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THESIS

DESIGN AND IMPLEMENTATION OF A DECISION SUPPORT SYSTEM FOR ASSIGNING HUMAN RESOURCES IN THE HELLENIC NAVY

by

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September 2006

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13. ABSTRACT (maximum 200 words)

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Assigning HRM resources in an optimal way while considering multiple criteria is a very difficult task. There are many attributes to be taken into account some of which contradict each other. The human mind has limitations when dealing with multi attribute problems and the associated set of multiple tradeoffs. Providing a mathematical solution to the problem with the ability to evaluate tradeoffs could provide useful insight to decision makers and help reduce bias in the overall HRM assignment process. Design and implementation of such a system is the purpose of this thesis.

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DESIGN AND IMPLEMENTATION OF A DECISION SUPPORT SYSTEM FOR ASSIGNING HUMAN RESOURCES IN THE HELLENIC NAVY

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To my father, who lost his fight with cancer and passed away six months ago, I dedicate this research.

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I. INTRODUCTION

A. CURRENT SITUATION

Currently the Greek Navy uses detailers to assign officers to billets. There are two transfer periods within a year, one in December (with a small number of transfers, mainly to satisfy immediate needs) and one in June (where the vast majority of the transfers occur). An officer transferred to a new billet should expect a two year tour (although one year or three year tours are not uncommon).

The assignments are organized according to rank and specialty as follows:

- Flag Deck officers (Admiral, Vice Admiral, Rear Admiral, Commodore)
- Flag Engineer officers (Rear Admiral, Commodore)
- Flag Supply officers (Rear Admiral, Commodore)
- Flag Medical officers (Rear Admiral, Commodore)
- Senior Deck officers (Captain, Commander, Lieutenant Commander)
- Senior Engineer officers (Captain, Commander, Lieutenant Commander)
- Senior Supply officers (Captain, Commander, Lieutenant Commander)
- Senior Medical Officers (Captain, Commander, Lieutenant Commander)
- Junior Deck officers (Lieutenant, Lieutenant Junior Grade, Ensign)
- Junior Engineer officers (Lieutenant, Lieutenant Junior Grade, Ensign)
- Junior Supply officers (Lieutenant, Lieutenant Junior Grade, Ensign)
- Junior Medical officers (Lieutenant, Lieutenant Junior Grade, Ensign)

There are four separate offices, each one dealing with a related specialty (Deck officers, Engineers, Supply, and Medical). The detailers are subject matter

experts that use a mix of experience and intuition to assign officers to billets. Currently, both the current command and the officer may express preferences for filling billets, respectively, but in reality their inputs have little or no effect upon the actual process. In any case the decision process is not optimized and preferences are not usually taken into consideration. This situation could result in assigning the wrong people to the wrong places with dreadful consequences to morale and performance. This is where a decision support system (DSS) could help in improving the situation.

The purpose of this thesis is to create that decision support system, which we will call Styx.[1] Its implementation would ensure that Human Resource Management assignment in the Greek Navy is conducted with an optimization perspective thus augmenting the detailers' experience and intuition by providing non-subjective analytical data.

B. PROBLEM DESCRIPTION

The work of a detailer is very demanding. Dealing with a multi attribute problem can be a daunting task, since many attributes must be taken into account, some of which may contradict each other. The human mind has limitations when dealing with these types of problems. In that sense, importing a mathematical solution to the problem of placing the right individual in the right position, could provide decision makers with useful insight in the form of unforeseen alternatives, while simultaneously reducing bias. Therefore it may be very beneficial for them to have a software environment at their disposal to provide a non subjective, baseline recommendation, derived from an optimizing mathematical process. In that case the decision maker could mitigate the effects of some of the pitfalls associated with the multiple factors that must be considered in solving complex problems. Under no circumstances though, need he/she become obsolete, outpaced or dominated by the decision support system (DSS). As we will further analyze, the mathematical optimization process is

[1] Styx was a holy river in ancient Greek mythology. The Gods, when swimming in the waters of river Styx, were obliged to tell the truth, otherwise they would starve for a year and lose their voice for nine years. Symbolically the DSS, provided that it is fed with the appropriate data, will not lie to the user and will provide reliable solutions.

indisputable. Nevertheless, the model needs to be "guided" by preferences that the decision maker will feed into the model. So without proper input from the decision maker the DSS is unlikely to produce meaningful outcomes.

The DSS was designed in close cooperation with the Hellenic Navy's Department of Personnel (DoP) which established hard core requirements as follows:

- The DSS should not include hardwired preferences and/or policies. The user should be able to adjust preferences on a case by case basis.
- The DSS should be written in a widely known language and/or in a widely known platform so that it will be easily manageable.
- No real data is to be used during the development phase.
- The DSS should operate as a standalone application.

C. METHODOLOGY DESCRIPTION

The methodology for developing the system is as follows:

1. Problem Identification

Conduct requirements analysis to specify how the job is currently done in the Hellenic Department of Personnel (DoP). Identify the factors which are taken into account in the decision process as well as those factors that are not currently considered but still deemed as desirable. The method used to obtain that data is mainly interviews via telephone and, in one case, video teleconference through web camera. The main finding of this phase is that this is a twofold problem:

1. Identify which officers should be transferred from their current billets.
2. Reassign those officers to other billets.

2. Model Formulation

The multi-attribute utility analysis methodology is used to develop two separate mathematical models to optimize the overall process and solve the twofold problem. These mathematical models along with the conceptual models from which they derive will be thoroughly described in Chapter IV (Model dimension).

3. Model Implementation

Microsoft Excel is selected as the development platform. The main reasons for this choice are:

- Absence of large databases (many records)
- Absence of legacy databases to feed the DSS. Although there are databases that currently hold data for the DoP these databases:
    - Are not accessible to the developer due to privacy issues. This poses a serious restriction since they cannot be properly formalized and data mined for the DSS computations.
    - Are not completely trustworthy in terms of accuracy (not updated very often).
    - Therefore, the DSS is developed so that it supports its own database.
- Small number of one-to-many or many-to-many relationships which, therefore, would not require a relational database (MS Access was a candidate for the database management side). The only one-to-many relationship involving the DSS is the preference relationship (one officer can have more than one preferences to be transferred to, one command can have more than one preferred candidate). Nevertheless the mathematical model treats these one-to-many relationships as multiple one-to-one relationships. We also need to keep in mind that the focus of the DSS is not on database management and querying but on optimizing the decision process (more details will be given in Chapter III – Data dimension)
- The user needs an application that is easily manageable and does not require specialized knowledge. In that way, provided that the developer gives sufficient and accurate documentation, the maintenance task will be easier and simpler.
- This application (MS Excel) is widely used in the Hellenic Navy (although mainly for simpler tasks), so the end users can focus on understanding the logic of the system instead of having to deal with a steep learning curve for a new software system.

The system uses a utility function to incorporate the preferences of the decision maker in the optimization model, and then uses the Excel Solver add-in to provide the optimum solution.

During the model implementation phase, the issues of user interface, navigation and visualization are also taken into consideration.

4. Model Validation

Rapid prototyping methodology is used to develop the DSS and to enable user involvement and feedback. Several parts of the tool were sent to the DoP for evaluation and feedback to ensure that the final product would fit best to user needs. This is an essential part of the project since the end users, not having worked with something similar in the past, have no specific idea of what to expect from the system before interacting with it.

5. Model Solution

The Solver add in optimizer is used to provide the solution to the problem, based on the preferences inputted by the user. The DSS is developed in such a way that it provides more candidate solutions than required, giving decision makers the capability to select the most appropriate candidates by importing their expert opinion, too.

6. Model Interpretation

This part is straightforward, once the DSS provides the candidate solutions. In case that the solution does not appear to be an optimal one, the user should go back and ensure that the preferences inputted in the model are appropriate and conform to policy and past experience.

7. Model Maintenance

The DSS works as a stand alone application. Therefore, if data is altered (personnel is added - graduates from the Hellenic Naval Academy, or removed – retirement), then the database should be manually updated.

8. Model Versioning and Security

Different versions would result upon user requests. Although the method of rapid prototyping was used particularly to address the user involvement issue, requirements do change and may require new versions of the DSS to be developed.

In terms of security, the DSS uses all means available from MS Excel to impose it. Nevertheless, it is widely known that MS Excel is exploitable in various ways (from malicious attackers that know what they are doing). The fortunate part of it is that the DSS is not networked and will operate as a stand alone

application in a small number of workstations. Therefore the physical aspect of location (these workstations will operate in physically secure environment) and the absence of connectivity ensure an adequate level of security.

D. SCOPE

Although the tool at its current state does not use real data, it is developed to be able to handle the full task of managing the total force of Hellenic Navy officers. In that sense it does not serve merely as a proof of concept, but it is a complete application that can handle the full load once it is supplied with actual data coming from the databases of DoP.

Nevertheless, there are some aspects of the DSS that are not part of the scope such as the following:

1. Web Accessibility

The DSS is designed as a stand alone application operating in remote workstations.

2. Data Management

The DSS will provide its own internal database and data management functions. It will not interact with any existing external legacy databases.

E. THESIS OUTLINE

- Chapter I (Introduction) – Current situation – Problem description – Methodology description – Scope – Name – Thesis outline
- Chapter II (Decision environment) – Rationale for developing the DSS – General description of the decision environment – Levels of uncertainty and risk in the decision environment – Timeframe for the decision environment – Decision tradeoffs – Decision makers, stakeholder analysis
- Chapter III – Data dimension – Source databases – Data mining – Conceptual schema – Data quality and integrity – Data administration (security, back up procedures)
- Chapter IV (Model dimension) – Model description – Influence diagram – Mathematical representation – Data injection – Model sensitivity analysis, validation
- Chapter V (User interface and visualization) – Data input – Navigation – Visual, memory aids – Output presentation

- Chapter VI (DSS prototype development) – DSS architecture – Demonstration scenario – DSS classification – Prototype development methodology
- Chapter VII (Evaluation, Recommendations, Conclusion) – Related material – Evaluation strong points) – Evaluation limitations – Recommendations – Conclusion, final words

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II. DECISION ENVIRONMENT

A. RATIONALE FOR DEVELOPING STYX

The multi-attribute nature and the complexity of the problem that the detailer needs to solve make his work very demanding. Generally speaking, the human mind is constrained by its own limitations in trying to resolve problems of this type with many different criteria and tradeoffs.

Some of the issues associated with the inefficiency of decision makers to optimally cope with multi-attribute decision problems are:

1. Categorical Thinking

Grouping objects into preconceived categories which often leads to stereotyping, e.g. H.S. YDRA has performed very well the past few months, therefore all the officers currently serving at H.S. YDRA are very competent. It is obvious that this statement does not accurately describe every person of the group.

2. Recency Effect

When the most recent information dominates our perception. For example, if during the last tour an officer has performed well, this will make him/her a better candidate in the mind of the detailer, for a very demanding position.

3. Halo Error

When a prominent characteristic of a person colors the perception of other characteristics. For example if we know that officer X is extremely efficient in his/her duties as a Navigation officer, we tend to perceive that he is going to be efficient in other duties as well (e.g. CIC operations). This issue is extremely important in the Hellenic Navy since the overall body of the Hellenic officers is not extremely large. As a result, most probably (especially for the higher ranks) someone in the decision board has knowledge about the good, or bad, attributes that some of the candidates have shown in a given time, which makes him prone to halo error.

4. Stress

This could surface from fear of making the wrong choice. HR management deals with important decisions that traditionally involve a lot of politics, not to mention that they affect significantly the lives of the officers involved. Furthermore, failure to appoint the right person to the right post could result in devastating consequences (especially in the higher ranks). All these reasons lead to stressful decision making and, therefore, increase the probability of errors.

5. Bounded Rationality

According to Herbert Simon[2] people engage in bounded rationality because they can process only limited amounts of information and rarely select the best choice. In the case of HRM there are many candidates to be compared and many attributes for each candidate. The complexity of the problem makes the task of selecting the right person for the right place extremely demanding and difficult.

6. Ambiguity in Goal Setting

Obviously the decision maker needs clear goals to select the best solution. However, many times it is not clear which are the most important, especially when many of the goals contradict each other. For example, specific capabilities and personal preference of the individual are two of the many important factors to be taken into account in the HRM assignment process. The problem is that these factors may work at cross purposes with one another. Someone may have the ability but not the will to fill a particular work billet. It is pretty obvious that there can be numerous combinations of contradicting inputs, which make solving the problem without analytical support very complicated and difficult.

7. Satisficing

The process of "selecting a solution that is satisfactory or good enough rather than the optimal"[3] and stop further investigation for the optimal choice.

[2] H. A. Simon, "A Behavioral Model of Rational Choice," Quarterly Journal of Economics, 69 (1955), pp. 99-118.

[3] S. L. McShane and M.A. von Glinow, (2005). Organizational Behavior. McGraw Hill.

This is very common when the decision maker has to deal with many candidate solutions (exactly the case with HRM). Another problem is that decision makers typically look at alternatives sequentially rather than examining all alternatives at the same time. In most cases they pick an **implicit favorite** and then compare all alternatives with this choice. In many cases they unconsciously try to make their implicit favorite come out as the winner in most comparisons.

For all the above reasons it would be very beneficial for detailers to have a DSS software application at their disposal that could provide a non subjective recommendation, derived from an indisputable mathematical process. This is the purpose of this thesis. In effect what STYX would provide is a small list of candidate solutions for the detailer to chose from (by using subject matter expertise), instead of selecting from the total set. In that way the effect of the issues concerning solving complex multi-attribute problems could be minimized. Nevertheless, it should be noted that STYX is not designed to replace the decision maker. As we will further analyze, the mathematical optimization process though indisputable, cannot produce any meaningful outcome without proper input from the user. Therefore, STYX can provide faster data processing and accurate computations, thus elevating the quality of the decision from the satisficing to the optimizing level. Nevertheless, under no circumstances can it replace the decision maker, rendering him/her obsolete.

B. GENERAL DESCRIPTION OF THE DECISION ENVIRONMENT

The decision environment is developed to support the detailer to make effective Human Resource Manpower decisions. The intent is to implement an automated, optimized method for assigning the right people to the right places, and then allowing the detailer the ability to perform sensitivity, or “what if,” analyses on the optimal solution. Of course, the “right people” describes by itself the ambiguity of the problem and defines one of its most challenging aspects.

In order to deal with this complex problem STYX uses a methodology that divides the solution in two phases:

1. Phase A

In phase A, STYX will identify for each specific service which individuals should be transferred, without yet dealing with the issue of where they should be transferred (phase B). The factors that are taken into account are:

- **Time spent at current job**
- **Time spent at current rank when there is required service due.** In the Hellenic Navy for specific ranks there are specific tasks to be performed as a prerequisite for promotion, i.e. a LT Engineer should complete the task of Chief Engineer for one year as a prerequisite for promotion to LTCD.
- **Failure to promote.** For any case of an officer who fails to promote (which means that he/she, most probably, received an unfavorable evaluation), the policy dictates that he/she is transferred, to be given a second chance in a new environment.
- **Personal preference to stay or be transferred.** In the Hellenic Navy there is a formalized way for each officer to express his/her preference to stay or be transferred from a current job. Of course there is no guarantee that this factor will be taken into account.
- **Current command's preference for the individual to stay or be transferred** (if such a preference is expressed).

In the Hellenic Navy each command has the capability of "protecting" some of the currently employed personnel from being transferred. Usually this involves reasons of operational effectiveness, experience, etc. These preferences are not guaranteed to be satisfied.

Each of these factors are assigned weights of importance from the user (we provide a detailed description in Chapter IV – Model Dimension). The model then decides who the most appropriate officers to transfer are and creates an unassigned personnel database.

2. Phase B

In phase B STYX will use the unassigned personnel database as a pool from which to select appropriate personnel to be transferred to each service. The factors that are taken into account in this case are:

- **Preference of individual** (if expressed). In the Hellenic Navy there is a formalized way for each officer to express his/her preference of a new job in case they get transferred. Of course there is no guarantee that this preference will be satisfied.

- **Preference of command or service**. Apart from protecting currently employed personnel each command also expresses requests for individuals to join the command. Again this is just a request and there is no obligation for the DoP to satisfy these requests.
- **Rank**. Obviously there are requirements for rank for each job description. In most cases these requirements operate as constraints (they have to be satisfied). Nevertheless, there are cases where a small deviation in rank (usually one rank up or down the hierarchy) is permitted.
- **Specialty**. In the Hellenic Navy there are four different specialties for officers:
    - Deck officers
    - Engineer officers
    - Supply officers
    - Medical officers

Each office of the DoP handles transfers and human resource management for each specialty. STYX is designed to handle simultaneously the tasks of all four offices (more details will be given in Chapter IV – Model Dimension). Nevertheless, due to policy issues, every office will most likely have its own copy of STYX operating separately.

- **Subspecialty**. This only applies to deck officers, whose subspecialties are:
    - Navigation subspecialty
    - Communications subspecialty
    - Weapons subspecialty
    - Underwater warfare subspecialty
- **Evaluation average**. STYX enables the decision maker to import to the decision process the evaluation average for each individual. This should be a decisive factor, especially when we are seeking to fill demanding billets that require over achievers, e.g. serving as a C.O. on a ship.
- **History factor**. STYX introduces the concept of the history factor to deal with a problem that exists in any organization employing a large number of people and tasking them in a cyclical way to billets of various levels of difficulty, danger, and importance. It is extremely difficult to ensure that during their careers, all officers

face a uniform set of dangers, opportunities and heavy workloads. In the case of the Hellenic Navy where no formal mechanism is in place to ensure relative equality and justice, many individuals have the feeling that the system is treating them unjustly. Whether that is the case or not, a misconception of unfair treatment could be created which may end up having corrosive results upon the officers' morale. The history factor addresses this issue as will be thoroughly explained in Chapter IV – Model Description.

- **Closed command.** There are specific billets that require specialized training and therefore, eligibility is restricted to those who possess the appropriate prerequisite, e.g. no officer can be assigned to a submarine without first enrolling in the specialized Submarine school. Apart from these billets, where the closed command factor operate as a constraint, there are other billets where previous experience in the command is preferred, but not required, e.g. serving at a fast patrol missile boat. In these cases the closed command operates as an optimization factor.

C. LEVELS OF UNCERTAINTY AND RISK IN THE DECISION ENVIRONMENT

The problem of Human Resource Management as it is currently dealt with in Hellenic Navy is a relatively unstructured complex decision process, with a commensurately high degree of uncertainty. Although there are certain rules that need to be followed (requirements such as rank, specialty, etc.) they tend to operate as constraints and not as optimization factors. These rules, although they are sufficient for eliminating possible candidates, do not contribute to the selection part of the task. Although the decisions being made are extremely important, there is no structural method prescribing the way to reach that decision. Therefore, the detailers operate mainly based upon previous experience and intuition. The only fully visible factor is the set of constraints, but these tend to eliminate individuals from jobs rather than recommend them. In most cases even after the decision is made, it remains unclear whether the solution given was really the best. In many cases the only definite feedback a decision maker receives is when they make a really bad choice.

The contribution of STYX is to implement a higher level of structure in order to attack this problem. The model has an undeniable standardized mathematical procedure that reaches an outcome removing any kind of bias,

provided that there was no bias in the preferences and constraint formulation used to make the decision. So in some sense STYX helps in transforming a relatively unstructured problem to a semi-structured one, by applying an optimizing function. Furthermore the use of STYX does not remove the benefits of applying previous experience and intuition since it provides the decision maker with a portfolio of solutions. In that sense the decision makers can still use their intuition, if they choose to do so, selecting from a smaller set of solutions and avoiding the risk of being overwhelmed by the sheer number of candidates.

The solution itself does not involve much uncertainty or risk since it will use a mathematical function (utility function) to identify the best candidates based on the users' preferences. The real challenge, though, is for the users to optimally align their preferences with the general requirements and policy, and accordingly grade the database attributes. The problem is that deciding the weight of each factor and grading the attributes are actions that involve a great deal of subjectivity. Setting up the preference criteria and tuning the database should be done with caution and after serious analysis of the requirements for each billet. In that sense the only point where uncertainty and risk can be introduced is the misalignment of user preference criteria and actual requirements for each job.

D. TIMEFRAME FOR THE DECISION ENVIRONMENT

There are two official transfer periods within a year for the Hellenic Navy, one in December (with a small number of transfers, mainly to satisfy immediate needs) and one in June (where the vast majority of the transfers occur). Of course there are special cases that need to be resolved in ad hoc fashion (e.g. in cases of health issues), but these represent a very small percentage. Therefore, although there is a specific time frame inside which the decision must be made, this is (almost) always a known factor right from the start. So we could quite safely argue that the decision is made in a relatively lax timeframe. Nevertheless,

once the decisions are announced, they become irreversible since any further change will create controversy. So time does not represent a hard constraint but rather a point of irreversibility.

E. DECISION TRADEOFFS

Dealing with the tradeoffs involved in the decision process is the most important contribution of STYX to the work of the decision maker. A list of the factors incorporated in the decision process follows:

- Time spent at current job
- Time spent at current rank when there is required service due
- Failure to promote
- Personal preference to stay or be transferred
- Current command's preference for the individual to stay or be transferred
- Preference of other command or service
- Rank
- Specialty
- Subspecialty
- Evaluation average
- History factor
- Closed command requirement
- Special knowledge

One can quickly see that many of these factors contradict each other. The main challenge for the decision maker is to properly deal with these tradeoffs. An experienced decision maker could identify which of these characteristics are more important, less important, or completely unimportant. The problem is how to evaluate all possible candidates' characteristics and how to come up with an optimal, or "near optimal" solution. For example, is candidate "A" who has special knowledge but does not want to fill a specific billet requiring that knowledge, a better choice than candidate "B" who does not have the specific knowledge but

prefers to be in that job? This is where STYX comes into the picture by implementing a mathematical model to specify, evaluate and rank these different, complex tradeoffs that the decision maker has to juggle.

