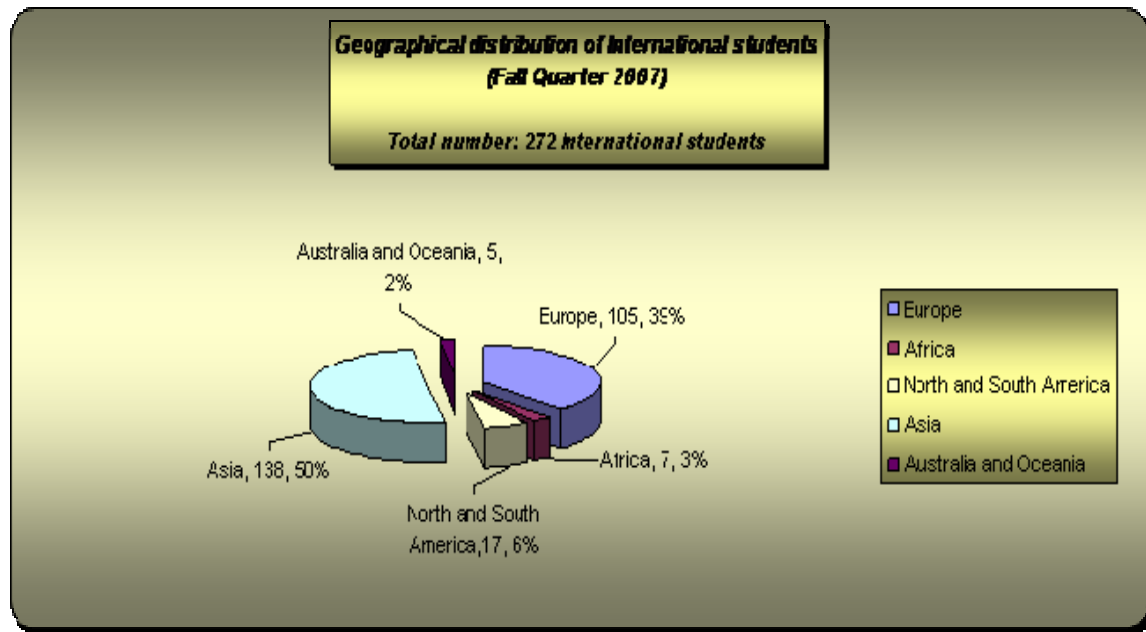


Figure 3. Geographical Distribution of Enrolled International Students¹⁹ (Fall Quarter 2007)

It is important for NPS to monitor the fluctuations in the number of international students year after year, quarter after quarter, and from country to country, in order to have the skills to make good estimates of the future participation of international students from various countries at NPS. A trend analysis is a useful tool to track changes and is used for the purposes of this study in order to identify and depict the changes in the numbers of international students from the various allied countries as well as to identify those countries with the highest levels of enrollment. Generally speaking, a trend analysis is based on the idea that what has happened in the past gives an idea of what will happen in the future.

The analysis of the trends in the number of students attending NPS from each country is based on the collection of data from official NPS sources, defining the number of students enrolled each quarter in each school.

¹⁹ Figure 3 created by the researchers by using the data from:
<<http://www.nps.navy.mil/ofcinst/sob/sob.htm>> Accessed March 2007.

The graphic depiction of the above data aims to provide an understanding of the trends in the enrollment figures of foreign students through the years.

For the purposes of this study we are averaging the number of students enrolled each quarter in the school during the last thirteen quarters, using the period starting from the fall quarter of 2004 and ending with the fall quarter of 2007, so that it is easier to compare between countries to determine those with the highest participation over the past thirteen quarters.

Following is a chart showing the average enrollment of students per quarter, from the various allied countries, at the Naval Postgraduate School.

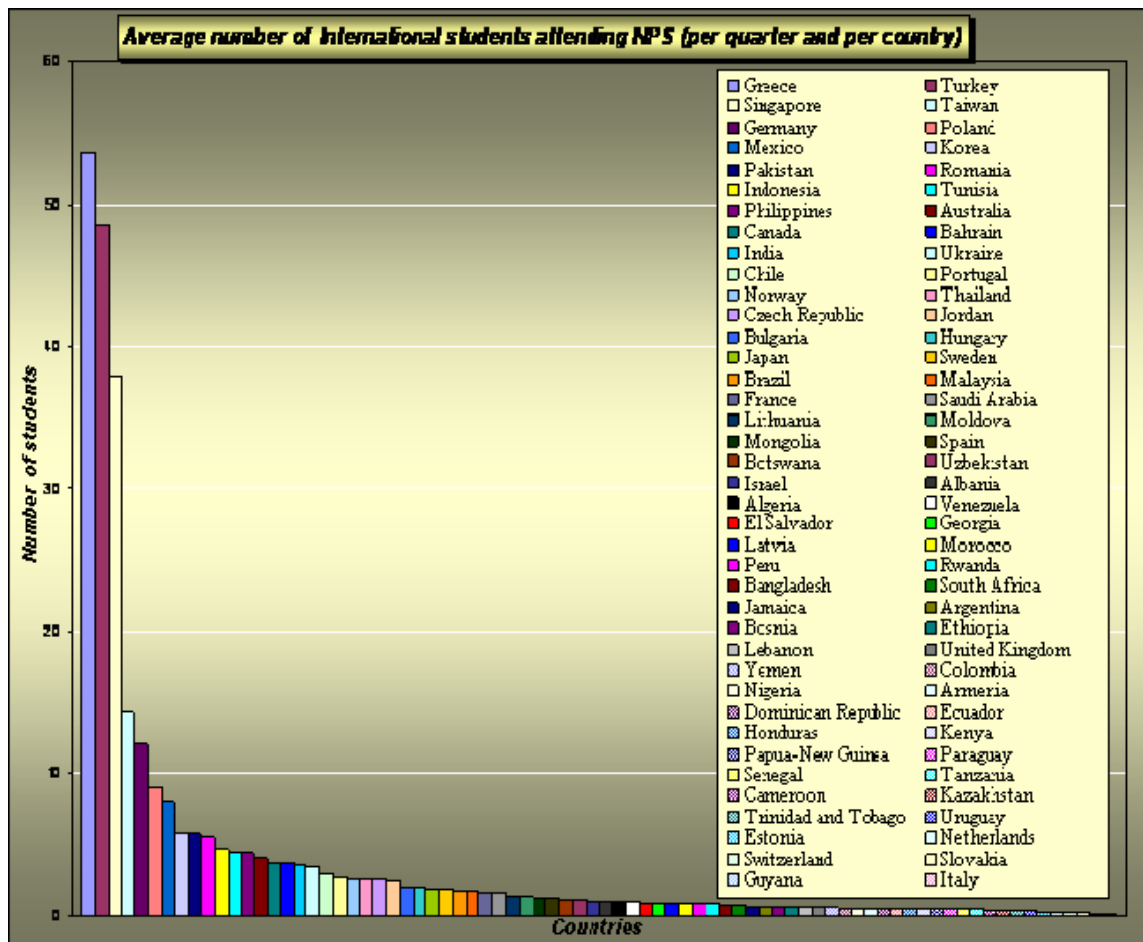


Figure 4. Average Number of International Students Attending NPS per Quarter and per Country (Fall Quarter 2004-Fall Quarter 2007)²⁰

²⁰ Figure 4 created by the researchers by using the data from:
<http://www.nps.navy.mil/ofcinst/sob/sob.htm> Accessed March 2007.

The above chart depicts the average number of international students attending NPS for the last thirteen (13) quarters (Fall Quarter 2004 to Fall Quarter 2007). According to the chart, the three countries with the largest population of students at NPS during the last four years were Greece, Turkey, and Singapore, ranked in order of importance and with an average enrollment of fifty-four (54), forty-nine (49), and thirty-eight (38) students per quarter, respectively.

The trend for the top three countries through the sequence of thirteen quarters is presented in Figure 5. Based on this chart, there is a stable pattern in the numbers of international students who attended NPS during each quarter for the last five quarters.

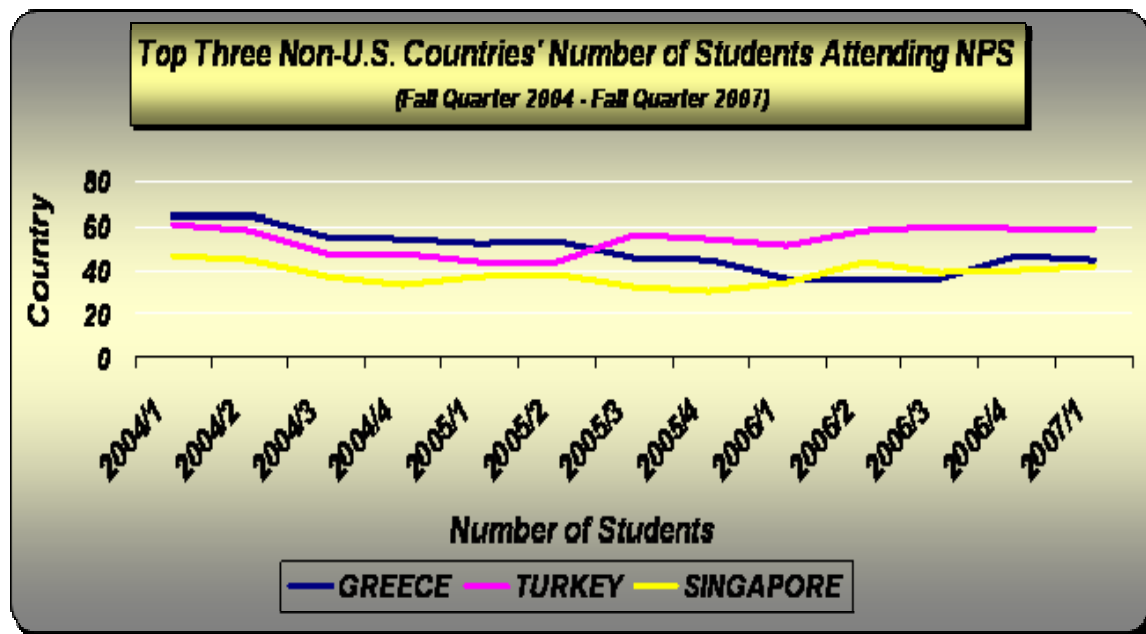


Figure 5. The Top Three Non-U.S. Countries with the Largest Participation of Students at NPS (Fall Quarter 2004 – Fall Quarter 2007)²¹

²¹ Figure 5 created by the researchers by using the data from: <http://www.nps.navy.mil/ofcinst/sob/sob.htm> Accessed March 2007.

B. ANALYSIS OF THE TRENDS OF THE HELLENIC ATTENDANCE AT THE NAVAL POSTGRADUATE SCHOOL

This study will analyze in more depth the trends of the Hellenic attendance and the reasons for these trends. The analysis will focus on the changes in the numbers of Hellenic officers attending NPS per quarter for the last four (4) years, and more specifically, the study will focus on the changes in the number of Hellenic students enrolled per school of study.

The following chart depicts the changes that have occurred through the years in each school of study. According to the findings that are depicted in Figure 6, there was a change in the number of Hellenic students attending various curriculums in the GSEAS and the GSOIS schools at NPS. More specifically, while there have been traditionally more Hellenic students enrolled in the GSOIS than the GSEAS, that trend changed in the fall and winter quarters of 2005, when more Hellenic students enrolled in the GSEAS and substantially less in the GSOIS.

In the GSBPP there was a downward trend in Hellenic attendance during 2005, but by the fall quarter of 2006, the numbers had climbed back up to the level of enrollment around 2003 and 2004. Finally, in the SIGS, the numbers of Hellenic students during the last quarters of 2005 nearly decreased to zero.

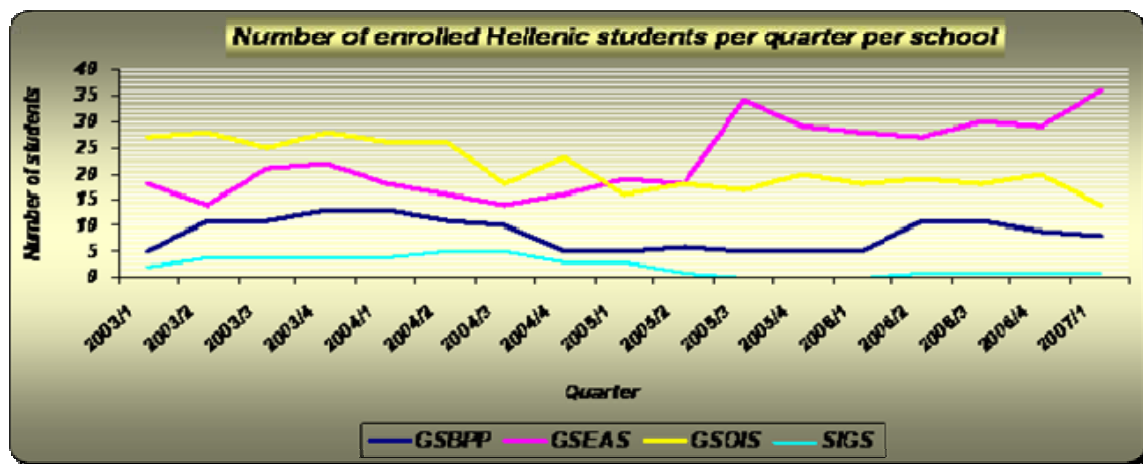


Figure 6. Number of Enrolled Hellenic Students per Quarter per School²² (Fall Quarter 2003 to Fall Quarter 2007)

²² Figure 6 created by the researchers by using the data from:
<<http://www.nps.navy.mil/ofcinst/sob/sob.htm>> Accessed March 2007.

C. ANALYSIS OF THE TRENDS OF THE HELLENIC ATTENDANCE FOR EACH OF THE THREE BRANCHES OF THE MILITARY

The following analysis will focus more specifically on the changes in the numbers of new students at NPS for each separate branch of the Hellenic military by quarter during the last four years.

The following three (3) graphs depict the changes in the numbers of new students enrolled over the past four years for the period starting with the fall quarter of 2003 and ending with the winter quarter of 2007, the point at which the collection of data for the purposes of this study was completed. The three graphs analyze the trends for the three branches of the Department of Defense - the Navy, the Air Force and the Army - and are analyzed in order of importance from the branch with the highest enrollment, which is the Navy, to the customer with the least participation, which is the Army.