Another important issue is that the decision makers may have to defend their choices to the higher levels of command (we will analyze why this is so further in section F below – Decision Makers, Stakeholders). If the decision is a result of plain experience and intuition, it will be far more difficult to defend (especially against someone higher up the chain of hierarchy who may challenge it). On the contrary any decision that is a product of a formalized mathematical implementation (which is exactly what STYX provides), is more difficult to challenge and significantly easier to defend. In that case, not only does this help the decision maker to deal with the trade offs but, also provides higher levels of solution credibility.

F. DECISION MAKERS – STAKEHOLDER ANALYSIS

A bit more background information is provided to clarify the procedure.

The department of personnel has four separate offices, each dealing with manpower requirements for each specialty (deck, engineer, supply and medical). These offices do the ”dirty” job of preparing the seasonal transfers for all officers (apart from the flag officers who do not go through this process – in any case the flag officers’ number is small and transferring them does not constitute a major problem). Once the transfer charts have been prepared, they go for approval from the head of the DoP, from the CNO and finally from the Secretary of Defense. STYX is meant to help the offices that prepare the initial charts. The larger percentage of transfers (95%) prepared from the offices remains unchanged through the entire process. Nevertheless, those who approve have the authority to make changes. The decision process is summarized in Figure 1.

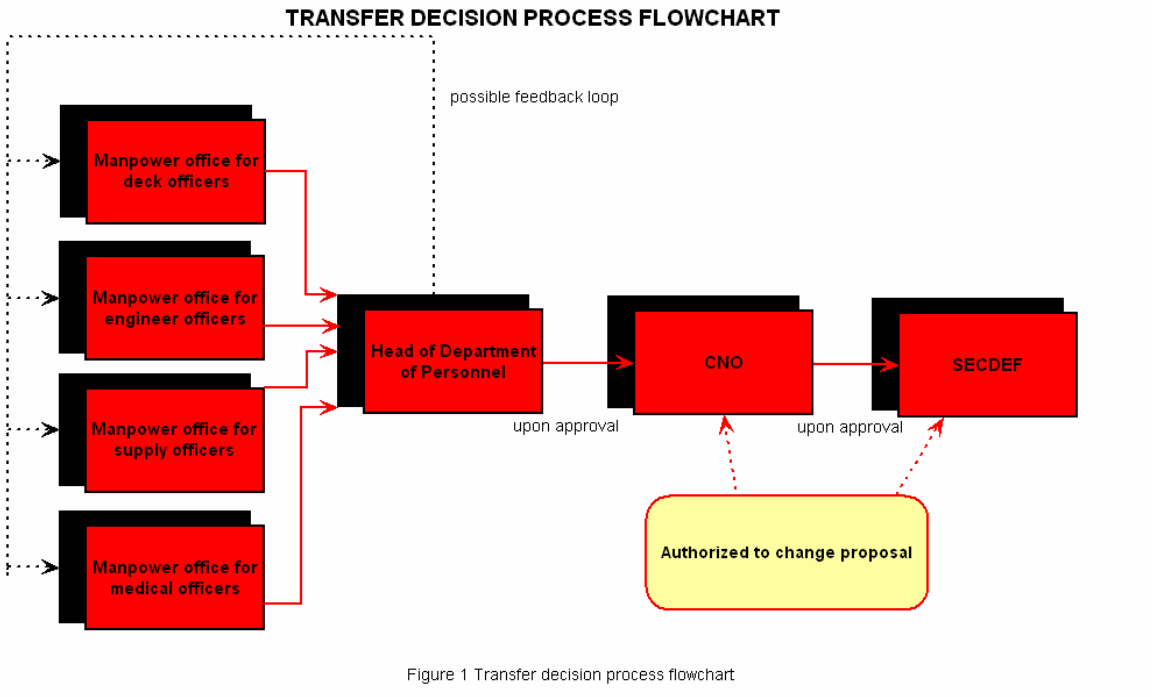


Figure 1. Transfer Decision Process Flowchart.

The stakeholders involved in the decision process are numerous:

- The four manpower offices
- The head of department of personnel
- The CNO
- The SECDEF
- The various services and commands in the Hellenic Navy
- Each and every officer in the Hellenic Navy

Table 1 shows a stakeholder analysis to gauge the desirable involvement of each stakeholder in integrating STYX to the manpower decision process.

Stakeholder	Importance	Likelihood of involvement	Goals	Strengths	Weaknesses
The four manpower offices	High	High	To improve the manpower decision process, without creating a disruption in routine business	They are the power users. It is up to them to use STYX or not	1. The current procedure is not optimized. 2. The officers feel that something should be done to improve the situation.
The head of the department of personnel	High	Moderate. Most probably the head of the department examines the final product and not the ways to get there.	To improve the manpower decision process, without creating a disruption in routine business	He has the undeniable authority to implement STYX or not.	He has to ensure that STYX, if used, would deliver.
CNO – SECDEF	High	Very Low	To check the transfer lists and make changes where it is needed	They have extreme authoritative power	They will only look at the end product.
The various services and commands	Low	Very Low	1. To be able to protect their good officers from being transferred 2. To be able to express their preference and have a good chance to get the people they want	-	They will not participate in the decision of implementing STYX or not. Whatever happens they will have to accept
The officers	Low	Very Low	To be able to satisfy their preference	-	They will not participate in the decision of implementing STYX or not. Whatever happens they will have to accept

Table 1. Stakeholder Analysis

It is obvious that if STYX is to be used, the important people that need to be satisfied are those working for the DoP. For this reason, throughout the development of STYX, close contact was maintained with them. This also is one of the main reasons why the method of rapid prototyping was used, because it encourages user involvement in the design phase.

G. SUMMARY

In this chapter the decision environment of STYX was presented. The purpose was to explain the rationale for developing the tool, to describe and explain the environment, to identify tradeoffs, and to conduct a stakeholder analysis (identify which needs of which parties STYX should satisfy to ensure successful implementation).

In the following chapters, a more thorough, lower level description of the mechanisms of STYX is presented starting with the data dimension in the next chapter.

III. DATA DIMENSION

A. SOURCE DATABASES

The Hellenic Navy DoP currently uses several databases to manage personnel data. Nevertheless, these databases will not be used with STYX for the following reasons:

- These databases were created for the sole purpose of archiving, therefore, no formal policy for updating them exists. They simply are updated whenever new data become available. These updates are not managed centrally, and, as a result serious issues of accuracy arise which could compromise the integrity of STYX.
- Furthermore, these databases were not made available to the developer, therefore, there was no way to manipulate them for direct use in the system.
- One of the hard requirements designated by the Hellenic Navy was to create a stand alone application that would require no other source to operate.
- These databases do not reside at the same virtual location as STYX. Since STYX was designed as a stand alone application without the capability to interact with databases placed in remote locations, integration will be impossible.

For all the above reasons, STYX carries its own two databases internally, in the form of Excel worksheets, which are used to feed the models. These databases are:

- **Assigned personnel database.** This is the main database that incorporates all personnel and is separated by services and commands. This database is fully loaded before the procedure starts. The objective for phase A is to identify the individuals that must be removed from this database, and placed in the unassigned personnel database.
- **Unassigned personnel database.** In the beginning of the seasonal transfers, the unassigned personnel database normally should not have any records. During phase A, it is populated by those records corresponding to individuals who should be transferred. Upon completion of phase B, when all unassigned personnel are reassigned to a different unit, it also should not contain any records.

In a sense we could say that the assigned personnel database operates as a “parent” database from which the temporary “child” unassigned database is created. Once the “child” database serves its temporary purpose, all records are transferred to the “parent” database, but in different instances. In Figure 2 (Snapshot of the Assigned Personnel Database – F/G (frigate) PSARA) you can see a part of the database that refers to F/G PSARA.

Export to transfer from

F/G PSARA

DUTY	FIRST NAME	LAST NAME	RANK	SPECIALTY	SUBSPECIALTY	EVALUATION	ME TRANSFERRE	IME AT CURREN
CO	A	A	ANTIPL	MAX	NK	95	6/17/2005	14
XO	B	B	PLVT	MAX	SN	92	1/25/2001	67
CHENG	C	C	YPOPL	MHX	-	97	2/1/2004	30

Figure 2. Snapshot of the Assigned Personnel Database – F/G PSARA

The assigned personnel database comprises 124 database “cards,” each created for every service or command of the Hellenic Navy, one placed on top of the other, in a single Excel worksheet. Every database card is designed to contain a maximum of 75 records. This number should be sufficient for every service or command; if future needs prove that it is not, creating cards with more records is not a demanding task. Conceptually the database is shown in Figure 3.

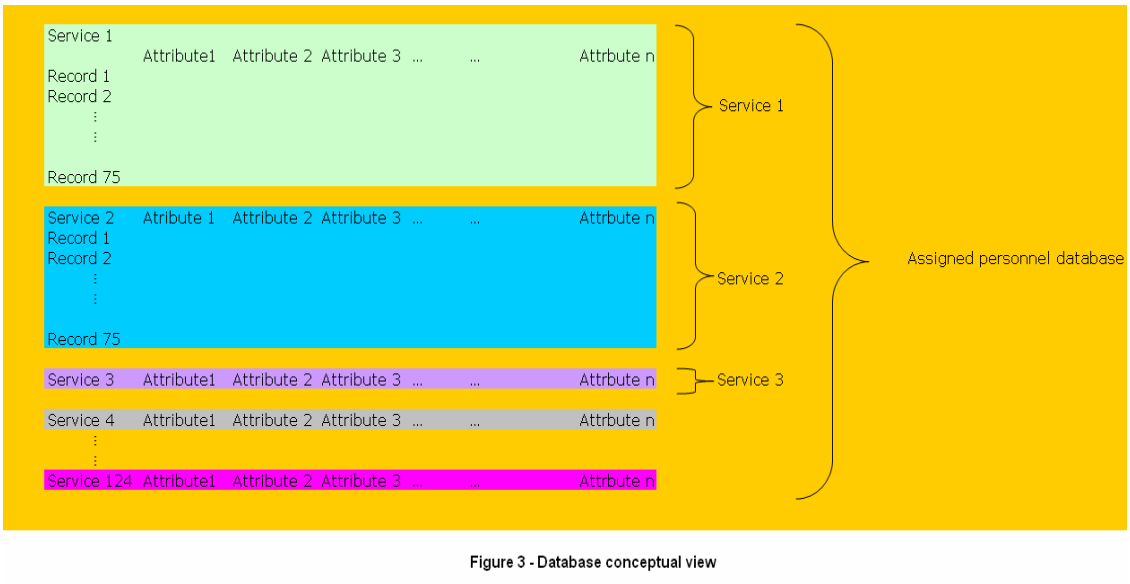


Figure 3. Database Conceptual View

The attributes included in those database cards are as follows:

1. Duty

Type: text, entered by the administrator. It describes the specific duty that the individual has e.g. C.O. or X.O.

2. First Name

Type: text, entered by the administrator

3. Last Name

Type: text, entered by the administrator

4. Rank

Type: text, entered by the administrator. This is a restricted cell. The only allowable values come from the following list (abbreviated list of ranks in the Hellenic Navy):

- NAB
- ANTINAB
- YPONAB
- ARXIPL
- PLOI
- ANTIPL
- PLVT
- YPOPL
- ANUYPOPL
- SHM

5. Specialty

Type: text, entered by the administrator. It refers to the four specialties for officers in the Hellenic Navy. This is a restricted cell. The only allowable values come from the following list (abbreviated list of specialties in the Hellenic Navy):

- MAX (deck officer)
- MHX (engineer)
- OIK (supply)
- IATR (medical)

6. Subspecialty

Type: text, entered by the administrator. It refers to the four subspecialties for deck officers in the Hellenic Navy. This is a restricted cell. The only allowable values come from the following list (abbreviated list of subspecialties in the Hellenic Navy):

- NK (navigation)
- SN (communications)
- PB (weapons)
- AY/YO (underwater warfare)
- - (for non deck officers)

7. Evaluation

Type: number, entered by the administrator. It refers to the yearly evaluation that each officer gets. This evaluation has two parts, one verbal (where comments on the officer's performance are included) and one numerical (where officers are assigned grades in several categories). The database is intended to use the numerical value. This is a restricted cell. The only allowable values come within the range 0 – 100.

8. Time Transferred

Type: date, entered by the administrator. This is a restricted cell. The only allowable values come within the date range 1/1/1985 – today. For the purposes of calculating today's date the embedded function NOW() is used.

9. Time at Current Service

Type: number, calculated by STYX. The attribute presents in months the time in current service using the formula

$$\frac{\text{Today - Time transferred}}{30} \text{ [months]}$$

10. Preference to Leave

Type: text, entered by the administrator. It refers to the preference of the individual to leave the current job. This is a restricted cell. The only allowable values come from the following list:

- yes
- no

11. Preference of Current Command

Type: text, entered by the administrator. It refers to the preference of the current command for the individual to stay or leave the current job. This is a restricted cell. The only allowable values come from the following list:

- stay
- leave
- - (where there is no expressed preference)

12. Service Average

Type: number, entered by the administrator. This attribute will be used to calculate the history factor during phase B. This number should be first calculated and then entered by the administrator. The value entered is an average calculated by averaging all job popularity factors (see #21 job popularity factor) from all previous services.

This is a restricted cell. The allowable values come within the range 0 - 2.

13. Failed to Promote

Type: text, entered by the administrator. It refers to unfavorable decision from the promotion board. This is a restricted cell. The only allowable values come from the following list:

- yes
- no

14. Time Promoted

Type: date, entered by the administrator. This is a restricted cell. The only allowable values come within the date range 1/1/1985 – today. For the purposes of calculating today's date the embedded function NOW() is used.

15. Time at Rank

Type: number, calculated by STYX. The attribute presents in months the time at current rank using the formula:

$$\frac{\text{today - time promoted}}{30} \text{ [months]}$$

16. Preferences 1, 2, 3

Type: text, entered by the administrator. It refers to the preferred next billet for the individual in case he/she is transferred as it is expressed in the formalized preference sheet that each officer fills out on a yearly basis. This is a one - many relationship since each officer is allowed to include three different preferences. Nevertheless, for the sake of calculation STYX treats this one – many relationship as three one - one relationships. These are restricted cells. The only allowable values come from the overall list of services in the Hellenic Navy (this list is accessible to the reader in the appendices section)

17. Required Service Due

Type: text, entered by the administrator. It refers to whether or not the officer has completed the prerequisites for promotion (e.g. for a LTCD to be considered for promotion he should serve as a C.O. for at least a year). This is a restricted cell. The only allowable values come from the following list:

- yes
- no

18. Job id

Type: text entered by the administrator. This is a card (service) specific, card identifier attribute, used to facilitate data transfer. Its use is completely transparent to the user.

19. Job Popularity

Type: number entered by the administrator. This is a card (service) specific attribute used to calculate the history factor (further analysis in section B – Data Mining). All services are given a grade that corresponds to popularity among the officers. The possible grades are:

- 2 → desirable service
- 1 → intermediate state
- 0 → undesirable service

This is a restricted cell. The only allowable values come from the set {0,1,2}.

At this point it should be noted that the concept of job popularity is introduced for the first time in Hellenic Navy and its specifics are subject to change.

The unassigned personnel database has the exact same attributes as the assigned personnel database since its records come directly from records (officers) of the assigned database. Although the unassigned database has records with the same attributes, it is not organized in database cards as is the assigned database. This is because it is not separated by services. Furthermore the number of records it has at each specific time relies upon how many records the user decided to remove from the assigned database. Nevertheless, it is structurally designed to handle 900 records, which for the size of the Hellenic Navy, is considered a sufficient amount.

B. DATA MINING

The assigned and unassigned databases operate as the source databases for STYX for phase A and phase B accordingly.

1. Phase A

During phase A the user selects the specific service of interest and through a macro command copies the corresponding database card to the "Transfer From" calculator. At this point the first data mining operation takes place. STYX is "mining" the appropriate attributes in order to feed the calculator. These attributes are:

- First Name
- Last Name
- Rank
- Specialty
- Time at current service
- Preference to leave
- Preference of command
- Failure to promote

- Time at rank
- Required service due

STYX uses a methodology called multi attribute utility (MAUT) analysis (we will explain the methodology in length in Chapter IV – Model Dimension). One of the most important functions of STYX is the grading function. It will compare all respective attributes from all candidates and will automatically assign a grade ranging from 0 – 10 based on user inputs and policy hardwired in STYX. In terms of grading, the attributes are divided in two types:

a. Attributes of Preset Grade

These attributes are of type text. In most cases, the text value that supports transferring gets a grade of 10, and all others get a grade of 0. More specifically:

- **First Name** – no grade assigned.
- **Last Name** – no grade assigned.
- **Rank** – no grade assigned (in phase A).
- **Specialty** – no grade assigned.
- **Preference to leave** – graded 10 if "yes," 0 if "no."
- **Preference of command** – graded 10 if "leave," 0 if blank, -10 if "stay."
- **Failure to promote** - graded 10 if "yes," 0 if "no"
- **Required service due** – This attribute has no grade assigned. Nevertheless it affects the grade of an attribute of calculated grade (we will refer to it in a while)

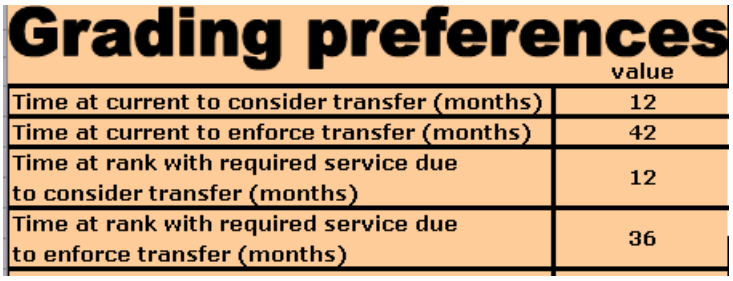
b. Attributes of Calculated Grade

These attributes are of type number. Their grades are calculated based upon user input and can be any number in the range 0 – 10. More specifically:

- **Time at current service** – The user inputs two values, the time (in months) at current service to start considering a transfer (this value will be automatically graded as grade = 0) and the time (also in months) at current service to enforce a transfer (this value will be graded as grade = 10). For all intermediate values the system will solve the straight – line equation defined by the two inputted values to generate the appropriate grade.

- **Time at rank** – This attribute is important only when the required service due attribute has the value "yes." The user inputs two values, the time (in months) in rank to start considering transfer (this value will be automatically graded as grade = 0, provided that there is required service due) and the time (also in months) at current rank to enforce a transfer (this value will be graded as grade = 10, provided again that there is required service due). All intermediate values in the system will be extrapolated by solving the straight – line equation of the line defined by the two inputted values to generate the appropriate grade.

The actual implementation of grading preferences in STYX for phase A is presented in Figure 4 – Grading Preferences.



Grading preferences

	value
Time at current to consider transfer (months)	12
Time at current to enforce transfer (months)	42
Time at rank with required service due to consider transfer (months)	12
Time at rank with required service due to enforce transfer (months)	36

Figure 4. Grading Preferences

Once the user inputs grading preferences, grades are generated, and a utility coefficient is calculated for every candidate solution based on the grades and on the weights that the user identifies in the Weight of factors section of the screen (we will conduct a thorough analysis of how this happens in Chapter IV - Model Dimension).

2. Phase B

Phase B starts upon completion of phase A. A macro command copies all the records of the temporarily created unassigned database to the "Transfer To" calculator. At this point another data mining operation takes place. STYX is "mining" the appropriate attributes in order to feed the calculator. These attributes are:

- First Name
- Last Name
- Rank
- Specialty

- Subspecialty
- Evaluation average
- History factor
- Preference of individual
- Preference of command other than current
- Closed command
- Time at current rank

In phase B, also, STYX will use multi – attribute utility analysis and a grading function. In this situation we have three types of attributes:

a. Attributes of Preset Grade

- **First Name** - no grade assigned.
- **Last Name** - no grade assigned.
- **Rank** – the user, during the input phase, declares the preferred rank, and one more rank (if applicable). The first choice for a rank is assigned a grade of 10 and the second (if provided) a grade of 5. All other ranks get 0. The rank attribute is also a constraint (see c. Constraint attributes)
- **Subspecialty –** Preferred subspecialty is assigned a grade of 10, otherwise a 0.
- **Preference of individual** – Individuals that have declared the service as a "preferred to be transferred" are graded
  - 10 if it was their first choice
  - 7.5 if it was their second choice
  - 5 if it was their third choice
  - 0 otherwise
- **Preference of "other than current" command** – graded 10 if the individual is preferred and 0 otherwise.
- **Closed command** – graded 10 if the individual belongs or belonged in a closed command, 0 otherwise.

b. Attributes of Calculated Grade

- **History factor** (HF) – This factor is calculated by the following formula:

```
HF = (|job popularity factor - service average|) * 10
```

c. Constraint Attributes

These attributes can be of any type and are not graded (with the exception of Rank). Candidates with values outside the constraint area will result to a utility coefficient of 0 (the specific mechanics will be explained in Chapter IV Model description, section C Mathematical representation). Nevertheless, the decision maker can still select them as preferable solutions. These attributes are:

- **Evaluation average** – The user can specify a lower acceptable value. All candidates having values out of range result to utility coefficient of 0. This is intended for very demanding jobs that require the "best and brightest."
- **Time at current rank** – The user can specify a lower limit for the individual to be considered as a candidate. This is intended for jobs that require increased experience.
- **Specialty** – The user specifies preferred specialty. All candidates not belonging to that specific specialty will result to a utility coefficient of 0.

A third level of data mining is conducted when weights are assigned to attributes. A specific attribute affects the final solution according to the weight assigned to it. The actual data and the way that they will be taken into account in the optimized solution are user-defined in every case. So, in fact, the user is actually performing another data mining function by changing the preferences, since what really happens is that a different data cube is, in effect, created.

C. CONCEPTUAL SCHEMA

As already mentioned, STYX is using two databases to store data to feed the model. In that sense, we could say that these databases form a type of a data warehouse. Its conceptual schema is presented in Figures 5 and 6.

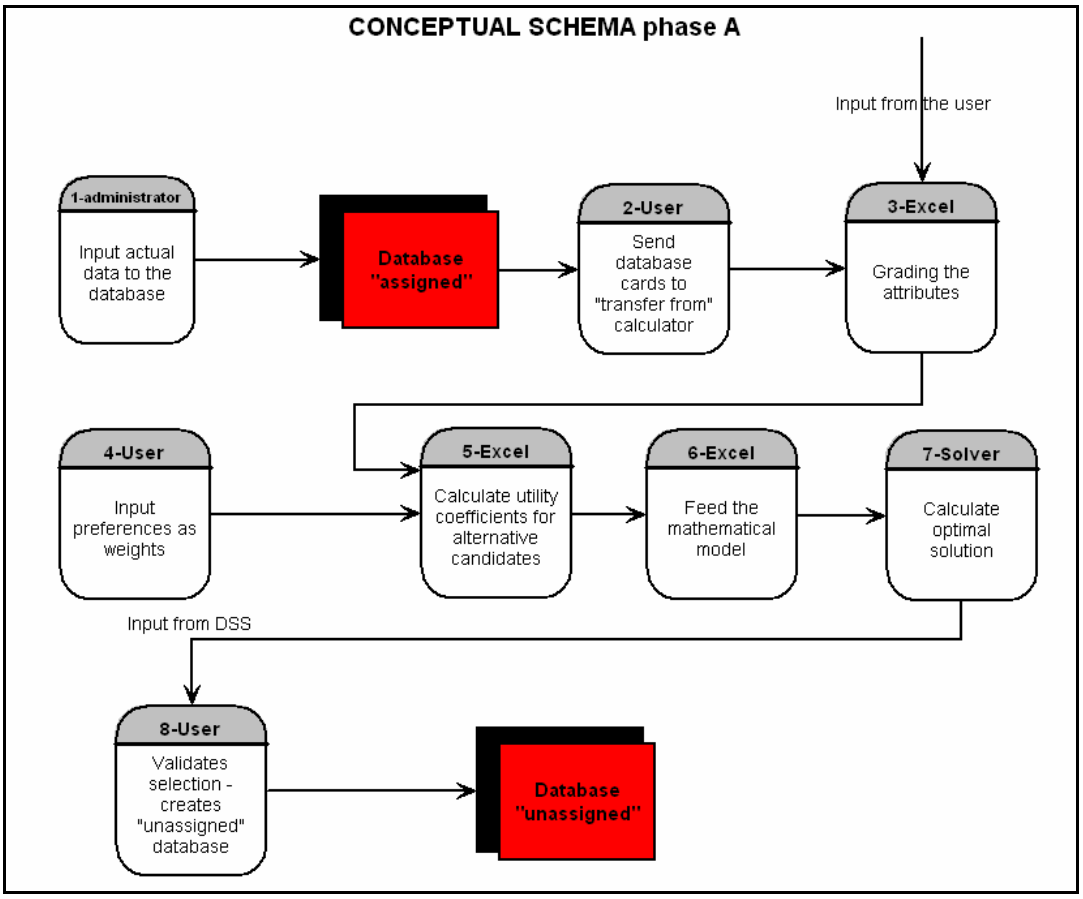


Figure 5. Conceptual Schema Phase A

When STYX is deployed for the first time, the administrator creates the "assigned database" by manually importing data records from legacy manpower databases. Once this is completed then phase A executes in the following steps:

Step 1: A database card (representing a specific service) is selected and exported to the "Transfer From" calculator.

Step 2: The attributes are graded (by taking into consideration user grading preferences).

Step 3: Attribute importance preferences are inputted to STYX and utility coefficients are calculated for all the candidates (this process will be thoroughly analyzed in Chapter IV – Model Dimension)

Step 4: STYX calculates the optimal solution (which individuals should be transferred) solving the mathematical model by using the solver add in.

Step 5: The user validates the solution, thus creating the unassigned database.

Step 6: The next database card is selected and the sequence returns to step 1.

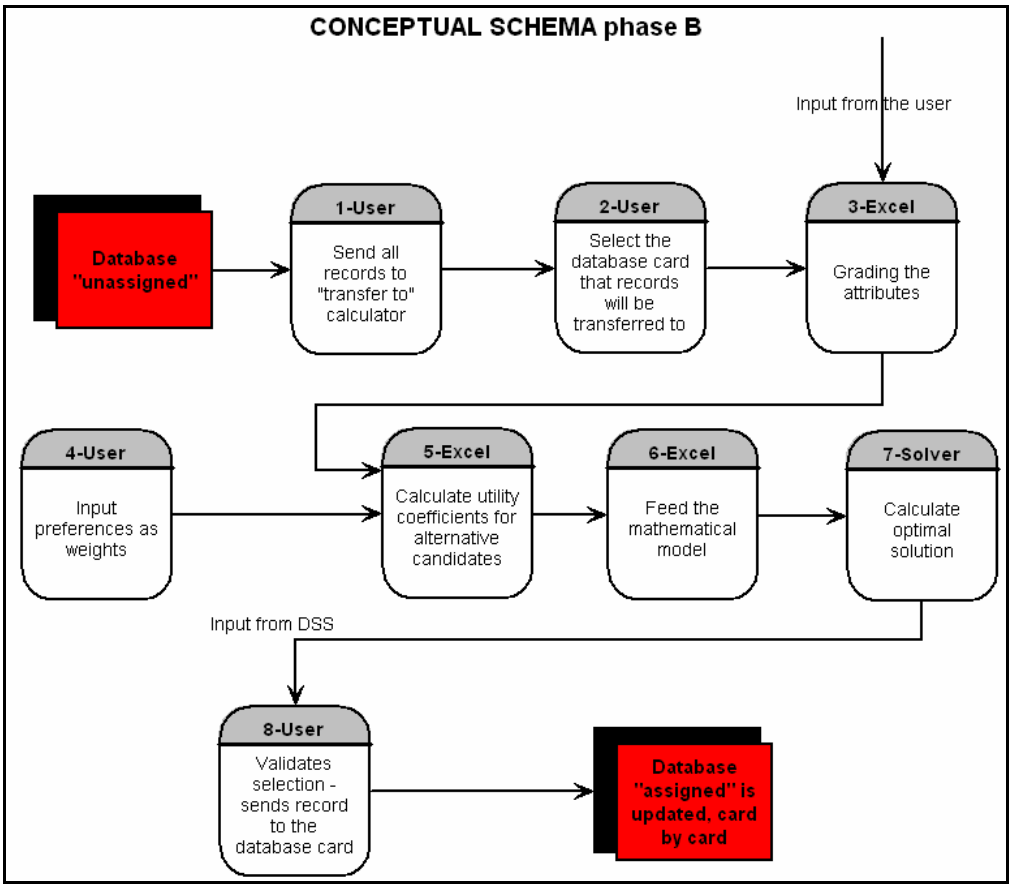


Figure 6. Conceptual Schema Phase B

Phase B is executed in the following steps:

Step 1: The unassigned database is exported to the “Transfer To” calculator.

Step 2: The user decides which service will be the first to select candidates. There are visual aids that facilitate this decision. (We will further analyze in Chapter V – User Interface and Visualization).

Step 3: Attributes are graded (by taking into consideration user grading preferences).

Step 4: Attribute importance preferences are input to STYX and utility coefficients are calculated for all the candidates (this process will be thoroughly analyzed in Chapter IV – Model Dimension)

Step 5: STYX calculates the optimal solution (which individuals should be transferred to this specific service) by solving the mathematical model using the solver add in.

Step 5: The user validates the solution, updating the data card of the specific service.

Step 6: The next service is selected and the sequence returns to step 1.

D. DATA QUALITY AND INTEGRITY

The initial database that is used from STYX (the "assigned" database) is populated manually by the administrator. This fulfills one of the requirements dictating that STYX should be a stand alone application. The appropriate fields are restricted to specific lists or ranges (see Section A – Source Databases) so no data integrity problem exists. Unfortunately, we cannot say the same for data quality. As with any manually performed function, there is no guarantee that the data imported is accurate and STYX has no way of locating and correcting possible inaccuracies. Furthermore, if inaccurate data is imported, this will certainly affect the quality of the solutions.

Nevertheless, we should not forget that the focus of the tool is not on data management but on optimization, and all of the above are data management issues.

Upon completion of phase A STYX can provide an overall report for all those individuals that will be transferred from. A report of the same kind (for all individuals that will be transferred to) can be generated upon completion of phase B.

The grading functions are performed by Excel and the model solution by Solver, so in both cases there is no data quality or integrity risk provided that:

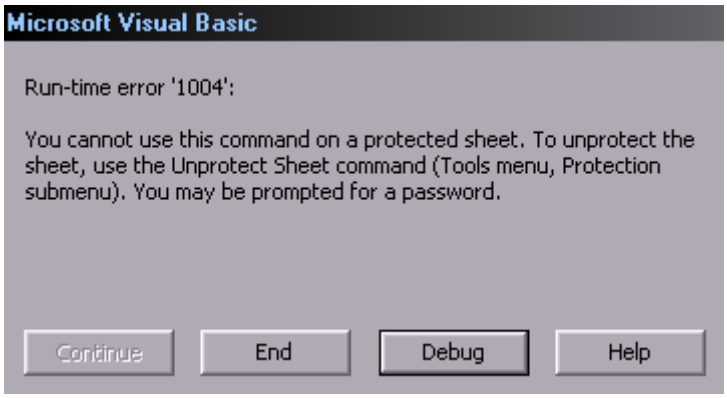
- Data coming from the unassigned database are high quality data
- Preferences inputted in the two phases are in accordance with Department of Personnel policy.

E. DATA ADMINISTRATION

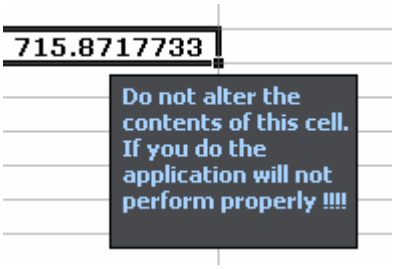
1. Security

STYX supports password protection for preventing unauthorized users from accessing it. Furthermore, it supports password cell protection to prevent users from changing the contents of administrative cells (cells with formulas, lists, etc.). These provide some level of security. Some security issues are:

- The platform (MS Excel) is far from being considered unexploitable. This consideration is being addressed by:
  - Not connecting STYX to a network
  - Providing physical security by installing STYX in physically secure locations
- The calculator sheets (that need to run the solver) cannot be password protected (this would not allow the solver to change them). This problem can be addressed in one of the following ways:
  - Embed protection (without password) in the macro that runs solver. If this solution is implemented, when we solve we get the following message:



  - Nevertheless, if we press end, we get our solution and no harm is done (other than getting this rather annoying message).
  - Leave the sheet unprotected and try to hide the administrative cells in places where they cannot be accessed easily (remote locations on the worksheet). Furthermore, by using the data validation function we can issue a warning message when the cell is selected of the kind:



- This, nevertheless, will not prevent the user from altering it (this is the approach followed on this application).

2. Backup Procedures

The entire DSS is a single, large Excel file, so it can be backed up like any other file of great importance. An easy to implement approach could be to have the file protected by backup software (we used NTI Shadow during development), which automatically saves the file in more than one location. Further backup considerations are beyond the scope of this thesis.

F. SUMMARY

In this chapter we discussed the pertinent database and data related issues. We presented the source databases, the threefold data mining procedure and the conceptual schema for phases A and B. We also discussed data quality, integrity and administration.

In the next chapter (Chapter IV – Model Dimension) we will analyze the two mathematical models that underlie the “Transfer From” and “Transfer To” solutions.

IV. MODEL DIMENSION

A. MODEL DESCRIPTION

STYX uses two models, one for phase A (Transfer From model) and one for phase 2 (Transfer To model). The objective for the "Transfer From" model is to solve in an optimal way the problem of selecting which individuals should be transferred from each service, without yet deciding where they should be transferred to. The "Transfer To" model has as inputs the selections of the "Transfer From" model and the objective is to solve in an optimal way the problem of deciding where these individuals should be transferred to.

B. INFLUENCE DIAGRAM

An influence diagram of the mathematical model is presented in Figures 7 and 8 (Influence Diagram Phase A – Influence Diagram Phase B, respectively).

1. Phase A

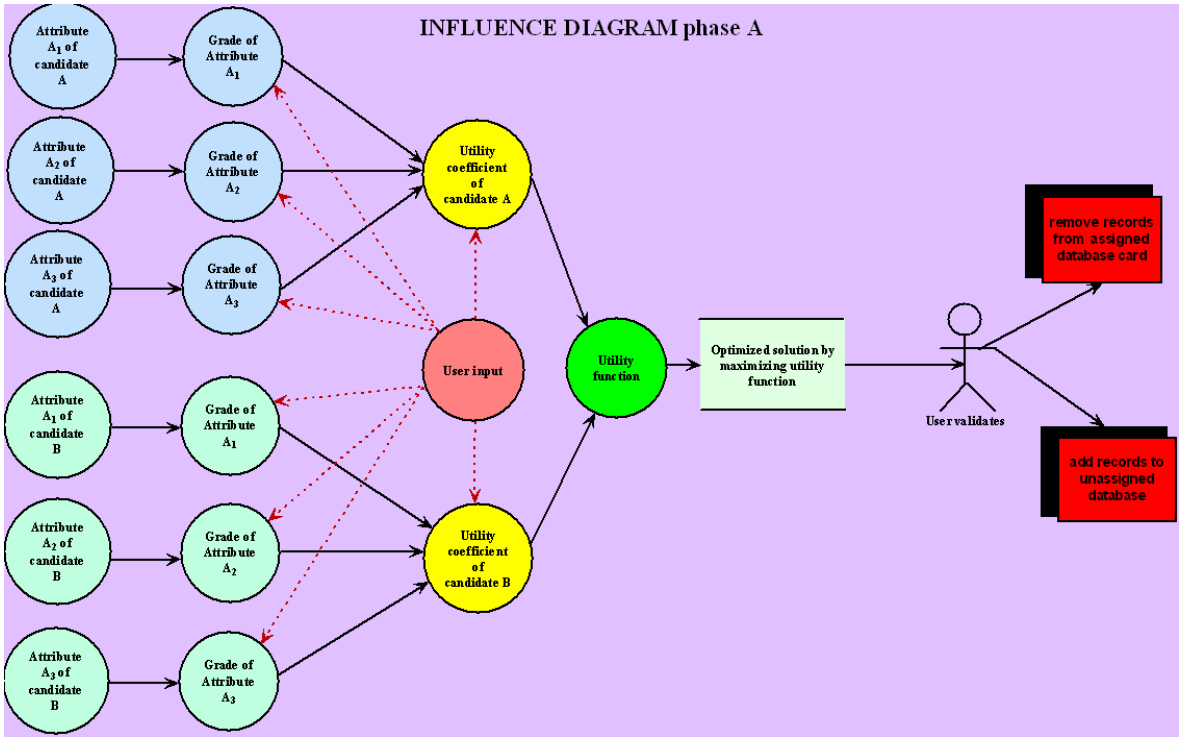


Figure 7. Influence Diagram Phase A

The purple background represents the database card selected and sent to the “Transfer From” model. Based on the first data mining function (described in Chapter III – Data Dimension), the attributes of the candidate that will be taken into account are selected and graded according to user grading preferences. Then the utility coefficient for every candidate is calculated, based on the grades already assigned and on user weight preferences. In the next step the utility function is created and fed to the solver which will maximize it. Once the solutions are provided and the decision maker validates them, the selected records from the database card are removed and inserted to the unassigned database.

2. Phase B

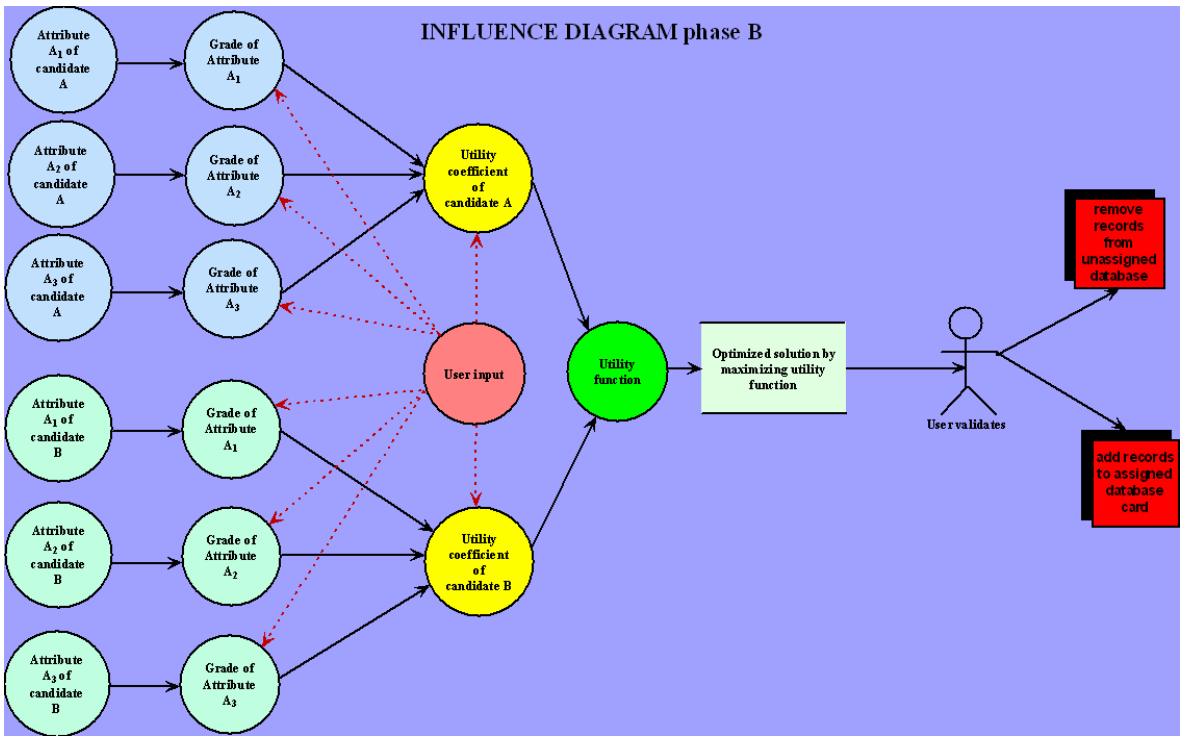


Figure 8. Influence Diagram Phase B

The blue background represents the unassigned database that is sent to the “Transfer To” model. Again, as in phase A, the attributes of the candidate that will be taken into account are selected and graded according to user grading preferences, and the utility coefficient for every candidate is calculated, based on

the grades and on user weight preferences. In the next step the utility function is created and fed to solver which will maximize it. Once the solutions are provided and the decision maker validates, the selected records are removed from the unassigned database and are inserted to a specific database card in the assigned database.

C. MATHEMATICAL REPRESENTATION

1. Phase A – "Transfer From" Model

a. Decision Variables

X_i, (i = 1, 2, …, 5): Actual values of attributes of interest

These values are of type date, text, and number. Based on these values the grading function will assign the appropriate grades as follows:

X_1: Time at current service

Type: Date, values calculated by STYX using the formula:

$$X_1 = \frac{\text{Today - Time transferred}}{30} \text{ [months]}$$

X_2: Preference to leave

Type: Text, domain values: {yes, no}.

X_3: Preference of current command

Type: Text, domain values: {stay, leave, - (where there is no expressed preference)}.

X_4: Failed to promote

Type: Text, domain values: {yes, no}.

X_5: Time at rank

Type: Number, values calculated by STYX using the formula:

$$X_5 = \frac{\text{today - time promoted}}{30} \text{ [months]}$$

Y_i, (i = 1, 2, …, 5): Grade based on values Xi, for the respective attributes

The grade is a decimal in the range of [0, +10] (with one exception of the grade for the "preference of current command" attribute, where the range is [-10, +10]). Those are:

Y_1: Grade for time at current service attribute

The grade is calculated by using the following formula:

$$Y_1 = \frac{\text{time at current service - time at current service to consider transfer}}{\text{time at current service to enforce transfer - time at current service service to consider transfer}} * 10$$

$$\text{IF } Y_1 < 0 \Rightarrow Y_1 = 0$$
$$\text{IF } Y_1 > 10 \Rightarrow Y_1 = 10$$

As already analyzed in Chapter III – Data Dimension, section B – Data Mining, the time (in months) at current service to start considering a transfer (which will be automatically graded as grade = 0) and the time (also in months) at current service to enforce a transfer (which will be graded as grade = 10) are input by the user. All intermediate values will by calculated by using the formula above.