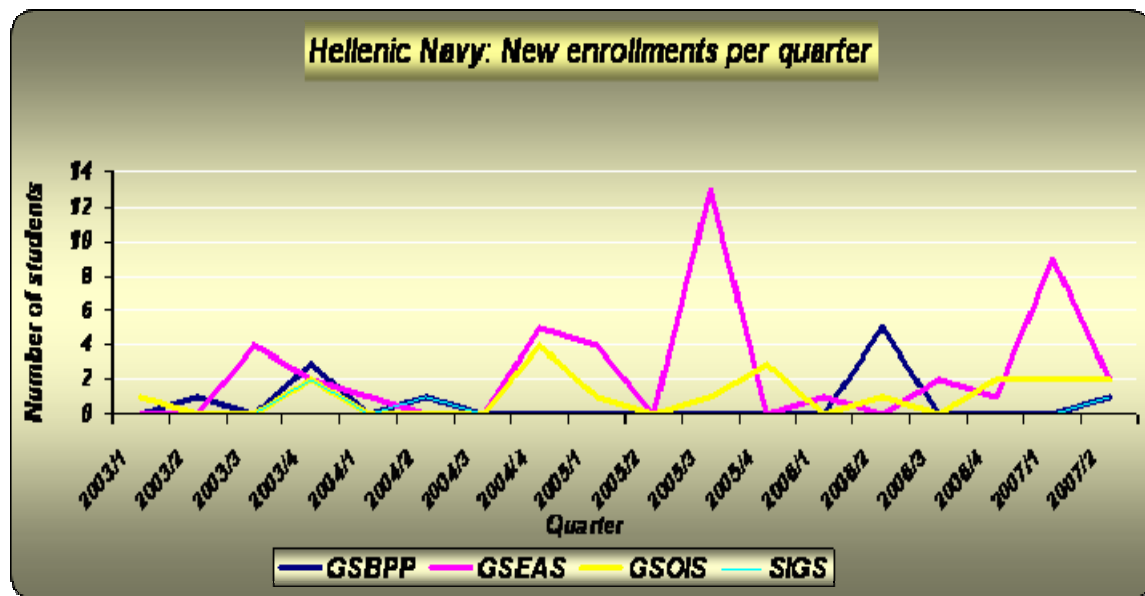


Figure 7. Number of Students in the Hellenic Navy Attending NPS per Quarter per School (Fall Quarter 2003 to Winter Quarter 2007)²³

²³ Figure 7 created by the researches by using the data from:
<<http://www.nps.navy.mil/ofcinst/sob/sob.htm>> Accessed March 2007.

As seen on the above chart, the following can be observed regarding the Hellenic Navy:

- Each of the four schools reflects one peak in the number of new students per academic year.
- GSEAS appears to be the school with the greatest overall enrollment for the past 18 quarters.
- The trend for the GSBPP reveals that there have been two peaks through the past 18 quarters, one around the summer quarter of 2003 and one around the winter quarter of 2006. With the exception of these two quarters, the enrollment was very low, and at some quarters it was even zero.
- SIGS enrollment decreased to almost zero.

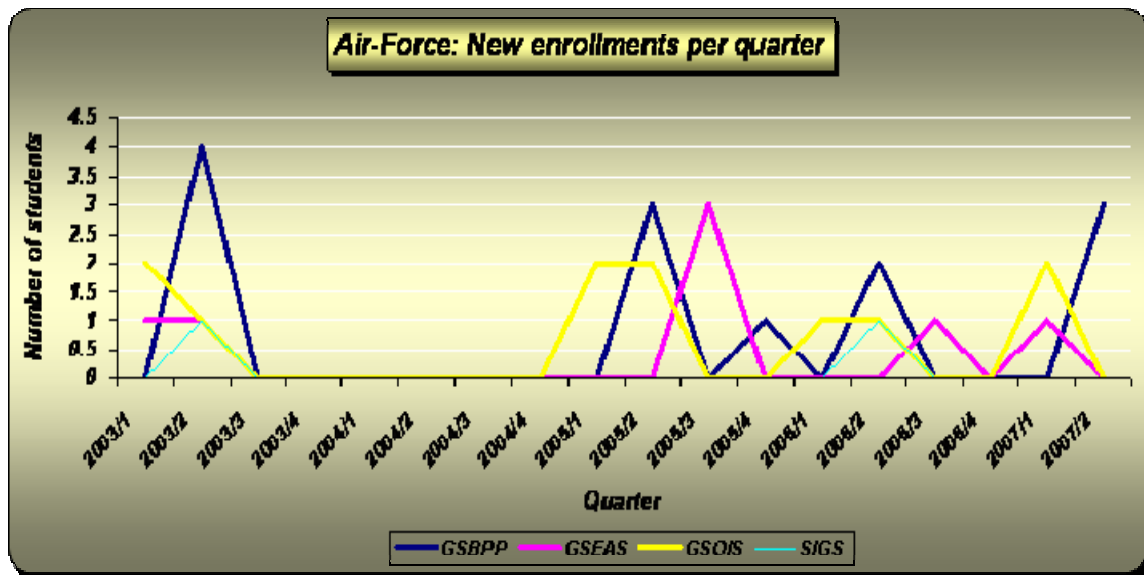


Figure 8. Number of Students in the Greek Air Force Attending NPS per Quarter per School (Fall Quarter 2003 to Winter Quarter 2007)²⁴

In the case of the Hellenic Air Force, the following trends have been identified, reflected in Figure 8:

²⁴ Figure 8 created by the researchers by using the data from:
<<http://www.nps.navy.mil/ofcinst/sob/sob.htm>> Accessed March 2007.

- The number of students enrolled each quarter was spread almost proportionally among all four schools within NPS.
- There were no students enrolled at NPS from the summer quarter of academic year 2003 through the last quarter of 2004.
- There was no peak period for any of the four NPS schools, but rather a consistent enrollment throughout the year.

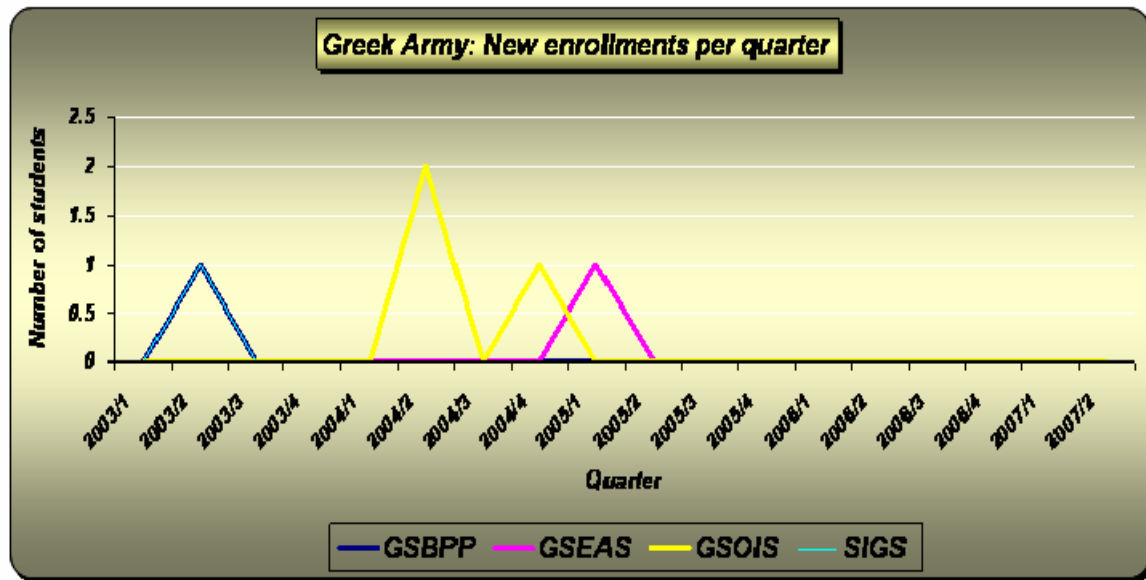


Figure 9. Number of Students of the Hellenic Army Attending NPS per Quarter per School (Fall Quarter 2003 to Winter Quarter 2007)²⁵

The following observations represent the trends in the participation of the Hellenic Army at the Naval Postgraduate School:

- The Hellenic Army appears to have stopped sending officers to study at NPS as of the spring quarter of 2005.
- Specifically for the GSBPP and the SIGS, the Hellenic Army has not sent any officers since 2003.
- The majority of students coming from the Hellenic Army have been enrolled in GSOIS.

²⁵ Figure 9 created by the researchers by using the data from:
<<http://www.nps.navy.mil/ofcinst/sob/sob.htm>> Accessed March 2007.

The purpose of this study is to track, graph, and analyze the trends of the Hellenic representation in the various schools at NPS, so that we have a better idea of the Hellenic participation at NPS through the years. This information will be combined with information and collection of data about the Hellenic 'buying center' concerning the factors that affect its decisions about the NPS 'product'. Eventually, this study will combine the research about the trends and the research about the Hellenic 'buying center,' with the aim of identifying potentially influential trends.

It is important for NPS to be in the position to identify influential trends about its customers in general, and more specifically about its international customers that constitute an important part of the entire student population.

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V. HELLENIC MILITARY 'BUYING CENTER FOR EDUCATION': ROLES, CURRENT PRACTICES, AND SUPPLIERS

A. DEFINITION AND ANALYSIS OF BUYING CENTER IN MARKETING

The buying center is defined by Webster and Wind as the unit of a buying organization that performs the decision-making process.²⁶ The buying center consists of all the individuals and the groups that actively participate in a purchase decision process sharing a common objective as well as sharing the risks associated with their decisions.

The buying center includes all the members of a buying organization who play any of the following seven roles during a decision-making process:

1. **Initiators** are the requesters of a purchasing action. They could be the users of the required item or service or others in the buying organization.
2. **Users** are the end users of the required item or service. Under circumstances they are also the people who specify the requirement.
3. **Influencers** are personnel who provide useful insight about the requirements determination and who influence the overall decision-making process.
4. **Deciders** are those making the decision about the final requirements and about the selection of the supplier.
5. **Approvers** are those authorizing the actions proposed by the deciders.
6. **Buyers** are the people with the formal authority to choose the supplier and also to arrange and negotiate specific terms and conditions.
7. **Gatekeepers** are those having the power to conceal information from the rest of the members of the buying center, because of their positions in the organization.

The buying center is normally characterized by diversity among its members, because of their different needs and wants, priorities, and objectives, and because of their

²⁶ Kotler Philip and Keller Kevin Lane, Marketing Management 12e, Prentice Hall, 2005, p. 214.

differences in culture and values. All these differences arise due to variation in the buyers' age, income, education, job position, personality, and attitude towards risk.

To cap this discussion of the buying center here is a summary of the way purchasing decisions of a buying organization are made. The following five steps are followed:²⁷

1. Need Recognition
2. Search
3. Evaluate Alternatives
4. Purchase
5. After-Purchase Evaluation

The processes that take place in each of the five steps of a purchasing decision, and their outcomes, are summarized in the following analysis:

1. Need Recognition

In a business environment needs arise from just about anywhere within the organization. The buying center concept shows that initiators are the first organizational members to recognize a need. In most situations the initiator is also the user or buyer. Users are more likely to identify the need for new solutions (i.e., new products) while buyers identify the need to repurchase products.

In straight repurchase situations, whether there is human intervention or not, the purchasing process often skips the 'Need Recognition' step and moves to the 'Purchase' step. In such cases little search activity is required and performed.

As part of this step, a specifications document may be generated that lays out the requirements of the product or service to be purchased. Several members of the buying center may be involved in creation of the specifications.

2. Search

The search for alternatives to consider as potential solutions to recognized needs is one of the most significant differences between consumer and business purchasing.

²⁷ Principles of Marketing: <<http://www.knowthis.com/tutorials/principles-of-marketing/business.-buying-behavior.htm>> Accessed March 2007.

Much of this has to do with an organization's motivation to reduce costs. The primary intention of their search efforts is to identify multiple suppliers who meet product specifications and then, through a screening process, choose the most appropriate suppliers and give them the opportunity to present their products to members of the buying center.

3. Evaluate Alternatives

Once the search has produced options, members of the buying center may then choose from the alternatives. In more advanced purchase situations, members of the buying center determine the more important attributes needed and rank them in order of importance while indicating their relative weight, and evaluate each option using a checklist of these attributes. In many cases, especially when dealing with government and not-for-profit markets, suppliers must submit bids with the lowest bidder often being awarded the order, assuming products or services meet specifications.

4. Purchase

To actually place the order may require the completion of paperwork (or electronic documents) such as a purchase order. Acquiring the necessary approvals can delay the order for an extended period of time. And for very large purchases, financing options may need to be explored.

5. After-Purchase Evaluation

After the order is received, the purchasing company may spend time reviewing the results of the purchase. This may involve the buyer discussing product performance issues with users. The after-purchase evaluation might lead the buyer to a straight repurchase of the product or service, a modification, or the end of the buyer-supplier cooperation.

B. DETERMINATION AND ANALYSIS OF HELLENIC 'BUYING CENTER'

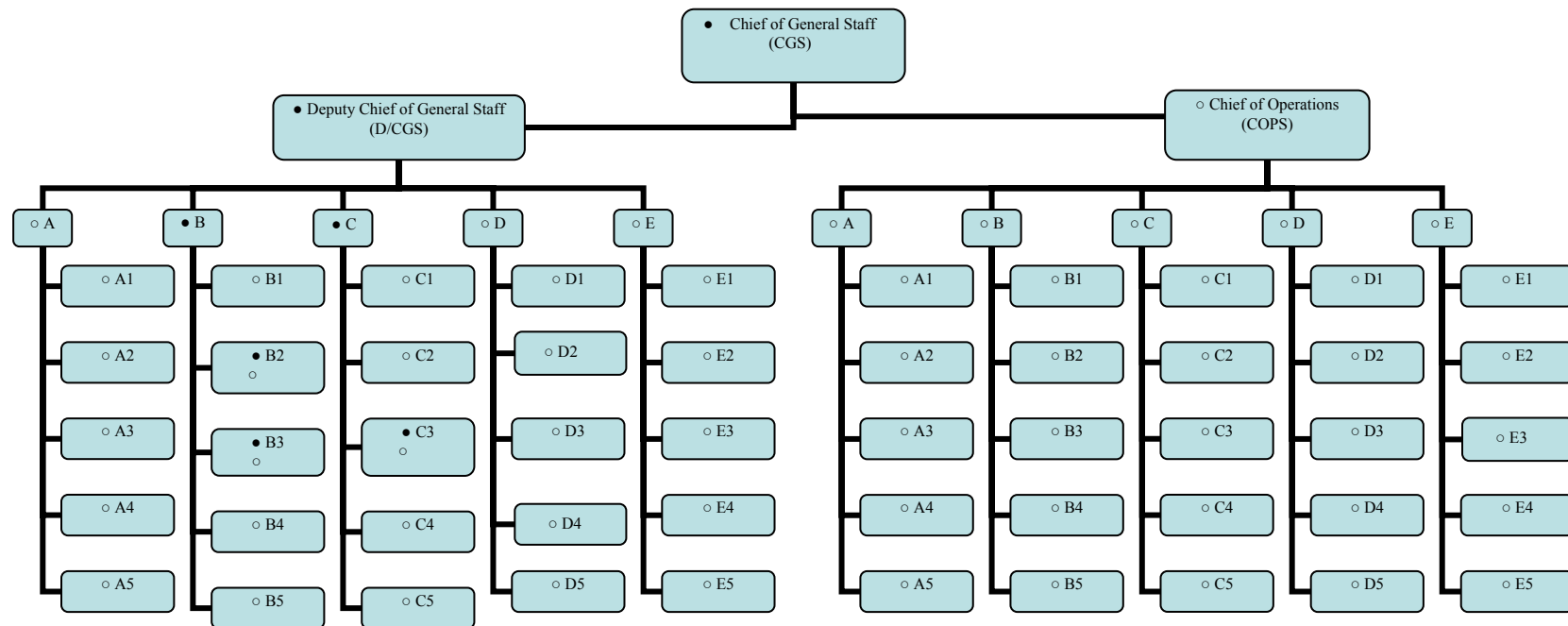
For the purposes of this study, a definition of the Hellenic military 'buying center' for education is narrowed down and is provided as follows:

The Hellenic military ‘buying center’ for education is the unit of the military buying organization that performs the decision-making process for education. The Hellenic military buying center consists of all the individuals and the groups that actively participate in the decision process for purchasing education from various educational organizations, both domestic and abroad. They share the common objective of providing the highest level of education possible to the military personnel based on the limited resources available for this purpose every fiscal year, as well as sharing the risks associated with their decisions.