Y_2: Grade for preference to leave attribute

Yes → 10

No → 0

Y_3: Grade for preference of current command attribute

Stay → -10

Leave → 10

- (where there is no expressed preference) → 0

Y4: Grade for failed to promote attribute

Yes → 10

No → 0

Y_5: Grade for time at rank attribute

The grade is calculated by using the following formula:

$$Y_5 = \frac{\text{time at rank - time at rank to consider transfer}}{\text{time at rank to enforce transfer - time at rank to consider transfer}}$$

$$\text{if required service due = "no"} \Rightarrow Y_5 = 0$$

This attribute is graded only when there is required service due. Again, as already analyzed in Chapter III – Data Dimension, section B – Data Mining, the time (in months) in rank to start considering a transfer (which will be automatically graded as grade = 0) and the time (also in months) in rank to enforce a transfer (which will be graded as grade = 10) are input by the user. All intermediate values will by calculated by using the formula above.

W_i, (i=1, 2, …, 5): Weights to create the utility coefficient.

The user will input his/her preferences by using the interface shown in Figure 9 – User Preferences Inputting Phase A.

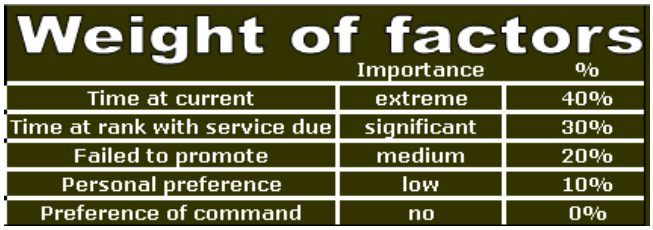


Figure 9. User Preferences Inputting Phase A

STYX uses Table 2 to transform the verbal expressions of importance that the user inputs to numerical values.

Verbal expression of significance		*Numeric value*
Utmost	→	5
Extreme	→	4
Significant	→	3
Medium	→	2
Low	→	1
No	→	0

Table 2. Transformation of Verbal Expressions to Numerical Values

The percentage shown in the column next to Importance (see Figure 9) is given from the formula:

$$\% = \frac{\text{specific numeric value of importance}}{\sum \text{of numeric values of importance}}$$

C_k, (k = 1, 2, …, m): Utility function coefficient for candidate k

The utility function coefficient is calculated for each candidate solution by the formula:

$$C_k = \sum_{i=1}^{5} W_i * Y_i$$

b. Objective Function

The objective function of the model is given by the formula:

$$\max \sum_{k=1}^{Z} C_k$$

C_k: utility coefficient of candidate k
Z: number of candidates proposed

c. Constraints

S: Number of officers to be transferred from current service

The number of officers to be transferred is decided by the following formula (rounded down in case the result is not an integer):

$$S = \text{current crew} * \text{percentage of crew allowed to be transferred}$$

The percentage of crew allowed to be transferred is user input. The S variable is calculated based on this percentage and the actual crew number which comes from adding up all the records in the database card.

Z: Constraint level of proposed candidates for transfer.

It is calculated by the formula:

$$Z = \alpha * S$$

α: positive integer

In the actual implementation, STYX proposes α times as many candidates as the variable S would require. This happens in order to give the user the potential to exercise his/her own judgment and intuition during the selection process (the system could propose less, as many, or more than the designated number of needed officers). So for STYX, the actual constraint is the number Z (number of proposed candidates for transfer).

The mathematical model for phase A is solved by Excel's solver (Figure 10 – Phase A Solver Implementation).

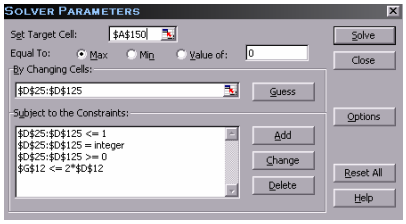


Figure 10. Phase A Solver Implementation

Some interesting points:

- Special care is taken so that candidate selection is limited to a binary state (1 → candidate is selected, 0 → candidate is not selected). Obviously STYX cannot select more than one of the same candidate.
- STYX is constrained to propose Z= α * S solutions where S is the designated maximum number of allowable transfers.

2. Phase B – "Transfer To" Model

The "Transfer To" model is in many aspects similar to the "Transfer From" model

a. Decision Variables

X'_1, X''_1, X'''_1: Preferences of individual

Type: Text, domain values coming from the list of services for the Hellenic Navy. There are three expressed preferences coming from the list of services for Hellenic Navy and formally expressed every year for every officer.

X'_2: Preference of other than current command

Type: Text, domain values coming from the list of services for the Hellenic Navy.

X'_3: Preferred rank 1

Type: Text, coming from the list of ranks for the Hellenic Navy (see Chapter III – Data Dimension, section A – Source Databases).

X''_3: Preferred rank 2

Type: Text, coming from the list of ranks for the Hellenic Navy (see Chapter III – Data Dimension, section A – Source Databases).

X'_4: Subspecialty

Type: Text, coming from the list of subspecialties for the Hellenic Navy deck officers (see Chapter III – Data Dimension, section A – Source Databases).

X'_5: History factor

Type: Number, values coming from the database, range 0 – 2 (see Chapter III – Data Dimension, section A – Source Databases)

Y'_1: Grade for preferences of individual

First service of choice → 10

Second service of choice → 7.5

Third service of choice → 5

Y'_2: Grade for preference of other than current command

Command that expressed preference → 10

Other commands → 0

Y'_3: Grade for preferred rank

Preferred rank 1 → 10

Preferred rank 2 → 5

Other ranks → 0

The rank attribute, apart from being used as an optimization factor, is also used as a constraint (further analysis in the constraints section below).

Y'_4: Grade for subspecialty

Preferred subspecialty → 10

Other subspecialties → 0

Y'_5: Grade for history factor

Calculated by the following formula:

$$HF = (|\text{job popularity factor} - \text{service average}|) * 10$$

$$\text{IF } HF > 10 \Rightarrow HF = 10$$

W'_i, (i=1, 2, …, 5): Weights to create the utility coefficient.

The user will input his/her preferences by using the interface shown in Figure 11 – User Preferences Inputting – Phase B.

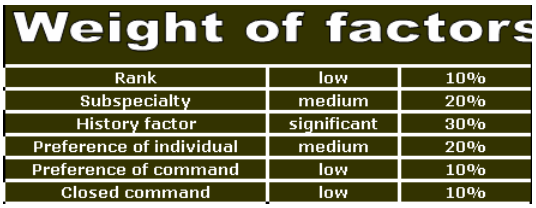


Figure 11. User Preferences Inputting – Phase B

STYX is using the same table shown in Table 2 (Table 2 – Transformation of Verbal Expressions to Numerical Values), to transform the verbal expressions of importance that the user inputs to numerical values.

C'_k, (k = 1, 2, …, m): Utility function coefficient for candidate k

Similarly to phase A, the utility function coefficient is calculated for each candidate solution by the formula:

$$C'_k = \left(\sum_{i=1}^{5} W'_i * Y'_i\right) * CF$$

CF: Constraint factor

The constraint factor (CF) is introduced to handle elimination of candidates not conforming to constraint restrictions. Its value can be one of the set [0, +1] and its formula is:

$$CF = CF_{rank} \times CF_{specialty} \times CF_{closed\ command} \times CF_{eval\ avg} \times CF_{time\ at\ rank}$$

In order for C'_k to be positive all of the above CF factor should be equal to 1, which means that all individual CF factors should be equal to 1. Otherwise $C'_k = 0$. More discussion of the individual CF factor is presented in the Constraints section below.

b. Objective Function

The objective function of the model is given by a formula similar to the one used for phase A:

$$\max \sum_{k=1}^{Z} C'_k$$

C'_k: utility coefficient of candidate k
Z': number of candidates requested

c. Constraints

Z': Number of officers of specific attributes to be transferred to service

For phase B once the appropriate service is set for transfers, STYX gives a summarized view of the needs in manpower. Obviously STYX cannot transfer all the officers needed in one step because the user cannot declare all the various requirements in one step. This is performed in multiple steps. The example given below will help clarify the procedure:

Service A

Requirement 1: 2 Ensign Deck officers

Requirement 2: 1 LT Engineer

Requirement 3: 2 LTJG Deck officers

In this case, we run the model to give a solution first for requirement 1, then for requirement 2 and finally for requirement 3. In that specific case Z' = 2 during the first iteration, then Z' = 1 and finally Z' = 2.

Z'_2: Specialty

All candidates of different specialty than the one declared in user preferences end up with a utility coefficient of 0. This is achieved by means of the

constraint factor $CF_{specialty}$. Its value belongs to the set [0, +1] and is equal to 1 for all candidates that have the same specialty as the one declared in the preferences section and 0 for all other candidates.

Z'_3: Closed command

All candidates of different command than the one declared in user preferences end up with a utility coefficient of 0. This is achieved by means of the constraint factor $CF_{closed\ command}$. Its value belongs to the set [0, +1] and is equal to 1 for all candidates that belong to the designated closed command and 0 for all other candidates.

Z'_4: Time at rank

All candidates that have a lower value for time at rank than the one declared in user preferences end up with a utility coefficient of 0. This is achieved by means of the constraint factor $CF_{time\ at\ rank}$. Its value belongs to the set [0, +1] and is equal to 1 for all candidates that have more time at rank than the value declared and 0 for all other candidates.

Z'_5: Evaluation average more than

All candidates that have a lower evaluation average than the one declared in user preferences end up with a utility coefficient of 0. This is achieved by means of the constraint factor $CF_{evaluation\ avg}$. Its value belongs to the set [0, +1] and is equal to 1 for all candidates that have more than the required value declared and 0 for all other candidates.

Z'_6: Rank

Rank is a special type of attribute that serves both optimization and constraint purposes. The optimization role and how it is assigned its grade is analyzed above in the descriptions of X'_3, X''_3, and Y'_3. The constraint part ensures that all candidates that do not belong to the set [preferred $rank_1$, preferred $rank_2$] (as declared in user preferences) end up with a utility coefficient of 0. This is achieved by means of the constraint factor CF_{rank}. Its value belongs to the set [0, +1] and is equal to 1 for all candidates that have one of the preferred ranks and 0 for all other candidates.

As in phase A, the mathematical model for phase B is solved by Excel's solver (Figure 12 – Phase B Solver Implementation).

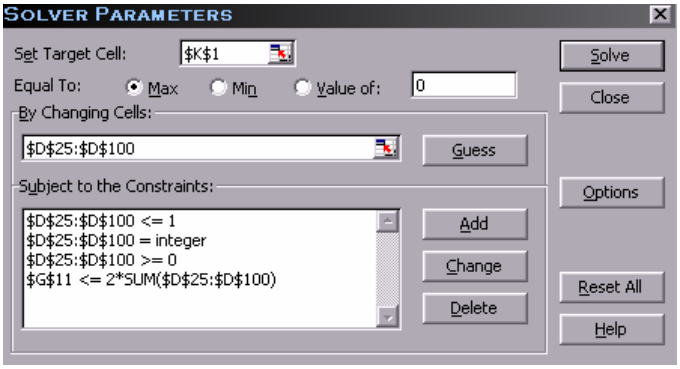


Figure 12. Phase B Solver Implementation

Some interesting points:

- Again special care is taken so that candidate selection is limited to a binary state (1 → candidate is selected, 0 → candidate is not selected).
- STYX will propose Z' = α' * S' solutions where S' is the number declared as "transfers needed" (in a manner similar to phase A).
- All constraints other than the number of transfers needed are not handled in the solver level but in the utility coefficient level. This means that STYX ensures that all candidates that are supposed to be eliminated are given utility coefficients equal to 0, before being input to the solver. This is a design characteristic that provides some significant advantages such as:
  - It helps in visualizing the eliminated attributes based on the utility coefficient (more analysis will be presented in Chapter V – User Interface and Visualization)
  - It provides the decision maker with the capability to select the eliminated candidate in case they choose to do so (though at the same time it provides clear visual indication that this candidate is eliminated and should not be selected).
- The Rank constraint is different from the other constraints in the sense that no candidate of rank different than the two ranks declared as "preferred" will even be input to the model. This design feature was implemented to reduce the number of record inputs to the model. Unfortunately, solver cannot handle comparison of more than 200 records. In that sense, the Rank attribute, is used as a filter to limit the input records to solver.

- An important issue concerning phase B is deciding the service sequence. This turns out to be a very important decision, since services that are selected first, will, almost surely, satisfy their requirements simply because they will have a bigger pool of available officers to choose from. In contrast, services at the end of the row will have to select from what is remaining of the officer pool. This issue is further analyzed in Chapter VII – Evaluation, Recommendations, Conclusion.

D. DATA INJECTION

1. Phase A

The "Transfer From" model is populated with data in a database card by database card pattern. This is accomplished by using a macro command (one example is given in Figure 13 – Export F/G PSARA Macro) which selects the specific database card and copies it to another location.

```
Sub exportpsara()
'
' exportpsara Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Range("A4302:Z4375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False

    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
```

Figure 13. Export F/G PSARA Macro

The appropriate attributes are selected for input to the mathematical model using hardwired IF statements, as is the implemented grading policy (as analyzed in section B – Mathematical Representation).

2. Phase B

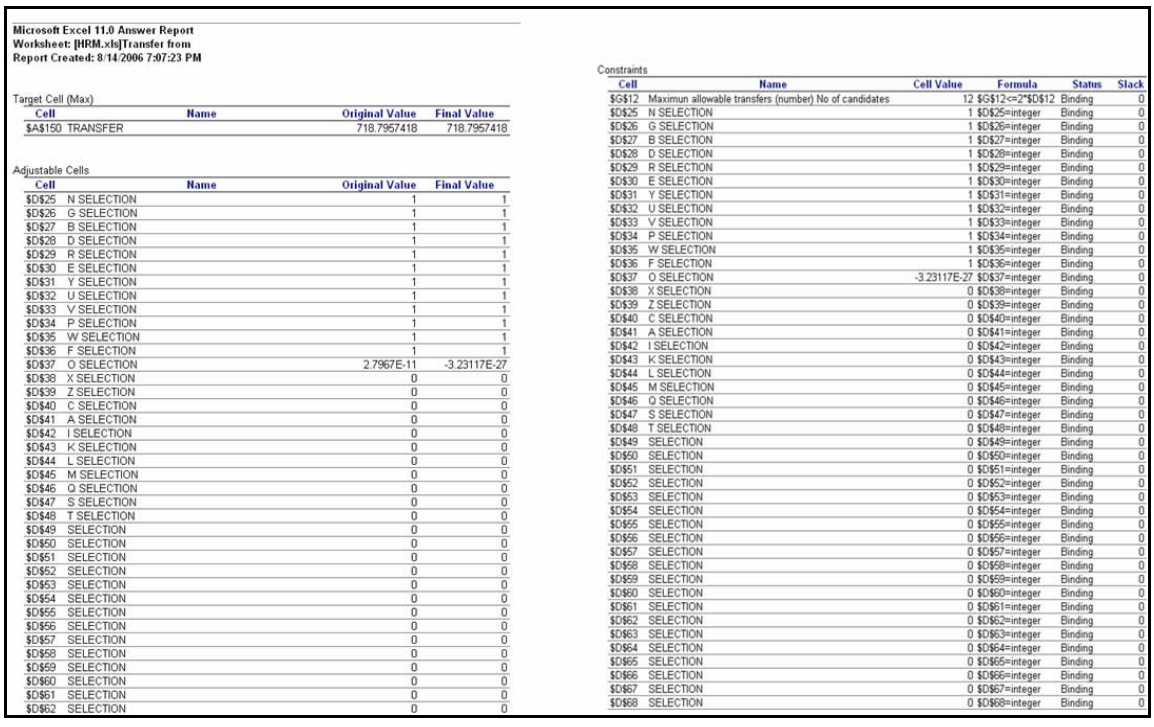
The "Transfer To" model is populated with data by selecting the whole unassigned database and using a macro command to copy it to another location. There, in a similar way to the one used in phase A, hardwired IF statements are used to select the appropriate attributes and to implement grading policy.

E. MODEL SENSITIVITY ANALYSIS – VALIDATION

The Excel solver provides some limited means of sensitivity analysis. Unfortunately in the case of STYX, the fact that it deals with integer constraints renders the sensitivity analysis capability inoperable (see Figure 14 – Sensitivity Analysis Pop Up).

Figure 14. Sensitivity Analysis Pop Up

Furthermore, the answer report (see Figure 15 – Solver Answer Report), does not provide much insight in the service of interpretation.



Microsoft Excel 11.0 Answer Report
Worksheet: [HRM.xls]Transfer from
Report Created: 8/14/2006 7:07:23 PM

Target Cell (Max)

Cell	Name	Original Value	Final Value
$A$150	TRANSFER	718.7957418	718.7957418

Adjustable Cells

Cell	Name	Original Value	Final Value
$D$25	N SELECTION	1	1
$D$26	G SELECTION	1	1
$D$27	B SELECTION	1	1
$D$28	D SELECTION	1	1
$D$29	R SELECTION	1	1
$D$30	E SELECTION	1	1
$D$31	Y SELECTION	1	1
$D$32	U SELECTION	1	1
$D$33	V SELECTION	1	1
$D$34	P SELECTION	1	1
$D$35	W SELECTION	1	1
$D$36	F SELECTION	1	1
$D$37	O SELECTION	2.7967E-11	-3.23117E-27
$D$38	X SELECTION	0	0
$D$39	Z SELECTION	0	0
$D$40	C SELECTION	0	0
$D$41	A SELECTION	0	0
$D$42	I SELECTION	0	0
$D$43	K SELECTION	0	0
$D$44	L SELECTION	0	0
$D$45	M SELECTION	0	0
$D$46	Q SELECTION	0	0
$D$47	S SELECTION	0	0
$D$48	T SELECTION	0	0
$D$49	SELECTION	0	0
$D$50	SELECTION	0	0
$D$51	SELECTION	0	0
$D$52	SELECTION	0	0
$D$53	SELECTION	0	0
$D$54	SELECTION	0	0
$D$55	SELECTION	0	0
$D$56	SELECTION	0	0
$D$57	SELECTION	0	0
$D$58	SELECTION	0	0
$D$59	SELECTION	0	0
$D$60	SELECTION	0	0
$D$61	SELECTION	0	0
$D$62	SELECTION	0	0

Constraints

Cell	Name	Cell Value	Formula	Status	Slack
$G$12	Maximun allowable transfers (number) No of candidates	12	$G$12<=2*$D$12	Binding	0
$D$25	N SELECTION	1	$D$25=integer	Binding	0
$D$26	G SELECTION	1	$D$26=integer	Binding	0
$D$27	B SELECTION	1	$D$27=integer	Binding	0
$D$28	D SELECTION	1	$D$28=integer	Binding	0
$D$29	R SELECTION	1	$D$29=integer	Binding	0
$D$30	E SELECTION	1	$D$30=integer	Binding	0
$D$31	Y SELECTION	1	$D$31=integer	Binding	0
$D$32	U SELECTION	1	$D$32=integer	Binding	0
$D$33	V SELECTION	1	$D$33=integer	Binding	0
$D$34	P SELECTION	1	$D$34=integer	Binding	0
$D$35	W SELECTION	1	$D$35=integer	Binding	0
$D$36	F SELECTION	1	$D$36=integer	Binding	0
$D$37	O SELECTION	-3.23117E-27	$D$37=integer	Binding	0
$D$38	X SELECTION	0	$D$38=integer	Binding	0
$D$39	Z SELECTION	0	$D$39=integer	Binding	0
$D$40	C SELECTION	0	$D$40=integer	Binding	0
$D$41	A SELECTION	0	$D$41=integer	Binding	0
$D$42	I SELECTION	0	$D$42=integer	Binding	0
$D$43	K SELECTION	0	$D$43=integer	Binding	0
$D$44	L SELECTION	0	$D$44=integer	Binding	0
$D$45	M SELECTION	0	$D$45=integer	Binding	0
$D$46	Q SELECTION	0	$D$46=integer	Binding	0
$D$47	S SELECTION	0	$D$47=integer	Binding	0
$D$48	T SELECTION	0	$D$48=integer	Binding	0
$D$49	SELECTION	0	$D$49=integer	Binding	0
$D$50	SELECTION	0	$D$50=integer	Binding	0
$D$51	SELECTION	0	$D$51=integer	Binding	0
$D$52	SELECTION	0	$D$52=integer	Binding	0
$D$53	SELECTION	0	$D$53=integer	Binding	0
$D$54	SELECTION	0	$D$54=integer	Binding	0
$D$55	SELECTION	0	$D$55=integer	Binding	0
$D$56	SELECTION	0	$D$56=integer	Binding	0
$D$57	SELECTION	0	$D$57=integer	Binding	0
$D$58	SELECTION	0	$D$58=integer	Binding	0
$D$59	SELECTION	0	$D$59=integer	Binding	0
$D$60	SELECTION	0	$D$60=integer	Binding	0
$D$61	SELECTION	0	$D$61=integer	Binding	0
$D$62	SELECTION	0	$D$62=integer	Binding	0
$D$63	SELECTION	0	$D$63=integer	Binding	0
$D$64	SELECTION	0	$D$64=integer	Binding	0
$D$65	SELECTION	0	$D$65=integer	Binding	0
$D$66	SELECTION	0	$D$66=integer	Binding	0
$D$67	SELECTION	0	$D$67=integer	Binding	0
$D$68	SELECTION	0	$D$68=integer	Binding	0

Figure 15. Solver Answer Report

One way for the user to perform a kind of manual, intuitive sensitivity analysis would be to try and run STYX again with different input parameters (changing either or both the grading preferences and factor weights).

Nevertheless, the most meaningful way of interpreting the results is by closely observing the grade next to each candidate (which turns out to be the utility coefficient for the candidate). If further analysis of this grade is required, then, by scrolling to the right of both the “Transfer From” and the “Transfer To” screen, the user can access grades for individual factors that can provide more insight on why a certain candidate is graded the way he/she is.

Full model validation is extremely difficult if not impossible. The main problem with validation for STYX is that after the selection is done and implemented, it is very difficult to:

- Evaluate how successful the decision was before some significant amount of time passes by (in the magnitude of months).
- Evaluate how much better or worse off the organization would have been had the transfer decisions been different.
- The model itself cannot really be validated based on real results, since STYX is designed to leave ample decision space for user choice (by providing more or less solutions than those declared as “required”).

Of course, all these difficulties have little to do with the model itself. They are mostly problems of the human resource management environment.

Although STYX does not provide appropriate measures for validation, it does provide measures of comparing the actual decision to the one proposed by the system. This is achieved by the use of the Decision Alignment Factor (DAF).

$$DAF = \frac{\sum_{i=1}^{Z} C_k}{\sum_{i=1}^{Z'} C_k} * 2$$

$\sum_{i=1}^{Z} C_k$: The sum of coefficients actually selected by the user

$\sum_{i=1}^{Z'} C_k$: The sum of coefficients proposed by solver

If DAF is greater than 80%, the actual selections of the user are in accordance with STYX. If DAF is less than 50%, the user did not validate many of the solutions provided. If DAF is in the intermediate range (greater than 50%,

less than 80%) then the user validated some but not most of the solutions provided. In any case DAF is a measure of accordance between STYX's propositions and user's final decisions.

In the case that the user continuously observes DAF values of less than 50%, then the interpretation is one or more of the following:

- The user does not input preferences according to policy or intuition. As a result, the selections of the user do not coincide with those proposed by STYX. This is an indication that the user does not really understand how STYX operates and, therefore, cannot benefit much by using it.
- When the user makes his selection, he takes into account some factors of a different nature than the ones for which the model is programmed. This is an indication that a subsequent version of STYX should be designed.

One way of validating whether one or both of the above is the case, would be to run STYX against past transfers. Although there would still be no indication in terms of what would have happened had the decision maker selected differently, this could operate as a test for STYX against past successful, or unsuccessful transfer decisions. Identifying whether we would repeat successful decisions or avoid unsuccessful ones would provide one way of actually validating STYX.

F. SUMMARY

In this chapter we have discussed and analyzed model properties such as influence diagrams, mathematical representation, data injection, model sensitivity analysis and validation. In the next chapter (Chapter V – User Interface and Visualization) we will present and analyze the System – User interaction.

V. USER INTERFACE AND VISUALIZATION

A. DATA INPUT

There are three layers of data input in STYX: an administrator data input layer, a user preference layer and a database update layer.

The administrator level deals with the initial creation of the assigned database the first time that the DSS is to be used. The administrator must go through every database card of the assigned database and input data for the current officers in each service, following the format shown in Figure 16 (Figure 16 –Sample of a Database Card)

Export to transfer from | Go up

F/G PSARA

DUTY	FIRST NAME	LAST NAME	RANK	SPECIALTY	SUBSPECIALTY	EVALUATION	ME TRANSFERR	IME AT CURREN	PREF TO LEAVE	PREF OF COMM	SERVICE AVG	CLOSED COM	AIL TO PROMOT	IME PROMOTEI	TIME AT RANK
CO	A	A	ANTIPL	MAX	NK	95	6/17/2005	14	YES			353 MNAS		1/1/2004	32
XO	B	B	PLYT	MAX	SN	92	1/25/2001	68	NO	leave				1/2/2004	32
CHENG	C	C	YPOPL	MHX	-	97	2/1/2004	31	NO					1/3/2004	32
PB	D	D	YPOPL	MAX	PB	85	10/8/2003	35	no					1/4/2004	32
NK	E	E	YPOPL	MAX	NK	85	10/9/2003	35	yes					1/5/2004	32
SN	F	F	YPOPL	MAX	SN	78	10/10/2003	35						1/6/2004	32
GE	G	G	YPOPL	MAX	PB	79	10/11/2003	35	yes	LEAVE				1/7/2004	32
MPA	H	H	ANUYPOPL	MHX	-	71	4/17/2005	16		STAY				4/9/2004	29
	I	I	YPOPL	MHX	-	77	4/18/2005	16						4/10/2004	29
	J	J	ANUYPOPL	MHX	-	74	4/19/2005	16		STAY				4/11/2004	29
	K	K	ANUYPOPL	MHX	-	82	5/25/2006	3						4/12/2004	29
	L	L	ANUYPOPL	MAX	PB	77	5/26/2006	3						8/23/2001	61
	M	M	ANUYPOPL	MAX	NK	83	5/27/2006	3						8/24/2001	61
	N	N	ANUYPOPL	MAX	SN	77	9/30/2003	35	yes	LEAVE				8/25/2001	61
	O	O	ANUYPOPL	MAX	A/Y	86	10/8/2004	23	yes					8/26/2001	61
	P	P	ANUYPOPL	MAX	PB	80	10/9/2004	23						8/27/2001	61
	Q	Q	ANUYPOPL	MAX	NK	80	10/15/2005	10						8/29/2004	24
	R	R	ANUYPOPL	MAX	SN	79	10/16/2005	10	YES				yes	8/30/2004	24
	S	S	ANUYPOPL	MAX	A/Y	86	10/17/2005	10						8/31/2004	24
	T	T	SHM	MAX	PB	82	10/18/2005	10						9/1/2004	24
	U	U	SHM	MAX	NK	82	10/19/2005	10	YES	LEAVE				9/2/2004	24
	V	V	SHM	MAX	SN	75	5/23/2002	52						9/3/2004	24
	W	W	SHM	MAX	A/Y	78	6/27/2006	2					yes	9/4/2004	24
	X	X	SHM	MAX	PB	71	10/20/2003	34						9/8/2004	24
	Y	Y	SHM	MHX	-	80	10/21/2003	34	YES					11/17/2005	9
	Z	Z	SHM	MHX	-	73	10/22/2003	34						11/18/2005	9

Figure 16. Sample of a Database Card

During the data input phase, attribute cells are validated to reduce the probability of error as discussed in Chapter III – Data Dimension.

The second layer of data input is the user preferences layer. This occurs when the user provides the two mathematical models with the appropriate grading and weight preferences (see Figures 17 and 18). In that layer the user inputs grading preferences for the attributes of interest, defining which values will be graded as perfect → 10 and which as worst → 0, and defining weight preferences verbally which are transformed according to Table 2 (see Chapter IV Model Dimension, section C Mathematical Representation) to numeric values.

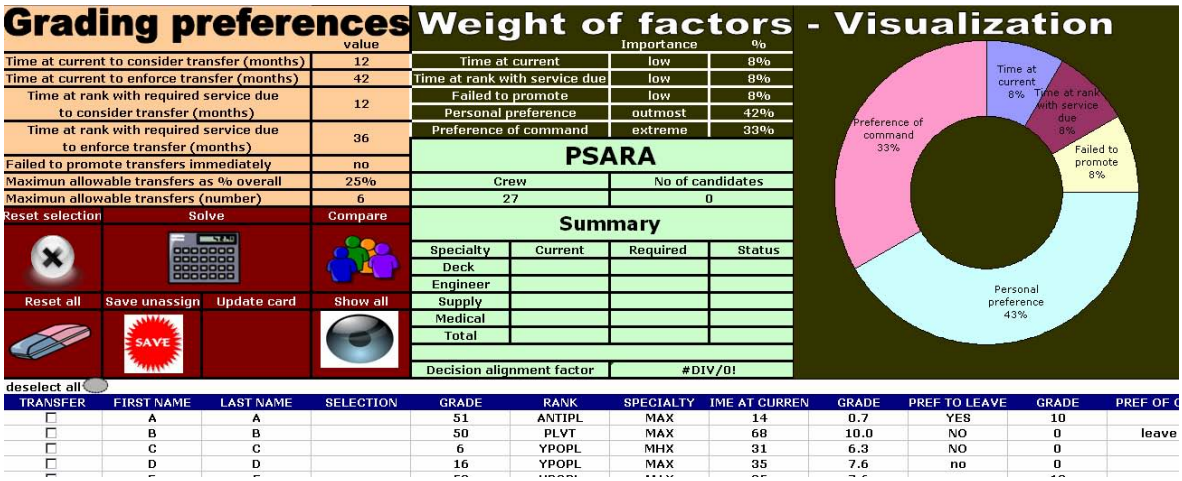


Figure 17. Input preferences to Transfer From Model

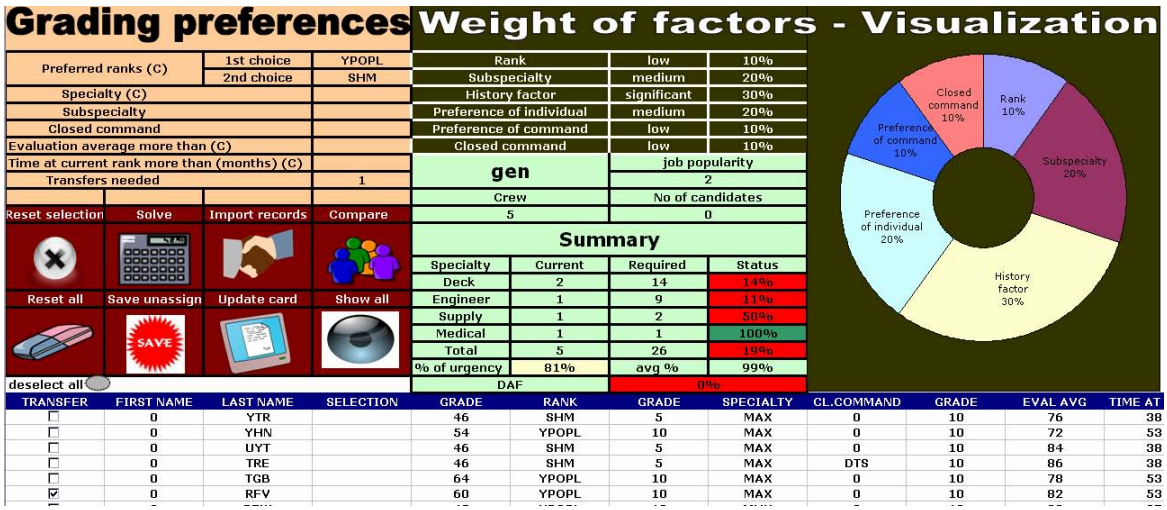


Figure 18. Input Preferences in the Transfer To Model

Finally, the third layer of data input is the database update layer. Database updates happen during phase A and during phase B.

1. Phase A

Once STYX provides the solution of identifying which officers may be assigned, the user validates by using the check box next to each selected record, updates the unassigned database by clicking in the “save unassigned” box, and updates the database card by clicking the “Update Card” button. A complete presentation of exactly how this is achieved is presented in Chapter VI – DSS Prototype Development).

2. Phase B

In a way similar to phase A, the user validates the solution, updates the unassigned database (by removing the appropriate records) and updates the database card (by adding the new records). Again a complete presentation of exactly how this is achieved is presented in Chapter VI – DSS Prototype Development).

B. NAVIGATION

Navigation in STYX is accomplished primarily through the use of hyperlinks and buttons. Figure 19 - Welcome Screen, shows the initial screen in which hyperlinks are used to help the user navigate.

Figure 19. Welcome Screen

As mentioned previously, the assigned database is comprised of 124 database cards, each representing a specific service. These services follow a tree like structure for navigation, the topmost of which consists of six categories:

- GEN
- DNE
- INDEPENDENT
- AS

- DDMN
- SHIPS

Each category has several subcategories (e.g. the category DNE has the subcategories KEPAL, KEPOROS, N/A AIGLH, SDEPN, SMYN, YNA). Following a subcategory the user can navigate to a specific unit. The category, subcategory system follows the hierarchical structure of the Hellenic Navy. In that sense, the user already has an intuitive idea of what subcategories each category should have. A list of categories and subcategories is presented in the Appendix section (Appendix B – list of categories and subcategories).

Let us provide an example to better illustrate the navigation process in the assigned database. Suppose the user wants to find the database card of F/G PSARA.

Step 1: The user knows that F/G PSARA is a ship so he clicks on the SHIPS hyperlink as shown in Figure 20.

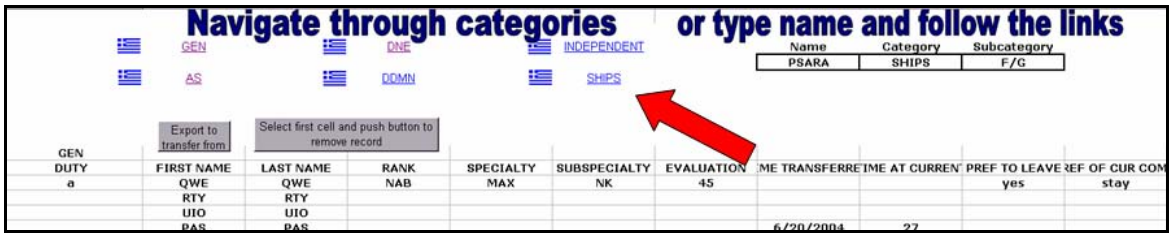


Figure 20. Navigation Example Step 1

Step 2: This will send the user to the subcategory screen for SHIPS. The user knows that F/G PSARA is a frigate so he clicks on the frigate subcategory hyperlink as shown in Figure 21.

Figure 21. Navigation Example Step 2

Step 3: By clicking on the F/G subcategory hyperlink, the user will be presented with a list of all frigates. By clicking the appropriate hyperlink (in our case F/G PSARA) he will access the appropriate database card as shown in Figure 22.

Figure 22. Navigation Example Step 3

By using this "tree like" navigation system the users may navigate throughout the database cards, provided that they know and understand the hierarchical structure of the Hellenic Navy. In case the users do not know the exact hierarchical location for a service, STYX provides help by pointing out the exact path. Returning to our previous example, if the users cannot navigate by themselves to F/G PSARA, the alternative exists to input "PSARA" in the appropriate "Name" cell, and the appropriate path will be revealed as seen in Figure 23.

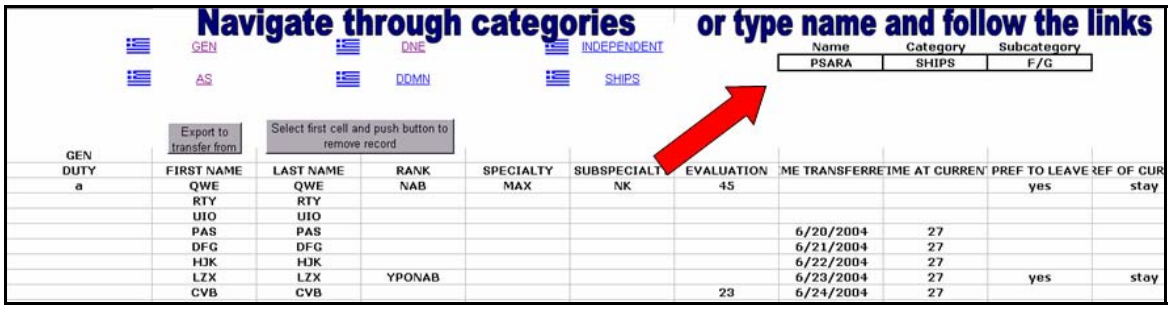


Figure 23. Navigation Help

Finally, a third way of navigation is provided by pressing Ctrl + F and using the "Find" function embedded in Excel.

In the case when a user needs to access a different database card, there are "Go up" buttons provided (see Figures 21, 22) that retrace the hierarchy until Step 1 is reached.

STYX is comprised of the following worksheets:

- Welcome screen
- Assigned database
- Unassigned database
- Transfer From calculator
- Transfer To calculator
- Final report
- Lists

Navigation through these worksheets is accomplished simply by using the tabs provided by Excel.

C. VISUAL – MEMORY AIDS

STYX uses a variety of visual and memory aid tools in the “Transfer From” and “Transfer To” calculator.

1. The Factors Visualization Doughnut

When a user is inputting the significance preferences for the factors to be taken into account, it would be easy to lose track of how important he considers each factor compared to the other factors. This is where the “factors visualization doughnut” comes into place. It is nothing more than a doughnut chart that visually presents the relevance of the factors amongst themselves based on the % column next to the significance column (Figure 24). The whole doughnut represents the overall importance and each part represents the weight of the specific factor. This provides the user with a visual perspective of how important he considers each factor compared to the overall importance.

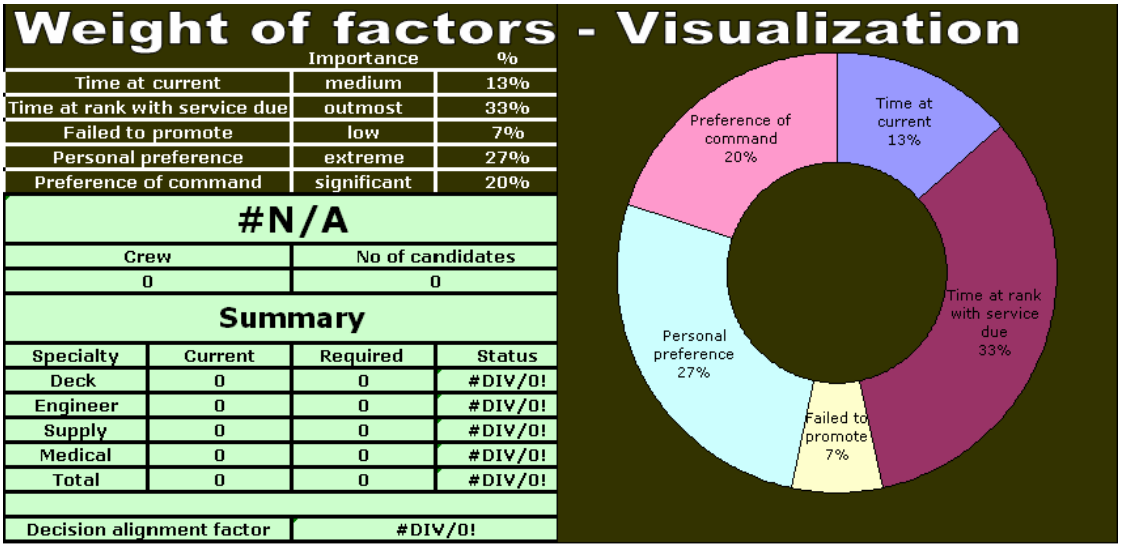


Figure 24. Factors Visualization Doughnut

2. Conditional Formatting

STYX uses conditional formatting and color coding in the “Transfer From” and “Transfer To” calculators as a visual aid for the users. Generally speaking a cell in a green background is interpreted as a good choice or a situation requiring no action, a cell in a yellow background indicates caution and a cell in a red background indicates immediate attention. More specifically, color coding is used in the following situations:

a. In Solver Solutions

All recommended solutions are painted green and all non-recommended are painted red. In that way, although the users are not prevented from violating the recommendations, they have a clear understanding of how aligned their choices are to those recommendations.

b. In the Summary Status for a Database Card

When a database card is exported to the calculator, the summary part of the screen contains the percentage of current vs. required personnel per specialty (Figure 25). If the percentage is above 90%, the cell appears green, if it is between 75% and 90%, the cell appears yellow, and otherwise it appears red. This is indicative of whether the specific service is in need of incoming transfers or not.

PSARA			
Crew		No of candidates	
25		6	
Summary			
Specialty	Current	Required	Status
Deck	14	14	100%
Engineer	8	9	89%
Supply	2	2	100%
Medical	1	1	100%
Total	25	26	96%

Figure 25. Database Card Summary

c. In the Decision Alignment Factor (DAF)

As previously discussed in Chapter IV – Model Dimension, section D model sensitivity analysis – validation, DAF is a measure of accordance between STYX's recommendations and the user's final decisions. For DAF values greater than 80%, the cell appears green, for values between 50% and 80% the cell appears yellow and for values less than 50% the cell appears red.

D. OUTPUT PRESENTATION

STYX provides two types of outputs for the user. The first type emanates from the solution that the solver provides upon completion of the computation, and the second provides a report with all transfers that have been scheduled.

1. Solver Solution

Figure 26 shows the Transfer From screen. The solutions are sorted by rank of best fit (better solutions are placed higher). Nevertheless both recommended and not recommended candidates appear in the output screen and can be selected. The users can switch to the "compare view" if they prefer to concentrate on the recommended solutions or the "show all" view if they prefer to see all results by using the appropriate buttons (indicated by the red arrows in Figure 26).