From the seven roles that are shared among the members of a buying center—initiators, users, influencers, deciders, approvers, buyers, and gatekeepers—the following five roles that apply for the purposes of this study will be analyzed—users, influencers, deciders, approvers, and buyers—more in depth.

The buying center of the Hellenic military is characterized by diversity among its members, because of the different needs and wants, priorities, and objectives that motivate individuals based on their various positions within the Hellenic military chain of command, various service locations, and variations in age, mentality, or education.

The following graph presents a depiction of the Hellenic military chain of command and also an analysis of where members of the buying center can be found within the chain. The organization chart that follows is a generic depiction of the structure of the chain of command that applies to all three branches of the Hellenic military: the Navy, the Air Force, and the Army.



- Buying center members
- Other individuals in the organization
- Direction of communication

CGS = Chief of General Staff
 D/CGS = Deputy Chief of General Staff
 COPS = Chief of Operations
 A, B, C, D, E = Five (5) Directorates
 1, 2, 3, 4, 5 = Five (5) Departments

Figure 10. Hellenic Military Chain of Command²⁸

²⁸ Chart created by the researchers by using data from :<<http://www.topsites.gr/out.php?link=523&l=1>> Accessed April 2007.

What follows is a summary of the roles of the Hellenic military chain of command, with a focus on their relation, if any, to the decisions regarding the purchase of education.

Chief of General Staff (CGS): He is at the top of the chain of command and has the complete Administration/Command and Control of the personnel and its means. He is the advisor to the Minister of National Defense and is responsible for matters such as the organization, manning, equipment, education, evaluation, preparation for war, preparation and utilization of the staff and the material/supplies. His role in the buying center for education is that he is the **approver** of the buying decisions and he is the one who authorizes the suggestions that are made.

Deputy Chief of General Staff (D/CGS): He is right below the Chief of Staff. He is his immediate assistant for all administrative, personnel, budgeting, technical, engineering, and financial issues. He is the lead of the 5 directorates that are right below him. He also participates in the buying decision for education as an **approver** at a level lower than the CGS.

Directorate of Branch A: The Director of Branch A is responsible for decisions concerning operations. He has under his direction five separate departments. He is not part of the buying center for education. For the purposes of this study he belongs to the category “other individuals in the organization.”

Directorate of Branch B: The Director of Branch B is responsible for decisions concerning personnel, such as appointments and education of personnel. He has under his direction five separate departments. The director of this Branch is a **decider** in the buying center for education. The five departments under the authority of the Director of Branch B are B2 and B3, which are staffed with **influencers** and **buyers** of the buying center and “other individuals in the organization,” and B1, B4, and B5, which consist of “other individuals in the organization.”

Directorate of Branch C: The Director of Branch C is responsible for decisions concerning the budgeting processes within the military. He has under his direction five separate departments. The director of this Branch is a **decider** of the buying center for

education, since he decides the amount of money that can be spent each year for education. The rest of the personnel in this branch are split among the five departments. Among those working in department C3, some act as influencers in the buying center and others as “other individuals in the organization.” In addition, those working in the remaining four departments act as “other individuals in the organization.”

Directorate of Branch D: The Director of Branch D is responsible for decisions concerning technical and engineering issues. He has under his direction five separate departments. He is not part of the buying center for education. For the purposes of this study he belongs to the category “other individuals in the organization.”

Directorate of Branch E: The Director of Branch E is responsible for procurement and contracting. He has under his direction five separate departments. He is not part of the buying center for education since his role, especially as far as buying education is concerned, is limited only in paying and is excluded from any formal authority of choosing sources for education or negotiating terms and conditions. For the purposes of this study he belongs to the category “other individuals in the organization.”

Chief of Operations (COPS): He reports directly to the Chief of General Staff and is his immediate assistant for conducting operations. He has under his authority five directorates, each with five separate departments, similar to the Deputy Chief of Staff, whose roles and responsibilities are directly linked to the objective of successfully conducting operations. So the department ‘B’ that is responsible for making decisions concerning the personnel in general, and more specifically their education, is focused on determining what short-period training is needed for keeping the personnel up to date in conducting operations and is not involved in the decision of what master’s level programs are more useful for the personnel. As a result, this department as well as the rest of the operational command fall under the “other individuals in the organization” category for the purposes of this study, and will not be analyzed any further.

Personnel serving in any position in the chain of command could potentially be **users** of services for education, since the selection among the personnel is based on a strict examination process, where personnel serving at any position in the military organization could participate if they meet the criteria for participation.

1. Analysis of Current Practices

What follows is an analysis of the current practices of the Hellenic buying center for education, with a focus on its relationship with NPS, one of the most frequently used suppliers of education abroad for the Hellenic military, traditionally.

The analysis that follows will include information about the trend of participation of Greece at NPS through the course of the last four years for each of the three branches of the military, the Hellenic Navy, Air Force, and the Army. This information is based on official Hellenic documents that are issued each year and determine the number of officers that will attend various master's degree programs at various universities both abroad and domestically for the following year.

The policy of the Hellenic military for all three of the branches is to issue annually a document determining the maximum allowed number of personnel that will attend master's degrees programs abroad and also domestically. Officers who would like to be selected must go through a strict examination process.

For the Navy the proclamation document is very detailed and determines the exact curriculums that the successful candidates will attend, while for the Air Force and the Army, the proclamation concerns only the number of attendants that will be sent to NPS.

For each curriculum and university, interested candidates are given a list of courses that they must study on their own prior to the examination process. In addition, each candidate has to have a proficiency degree in the English language or a certain score on the TOEFL, depending on each university. The Navy proclamation also determines the range of the ranks and the years that one should have served in the military in order to be eligible for candidacy in the exam process.

In the following table, data are presented concerning the Hellenic participation at NPS, based on the official proclamation documents that are issued each year to determine the number of officers that might attend various master's degree programs for the following year. This number may also be affected by the outcome of the examination process. The table presents the data that have been collected concerning the Hellenic participation for each of the three separate branches of the military.

For the Navy and the Air Force, data have been collected for the period 2004-2007, while for the Army, only information about the period 2006-2007 has been made available to the researchers. So this study will focus mainly on the Navy and the Air Force where there is more availability of data. The analysis in Chapter IV shows that the participation of the Hellenic Army at NPS has gradually narrowed down to zero through the last four years.

Specifically for the Navy's proclamation document issued each year, a breakdown list is provided that designates selected curriculums and the number of attendees needed for each of these, while for the Air Force and the Army, the determination concerns only the number of attendants that will be sent to NPS, while the curriculums are determined at a later point in time. However for the purposes of this study, the total number of attendants at the various universities will be presented.

Table 8. Official Data for the Number of Positions Declared for Attending NPS per Branch of the Military for the Period 2004-2007²⁹

Year	Navy	Air Force	Army
2004	17	1	N/A
2005	18	7	N/A
2006	23	7	4
2007	13	1	4

The following figure shows that the participation of the Navy at NPS dropped significantly in 2007. Similarly, the Air Force decided to decrease the number of officers sent for studies at NPS from seven officers in 2005 and 2006 to only one officer in 2007.

²⁹ Table 8 created by the researchers by using data from official Military documents.

Finally, for the Hellenic Army, even if in the proclamation document numbers remained stable, the actual participation during 2006 and 2007 narrowed down to zero as discussed in Chapter IV.

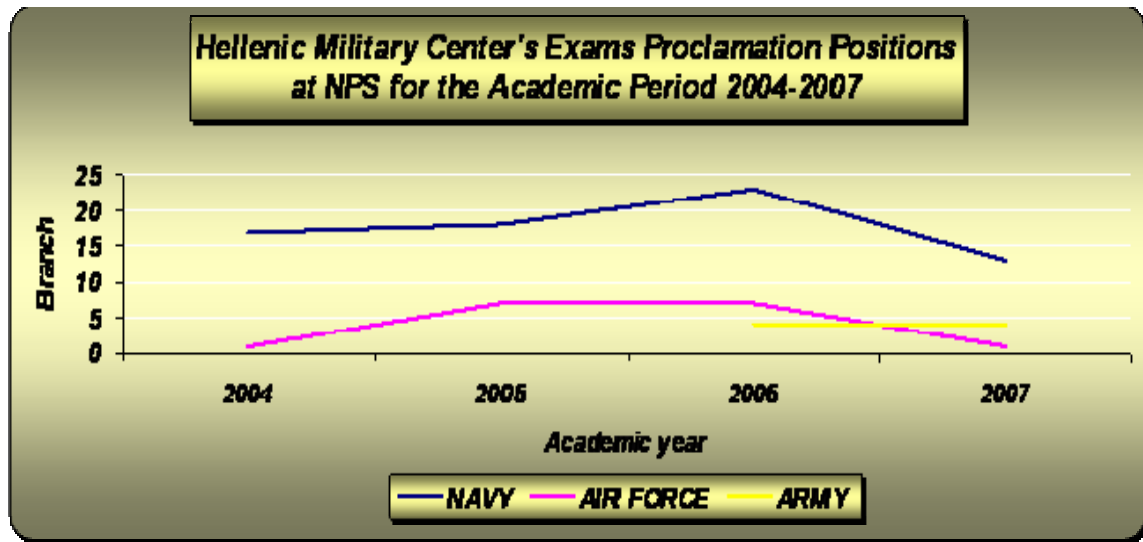


Figure 11. Hellenic Military's Buying Center for Education Trend Analysis for Period 2004-2007³⁰

2. Analysis of Universities Competing with NPS for Greek Students

At this point this study will focus on analyzing the different sources of education, both domestic and abroad, that the Hellenic buying center is purchasing from, for its members. The analysis will be based on official documents of the Hellenic military of all three branches, analyzing which educational institutions were selected each year, as well as the number of officers that were sent to attend each one of the different universities. The basis for this analysis is the period from 2004-2007.

In Figures 12, 13, and 14 below, the theoretical number of Greek officers that could enroll in various universities, domestically, in Europe, and the United States, according to each year's proclamation document, is depicted for all three branches of the military for the period 2004-2007.

³⁰ Figure 11 created by the researchers by using data found in official Military documents.

For the period 2004-2007, the numbers presented are based on the official proclamation document of the Hellenic military that determines the theoretical number of officers that could be funded to get a master's level education both domestically and abroad. The number of officers that actually attend a master's level education could turn out to be less than or equal to the number determined by the proclamation, based on the outcome of the examination process and other factors that might arise, or they could even turn to be higher in the case that there are excess funds for education.

For the Navy and the Air Force, data have been collected for the period 2004-2007, while for the Army, only information about the period 2006-2007 has been made available to the researchers.

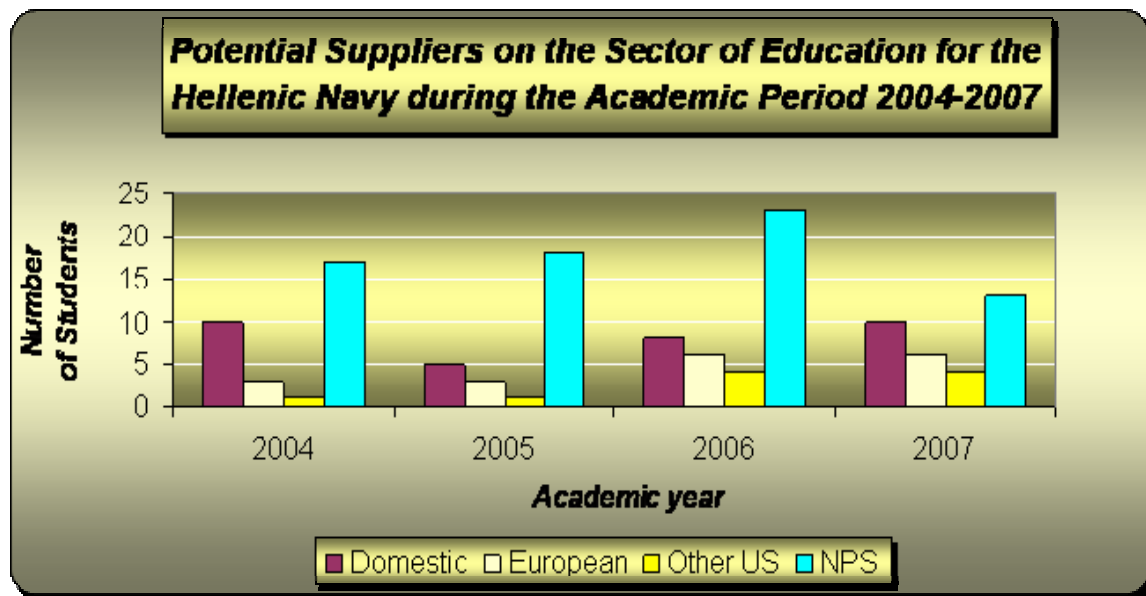


Figure 12. Hellenic Navy Officers' Theoretical Participation in the Various Universities, for the Period 2004-2007³¹

For the Hellenic Navy it appears that the number of officers that could be sent for studies at NPS gradually increased from 2004 until 2006. However in 2007 the number of officers that could be sent for studies at NPS dropped significantly, while the numbers available for studies at other US universities and domestic universities rose slightly.

³¹ Figure 12 created by the researchers by using data found in official Military documents.

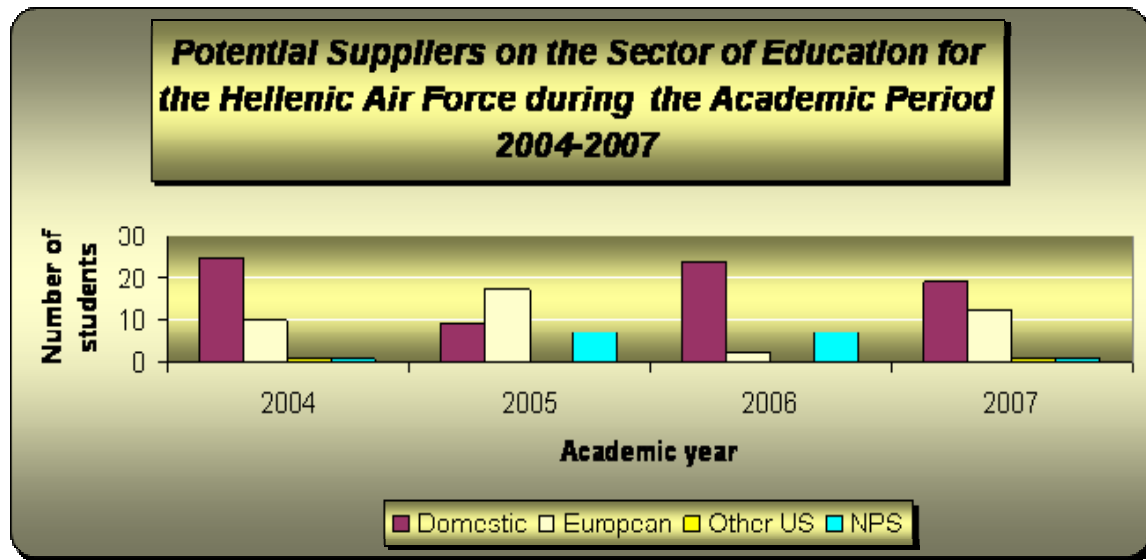


Figure 13. Hellenic Air Force Officers' Theoretical Participation in Various Universities for the Period 2004-2007³²

For the Hellenic Air Force it appears that for 2007 the number of officers that could be sent for studies at NPS went down to the level it had been back in 2004, while the number available for studies at other US Universities went back up to the level of 2004.

The number of available positions at domestic universities has remained at a high level through the course of years, even though it fell in 2007 compared to the previous year. Finally, the availability for participation at European universities went up again in 2007 to the 2004 level, while during 2005 and 2006 there was no scheduled participation from the Hellenic Air Force for studies at European universities.

It seems that the Air Force showed a preference for sending officers for post-graduate studies mostly at European universities during the period 2006-2007, except for the year 2004. There appears to be a preference for education at domestic universities, while NPS has shown a decline in academic enrollment.

³² Figure 13 created by the researchers by using data found in official Military documents.

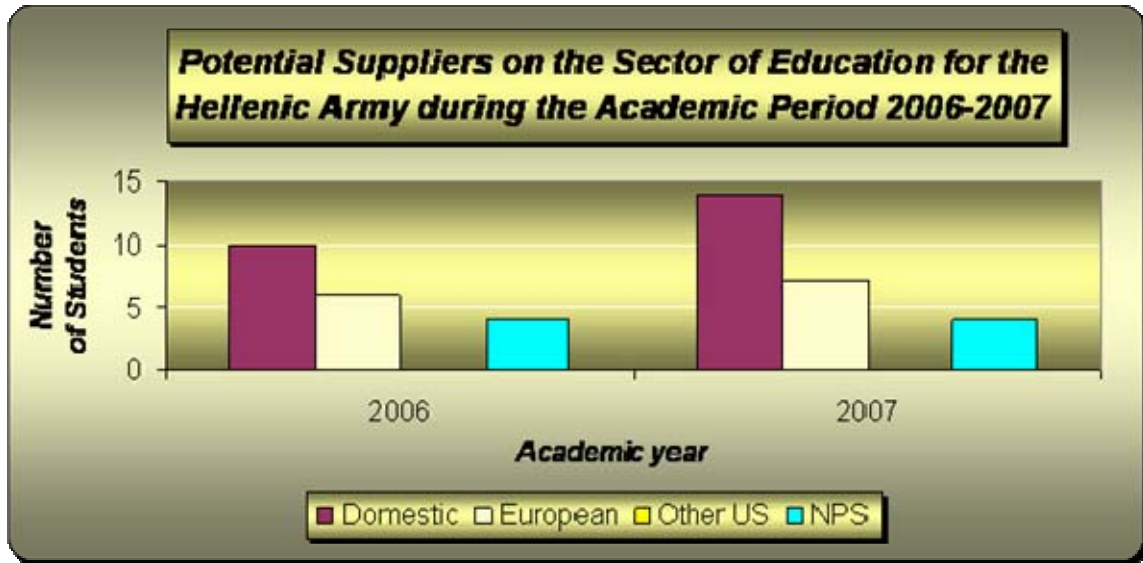


Figure 14. Hellenic Army Officers' Enrollments in Domestic Universities, Other European and United States Universities for 2004-2007³³

As was already mentioned, Army information for only the period 2006-2007 has been made available to the researchers. Based on these data, Figure 14 shows an increase in the number of officers sent for studies in domestic universities. For NPS, even though the theoretical number of officers that could enroll at NPS remained constant, the actual number of officers coming to attend NPS narrowed down to zero according to the enrollment data from the NPS registrar's office. It appears that the Greek Army is using the funds that could be used for sending officers to NPS to send more officers to study at domestic universities.

Under the "other US universities" and "European universities" columns, as presented in the above charts, a multitude of universities are included. An inclusive but not exhaustive list of these universities is presented in the following Table 9.

³³ Figure 14 created by the researchers by using data found in official Military documents.

Table 9. List of Foreign Universities—Suppliers of Education³⁴

University	Country	Service
Grandfield	UK	Navy, Air Force
Harvard	USA	Navy
MIT	USA	Navy
FIT	USA	Navy
NPS	USA	Navy, Air Force, Army
Sheffield	UK	Air Force
Fascia	FRANCE	Air Force
Toulouse	FRANCE	Air Force
Sussex	UK	Air Force
Westminster	UK	Air Force
UCL	UK	Air Force
Essex	UK	Air Force
Leicester	UK	Air Force
Lancaster	UK	Air Force
AFIT	USA	Air Force
Stevens	USA	Air Force
Royal London College	UK	Air Force
Not predetermined	GERMANY	Air Force
Not predetermined	HOLLAND	Air Force

C. CONCLUSION

This chapter has studied the decision-making process of the Hellenic military ‘buying center’ for education for each of the services and has concluded that there is the following tendency concerning NPS participation:

The Navy has decided to decrease its participation at NPS for 2007 and has shown preference for sending officers to other civilian domestic and European universities.

Similarly, the Air Force has decided to decrease the number of officers that are sent for studies at NPS and turn to other sources of education, such as domestic and European universities.

³⁴ Table 9 created by the researchers by using data from official Military documents.

Finally, for the Hellenic Army, even though the proclamation document shows that the number of officers that could be selected to pursue studies at NPS has remained stable, the actual participation during 2006 and 2007 has narrowed down to zero and more emphasis has been placed on domestic and European universities.

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VI. FACTORS AFFECTING THE DECISION-MAKING PROCESS OF THE HELLENIC BUYING CENTER FOR EDUCATION

A. INTRODUCTION

The previous chapter examined the crucial role that the Hellenic buying center for education plays in determining the number of officers who are annually selected for postgraduate studies both domestically and abroad.

The Hellenic military buying center's primary long-term objective is to continue to perform its duties using high standards and criteria which are primarily based on the principles of rightness and meritocracy for all the military personnel. This is an exceptionally difficult mission because of the existence of factors that affect vitally the educational policy of the Department of Defense.

These substantial factors are:

- The allocation of funds on the sector of education
- Various sources of supply of education
- The feedback of graduate officers from various universities abroad

In this chapter, further research and analysis follows in order to evaluate how these substantial factors affect the overall process of the flow of funds from the state budget to various academic institutions.

B. ANALYSIS OF INFLUENTIAL FACTORS

The recognition and determination of factors is a fundamental issue. In addition, the understanding of the overall process of the flow of funds, as depicted in Figure 15 on the next page, is considered to be of the first importance in evaluating the crucial role of influential factors on the final distribution of officers among various academic institutions.

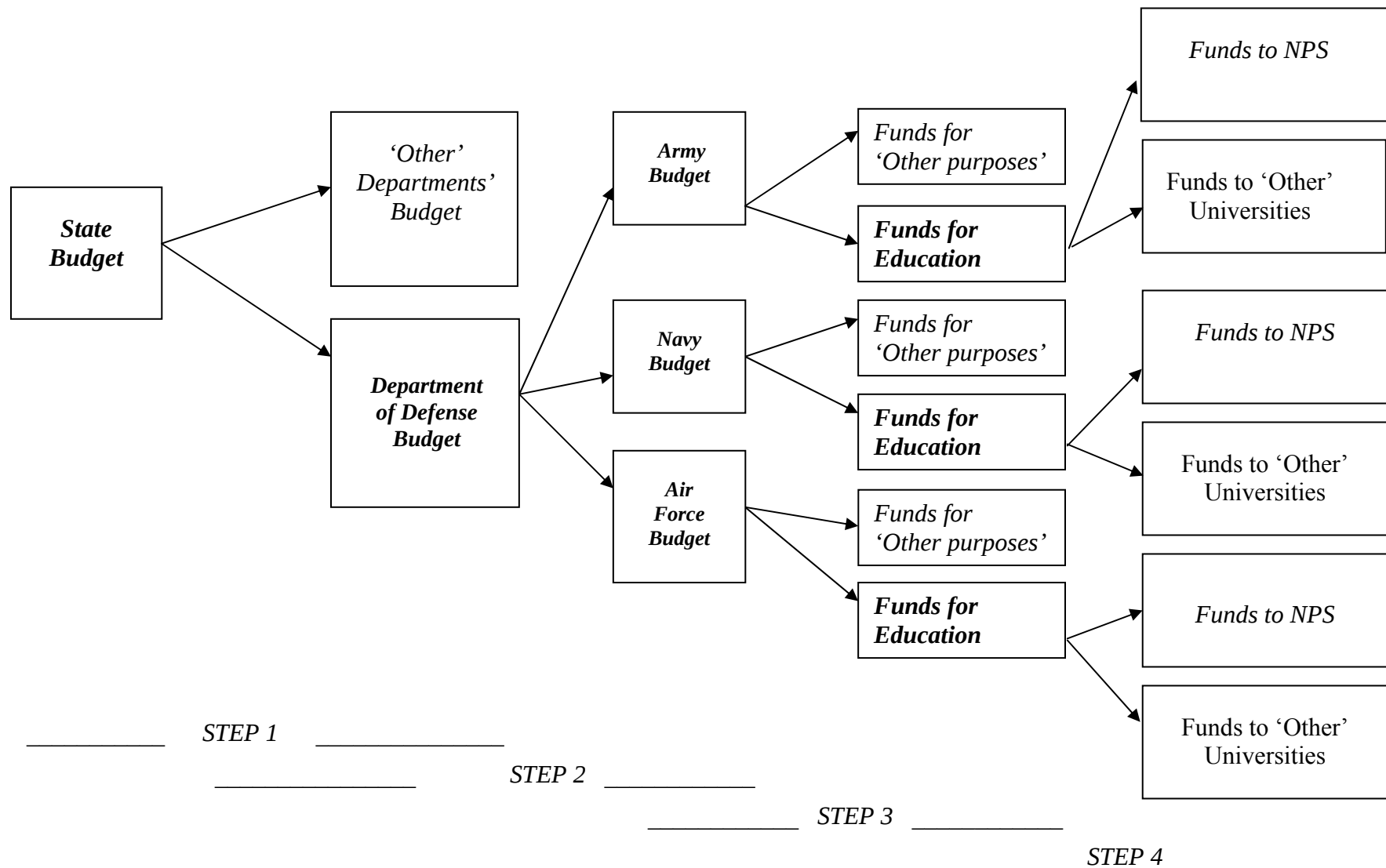


Figure 15. Flow of Funds from the State Budget to the Sector of Military Education³⁵

³⁵ Figure 15 created by the researchers using the data from: <<http://www.mod.mil.gr>> Accessed May 2007.

The two primary factors driving the state budget are the following:

1. ***The public needs***, which are concentrated in four program areas:
 - Public education (elementary, secondary, and higher)
 - Human services and health care
 - Corrections and the judicial branch
 - Major or special events (such as the organization of Athens 2004 Olympic Games)
2. ***The overall course of the economy***, which diachronically affects every activity in the public and private sectors

It is obvious that there is a close association between public needs and the economy, since the adopted policy on public needs exclusively depends on the state of the economy.

As indicated in the above Figure 15, the flow of funds from the state budget to the various academic institutions follows these four basic steps:

- a. *Step 1:* The allocation of funds from the state budget to the Department of Defense
- b. *Step 2:* The allocation of funds from the Department of Defense to the military branches or services (Army, Navy, and Air Force)
- c. *Step 3:* The allocation of funds from the services to the sector of education
- d. *Step 4:* The allocation of funds from the sector of education to various academic institutions

Because each step plays a pivotal role in determining the flow of funds, further analysis follows.

1. Step 1: The Allocation of Funds from the State Budget to the Department of Defense

PROPOSITION 1: The greater the public needs, the less budgetary funds are allocated to the Department of Defense.

PROPOSITION 2: Whenever priority of the governmental policy becomes the reduction of public debt, this causes a dramatic reduction of budgetary funds allocated to the Department of Defense.

As can be seen in Table 10 below, the allocation of funds for the Department of Defense during the fiscal period 2004-2007 was substantially lower in 2004 than the following years.

Table 10. Allocation of Funds of State Budget for the Department of Defense during the Fiscal Period 2004 – 2007³⁶ (in million euros)

<i>Fiscal Year</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>
Funds of state budget for the DoD	4,181.90	5,226.00	5,315.00	5,658.70
Funds of state budget for all departments	63,955.80	73,560.56	73,136.00	79,723.50
Percentage (%) of funds for the DoD	6.54%	7.10%	7.27%	7.10%
Percentage(%) of funds for the other departments	93.46%	92.90%	92.73%	92.90%
Overall (%) funds of state budget	100.00%	100.00%	100.00%	100.00%
Percentage change of budgetary funds for DoD per annum	0.00%	24.97%	1.70%	6.47%

In particular, the allocation of funds for the Department of Defense fluctuated from 6.54% of the total funds in 2004 to 7.10% in 2005 and 7.27% in 2006, while it is expected to slightly decrease to 7.10% in 2007.

This fluctuation during the period 2004-2007 can be attributed to the following:

1. The organization of Athens 2004 Olympic Games
2. The governmental attempt to reduce the Gross Domestic Product (GDP)

The composition of budgetary funds among the Department of Defense and the other departments during the fiscal period 2004-2007 is also presented in Figure 16 below.

³⁶ Table 10 created by the researchers by using the data from: <<http://www.mof-gluk/proypologismos.htm>> Accessed May 2007.