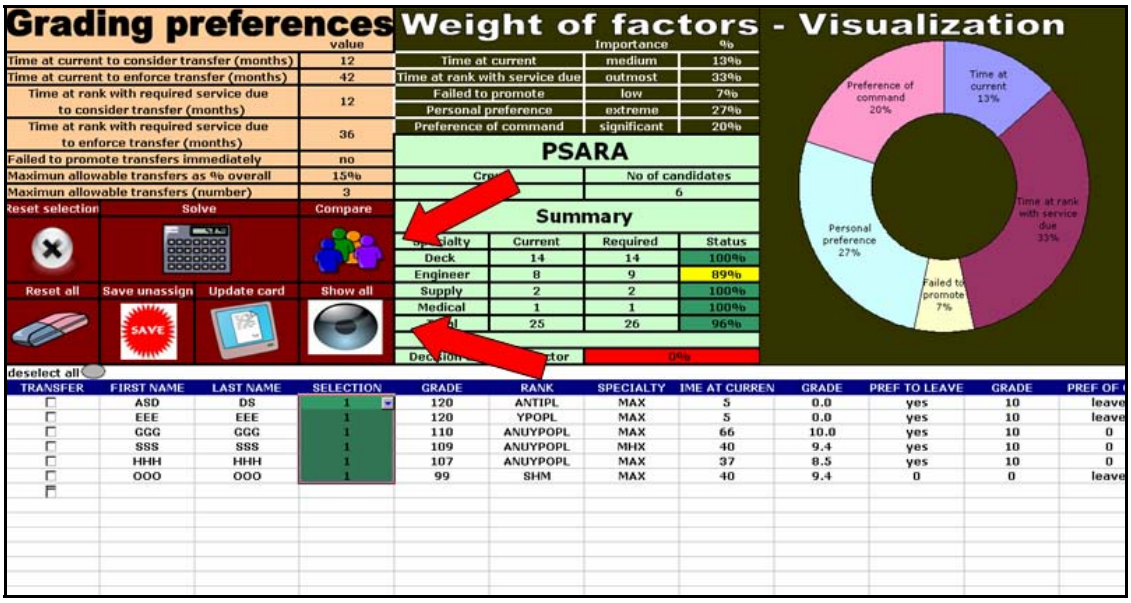


Figure 26. Solver Solution

One problem associated with solver output is that there are many attributes to be presented and not much space left in the screen (which is already busy enough). If a user needs to elaborate on specific aspects of the grades, he can always scroll to the left and see more details of the attributes and their grades.

2. STYX Final Report

Once the overall process of the seasonal transfers is completed, STYX provides a report summarizing who is transferred where (Figure 27).

FIRST NAME	LAST NAME	RANK	SPECIALTY	FROM	TO
A	A	YPOPL	MHX	SPETSAI	PSARA
B	B	SHM	MAX	THEMISTOKLIS	KEPAL
C	C	ANUYPOPL	IATR	DY	NNA

Figure 27. Final Report

E. SUMMARY

In this chapter, we have discussed the user interface and visualization during data input and navigation. We have also presented visual aids and output presentation. The fact that the entire DSS environment is Excel-based constitutes a minor limitation because there are no fancy GUIs, but at the same

time has the advantage that almost all users will be familiar with the interface. In the next chapter, a demonstration of STYX will be presented to allow the reader to see in detail how the DSS functions.

VI. DSS PROTOTYPE DEVELOPMENT

A. DSS ARCHITECTURE

STYX is designed as a stand alone application (as part of the requirements set by the Department of Personnel). In that sense, everything belongs to an Excel file comprised of different worksheets. Nevertheless, these worksheets are logically connected in a specific architecture as shown in Figure 28.

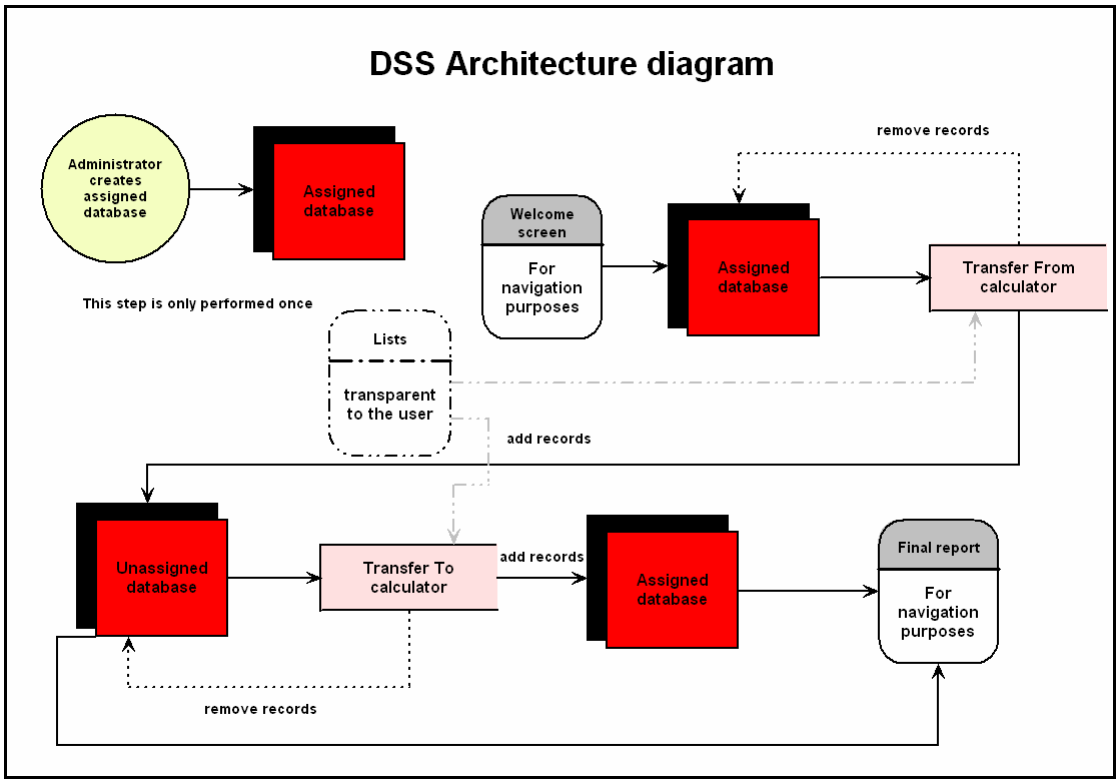


Figure 28. DSS Architecture

So far we have addressed the worksheet integration in several previous chapters, however we have not discussed the “Lists” worksheet. This worksheet is an administrative only help sheet, used to facilitate various functionalities. It mostly consists of lists (with their respective names) and its presence is completely transparent to the user.

B. DEMONSTRATION SCENARIO

The process will be described and analyzed in steps.

1. Step 0: Data Input-Performed by: Administrator

In this step data should be input to the assigned database (in a database card by database card mode). This step is performed only the first time that the system is put into service. Upon completion a database card should look like Figure 29 – Database Card.

F/G PSARA DUTY	FIRST NAME	LAST NAME	RANK	SPECIALTY	SUBSPECIALTY	EVALUATION	ME TRANSFERRE	IME AT CURREN	PREF TO LEAVE	PREF OF COMM	SERVICE AVG	CLOSED COM	AIL
	ASD	DS	ANTIPL	MAX	NK	97	4/7/2006	5	yes	leave	1.7		
	EEE	EEE	YPOPL	MAX	SN	78	4/8/2006	5	yes	leave	0.4		
	GGG	GGG	ANUYPOPL	MAX	NK	77	3/29/2001	66	yes		1.4		
	SSS	SSS	ANUYPOPL	MHX		98	5/16/2003	40	yes		1.7		
	HHH	HHH	ANUYPOPL	MAX	PB	78	8/5/2003	37	yes		0.6		
	OOO	OOO	SHM	MAX		86	5/12/2003	40		leave	0.7		
	QWE	QWE	SHM	OIK		79	1/1/2006	8	yes		0.4		
	DDD	DDD	YPOPL	MAX	SN	82	4/7/2006	5	yes		1.9		
	LLL	LLL	SHM	MAX		76	9/9/2005	12		leave	1.3	DTS	
	FFF	FFF	YPOPL	MAX	PB	72	3/28/2001	66					
	PPP	PPP	YPOPL	MHX		83	5/13/2003	40			1.1		
	RRR	RRR	YPOPL	MHX		91	5/15/2003	40			1.3		
	TTT	TTT	ANUYPOPL	MHX		93	5/17/2003	40			1.7		
	III	III	ANUYPOPL	MAX	SN	83	8/6/2003	37			1.7		
	MMM	MMM	SHM	MAX		84	9/10/2005	12			1.7		
	BBB	BBB	PLVT	MAX	A/Y	100	4/5/2006	5			0.6		
	CCC	CCC	PLVT	MHX		90	4/6/2006	5			0.4		
	JJJ	JJJ	ANUYPOPL	MAX	NK	76	9/7/2005	12			1.5	353 MNAS	
	NNN	NNN	SHM	MAX		76	9/11/2005	12			0.4		
	YYY	YYY	ANUYPOPL	MHX		81	12/20/2005	8			0.4		
	ASD	ASD	SHM	MAX	NK	85	5/13/2003	40			1.3		
	WWW	WWW	SHM	MHX		84	12/29/2005	8			1.9	DY	
	XXX	XXX	SHM	MHX		75	12/30/2005	8			1.9		
	ZZZ	ZZZ	YPOPL	OIK		84	12/31/2005	8			1.9		
	WER	WER	ANUYPOPL	IATR		72	1/2/2006	8			1.9		

Figure 29. Database Card

Each database card has specific functionalities embedded in it for data manipulation and are activated by pressing the appropriate buttons. These functionalities are:

- Sort by name
- Sort by rank
- Eliminate duplicates

2. Phase A

a. Step 1: Setting up the "Transfer From" Calculator Preferences-Performed by: User

This is one of the most important steps in the procedure. It is when the user provides STYX his grading preferences (Figure 30) and factor weights (Figure 31):

- Grading preferences
  - Time at current service to consider transfer
  - Time at current service to enforce transfer
  - Time at rank with required service due to consider transfer

- Time at rank with required service due to enforce transfer
- Maximum allowable transfers as percentage overall
- Maximum allowable transfers (number)
- No of candidate solutions (x a)

Grading preferences	value
Time at current to consider transfer (months)	12
Time at current to enforce transfer (months)	36
Time at rank with required service due to consider transfer (months)	24
Time at rank with required service due to enforce transfer (months)	42
No of candidate solutions (× a)	1
Maximun allowable transfers as % overall	30%
Maximun allowable transfers (number)	7

Figure 30. Grading Preferences for Phase A

- Weight of factors
  - Time at current service
  - Time at current rank with required service due
  - Failed to promote
  - Personal preference
  - Preference of command

Weight of factors	Importance	%
Time at current	medium	13%
Time at rank with service due	outmost	33%
Failed to promote	low	7%
Personal preference	extreme	27%
Preference of command	significant	20%

Figure 31. Factor Weights for Phase A

STYX incorporates these inputs into the optimization model as described in Chapter IV, nevertheless there are some important issues that the users should have in mind while completing step 2.

1. Both screens serve a very important purpose. By inputting these values, the users align grading of attributes and importance of factors to their preferences. In cases where the users find themselves unwilling to validate STYX's recommendations, it may

be because they failed to complete Step 2 properly. If a user fails to properly represent his preferences, he, most probably, will get a solution that is undesirable. Although the user can always ignore the recommendation of STYX and proceed by selecting different solutions than those proposed by the DSS, this would beat the basic purpose of using the DSS after all (which is optimization based on input set of parameters).

2. Both “times to consider” (see Figure 30) could potentially eliminate a factor and therefore could alter the relevance amongst the factors. All candidates having a value less than the “times to consider” will get a grade = 0 for this factor, practically reducing its significance to “no significance” for those candidates.

3. In “weights of factors” the importance of each factor is realized only in comparison to the other factors. This is where the factors visualization doughnut comes into play in helping the users to understand the issue of comparison. In fact, setting the significance of all the factors to “low significance” or to “extreme significance” will affect the model in exactly the same way (see Figure 32)

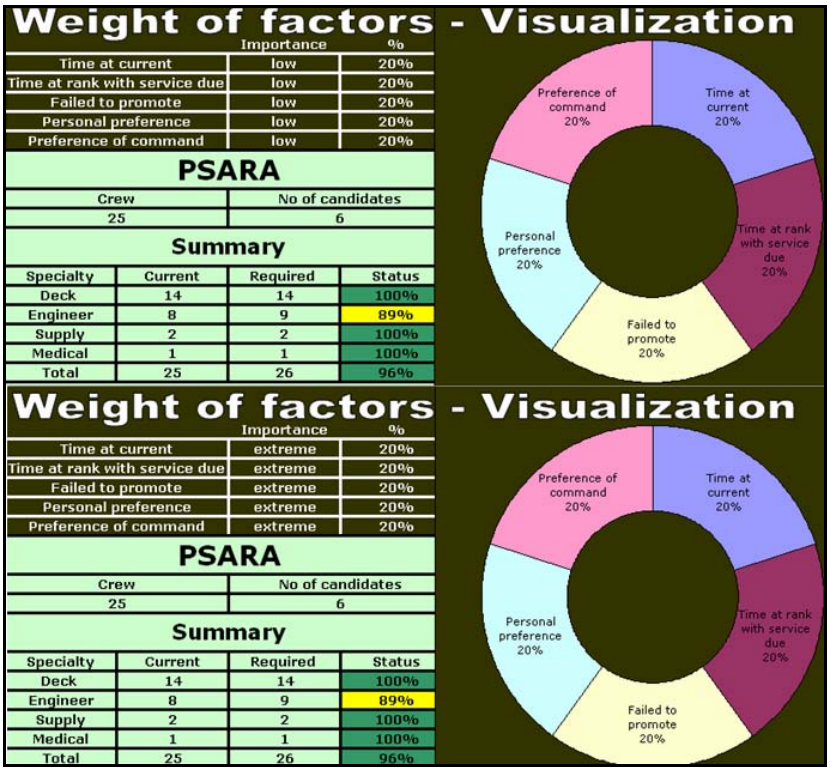


Figure 32. Comparing Significance

4. The “maximum allowable transfers” is another important number. It controls the number of solutions and it gives an idea to the detailer

how many officers should be “transferred from.” By abiding by this number the detailer could avoid cases where a large percentage of the crew is transferred in a single transfer period.

b. Step 2: Exporting Database Cards to the Transfer To Calculator-Performed by: User

Once Step 1 is completed, phase A can initiate. The users can export a database card to the “Transfer From” calculator by using the “export to transfer from” button present in each database card. As soon as a database card is fed to the “Transfer From” calculator, STYX automatically grades all candidates according to the inputs of Step 2. Furthermore, the users can observe some statistics referring to this specific card as shown in Figure 33.

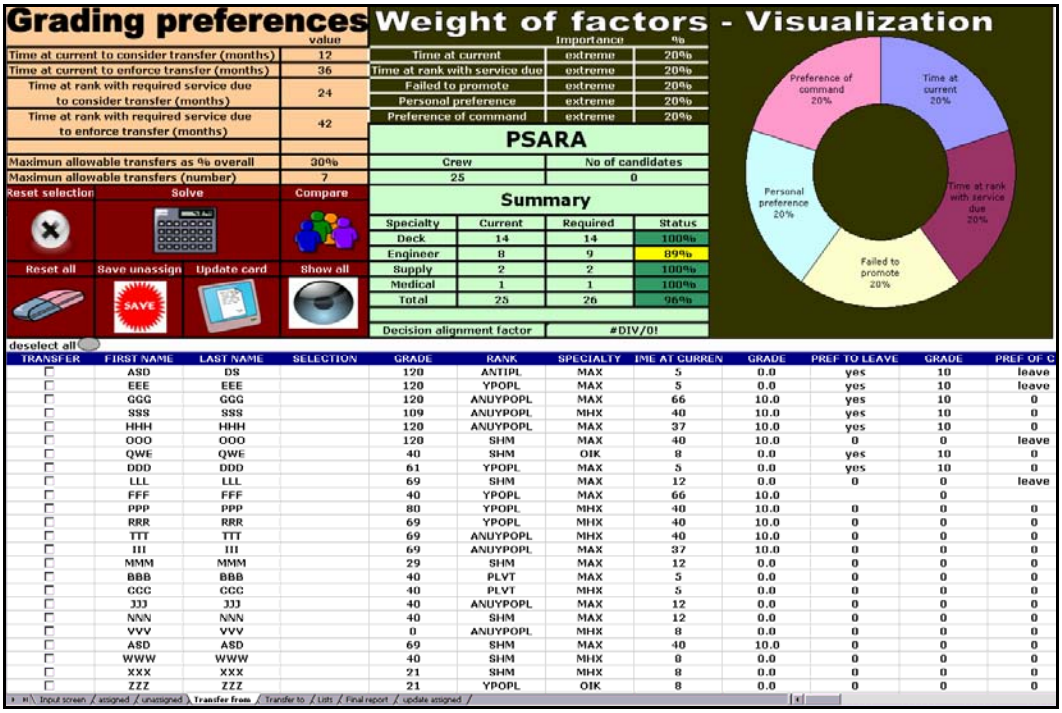


Figure 33. Transfer From Before Calculation

c. Step 3: Solving the Problem-Performed by: STYX

To generate a solution to Phase A, all the user has to do is press the solve button. Once he does so, he will see a screen similar to the one in Figure 34.

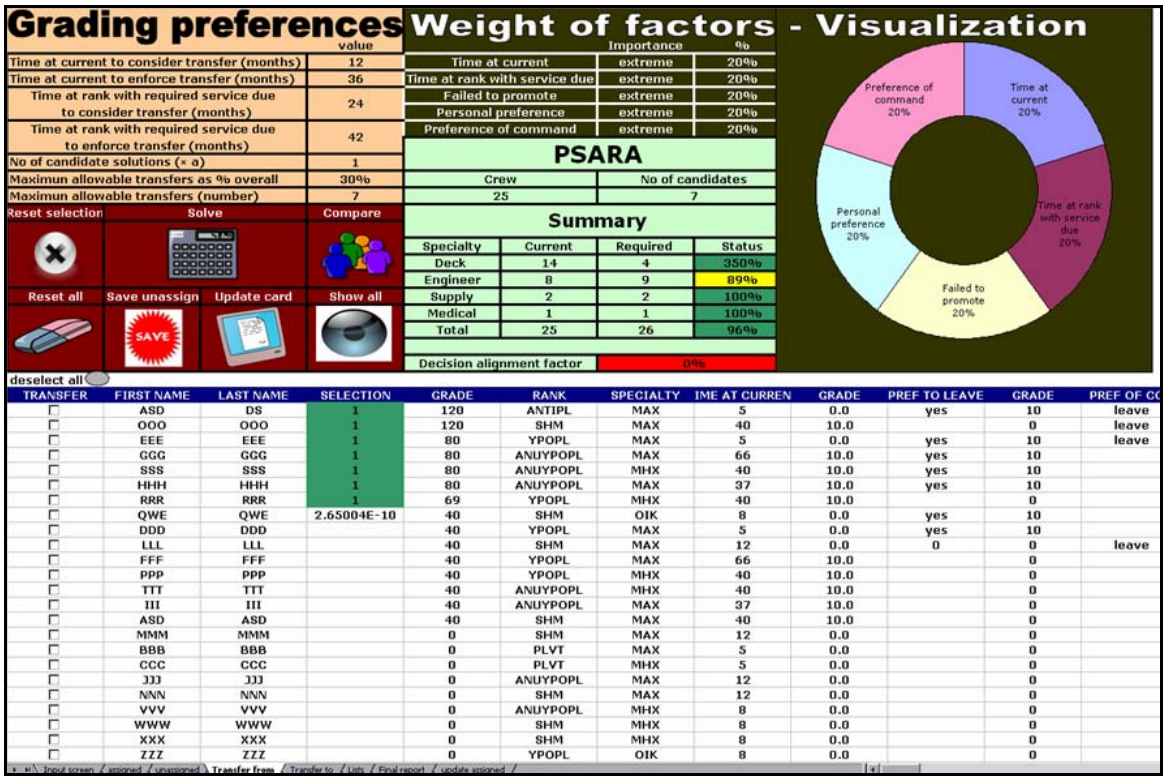


Figure 34. Transfer From Solved

As seen in Figure 34, the selections are presented in green and all candidates are ranked by suitability (according to the grade column).

d. Step 4: Solution Validation – Updating the Databases- Performed by: User

STYX operates solely as a recommendation system. In order for the transfers to actually take place the user must validate by clicking in the appropriate transfer check box (first column to the left). By clicking on the appropriate checkboxes, the DAF percentage increases. Once the user is satisfied with his/her selection he/she should press the save unassigned button. Then the user will be prompted for verification through a messagebox (Figure 35).

Figure 35. Verification Messagebox 1

If the user selects “Yes” (if the selection is “No” nothing will happen), the appropriate records will be transferred to the “unassigned” database, the corresponding database card will appear in the assigned database and another message box will prompt for verification to update the database card (Figure 36 – verification messagebox 2). If, again, the user verifies, the database card will be updated.

Figure 36. Verification Messagebox 2

This ends the manipulation process of a specific database card. The user should now go to step 1 and repeat the process for another card. Once all the cards are manipulated, phase A is completed.

e. Step 5: Creating the Transfer From Report-Performed by: STYX

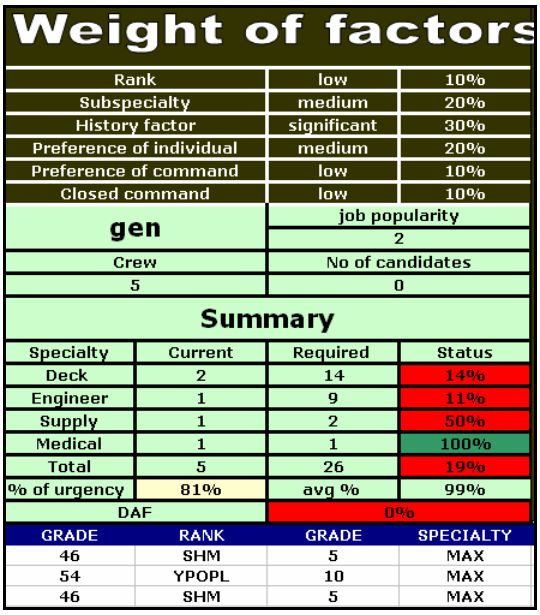
Once phase A is completed the user should navigate to the unassigned database and push the “create transfer from report” button. This will generate the “transfer from” part of the final report.