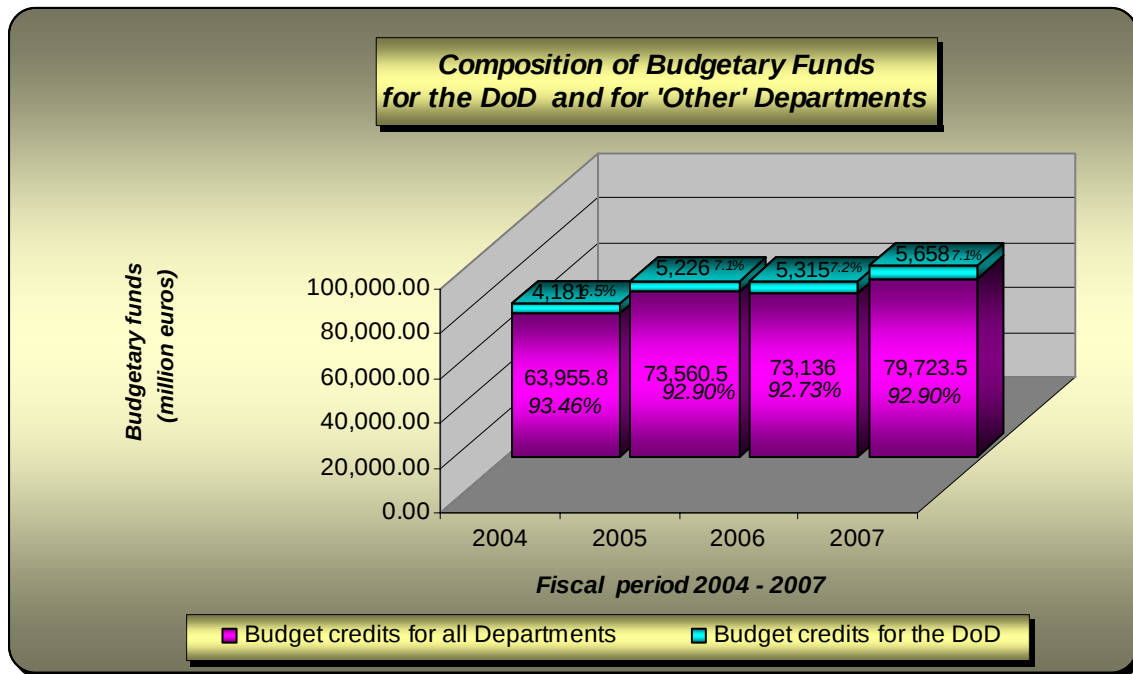


Figure 16. Allocation of State Budgetary Funds to the Department of Defense³⁷

a. Athens 2004 Olympic Games

During 2004, because of the increased expenditures for the organization of the Olympic Games, the amount of funds distributed from the state budget to the Department of Defense was significantly less than the amount during 2005-2007.

The Athens 2004 Olympic Games were the top world-wide athletic event for that year. Their successful organization had been a major national and political long-term objective for all Hellenic governments since August 27, 1997.³⁸

The Olympic Games demand extensive planning, appropriate resources and funds, timely reporting, effective coordination, and excellent cooperation among the various qualified bodies. Enormous amounts of funds were needed for the timely

³⁷ Figure 16 created by the researchers by using the data from: <<http://www.mof-glkl/proypologismos.htm>> Accessed May 2007.

³⁸ The date when the city of Athens officially submitted nomination for the Olympic Games of 2004.

construction and reconstruction of athletic centers for various Olympic sports and several infrastructure works. The financing for all this construction placed a heavy burden on the Department of Economics and Finance.

Although the Olympic Games belong to the past, the economic consequences still exist and continue to significantly influence major activities and programs of the public sector. The educational sector of the Department of Defense through the Hellenic buying center is one of the areas that have been hard-pressed, since funds were cut and were transferred to the Department of Economics and Finance.

As can be seen in Table 11 below, the total expenditures for Olympic construction reached approximately 5,313.00 million euros during the fiscal period 2001-2004.

Table 11. Composition of Expenditures on Construction for the Athens 2004 Olympic Games during the Fiscal Period 2001–2004³⁹ (in million euros)

<i>Fiscal Year</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>
Expenditures on Olympic constructions	498.90	1,127.00	1,663.00	2,024.00
Annual percentage participation in relation to overall expenditures	9.39%	21.21%	31.30%	38.10%
Change of expenditures on Olympic construction per annum	0.00	628.10	536.00	361.00
Percentage change of expenditures per annum	0.00%	125.90%	47.56%	21.71%

More specifically, the expenditures sharply fluctuated from 498.90 million euros in 2001 to 2,024.00 million euros in 2004. This simply means that the percentage of expenditures on Olympic construction in relation to total expenditures in 2001 was approximately 9.40%, whereas the relevant percentage in 2004 reached 38.10%, as presented in Figure 17.

³⁹ Table 23 created by the researchers by using the data from: <<http://www.mof-gluk/proypologismos.htm>> Accessed May 2007.

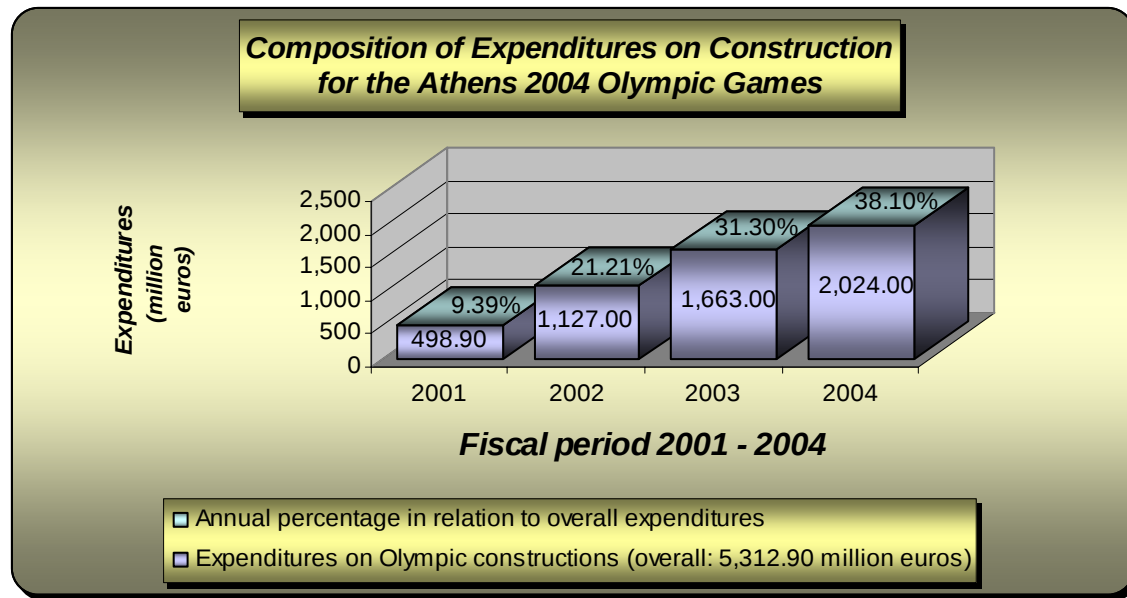


Figure 17. Composition of Expenditures on Construction for the Athens 2004 Olympic Games during the Fiscal Period 2001-2004⁴⁰

The financing of this construction was partially supported by the budgetary funds of the Department of Defense. The Department of Defense finances two main groups of services, which in order of precedence are:

- Administrative and regional services, which are known as “other” military services
- The military branches or services of Army, Navy, and Air Force

b. The Course of Public Debt Related to the Gross Domestic Product (GDP)

The continuous governmental attempt to decrease the ratio of public debt related to the Gross Domestic Product (GDP) during the period 2004-2007 was the root cause for the stagnation of funds that were distributed from the state budget to the Department of Defense during these years.

The outstanding public debt is probably the biggest and most significant problem for the Hellenic economy, and continues to be the basic target of the

⁴⁰ Figure 17 created by the researchers by using the data from: <<http://www.mof-gluk/proypologismos.htm>> Accessed May 2007.

governmental policy. The Department of Economy and Finance makes earnest efforts for its drastic reduction, aiming to achieve purification of the public finances. Since fiscal policy will bear the burden for sustaining economic stability especially after the entry into the euro-zone, public debt becomes a key factor for the country's fiscal indicators, while its reduction releases resources for the financing of other sectors of the economy.

A summary of the data collected concerning the public debt in relation to the Gross Domestic Product (GDP) during the fiscal period 2001-2006 is presented in Table 12.

Table 12. Public Debt in Relation to GDP for the Fiscal Period 2001-2006⁴¹ (in million euros)

<i>Fiscal Year</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>
Public dept	145,737.33	166,117.10	177,812.10	201,244.05	215,415.74	226,217.60
Gross Domestic Product (GDP)	130,926.00	140,249.00	154,153.00	167,169.00	180,045.00	193,427.00
Public debt as percentage of GDP	111.31%	118.44%	115.35%	120.38%	119.65%	116.95%
Change of public debt per annum	0.00	20,379.77	11,695.00	23,431.95	14,171.69	10,801.86
Percentage change of public debt per annum	0.00%	13.98%	7.04%	13.18%	7.04%	5.01%

As this table shows, the fluctuation of public debt can be divided into two time frames:

- The time frame 2001-2004, and
- The time frame 2004-2006

During the first period the public debt dramatically expanded. In particular, it reached 201,244.05 million euros in 2004 from 145,737.33 million euros in 2001, while its ratio to GDP increased significantly to about 120.40% from 111.31%. This can be partially explained by the organization of Athens 2004 Olympic Games. The Hellenic government—having no other choice—made the best of the circumstances and excessively expanded its public expenditures for the complicated demands of Olympic

⁴¹ Table 12 created by the researchers by using the data from: <<http://www.mof-gl/propologismos.htm>> Accessed May 2007.

Games (including the construction of athletic centers, parks, administrative buildings, and belt highways under Olympic specifications, as well preventive and protective safety measures against terrorism).

As a result of the government's attempts to restructure debt during the second period, the public debt reached 226,217.60 million euros in 2006, up from 215,415.74 million euros in the prior year, while its ratio to GDP significantly fell to 116.95% from 119.65%. Figure 18 shows the public debt in relation to Gross Domestic Product (GDP).

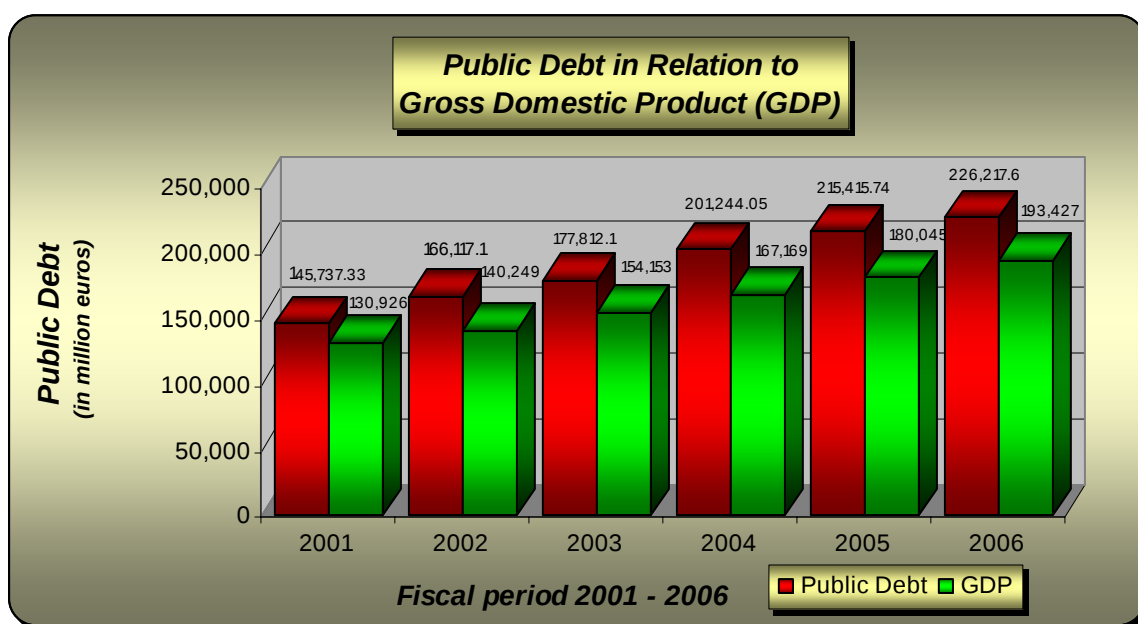


Figure 18. Public Debt in Relation to GDP During the Fiscal Period 2001-2006 (in million euros)⁴²

The significant reduction of public debt during the fiscal period 2004-2006 can be primarily attributed to the successful implementation of a program by the Department of Economics and Finance based on a really tight incomes policy in connection with a strict abridgement of public expenditures following the Olympic

⁴² Figure 18 created by the researchers by using the data from: <<http://www.mof-gluk/proypologismos.htm>> Accessed May 2007.

Games. This adopted economic policy resulted in the ‘squeeze’ of state budgetary funds allocated for the Department of Defense for fiscal year 2007 back to the level of 7.10%, the same percentage as that of 2005.

2. Step 2: The Allocation of Funds from the DoD to the Military Services

PROPOSITION 3: The greater the public needs, the less budgetary funds are allocated primarily to the administrative and regional services of the Department of Defense and secondarily to the three military branches or services.

Table 13 presents the allocation of funds from the DoD to the military services during the fiscal period 2004-2007.

Table 13. Allocation of Funds from the Department of Defense to the Services During the Fiscal Period 2004-2007 (in million euros)⁴³

<i>Fiscal Year</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>
Funds of state budget for the DoD	4,181.90	5,226.00	5,315.00	5,658.70
Budgetary funds for the Hellenic Army General Staff	2,030.64	1,696.14	1,835.14	1,894.87
Percentage (%) of funds for the Army	48.56%	32.46%	34.53%	33.49%
Percentage change of funds for the Army per annum	0.00%	-16.47%	8.19%	3.26%
Budgetary funds for the Hellenic Navy General Staff	763.86	687.55	718.92	748.39
Percentage (%) of funds for the Navy	18.27%	13.16%	13.53%	13.23%
Percentage change of funds for the Navy per annum	0.00%	-9.99%	4.56%	4.10%
Budgetary funds for the Hellenic Air Force General Staff	1,200.59	1,033.35	1,075.02	1,132.82
Percentage (%) of funds for the Air Force	28.71%	19.77%	20.23%	20.02%
Percentage change of funds for the Air Force per annum	0.00%	-13.93%	4.03%	5.38%
Budgetary funds for other military services	186.82	1,808.96	1,685.93	1,882.62
Percentage (%) of funds for other military services	4.47%	34.61%	31.72%	33.27%
Percentage change of funds for other services per annum	0.00%	868.32%	-6.80%	11.67%
Overall (%) allocation of budgetary funds	100.00%	100.00%	100.00%	100.00%

More specifically, the percentage of budgetary funds distributed to military services during 2004 was significantly affected by the Athens 2004 Olympic Games.

The administrative and regional services of the Department of Defense, known as “other military services” carried the heavy burden of financing for the Athens 2004

⁴³ Table 13 created by the researchers by using the data from: <<http://www.mof-glkipropologismos.htm>> Accessed May 2007.

Olympic Games, as during fiscal year 2004 huge amounts of funds were cut and were transferred from these services to the Department of Economics and Finance. The relevant financing contribution of the General Staffs of Army, Navy, and Air Force at this year is considered secondary.

Although the Athens 2004 Olympic Games belong to the past, the economic consequences still exist and continue to significantly influence the three main services of the Department of Defense. By sharp contrast, the budgetary funds for the administrative and regional military services have tremendously increased in an effort to recover from the 2004 budgetary cuts. Since fiscal year 2005, the main military services have taken on the heavy burden of financing recovery.

As can be seen in the above Table 13, the 2004 percentage quotas for the budgetary funds allocated from the Department of Defense to the General Staffs of Army, Navy, and Air Force fluctuated to 48.56%, 18.27%, and 28.71% respectively, whereas the relevant percentage quota to “other military services” (mainly administrative and regional) fluctuated only to 4.47%. The 186.82 million euros indicates a sharp reduction of the budgetary funds because of the organization of Athens 2004 Olympic Games.

The composition of budgetary funds for the General Staffs of Army, Navy and Air Force as well as the “other military services” is shown in Figure 19.

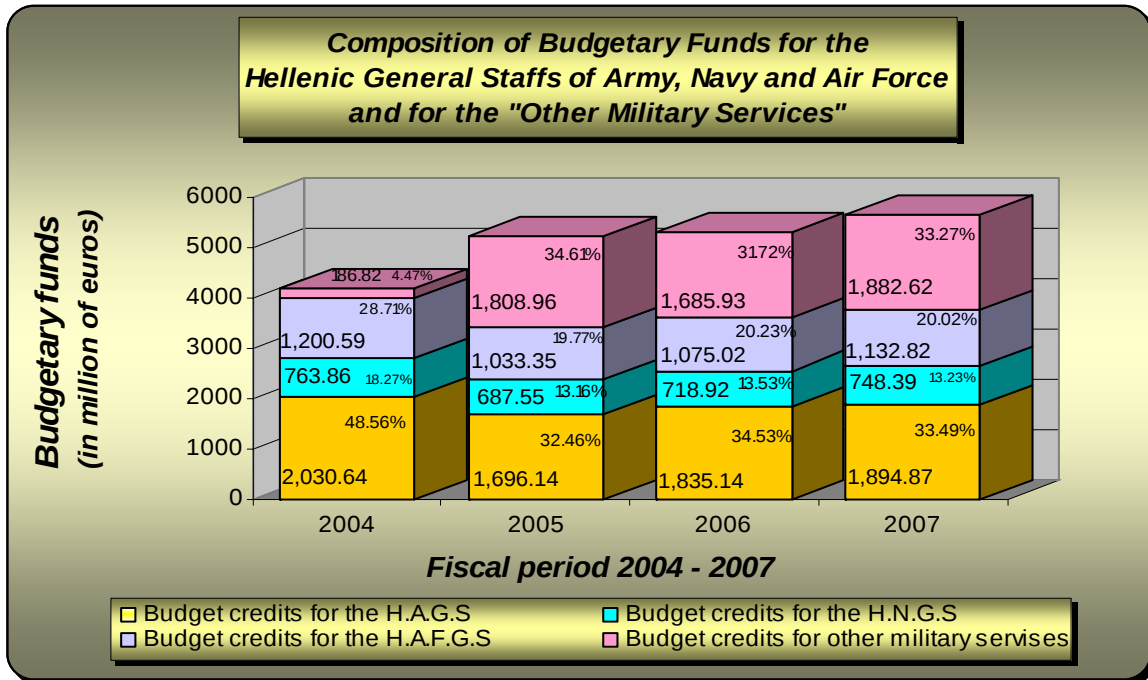


Figure 19. Composition of Budgetary Funds for the Hellenic General Staffs of Army, Navy, and Air Force and the Other Military Services⁴⁴

The above Figure 19 indicates a significant reduction of budgetary funds for the General Staffs of Army, Navy, and Air Force between the fiscal years 2004 and 2007. We could say that the three main military services played the crucial role of “financing blood donors” for the recovery of administrative and regional military services.

More specifically, for the Hellenic Army General Staff the overall budgetary funds in 2004 reached 2,030.64 million euros or 48.56%, while in 2007 the allocation of funds is estimated to reach approximately 1,895.00 million euros or 33.49%. For the Hellenic Navy General Staff the overall budgetary funds in 2004 reached 763.86 million euros or 18.27%, while in 2007 the allocation of funds is estimated to reach 748.39 million euros or 13.23%. Finally for the Hellenic Air Force General Staff the overall budgetary funds in 2004 reached 1,200.59 million euros or 28.71%, while in 2007 the allocation of funds is estimated to reach about 1,133.00 million euros, or 20.02%.

⁴⁴ Figure 19 created by the researchers by using the data from: <<http://www.mof-gluk/proypologismos.htm>> Accessed May 2007.

3. Step 3: The Allocation of Funds from the Services to the Sector of Education

PROPOSITION 4: The greater the operational needs, the less budgetary funds are allocated to the sector of education

PROPOSITION 5: The higher the public expenditure in armaments, the less budgetary funds are allocated to the sector of education.

Table 14 presents the allocation of funds from the military services to the sector of education during the fiscal period 2004-2007.

Table 14. Allocation of Funds from the Services to the Sector of Education During the Fiscal Period 2004-2007⁴⁵ (in million euros)

<i>Fiscal Year</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>
Allocation of funds for education coming from the Army	8.26	8.11	9.58	9.90
Percentage (%) of funds for education	0.41%	0.48%	0.52%	0.52%
Percentage change of funds for education per annum	0.00%	-1.76%	18.04%	3.38%
Allocation of funds for education coming from the Navy	18.07	19.74	19.80	19.80
Percentage (%) of funds for education	2.37%	2.87%	2.75%	2.65%
Percentage change of funds for education per annum	0.00%	9.29%	0.28%	0.00%
Allocation of funds for education coming from the Air Force	10.33	11.43	12.50	13.10
Percentage (%) of funds for education	0.86%	1.11%	1.16%	1.16%
Percentage change of funds for education per annum	0.00%	10.66%	9.32%	4.80%
Overall allocation of funds for education	36.66	39.29	41.88	42.80
Overall (%) allocation of funds for education	0.88%	0.75%	0.79%	0.76%
Percentage change of funds for education per annum	0.00%	7.18%	6.58%	2.21%

As can be seen in the above Table 14, the overall commitment of educational funds for the Hellenic Army General Staff in 2004 reached 8.26 million euros or 0.41%, while in 2007 the relevant commitment of funds is estimated to reach 9.90 million euros or 0.52%. The total commitment of educational funds for the Hellenic Navy General Staff in 2004 reached 18.07 million euros or 2.37%, while in 2007 it is estimated to reach 19.80 million euros or 2.65%. For the Hellenic Air Force General Staff, the allocation of educational funds in 2004 reached 10.33 million euros or 0.86%, while in 2007 it is estimated to reach

⁴⁵ Table 14 created by the researchers by using the data from: <<http://www.mof-gluk/proypologismos.htm>> Accessed May 2007.

13.10 million euros or 1.16%. Finally, the allocation of funds for the three services (as one body) follows a downward tendency, since it fluctuated from 0.88%, or 36.66 million euros, in 2004 to 0.76%, or 42.80 million euros, in 2007.

In conclusion, the fluctuation during the period 2004-2007 can be attributed to the following:

1. The dramatic increase of operational demands because of the Athens 2004 Olympic Games
2. The appropriation of funds for inelastic or inflexible payments on armament programs

Finally, the composition of budgetary funds from the services to the sector of education during the fiscal period 2004-2007 is also shown in Figure 20 below.

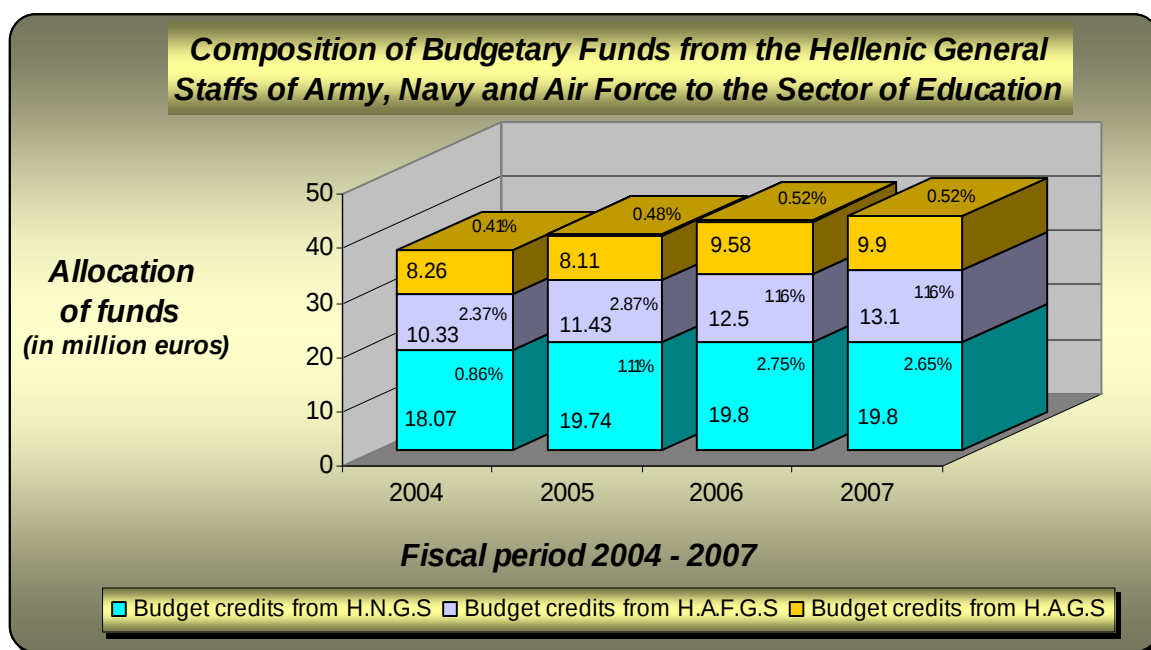


Figure 20. Budgetary Funds from the Hellenic General Staffs of Army, Navy, and Air Force for Education for Period 2004-2007⁴⁶

⁴⁶ Figure 20 created by the researchers by using the data from: <<http://www.mof-gluk/proypologismos.htm>> Accessed May 2007.

a. *The Dramatic Increase of Operational Demands during the Athens 2004 Olympic Games*

It appears that for the fiscal year 2004, the budgetary funds coming from the services to the sector of education were at a lower percentage compared with the following years (2005-2007). The reason for this reduction was the extreme augmentation of preventive safety measures for the Athens 2004 Olympic Games. These safety measures required an increase of patrols by military personnel during that time and a dramatic increase of expenditures on various safety systems such as electronic cameras, alarm systems, etc.

b. *The Appropriation of Funds for Inelastic or Inflexible Payments on Armaments' Programs*

Whenever the Department of Defense gives priority to the country's defensive armor with new, flexible, and reliable weaponry, one of the immediate consequences is the significant decrease of the budgetary funds distributed from the services to the sector of education. Funds for payments of armaments and funds for education are "non-communicating vessels."

The allocation of funds for payments of armaments plays a pivotal role in the final decision and determination of the Hellenic buying center. The geopolitical position of Greece in the southeastern region of the Mediterranean demands defensive armor with new, flexible, and entirely reliable weaponry. Therefore, a significant amount of funds is distributed to such "inelastic" requirements and demands.

Of course, this is not an easy process for the Department of Defense, which is forced to cut down on expenses from other—also quite important—sectors, activities, and programs.

Table 15 presents a summary of the data gathered concerning the total funds spent for payments to various armament programs during the fiscal period 2003-2007.

Table 15. Payments from DoD for Armaments for Period 2003-2007⁴⁷ (in million euros)

<i>Fiscal Year</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>
Funds of state budget for the DoD	3,949.87	4,181.90	5,226.00	5,315.00	5,658.70
Payments of DoD for armament programs	987.00	826.00	1,394.00	1,500.00	1,700.00
Armament expenditures as percentage (%) of DoD budget	24.99%	19.75%	26.67%	28.22%	30.04%
Change of payments as percentage (%) of armament expenditures per annum	0.00%	-16.31%	68.77%	7.60%	13.33%

As can be seen, the payments for armaments in 2003 reached 987.00 million euros, or approximately 25% of overall budgetary funds for the Department of Defense, while in 2004 they decreased by 161.00 million euros compared with the prior year. The Athens 2004 Olympic Games is the main reason for this quite significant reduction.

The payments for various armament programs are expected to be increased in the coming years. They are estimated at the amount of 1,700.00 million euros (approximately 30% of total budgetary funds for the Department of Defense) for 2007, up from 1,394.00 million euros in 2005 (about 26.70%), as presented in Figure 21.

⁴⁷ Table 15 created by the researchers by using the data from: <<http://www.mof-gl.k/proypologismos.htm>> Accessed May 2007.

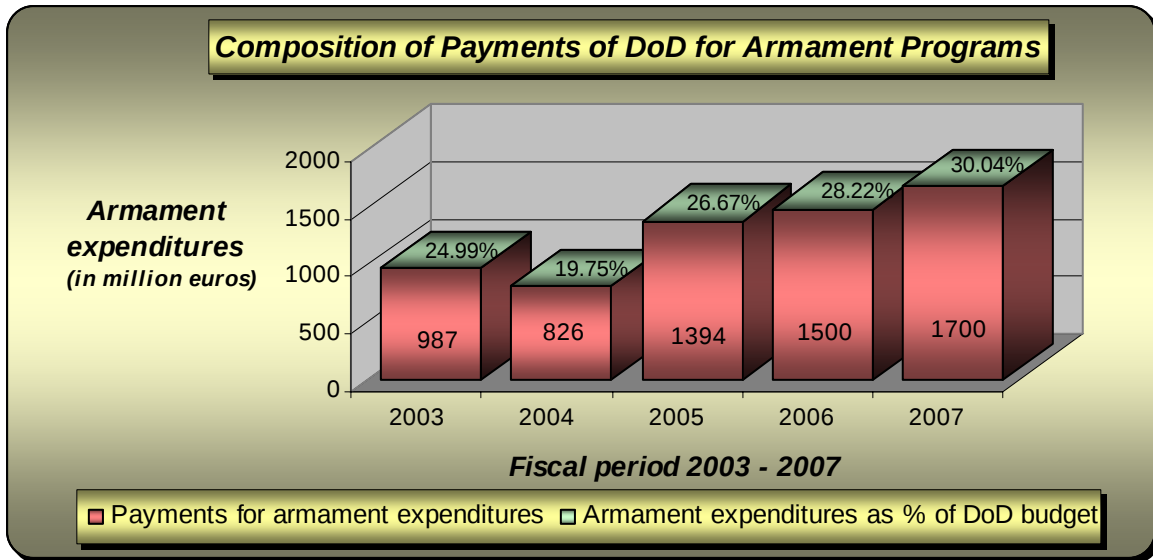


Figure 21. Payments of Department of Defense for Armament Programs⁴⁸

The expected increase of expenditures on payments for armaments is one of the main reasons that can explain the significant decrease of the budgetary funds distributed from the General Staffs of Army, Navy, and Air Force to the sector of education.