3. Phase B

a. Step 0: Determining the Service Sequence-Performed by: User

Before phase B begins, a significant decision needs to be made. As previously discussed, STYX will transfer officers to services in a sequential, service by service manner. It is obvious that services that are first in line will have a better chance of satisfying their operational needs. Once the decision maker imports a service to the “Transfer To” calculator, STYX will evaluate this decision based on the percentage of current vs. required personnel. This evaluation is presented in the % of urgency cell (see Figure 37 – % of urgency) by using this percentage and comparing it to the average for all services. If the % of urgency is greater than average % the cell appears green, if it is less it appears yellow and if it is less than half of the average % it appears red. This will give a measure of

how much more or less the service input to the “Transfer To” calculator, is in need of personnel, compared to the other services. In any case, the decision maker could very well ignore this evaluation and proceed according to his own notion of service sequence. What STYX provides is only a recommendation that the user has no obligation to follow.



Weight of factors

Rank	low	10%
Subspecialty	medium	20%
History factor	significant	30%
Preference of individual	medium	20%
Preference of command	low	10%
Closed command	low	10%
gen	job popularity	
	2	
Crew	No of candidates	
5	0	

Summary

Specialty	Current	Required	Status
Deck	2	14	14%
Engineer	1	9	11%
Supply	1	2	50%
Medical	1	1	100%
Total	5	26	19%
% of urgency	81%	avg %	99%
DAF		0%	

GRADE	RANK	GRADE	SPECIALTY
46	SHM	5	MAX
54	YPOPL	10	MAX
46	SHM	5	MAX

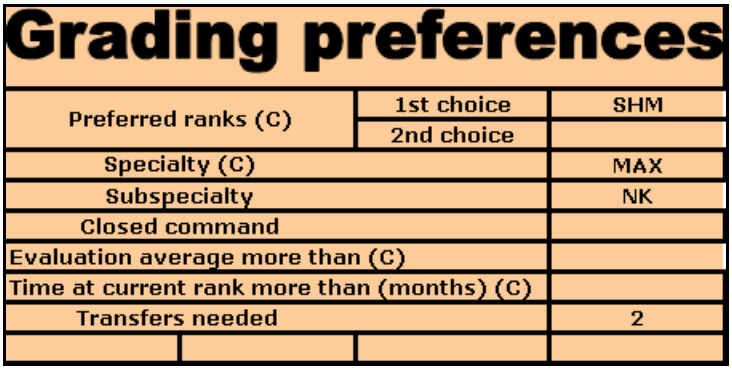
Figure 37. % of Urgency

b. Step 1: Setting Up the “Transfer To” Calculator Preferences-Performed by: User

This, in a similar manner to phase A, is a very important step in the procedure since it is at this point when the user aligns STYX according to his/her preferences. The user can manipulate the following as shown in Figures 37 and 38:

- Grading preferences
  - Preferred ranks
  - Specialty
  - Subspecialty
  - Closed command
  - Evaluation average more than

- Time at current rank more than (months)
- Transfers needed



Grading preferences		
Preferred ranks (C)	1st choice	SHM
	2nd choice	
Specialty (C)		MAX
Subspecialty		NK
Closed command		
Evaluation average more than (C)		
Time at current rank more than (months) (C)		
Transfers needed		2

Figure 38. Grading Preferences Phase B

- Weight of factors
  - Rank
  - Subspecialty
  - History factor
  - Preference of individual
  - Preference of command
  - Closed command

Weight of factors		
Rank	outmost	36%
Subspecialty	low	7%
History factor	medium	14%
Preference of individual	significant	21%
Preference of command	significant	21%
Closed command	outmost	

Figure 39. Weight of Factors Phase B

Again, the way that STYX handles all these inputs is thoroughly analyzed in Chapter IV. Some important issues that the users should have in mind while completing Step 1 are:

1. As already discussed, it is important for the user to realize that those fields that are identified by the (C) (see Figure 38) operate as constraints. All records in the unassigned database not within the range of the (C) fields will automatically be given a utility coefficient of 0.

2. As in phase A the two screens are the means for the user to align STYX according to preferences. Failure to do so appropriately may result in poor and unreliable results.

3. Again, in “weights of factors” the importance of each factor is relevant to the importance of the others.

4. The “% urgency” recommendation has to do solely with percentage of current vs. required personnel. If the user has a different set of parameters in deciding the service sequence then he should ignore the recommendation.

c. Step 2: Importing the Service-Performed by: User

The service is imported manually by insertion into the appropriate cell. With it, the service summary is also uploaded (Figure 40).

POLEMISTHS		job popularity	
		0	
Crew		No of candidates	
6		4	
Summary			
Specialty	Current	Required	Status
Deck	3	4	75%
Engineer	1	1	100%
Supply	0	0	#DIV/0!
Medical	0	0	#DIV/0!
Total	4	5	80%

Figure 40. Service Summary

d. Step 3: Importing the Appropriate Records-Performed by: User

By pressing the appropriate button (import records), the candidates that are not disqualified by the constraint “Rank” are input to STYX. At that point the user sees a screen similar to Figure 41.

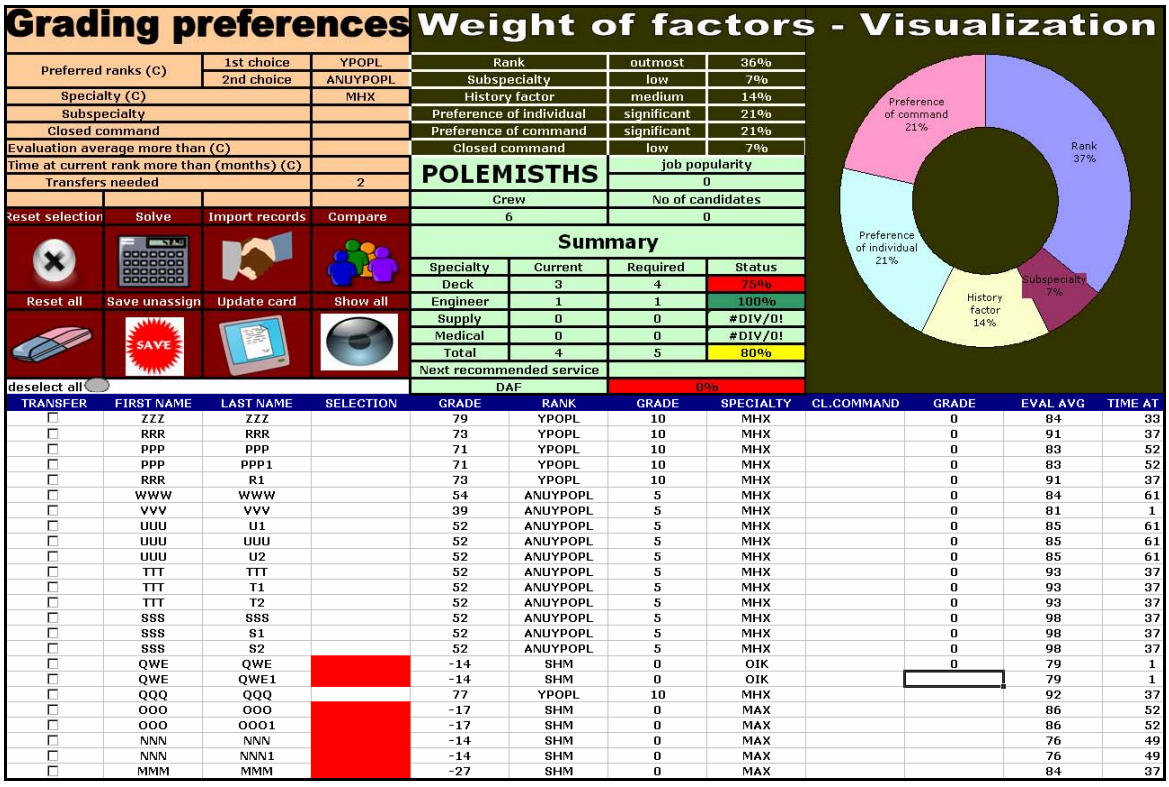


Figure 41. Transfer To Before Calculation

e. Step 4: Solving the Problem-Performed by: STYX

Again, all the user has to do is press the solve button at which point, a screen similar to the one in Figure 42 will appear.

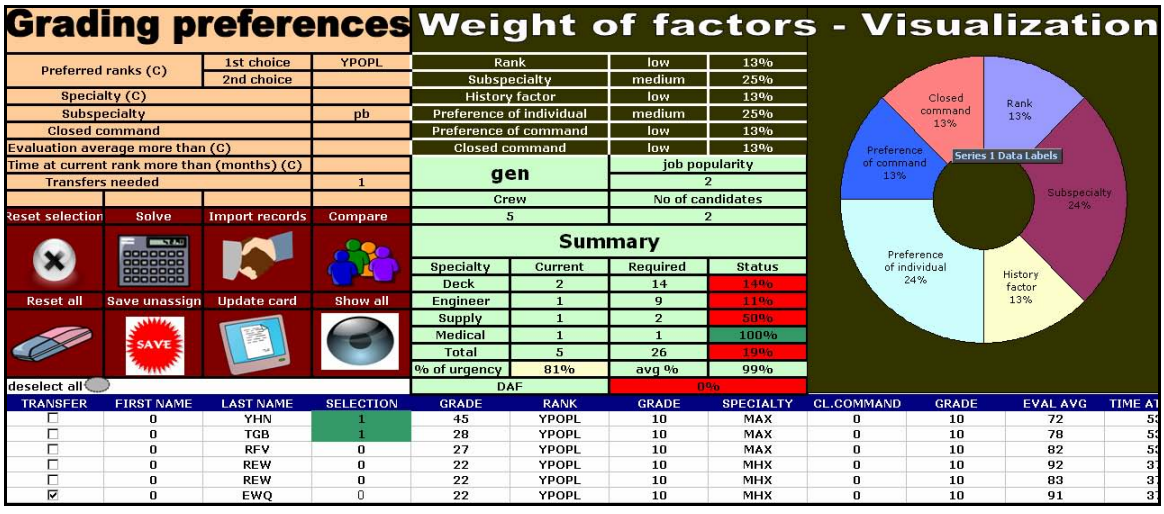


Figure 42. Transfer To Solved

f. Step 5: Solution Validation – Updating the Databases – Performed by: User

In order for the transfers to actually take place the user must validate by clicking in the appropriate transfer check box (first column to the left). Once the user is satisfied with his/her selection he/she should press the save assigned button. Then the user will be prompted for verification through a messagebox (Figure 43).

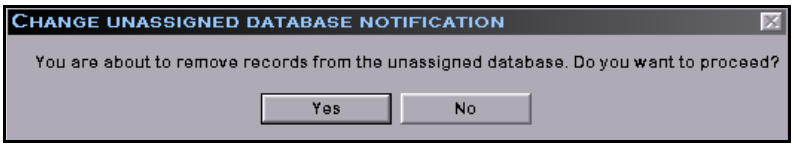


Figure 43. Verification Messagebox 3

If the user selects “Yes” (if the selection is “No” nothing will happen) the appropriate records will be deleted from the “unassigned” database, and will be copied to the “Transfer To” part of the final report. At the same time, another message box will prompt for verification to update the database card (Figure 44). If, again, the user verifies, the respective database card will appear. At that point all the user has to do is paste the contents of the clipboard to the database card.

Figure 44. Verification Messagebox 4

This ends the phase B process for this specific card. The user should now go to step 1 and repeat the process for another card. Once all the cards are manipulated, phase B is completed.

By the time phases A and B are completed STYX has already generated a full final report of all the transfers which occurred during this transfer period. In case the user needs a printout all he/she has to do is navigate to the final report screen and press the “print report” button.

C. DSS CLASSIFICATION

According to D.J. Power [4] DSS are categorized as follows:

- Data-Driven DSS
  - Data warehouse
  - Executive Information System (Dashboard)
  - Spatial DSS
- Model-Driven DSS
  - OR/MS (forecasting, optimization)
- Knowledge-Driven DSS
  - Suggest/recommend actions to managers
  - Domain-specific
  - Data mining/knowledge discovery
- Document-Driven DSS
  - Search engines
- Communication-Driven and Group DSS
  - Collaboration
  - Group problem-solving

Due to the models existing and the optimization techniques, we could definitely categorize STYX as a model driven DSS. Nevertheless, STYX operates a lot in the area of recommendation and suggestion since it does not enforce its solutions whatsoever. On the contrary, it leaves a lot of "free area" for the decision maker to validate solutions (or not). Furthermore it uses data mining to identify data appropriate for input to the models. In that sense, someone could argue that STYX is somewhere in between the model driven and knowledge driven category.

D. PROTOTYPE DEVELOPMENT METHODOLOGY

The methodology chosen to develop STYX was rapid prototyping. This decision was mainly driven by the limited time available to develop the system

[4] DJ Power Supporting Decision Makers: An Expanded Framework (http://dssresources.com/papers/supportingdm/sld001.htm) 12/15/2000 – last accessed on 8/30/2006.

and by the inability of the users to actually describe wanted and unwanted system attributes since there was no legacy system. Some of the issues associated with the methodology chosen are:

1. Reduced Development Time?

By having continuous feedback from the users, rapid prototyping has the potential to significantly reduce development time. Nevertheless, in our case feedback was not continuous (due to the distance between the developer and the sponsor). Furthermore, the feedback taken was very "mild" and as such has not really contributed to product improvement.

2. The Methodology Requires User Involvement

The methodology is ideally based upon increased user involvement, since the users know the problem domain better than anybody else. Unfortunately the reality of distance reduced that user involvement and therefore reduced some of the most important benefits of using the methodology.

3. The Methodology is based on Quantifiable User Feedback

As already mentioned, user feedback was rather "mild." To demonstrate what we mean by "mild," in one of the feedback sessions the developer got the comments "very good work, it could use some improvement but it is obviously a remarkable effort." This kind of feedback, though pleasant for the developer, does not contribute to product improvements. The reason why this was happening could be one (or more of the following):

- The users never met in person with the developer, so there was no strong connection between them that could allow more openness.
- Obviously the development of STYX was not high in the priority list of most of the users. Therefore, some of them had a "wasted time" attitude during the feedback sessions.
- The users, never having worked with a similar system, did not have a definite idea of what to expect from it.
- The users, never having worked with the developer, did not have a definite idea of what to expect from him.

Finally, one of the most important characteristics of prototyping is that it makes the actual implementation of the system easier. Whether that would be the case with STYX remains to be seen.

E. SUMMARY

With this chapter we finished presenting and analyzing the system. By now, the reader should have an idea of what STYX is, and what it can and cannot do. In the last chapter, we evaluate the system in the context of related work, and make recommendations for future versions.

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VII. EVALUATION, RECOMMENDATIONS, CONCLUSION

A. RELATED MATERIAL

As part of the evaluation of STYX, we compare it with recent related work in manpower assignment applications. In this section the following documents will be reviewed and commented upon.

1. Manpower Requirements Database for the Greek Navy – by Kyriakos N. Sergis, Master's Thesis, September 2003

The purpose of this thesis was similar to ours, namely to create a system to facilitate the work of the Department of Personnel concerning transfers. Nevertheless, it used a different approach whose focus was to create a manpower database accessed via the Internet. The prototype was based on a 3-tier architecture having both a web and database design and implementation. It, too, tried to resolve the multi attribute problem of assigning the right people to the right place. Differences in Sergis' approach from ours are as follows:

1. That system was web enabled with emphasis put on information flow. As a result of the requirements restrictions imposed upon our system, we designed a stand alone, rather than a networked application, using Excel as a familiar desktop environment.
2. The scope of Sergis' system was broader in concept, involving everything our system contains plus the web enabled schema and a far more sophisticated database schema. However it is also more limited in the sense that its implementation was designed as a proof of concept prototype vs. our simpler turnkey system.
3. Sergis' database schema was far more sophisticated since it used a real RDBMS rather than simple Excel worksheets, so it provided much richer data management capabilities.
4. Sergis' system used a handcrafted algorithm to provide a one step solution rather than a service sequential solution using multiple executions of the standard Excel solver. In that sense, it provided a broader and simpler overall solution, but it lacked the capability of validation for the user. The user could either accept the solution as a whole or reject it. Our system implements a step by step process that allows the user to have more granular control of service by service assignment.

In summary, Sergis' system is a more global and scalable solution, but one which does not as readily meet the needs of specific service detailers.

2. Business Wargaming: Applications for Marine Corps Manpower Policy Decisions – by Joseph S. Zimmerman, Master's Thesis, March 2000

In this thesis manpower policy decisions were simulated by using "agent based simulation" in an exercise called SimArmy/Firm Handshake. Furthermore, a Marine Corps version of the exercise called SimMarineCorps was proposed.

1. The focus of Zimmermann's thesis is in simulating the manpower environment. By doing so, the system gains increased capability of running "what if" scenarios at a low cost. The research goes to an even deeper analysis by using "agent based simulation" (ABS) techniques instead of traditional ones. The difference from traditional simulation is that the simulated entities are modeled as individual objects (agents) in an attempt to simulate their specific behaviors.
2. Another main focus is to decide on billets that need to be filled as opposed to the specific personnel required to fill them. From that aspect it is very different from our thesis in that the focus is not on individual assignment per se, but rather on overall recruiting mission.
3. Perhaps the most important difference between SimMarineCorps and STYX is the level of observation. STYX operates at the level of the individual officer whereas SimArmy/Firm Handsahake and SimMarineCorps deals with high level manning and recruiting decisions from the command's perspective.

3. Improving Recruit Distribution Decisions in the U.S. Marine Corps, by Hemant K. Bhargava and Kevin J. Snoap, Decision Support Systems (36) 2003, pp. 19-30

This article proposes improvements in the existing Marine Corps Decision processes and information systems for recruit distribution. The authors have developed a fully functional model that makes recommendations by incorporating four objective measures (Fill – representing wasted resources, Wait – before assignment to a school, Unassignables – number of marines not assigned to a school, Fit – a coefficient dealing with how appropriate was the decision of assigning certain marines to certain schools).

1. Their model is constructed around multi-attribute utility theory and it resembles STYX in many ways. Nevertheless it deals with a somewhat different problem, namely assigning recruits to training seats. Marine recruits have many different career paths, which is not the case with officers in the Hellenic Navy. They, too, have

many career paths but these paths are not determined through the transfer system and therefore are not within the scope of STYX.

2. The recruit distribution model (RDM) takes into account different objectives such as minimizing unfilled seats (there is no such concern in the Hellenic Navy due to a different philosophy in Naval Education in the Hellenic Navy), improving quality of fit (same as in STYX), and reducing waiting times (again, not a concern for the Hellenic Navy). In RDM the developers provide features for evaluating tradeoffs between the best fit and the best fill. In our case fit is the overwhelming concern, and thus our model is more of a single objective rather than multi-objective optimization model.

3. RDM deals extensively with the issue of sensitivity analysis. By allowing the user to change some of the parameters, it provides extensive "what if" analysis capabilities. Our system, unfortunately, due to limitations of Excel (that will be further analyzed in section C – limitations) does not provide those capabilities. Although the users can change parameters and observe the differences in the provided solutions, there is no measure of describing whether this change in parameters provides a better or worse solution set.

4. Analysis of the Marine Corps Enlisted Assignment Process, by Ly T. Fecteau, Master's Thesis, June 2002

This thesis reviews the current assignment process for U.S. Marine Corps and assesses it in terms of efficiency and effectiveness. It proposes using web markets and intelligent agents to more effectively plan and assign Marines to billets.

1. One of the main findings of this thesis is that the assignment process currently in place is too one-sided, not taking seriously into account Marines' preferences. This is partly the case in our application as well, and indeed, one of STYX's implementation main goals is to change that.

2. Another finding is that the detailers performing the task of assigning the right Marine to the right billet, are ill equipped in terms of an effective DSS that could improve the process. This is exactly the case with the Hellenic Navy's Department of Personnel, and STYX is an important first step to improve this situation.

5. Two – Sided Matching Agents for Electronic Employment Market Design: Social Welfare Implications, by William R. Gates, Mark E. Nissen, December 2002

In this paper there is an analysis of two types of job assignments in markets, distributed market and hierarchical (which is exactly the case for military

organizations and as such, for the Hellenic Navy as well). Furthermore an experiment is described and its results analyzed on which system out of the following five is most successful in performing the job assignment task

- Unassisted
- Assisted (by Logical Decisions for Windows)
- Agent based simulation (by using a software application called Personnel Mall)
- Two sided matching algorithm
- Optimization algorithm

1. One of the most important findings was that no matter what method from the other four was used to move from the unassisted system, the gains were significant. This is very important for our system which is also trying to achieve the transition from an unassisted to an assisted system of job assignments.
2. Although our solution was not an algorithmic one, it implemented the two sided matching concept. In the experiment conducted in the paper, the two sided matching algorithm proved to be very successful.
3. The framework for their paper is the implicit assumption that job seeking involves supply and demand open market dynamics. The fact is that in our case, we are facing a strictly hierarchical system in which market dynamics are somewhat limited since an officer cannot easily refuse a job and seek another. This limits the applicability of their findings to our specific case.