4. Step 4: The Allocation of Funds from the Sector of Education to Various Academic Institutions

PROPOSITION 6: Whenever the adopted policy aims to save funds, this leads to a significant reduction of educational funds, which results in preference for domestic academic institutions.

PROPOSITION 7: The more positive the feedback from alumni personnel from various academic institutions abroad, the higher the enrollments in the respective universities for postgraduate studies.

⁴⁸ Figure 21 created by the researchers by using the data from: <<http://www.mof-gluk/proypologismos.htm>> Accessed May 2007.

More specifically:

a. Funds Saving and the Tendency toward Domestic Academic Institutions

The logic of acquiring postgraduate titles from domestic academic institutions is gaining more and more ground over the Naval Postgraduate School in upper echelons of the Hellenic military buying center. The main reasons for this change in thinking are the following:

- Capability of saving significant funds
- Avoidance of movement for military personnel abroad

The following tables present a summary of the data collected concerning the number of students enrolled in several domestic academic institutions for postgraduate studies during the academic years 2004-2007 for the General Staffs of Navy and Air Force and in 2006-2007 for the General Staff of Army.⁴⁹

Table 16. Domestic Degree Programs and Certificates for the Hellenic Navy General Staff During the Academic Period 2004-2007⁵⁰

A. Hellenic General Staff of Navy				
Academic Year	2004	2005	2006	2007
Number of Degree Programs and Certificates	6	2	5	6
<i>Description of Degree Programs and Certificates:</i>				
Human Resources Management	1	1	2	--
Logistics Management	2	--	--	--
Shipping Management	--	--	2	--
Total Quality Management	--	--	--	2
Health Management	--	--	--	1
Financial Management and Human Resources	--	--	--	2
Computer Sciences	2	--	2	2
Science of Deep-sea / Ocean Navigation	--	4	1	2
International Affairs and European Studies	1	--	--	--
Strategic Research and European Studies	--	--	--	1

⁴⁹ Data is available only for the period 2006 – 2007.

⁵⁰ Table 16 created by the researchers by using the data from: <<http://www.hellenicmod.gr>> Accessed May 2007.

A. Hellenic General Staff of Navy				
Academic Year	2004	2005	2006	2007
Ship-building and Mechanical Engineering	2	--	--	--
Executive MBA	2	--	1	--
Overall number of students (domestically)	10	5	8	10
Overall number of students (NPS)	17	18	23	13
Ratio (domestic enrolled students/NPS students)	0.588	0.278	0.348	0.769

As can be seen in the above Table 16, students from the Hellenic Navy General Staff at domestic academic institutions for postgraduate studies during the academic period 2004-2007 sum up to thirty-three (33) and are annually presenting a significant tendency for further increase. The highest participation exists in the academic years 2004 and 2007 with ten (10) students enrolled. The ratio between domestic enrolled students and NPS students during the academic period 2004-2007 presents a tremendous tendency of increase by almost 120% for 2007 compared to the prior year, while the relevant increases for year 2007 compared with 2005 and 2004 are approximately 180% and 30%, respectively, which might be signaling the intentions of the Hellenic buying center in the short term or even in the long term future.

Table 17. Domestic Degree Programs and Certificates for the Hellenic Air Force General Staff During the Academic Period 2004-2007⁵¹

B. Hellenic Air Force General Staff				
Academic Year	2004	2005	2006	2007
Number of Degree Programs and Certificates	13	8	12	7
Description of Degree Programs and Certificates:				
Human Resources Management	3	--	2	2
Logistics Management	1	1	1	3
Total Quality Management	4	--	2	2
Management in Advanced Technology	1	--	--	--
Management in Industrial Complex Materials	--	1	--	--
Theoretical Computer Science	--	1	2	3
Computer Systems and Networks	1	--	1	--
Information Systems	1	--	--	--

⁵¹ Table 17 created by the researchers by using the data from: <<http://www.hellenicmod.gr>> Accessed May 2007.

<i>B. Hellenic Air Force General Staff</i>				
Academic Year	2004	2005	2006	2007
Communication Systems with New Technologies	2	--	--	--
Health National System Services Administration	1	--	1	--
Business Administration	--	1	6	--
Executive MBA	3	--	--	5
Environmental and Sanitary Engineering	--	--	2	3
Earthquake Engineering and Seismic Resistant Structure	1	1	1	--
Electronics Systems Engineering	--	--	1	--
Operation Research	3	--	--	--
International Affairs and Strategic Studies	--	2	3	2
International Affairs	2	--	--	--
International Law and Diplomatic Studies	--	1	2	--
International Law	2	--	--	--
Regional Security Affairs (Southeast Europe)	--	1	--	--
Overall number of students (domestically)	25	9	24	20
Overall number of students (NPS)	1	7	7	1
Ratio (domestic enrolled students/NPS students)	25.0	1.29	3.43	20.0

Similarly, as can be seen in the above Table 17, students from the Hellenic Air Force General Staff at domestic academic institutions for postgraduate studies, during the period 2004-2007, sum up to seventy-eight (78), which is the highest representation. As can be seen, there is an intention for stability around twenty (20) students per year. More specifically, the ratio between domestic enrolled students and NPS students during the academic period 2004-2007 presents a tremendous fluctuation from 25.0 in 2004 to about 1.30 in 2005 and from 3.43 in 2006 to the significant level of 20.0 in 2007.

Table 18. Domestic Degree Programs and Certificates for the Hellenic Army General Staff During the Academic Period 2006-2007⁵²

<i>C. Hellenic Army General Staff</i>		
Academic Year	2006	2007
Number of Degree Programs and Certificates	7	7
Description of Degree Programs and Certificates:		
Communication Systems with New Technologies and Networks	1	2
Advanced Information Systems and Networks	2	1

⁵² Table 18 created by the researchers by using the data from: <<http://www.hellenicmod.gr>> Accessed May 2007.

<i>C. Hellenic Army General Staff</i>		
Academic Year	2006	2007
Information Systems	2	3
Statistics and Operation Research	1	3
International Affairs and European Studies	1	2
History and Regional Security Affairs (Southeast Europe)	2	2
Food Chemistry	1	1
Overall number of students (domestically)	10	14
Overall number of students (NPS)	4	4
Ratio (domestic enrolled students/NPS students)	2.5	3.5

As can be seen in the above Table 18, the Hellenic Army General Staff appears to follow a policy in favor of postgraduate studies in domestic academic institutions, where a total of twenty-four (24) students were enrolled during 2006 and 2007. The ratio between domestic enrolled students and NPS students during the academic period 2006-2007 increased significantly by 40% for 2007 compared to the prior year, which might be signaling the intentions of Hellenic buying center in the short term or even in the long term future.

Finally, the number of officers enrolled in domestic degree programs is presented in Figure 22.

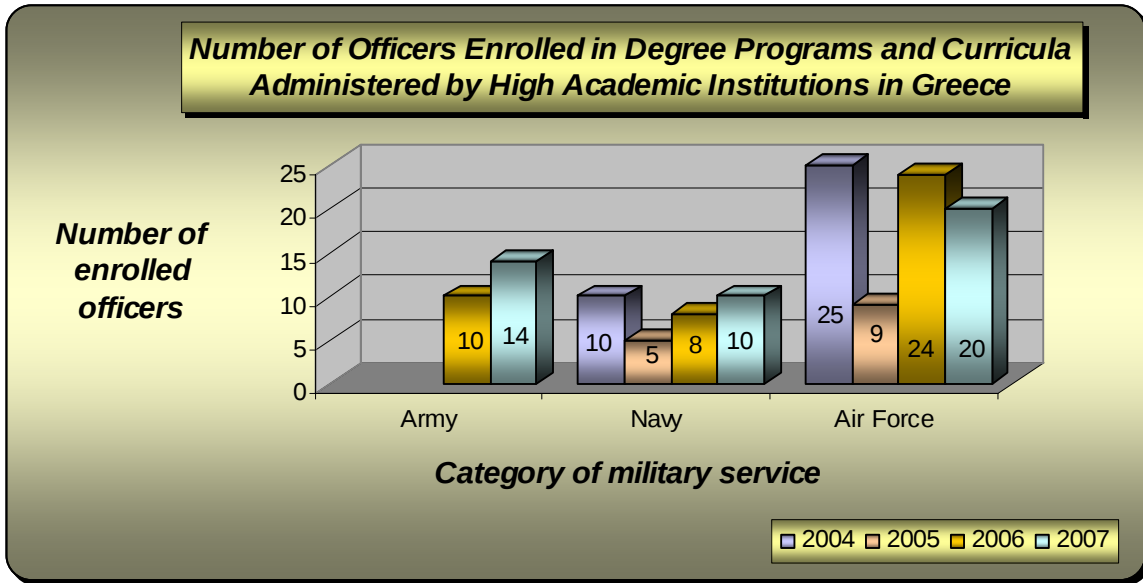


Figure 22. Number of Officers Enrolled in Degree Programs Administered by High Academic Institutions in Greece⁵³

b. Feedback from Alumni Personnel Who Have Been Placed in Vital Staff Positions

The feedback of officers that have already graduated from the Naval Postgraduate School (NPS) is considered exceptionally important for the continuation of postgraduate studies in higher academic institutions of abroad.

The overwhelming majority of graduate officers are placed in vital staff positions, and some of them are appointed to positions in the Hellenic buying center for education; hence they perform one or more of the roles of buyer, decider, influencer, user, and initiator. Therefore, the alumni officers play an important role because of their capability to influence specific policies and the state of affairs.

⁵³ Figure 22 created by the researchers by using the data from: <<http://www.hellenicmod.gr>> Accessed May 2007.

However, the allocation of budgetary funds on the sector of education and the various available sources of supply of education are the factors which primarily determine the educational policy of the Hellenic buying center.

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VII. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

An important part of the Naval Postgraduate School's student body consists of international military officers. This study focused on the following four areas of research:

- 1) Describe the current levels of enrollment of international students at the Naval Postgraduate School.
- 2) Identify the international customers with the highest participation at NPS, based on the annual enrollments of officers from the various countries.
- 3) Describe how the Hellenic military "buying center" for education decides how many students to send to NPS and what factors influence their decision.
- 4) Identify factors that could influence the number of students sent to NPS from Greece.

1. Current Level of Enrollment of International Students at NPS

This study identified that international students at NPS come from a variety of countries and account for about 15% of the total student body. The school's new strategic plan recognizes the importance of international students and determines that NPS must expand its international leadership role by maintaining and further developing relationships with foreign nations/customers.

2. Identify Countries with the Highest Participation

To identify the three countries with the highest participation, data was collected for the period 2004–2007 and a trend analysis was conducted. According to this analysis, the three countries with the highest enrollments proved to be Greece, Turkey, and Singapore, in order of precedence.

This study primarily focused on the participation of officers coming from Greece to the Naval Postgraduate School. To identify the tendencies on educational policy of the Department of Defense, appropriate data was collected for the period 2004–2007.

The trend analysis revealed that the Hellenic participation in various curriculums in GSEAS has grown, while in GSOIS it has decreased for the same period. For GSBPP, the trend has been mostly static and at some points declining.

Overall, the Hellenic participation at NPS has declined for all three branches of the military—the Army, Air Force, and Navy—during the last two years.

3. Describe the Hellenic “Buying Center”

The Hellenic buying center as a decision-making unit plays a pivotal role in the final determination of the number of officers who are annually selected for postgraduate studies.

This study analyzed the Hellenic military chain of command and identified those who actively participate in the decision-making process for purchasing education from various academic institutions both domestic and abroad. Specifically, the Chief of Staff and the Deputy Chief of Staff were identified as the key approvers of the decision-making processes concerning education. In addition, the Directors of Branches B and C, who are responsible for decisions concerning the personnel and the allocation of funds respectively, were determined to be the deciders in the process. And finally those working in specific departments in the Directorates B and C (Departments B2, B3, and C3) were identified as the key influencers in the “buying center” for education.

The role and the overall responsibilities of the Hellenic buying center are particularly difficult because of the existence of factors that influence vitally the educational policy of the Department of Defense.

4. Identify Influential Factors of the Hellenic “Buying Center”

The flow of funds from the state budget to various academic institutions was analyzed in an effort to identify the substantial factors that affect vitally the overall process. The four basic steps of this process and the influential factors are presented in the following Table 19.

Table 19. The Process of Flow of Funds and Influential Factors⁵⁴

<i>Steps in the process of flow of funds:</i>	<i>Influential Factors:</i>
<i>Step # 1</i>	
The allocation of funds from the state budget to the DoD budget	<i>a. The volume of public needs</i>
	<i>b. The course of public debt related to Gross Domestic Product (GDP)</i>
<i>Step # 2</i>	
The allocation of funds from the DoD budget to the three military services (Army, Navy, and Air Force)	<i>The volume of public needs</i>
<i>Step # 3</i>	
The allocation of funds from the three military services to education budget	<i>a. The operational needs</i>
	<i>b. The volume of public expenditures in armaments</i>
<i>Step # 4</i>	
The allocation of funds from education budget to academic institutions	<i>a. Adopted policy of funds saving</i>
	<i>b. Feedback from alumni personnel</i>

This research identified that all the services (Army, Navy, and Air Force) have dramatically reduced the expected number of officers at the Naval Postgraduate School.

The public needs and the overall course of Hellenic economy (especially in macroeconomic view: rate of inflation, rate of attainable growth and GDP, rate of interest, unemployment, and public debt) are the prime contributors to the final allocation of funds to various academic institutions both domestic and abroad.

In conclusion, the propositions as presented in the Table 20 below essentially make up the resultant of the influential factors and the process of flow of budgetary funds.

⁵⁴ Table 19 created by the researchers by using data from Chapter VI.

Table 20. Propositions as a Result of Influential Factors⁵⁵

Propositions:	Step:	Relevant factors:
Proposition # 1		
<i>The greater the public needs, the less budgetary funds are allocated to the Department of Defense.</i>	<i>Step # 1</i>	<i>The volume of public needs (Athens 2004 Olympic Games)</i>
Proposition # 2		
<i>Whenever priority of the governmental policy becomes the reduction of the public debt, this causes a dramatic reduction of budgetary funds allocated to the Department of Defense.</i>	<i>Step # 1</i>	<i>The course of public debt related to the Gross Domestic Product (GDP)</i>
Proposition # 3		
<i>The greater the public needs, the less budgetary funds are allocated primarily to the administrative and regional services of the Department of Defense and secondarily to the three military branches or services.</i>	<i>Step # 2</i>	<i>The volume of public needs (Athens 2004 Olympic Games)</i>
Proposition # 4		
<i>The greater the operational needs, the less budgetary funds are allocated to the sector of education.</i>	<i>Step # 3</i>	<i>The operational needs</i>
Proposition # 5		
<i>The higher the public expenditure in armaments, the less budgetary funds are allocated to the sector of education.</i>	<i>Step # 3</i>	<i>The volume of public expenditures in armaments</i>
Proposition # 6		
<i>Whenever the adopted policy aims to save funds, this leads to a significant reduction of educational funds which results in preference for domestic academic institutions.</i>	<i>Step # 4</i>	<i>Adopted policy of funds saving</i>
Proposition # 7		
<i>The more positive the feedback from alumni personnel from various academic institutions abroad, the higher the enrollments in the respective universities for postgraduate studies.</i>	<i>Step # 4</i>	<i>Feedback from alumni personnel</i>

B. RECOMMENDATIONS

Based on these findings it is suggested that some areas for further research and analysis could be the following:

This study has identified Greece, Turkey, and Singapore, in order of precedence, as being the three countries with the highest enrollments. After studying Greece and identifying the above mentioned seven propositions, it is suggested that the other two countries should be studied to determine if same or different factors affect the decision-

⁵⁵ Table 20 created by the researchers by using data from Chapter VI.

making process through the flow of budgetary funds. If any similar findings can be identified, the statistical importance of the recommended propositions in this research could be generalized for other countries.

The NPS administration, if interested in the international participation at the school as suggested by the school's new strategic plan, could keep an eye on the influential factors identified by this research in order to be able to predict in advance the international enrollments from the various allied countries through the use of appropriate forecasting tools.

More specifically, the school could track the number of students coming to NPS from the three most frequent customers: Greece, Turkey, and Singapore.

This project has studied the alternative sources of supply of education other than NPS for the country of Greece. The NPS administration should study competition (conduct competitive analysis) for various countries/customers and mainly for Turkey and Singapore, the two countries with the highest enrollments after Greece.

NPS could develop a well-organized international alumni program. As part of this program, representatives of the school could visit alumni from the top three countries/customers that serve in vital staff positions, particularly those that are appointed to positions in each country's buying center for education where they perform one or more of the roles of buyer, decider, influencer, user, and initiator. The alumni officers play an important role because of their capability to influence specific policies and state of affairs.

Already as part of other MBA projects, international students close to graduation have been surveyed in order to find out information about the NPS experience. However, it could be useful for the NPS administration to survey incoming international students and ask them about their expectations. Since the importance of international participation is recognized in the school's new strategic plan, international students should be monitored and receive top management attention.

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APPENDIX A. LIST OF ABBREVIATIONS

AACSB:	American Association of Collegiate Schools of Business
AFIT:	Air Force Institute of Technology
CGS:	Chief of General Staff
COPS:	Chief of Operations
D/CGS:	Deputy Chief of General Staff
DoD:	Department of Defense
FIT:	Florida Institute of Technology
GDP:	Gross Domestic Product
GSBPP:	Graduate School of Business and Public Policy
GSEAS:	Graduate School of Engineering and Applied Sciences
GSOIS:	Graduate School of Operational and Information Sciences
MBA:	Master of Business and Administration
MEM:	Master of Executive Management
MIT:	Massachusetts Institute of Technology
MOD:	Ministry of Defense
MSM:	Master of Science in Management
NASPAA:	National Association of Schools of Public Affairs and Administration
NPS:	Naval Postgraduate School
SEACC:	Systems Engineering Analysis Curriculum Committee
SIGS:	School of International Graduate Studies
UCL:	University College London
VTE:	Video-Teleconferencing Education

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APPENDIX B. NPS GRADUATE SCHOOLS

A. GRADUATE SCHOOL OF BUSINESS AND PUBLIC POLICY

Table 21. GSBPP Degree and Non-degree Programs and Curricula⁵⁶

1. GSBPP Non-degree Professional Development Programs

Curriculum Title	Number	Department	Length (months)	Degree
Advanced Acquisition Program Certificate in Program Management (AAP)	211	GB	12	None
Acquisition Management DL Program Certificate (AMDLP)	212	GB	3	DAWIA Level III Certificate
Practical Comptrollership Course (PCC)	--	GB	2-weeks	None

2. The Graduate School of Business & Public Policy Degree Programs and Curricula

Curriculum Title	Number	Department	Length (months)	Degree
Executive MBA (DL)	805	GB	24	EMBA
Master of Executive Management	808	GB	12	MBA
Transportation Management	814	GB	18	MBA
Acquisition and Contract Management	815	GB	18	MBA
Systems Acquisition Management	816	GB	18/21	MBA
Defense Systems Analysis	817	GB	18	MBA
Defense Systems Management (International)	818	GB	18	MBA
Supply Chain Management	819	GB	18	MBA
Resource Planning and Management for International Defense	820	GB	18	MBA
Material Logistics Support	827	GB	18	MBA
Master of Science Degree Program in Contract Management (DL)	835	GB	24	MSCM
Master of Science Degree Program in Program Management (DL)	836	GB	24	MSPM
Financial Management	837	GB	18	MBA
Master of Science Degree Program in Manpower Systems Analysis	847	GB	21	MSM
Information Systems Management	870	GB	18	MBA

⁵⁶ Table 21 created by the researchers by using data from: <NPS Academic Catalog 2007:GSBPP>.

B. GRADUATE SCHOOL OF ENGINEERING AND APPLIED SCIENCES

Table 22. GSEAS Degree Programs and Curricula⁵⁷

Curriculum Title	Number	Depart.	Length (months)	Degree
Systems Engineering (DL)	311	SEAC	24	MS Systems Engineering
Space Systems Operations (Intl)	364	SSAG	24	MS Space Systems Operations
Space Systems Operations	366	SSAG	24	MS Space Systems Operations
Meteorology	372	MR	18	MS Meteorology
METOC	373	MR/OC	27	MS Joint Meteorology and Physical Oceanography
Operational Oceanography	374	OC	24	MS Physical Oceanography
Applied Mathematics	380	MA	24	MS Applied Mathematics
Applied Mathematics	380	MA	36	Ph.D. Applied Mathematics
Oceanography	440	OC	18 to 24	MS Physical Oceanography
Oceanography	440	OC	36	Ph.D. Physical Oceanography
Undersea Warfare	525	EAAC	12 to 24	MS Engineering Acoustics
Undersea Warfare	525	EC	12 to 24	MS Electrical Engineering
Undersea Warfare	525	ME	12 to 24	MS Mechanical Engineering
Undersea Warfare	525	ME	12 to 24	MS Engineering Science
Undersea Warfare	525	OR	12 to 24	MS Operations Research
Undersea Warfare	525	OC	12 to 24	MS Physical Oceanography
Undersea Warfare	525	UW	12 to 24	MS Applied Science (Physical Oceanography)
Undersea Warfare	525	UW	12 to 24	MS Applied Science (Operations Research)
Undersea Warfare	525	UW	12 to 24	MS Applied Science (Signal Processing)
Undersea Warfare	525	PH/EC	12 to 24	Ph.D. Engineering Acoustics
Undersea Warfare	525	EC	12 to 24	Ph.D. Electrical Engineering
Undersea Warfare	525	OR	12 to 24	Ph.D. Operations Research
Undersea Warfare	525	OC	12 to 24	Ph.D. Physical Oceanography
Undersea Warfare (International)	526	EAAC	12 to 24	MS Engineering Acoustics

⁵⁷ Table 22 created by the researchers by using data from: <NPS Academic Catalog 2007:GSEAS>.

Curriculum Title	Number	Depart.	Length (months)	Degree
Combat Systems and Science Technology	533	PH	12 to 24	MS Applied Physics
Combat Systems and Science Technology	533	PH	12 to 24	MS Physics
Combat Systems and Science Technology	533	EC	12 to 24	MS Electrical Engineering
Combat Systems and Science Technology	533	ME	12 to 24	MS Mechanical Engineering
Combat Systems and Science Technology	533	ME	12 to 24	MS Mechanical Engineering w/TSEE
Combat Systems and Science Technology	533	CS	12 to 24	MS Software Engineering
Combat Systems and Science Technology	533	PH	12 to 24	MS Combat System Technology
Combat Systems and Science Technology	533	EAAC	12 to 24	MS Engineering Acoustics
Combat Systems and Science Technology	533	PH	36	Ph.D. Physics
Combat Systems and Science Technology	533	PH	36	Ph.D. Applied Physics
Combat Systems and Science Technology	533	PH/ECE	36	Ph.D. Engineering Acoustics
Underwater Acoustic Systems (DL)	535	EAAC	36	MS Engineering Acoustics
Mechanical and Astronautical Engineering	570	ME	12 to 24	MS Mechanical Engineering
Mechanical and Astronautical Engineering	570	ME	12 to 24	MS Engineering Science
Mechanical and Astronautical Engineering	570	ME	12 to 24	MS Mechanical Engineering w/TSEE
Mechanical and Astronautical Engineering	570	ME	12 to 24	Mechanical Engineering Degree
Mechanical and Astronautical Engineering	570	ME	36	Ph.D. Mechanical Engineering
Mechanical and Astronautical Engineering	570	ME	36	Ph.D. Mechanical Engineering w/TSEE
Reactors/Mechanical Engineering (DL)	571	ME	12 to 15	MS Engineering Science (ME)
Systems Engineering (Resident) – PENDING APPROVAL	580	SE	27	MS Systems Engineering
Electronics Systems Engineering	590	EC	12 to 24	MS Electrical Engineering, MS Engineering Science (EE)
Electronics Systems Engineering	590	EC	12 to 24	Engineers Degree

Curriculum Title	Number	Depart.	Length (months)	Degree
Electronics Systems Engineering	590	EC	12 to 24	Ph.D. Electrical Engineering
Electrical Engineering (DL)	590	EC	36	MS Electrical Engineering (MSEE), or MS Engineering Science (MES-EE)
Space Systems Engineering	591	EC	27	MS Astronautical Engineering
Space Systems Engineering	591	ME	27	MS Physics (Space Systems)
Space Systems Engineering	591	PH	27	MS Computer Science (Space Systems Engineering)
Space Systems Engineering	591	CS	27	MS Mechanical Engineering (Space Systems Engineering)
Space Systems Engineering	591	ME	27	MS Engineering Science (Astronautical Engineering)
Space Systems Engineering	591	ME	27	Ph.D. Astronautical Engineering
Space Systems Engineering	591	ME	27	Engineers Degree
Systems Engineering Management (SEM) Product Development (DL)	721	SEAC	24	MS Systems Engineering Management, Systems Engineering, Product Development

C. GRADUATE SCHOOL OF OPERATIONAL AND INFORMATION SCIENCES

Table 23. GSOIS Degree Programs and Curricula⁵⁸

Curriculum Title	Number	Depart.	Length (months)	Degree
Information Systems and Operations	356	IS	18	MS Information Systems and Operations
Computer Technology (DL)	357	CS	48	MS Computer Technology
Operations Analysis	360	OR	21	MS Operations Research
Operations Analysis	360	OR	21	Ph.D. Operations Research
Operational Logistics	361	OR	21	MS Operations Research

⁵⁸ Table 23 created by the researchers by using data from: <NPS Academic Catalog 2007:GSOIS>.

Curriculum Title	Number	Depart.	Length (months)	Degree
Human Systems Integration	362	OR	24	MS Human Systems Integration
Master of Systems Analysis – MSA (DL)	363	OR	24	MSA Master of Systems Analysis
Joint C4I Systems	365	IS	21	MS Systems Technology (C3)
Computer Science	368	CS	24	MS Computer Science
Computer Science	368	CS	24	Ph.D. Computer Science
Software Engineering	369	CS	12	MS Software Engineering
Software Engineering	369	CS	12	Ph.D. Software Engineering
Software Engineering (DL)	369	CS	18-24	MS Software Engineering
Software Engineering (DL)	369	CS	36	Ph.D. Software Engineering
Information Systems and Technology	370	IS	24	MS Information Technology Management
Modeling, Virtual Environments and Simulation	399	CS	24	MS Modeling, Virtual Environments and Simulation
Modeling, Virtual Environments and Simulation	399	CS	24	Ph.D. Modeling, Virtual Environments and Simulation
Information Sciences	470	IS	36	Ph.D. Information Sciences
Information Warfare	595	IS	24	MS Systems Engineering
Electronic Warfare Systems (International)	596	IS	24	MS Systems Engineering
Joint Information Operations	698	DA	18	MS Information Operations
Special Operations and Irregular Warfare	699	DA	18	MS Defense Analysis

D. SCHOOL OF INTERNATIONAL GRADUATE STUDIES

Table 24. SIGS Degree Programs and Curricula⁵⁹

Curriculum Title	Number	Depart.	Length (months)	Degree
Homeland Defense and Security (DL)	251	NS	18	MA Security Studies (Homeland Defense and Security)
Regional Security Studies – Middle East, Africa, and South Asia	681	NS	18	MA NSA
Regional Security Studies – Far East, Southeast Asia, Pacific	682	NS	18	MA NSA

⁵⁹ Table 24 created by the researchers by using data from: <NPS Academic Catalog 2007:SIGS>.

Curriculum Title	Number	Depart.	Length (months)	Degree
National Securities Studies (NSS) - Western Hemisphere	683	NS	18	MA NSA
NSS - Russia, Europe, and Central Asia	684	NS	18	MA NSA
Security Studies Civil-Military Relations	689A	NS	12 or 15	MA Security Studies (Civil-Military Relations)
Security Studies Stabilization and Reconstruction	689B	NS	15	MA Security Studies (Security Stabilization & Reconstruction)
Security Studies Defense Decision-Making and Planning	689C	NS	12 or 18	MA Security Studies (Defense Making and Planning)
Security Studies Counter Terrorism Policy and Strategy	689D	NS	15	MA Security Studies (Counter Terrorism Policy)
Homeland Security – on Site	690	NS	15	MA Security Studies (Homeland Defense and Security)

E. SYSTEMS ENGINEERING ANALYSIS CURRICULUM COMMITTEE

Table 25. SEACC Degree Program and Curriculum⁶⁰

Curriculum Title	Number	Depart.	Length (months)	Degree
Systems Engineering and Analysis	308	NS	18	MS Systems Engineering

⁶⁰ Table 25 created by the researchers by using data from: <NPS Academic Catalog 2007:SEACC>.

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