B. EVALUATION – STRONG POINTS

Before beginning our evaluation of STYX, we should acknowledge that, whether it will eventually be implemented or not, it does represent a step forward. At the very least, it signals the Hellenic Navy that there is a need for a system to manage and optimize the job assignment process. STYX is the very first attempt at creating such a system and should be evaluated as such. The developer sees it as the first system in a series of systems to come, that will deal with Human Resource Management in the Hellenic Navy.

That being said we discuss the advantages of the STYX decision support system.

1. It Imports More Structure to This Semi – Structured Decision Environment

As previously mentioned, the multi – attribute decision environment is very demanding and very challenging. One of the most important reasons why it is so is because of the presence of rules, many of which are conflicting. In such an environment a Decision Support System provides more structure and improves the overall process by incorporating the relevant attributes in the decision process.

2. It Removes Significant Amounts of Bias from the Decision Process, thus Potentially Affecting Morale Positively

In a decision environment such as the job assignment environment, it is absolutely certain that not all stakeholders can be equally satisfied. Especially for the officers, these decisions are very important and, sometimes, unpleasant. For those cases that will certainly occur, the use of a Decision Support System such as STYX may lead to less concentrated criticism and cognitive dissonance. This improves morale and fosters a notion of equality and justice to the body of officers.

3. The Users are Familiar with the Interface

The whole system consists of one big, complex Excel file. Users are familiar with the Excel software and should have relatively little trouble being trained to use STYX and therefore, implementation should not be burdened by a steep learning curve.

4. It Is Easily Deployable and Implementable

All that is really needed to deploy the system is a PC running Windows equipped with MS Excel and Solver add-on. For the Hellenic Navy, this is a very standard configuration. Other than these standard requirements, it requires no specialized hardware or software.

5. It is Easily Maintainable, and Technical Support Would Not Be an Issue

STYX is an Excel file. Once some minor initial adjustments are completed, no technical issue is expected to appear. If backed up (which is very easy since

its size is less than 10 MB) it can be restored easily if any kind of technical problem arises. This means that the system can practically have close to 0% downtime.

6. It is Free and No Need for Proprietary Licensing is Required

All those involved in the Decision Support Systems field have an idea of how costly such a system can be. Table 3 provides a sample of various pricing for HRM systems.

Product name	*Developer*	*Pricing*
MySAP ERP HCM	SAP America Inc.	$50.000 +
Microsoft Dynamics GP Enterprise	Microsoft	$20.000 - $250.000
HR Entre	Human Resource Microsystems	$15.000 +
PeopleSoft Enterprise Human Capital Management	Oracle	$25.000 - $200.000
People Managing People Solutions	Liberty Business Solutions	$5.000 +
Microsoft Dynamics AX	Microsoft	$100.000 - $300.000
e-Synergy	CRM software	$5.000 +

Table 3. HRM Systems Information

Obviously, STYX does not provide anywhere near the functionality of any of these highly professional systems, nevertheless, the fact that in such an expensive market STYX does its job at no cost is still a significant advantage.

7. It Requires Little or No Organizational Change

STYX was designed as a system embedded in the procedures that the Department of Personnel (DoP) follows to perform the Human Resource Management function. As a result, no deviation from current policies or tactics is needed for the system to be implemented. For everyone other than the actual users in the DoP, the system will be completely transparent. In fact, the organization will not have to change any processes from how or what they are currently doing. Since no overwhelming change is anticipated, no great resistance is expected to occur during implementation.

8. The Users Seem to Realize They Are Ill Equipped

During the interactions of the developer with the users, they seemed to realize that they are currently ill equipped to perform their task optimally. Therefore they expect the product will improve their situation. This means that, at least, they will be willing to test and evaluate it.

9. STYX Operates at the Recommendation Level

In every case, the results coming from STYX can be partially (or even completely) modified. This creates an impression that the users are in complete control. For decision makers that have never before worked with a DSS of this kind, this is a comforting feeling. They may be far more suspicious of a one button algorithmic implementation that “magically” provides the optimal solution. Furthermore, users will always want to “adjust” a solution, even if it is optimal. Often, the model constraints cannot capture all of the “real life” constraints and rules which the detailer will be aware of, so the optimal solution is still an approximation. In that sense, users need the capability to tailor the solution to their own situation and STYX provides that capability.

10. STYX Provides Step By Step Involvement of the Decision Maker

By incorporating a step by step (service by service) approach to optimization, STYX allows the decision makers to observe closely and intervene in the decision making process. For every service potentially altered, user input is required for validation. In that sense, the final output cannot be unexpected and unrelated to user preferences and needs, since they validate it every step of the way.

In summary, STYX is a free, easy to use system that provides an objective, optimal baseline solution to the job assignment process which can be modified by the detailer to accommodate local constraints. This baseline solution provides a much better starting point for making assignments than detailers have heretofore had access to.

C. EVALUATION – LIMITATIONS

1. No Direct Connection with Legacy Databases

Direct connection to personnel databases was a feature that could have been embedded into STYX, but issues arose with respect to providing access to these databases for this project. The main concern was one of confidentiality. Furthermore, legacy databases in the DoP are primarily used for archiving purposes and as such, are not very closely controlled and administered. In that sense, the danger of injecting STYX with unreliable data was present.

These considerations led to the development of STYX as a stand alone application. The disadvantage to that is that during initial adjustment, the database portion of the DSS (more specifically the "assigned database") must be input manually. This manual insertion is expected to take somewhere between 1 – 3 days. Nevertheless, it need occur only once during initial setup.

2. Bias Can Potentially Be Introduced in the Process

One of the main advantages of STYX is that it removes bias. Nevertheless, the model can be manipulated to justify a decision. If the decision maker wants to "force" the DSS to provide a certain solution, altering the preferences to do so would not be such a daunting task. The worst part in a situation like this would be that a biased decision would justifiably appear to be an unbiased one.

The fact that STYX can be manipulated in such a way by a potential user is not really the big issue. After all, the DSS can only be as good as the user inputting the preferences. The real limitation, though, is that should such manipulation take place, STYX has no mechanism to identify the fact.

One way to bypass this limitation is through implementation of appropriate policy. Such a policy could mandate coming to an agreement on appropriate grading and weight of factors, before inserting specific records for evaluation (and being able to observe the coefficients for each candidate and how these coefficients change when "fudging" with the input parameters). Once the records

are input, no further alteration of the preferences should be allowed. Following this practice would ensure that STYX is used to find optimized solutions and not to justify predetermined selections.

3. The System is Solely Based on User Input Preferences

This is supposed to be an advantage because it enables users to adjust the system according to their preferences. It does, however, hide an implicit assumption, that the users know what the mix of best preferences is. This is not to be taken lightly for a very complicated problem like this. This fact represents an important limitation of the method of multi – attribute utility analysis. The method is guaranteed to find the answers for the questions the user asks. Whether the user asks the right questions, though, is another issue. The user is responsible for inputting realistic preference values to produce a realistic outcome. Otherwise, the solutions may be erroneous and misleading. In other words if the user feeds the system with garbage input, that is what he is going to get as an output.

The way to deal with this matter is to thoroughly examine input preferences before starting the analysis of data. The decision makers must make sure that in the input preferences phase they insert all intuitive good practices so far exercised and, of course, all policy mandated by the Hellenic Navy.

4. Sensitivity Analysis Capabilities

As already addressed, STYX has very limited capabilities in terms of “what if” sensitivity analysis. Unfortunately the sensitivity analysis feature provided by solver contributes inadequately to better understanding tradeoffs. The user, although he can observe the different solutions coming from different preferences, has no accurate measure of overall change in efficiency due to the new preferences values. The only measure currently installed is the output of the objective function that is maximized during the solve function from solver. For the moment this is a rather inadequate measure that does not provide much insight to the decision maker (this issue will be further analyzed in section D Recommendations).

Although no further analysis was conducted, the Premium Solver add in or the Crystal Ball add in could significantly improve this limitation. The fact that no further analysis was conducted was mainly the result of the developer's effort to create a system based on what is already used in the Hellenic Navy, and which would not require additional expenditure in acquiring proprietary software (both those add ins cost $2000 each in their minimal versions and for one license only).

5. Data Management – Automated Tasks

This is another inherent limitation. Although a primitive level of data management has been achieved in Excel, there is some awkwardness in the data management controls. Tasks that could be achieved in one click, may take two or more. This increases the probability of error on behalf of the users. In some sense, the users are paying the price of the familiarity with the platform (Excel) with awkwardness in user interface controls.

At this point, we must not forget that the actual users did not have enough time to interact with the different versions of the system sent to them (during the rapid prototyping phase). It is our strong belief that all interface problems can and will be improved by close user and development interaction before system implementation.

Furthermore, the whole process of developing the system has convinced the developer (this will be further analyzed in the recommendations section) that a better choice would be to use a separate RDBMS (Access would look like an excellent solution) to handle the data management portion of STYX.

6. Web Enabled Environment

In the initial requirements analysis phase, the issue of creating a web enabled environment was brought into question. The reasons why the system was developed as a stand alone were the following:

1. As a first time implementable system we chose to take one step at a time. Since there was nothing in place, creating a web enabled environment was considered to be a next stage in an evolutionary improvement process.

2. The offices of DoP are closely located (in next door offices) so the fact that the system is not networked does not present a serious drawback.

3. There were serious confidentiality concerns about the data involved. This factor could very well give rise to a postponement, or even cancellation, of the implementation.

All the reasons above seemed to point to a more prudent, stand alone approach for the system. The real limitation of this approach is in data gathering, especially with regard to the preferences field (both for individuals and commands) which would benefit from a web based system. This could significantly reduce the required set up times for the STYX databases.

7. Time Consuming Operation and Sequential Process

STYX operates in a sequential mode. The user should first go through phase A in every card and then through phase B for every service. Since no actual data was used during testing, there are no recorded times for the whole procedure. Nevertheless, it is estimated that apart from being optimized, the procedure will be complete in far less time than it does today using the current unassisted system.

In that sense, the argument could be that for less important job assignments, a less time consuming system could be used. These considerations will be addressed after testing with real data, and acquiring an actual estimated time needed to complete the process.

8. Cell Protection Issues and Solver

Many of the cells include formulas. Everyone accustomed to working with Excel knows that it is fairly easy to lose functionality by unwittingly changing formula cells. For that reason, most of the cells in STYX are protected from accidental alteration. The problem is that in those worksheets where the solver operates, protection renders running the solver problematic. In Chapter 3 Data Dimension section E data administration, this issue is thoroughly analyzed.

9. Security Issues

Excel is widely considered to be a very useful and reliable application. Nevertheless, there are many security issues and limitations. Generally

speaking, it is a rather easily exploitable application. In our case the security issues are addressed by isolating the platforms that STYX runs. These platforms are not supposed to be networked during STYX operation. This issue, although it does not affect current operation, must be seriously considered in future web enabled versions of the tool.

10. Disability Issues and Color Coding

STYX uses extensively color coding to draw user attention to specific conditions (cell colored red, yellow or green). This creates an issue for colorblind personnel. According to Hellenic Navy regulations, officers are medically checked for colorblindness during enlistment, so the chances that a colorblind person works with STYX are really slim. Nevertheless, this issue may be addressed in future versions of the DSS.

11. Screen Resolution

STYX is designed to optimally operate with a screen resolution of 1280 X 800 pixels. In the input screen there is a reference describing the step by step process of changing the screen resolution. Nevertheless, there is no control from inside STYX to change the screen resolution to optimal. This is a consideration for future versions of the DSS.

12. Job Assignment Execution

For the DoP the job assignment process has two parts, planning (which transfers will be made) and execution (in what order). Planning is generally considered to be the most important and sophisticated part of this process and STYX addresses exactly this most important part. Nevertheless, execution is another interesting problem that DoP faces which STYX does not address at all.

In summary, we could say that the major limitation of STYX is one of scalability, and that, in turn, is closely related to the platform chosen for development, and the decision to forego integration with existing databases. The other major limitation is the use of utility functions as the objective function of the optimization model. Utility functions are typically difficult to interpret and also restrict the sensitivity analyses which can be performed. Despite these

limitations, STYX is still a useful first step as a decision support system for detailers. In the next section, we will suggest improvements that begin to overcome these obstacles.

D. RECOMMENDATIONS

1. Recommendations for Implementation

a. Familiarize the Users with the Interface and the Logic of STYX

Familiarizing the user with the interface is the first step to success (or to failure). STYX does not have a complicated interface. Nevertheless, its tasks are not fully automated. Furthermore, it uses a kind of linear, sequential order which may confuse the users at first, especially in data handling where there are potential risks of error entries inserted by inexperienced users.

Furthermore, the users need to completely understand the implications of their actions, especially when inputting grading and weight preferences. If the users do not completely understand the logic, they are certain to lose many of the benefits that STYX offers.

The recommendation in order to achieve familiarization is through training. An eight hour seminar would seem to be an ideal solution. Provided that the users have every day routine tasks to conduct, the seminar could be managed in four sessions.

- Session 1 (2 hours): STYX installation and initial adjustments
- Session 2 (2 hours): Demonstration
- Session 3 (2 hours): Inputting preferences – implications
- Session 4 (2 hours): Scenario execution by the users

These sessions could be conducted all in one day, or in different days according to personnel availability.

b. Create Specific Policies for Inputting Preferences

As already discussed in section C, adjusting preferences before importing records is a good practice to avoid injecting bias in the results. To elaborate on that, we recommend the creation of specific scenarios that could be

used for each case (e.g. assigning a LTCM as a C.O. on a frigate). These scenarios would be the result of extensive analysis that should lead to improved input preferences. If these scenarios are defined, inputting them into STYX would be the next step. In such a case, when a user is searching for a specific solution, the appropriate preferences could automatically be inserted. This could ensure policy implementation and error reduction.

c. Create a Clearly Defined Feedback Loop to Ensure Continuous Improvement

STYX is a first time effort and as such it is sure that there is a lot of margin for improvement. In order for potential improvement to become actual implementation, a clearly defined feedback loop needs to be established. The fact is that the developer will not be working for the DoP upon graduation so continuous face to face interaction will not be possible. The recommendation here is to establish a formalized way of gathering issues concerning STYX. Some of the ways to achieve this are the following:

- Create a formalized monthly or bimonthly report to identify issues. This may sound good but it will create another bureaucratic obligation to an office that is already overloaded with paperwork.
- Create a support information line. This could be easy to do. All that is needed is a secure e-mail address where users could contact the developer and discuss issues.
- Organize a periodic meeting (once a month in the beginning, once every two or three months later on), where the developer and the users could meet to discuss issues.

No matter which of the above is implemented, the important part of the recommendation is that information flow in the feedback loop is an important part for system improvement and as such it should be facilitated and maintained.

2. Recommendations for Future Enhancements

a. Replace the Spreadsheet Database with an MS Access Database, linked to the Excel File

The limitations of STYX in data management have already been discussed. STYX has many records and lacks sophisticated query capabilities.

The recommendation to improve those capabilities is to employ an Access database to handle data management. Integrating Excel with Access does not represent a serious technical undertaking.

b. Create a Web Based Schema for Information Gathering

STYX is relying on information that needs to be updated externally, especially with regard to preferences information that is currently gathered by using paper forms. Sergis' thesis discussed in section A has already done some work to this direction. If such a schema is implemented, it would reduce significantly the time and effort needed to gather that information.

c. Consider Enhancing the Sensitivity Analysis Capabilities

The limitations of solver in terms of providing insightful sensitivity analysis have already been discussed and analyzed. It is true that there is a barrier on what you can get for free. If DoP considers it needs to enhance these capabilities then the use of Premium Solver or/and Crystal Ball should seriously be considered. The cost for both licenses currently lies in the area of less than $5.000. This is a future enhancement that could definitely make STYX more robust and powerful.

d. Consider Altering the Methodology

STYX uses multi - attribute utility analysis methodology (MAUT). MAUT produces results based on preferences for optimal conditions input by the "expert" users. So the implicit assumption is that those users are "expert" enough to input the appropriate preferences. By doing so they are, in fact, inputting the objective function.

To improve this limitation one approach could be to design and insert in STYX a third mathematical model that would retrieve as an input the records and calculate the optimal set of preferences that lead to maximization of the objective function. Solving this model would provide a sense of best practice in grading and weight preferences for the specific set of records. This approach could be further analyzed in future versions of STYX.

A different approach to optimization which is, perhaps, more appropriate for situations of high uncertainty (such as the job assignment decision environment) is through Paretto analysis. In this methodology, no predetermined notion of an objective function is required, which removes a serious burden from the decision maker.

E. CONCLUSION – FINAL WORDS

STYX is the first system of its kind in the Hellenic Navy. As such it embodies potential as well as limitations. It is the personal belief of the developer that its implementation will benefit the Hellenic Navy. Nevertheless, implementing this specific system is not the only focal point of this research. Throughout this thesis we strived to convince the readers that STYX is an implementable system and that it can add value. More importantly, though, we hope to have convinced our sponsors that such a system (even if it is not STYX but something else) is an important and desirable requirement that should be tested and implemented as soon as possible.

In that sense, as much as STYX's successful implementation will justify our efforts, a potential failure does not necessarily constitute a disaster. The real disaster would be to continue failing to recognize the need to implement decision system technologies to support the Human Resource Management community in performing their demanding tasks.

APPENDIX A. LIST OF SERVICES FOR THE HELLENIC NAVY

Sorted alphabetically

- 353 MNAS
- F/G ADRIAS
- N/A AHDVN
- K/F AHTHTOS
- F/G AIGEON
- PGY ALIAKMVN
- N/A ALKYVN
- Y/B AMFITRITH
- K/F ARMATVLOS
- AS
- PGY AXIOS
- N/A AYRA
- TPK BLAXABAS
- TPK BOTSHS
- DAD
- TPK DANIOLLOS
- DDMN
- DEN
- DFG
- DKF
- DNAR
- DNE
- K/F DOXA
- DTS
- DY
- DYK
- K/F ELEYUERIA
- F/G ELLI
- NUA ERATV
- NUA EYRVPH
- GEN
- Y/B GLAYKOS
- TPK GRHGOROPOYLOS
- A/G IKARIA
- PTM IUAKH
- TPK KABALOYDHS
- NUA KALLISTV
- F/G KANARHS
- KASMN
- K/F KASOS
- Y/B KATSVNHS
- PTM KEFALLHNIA
- KEFN
- KEPAL
- KEPOROS
- PTM KERKYRA
- N/A KISSA

- N/A KIXLH
- N/A KLEIV
- F/G KOYNTOYRIOTHS
- K/F KRATAIOS
- TPK KRYSTALLIDHS
- TPK LASKOS
- A/G LESBOS
- F/G LIMNOS
- TPK MARIDAKHS
- Y/B MATRVZOS
- K/F MAXHTHS
- TPK MIKONIOS
- TPK MPLESAS
- F/G MPOYMPOYLINA
- MTN-TAN
- N/A AIGLH
- F/G NAVARINO
- K/F NAYMAXOS
- NBNE
- NDA
- NDBE
- NDI
- Y/B NHREYS
- K/F NIKH
- K/F NIKHFOROS
- F/G NIKHFOROS FVKAS
- NK
- NKE
- NKK (Kiel)
- NKS
- NNA
- NS
- TPK NTEGIANNHS
- P/F ORION
- K/F ORMH
- OSMAN
- P/F OYRANOS
- Y/B PAPANIKOLHS
- TPK PEZOPOYLOS
- Y/B PIPINOS
- N/A PLEIAS
- K/F POLEMISTHS
- PON
- Y/B PONTOS
- Y/B POSEIDON
- PGY PROMHTHEYS
- Y/B PROTEYS
- F/G PSARA
- A/G RODOS
- TPK ROYSSEN
- TPK SAKIPHS
- F/G SALAMIS
- A/G SAMOS

- SDAM
- SDEPN
- TPK SIMITZOPOYLOS
- SMYN
- SND
- F/G SPETSAI
- TPK STARAKHS
- F/G THEMISTOKLHS
- K/F TOLMH
- TPK TOYRNAS
- Y/B TRITON
- TPK TROYPAKHS
- Y/B VKEANOS
- TPK XENOS
- A/G XIOS
- YDDE
- F/G YDRA
- YF
- YIN
- YNA
- P/F YPERION
- YY
- PTM ZAKYNUOS
- P/F ZEYS

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APPENDIX B. LIST OF CATEGORIES AND SUBCATEGORIES

CATEGORIES	GEN
	AS
	DNE
	DDMN
	INDEPENDENT
	SHIPS

CATEGORY	SUBCATEGORY
GEN	-
AS	353 MNAS
	DAD
	DEN
	DFG
	DKF
	DNAR
	DTS
	DY
	DYK
	SENT
	NDA
	NDBE
	NDI
DNE	KEPAL
	KEPOROS
	N/A AIGLH
	SDEPN
	SMYN

CATEGORY	SUBCATEGORY
	YNA
DDMN	KEFN
	NK
DDMN	NS
INDEPENDENT	KASMN
	MTN – TAN
	NBNE
	NKE
	NKK
	NNA
	NKS
	PON
	SDAM
	SND
	YDE
	OSMAN
	YY
	YF
	YIN
SHIPS	F/G
	A/G
	Y/B
	K/F
	TPK
	NUA
	N/A
	PGY
	P/F
	PTM

APPENDIX C. VBA CODE

Module 1

```
Sub goup()
'
' goup Macro
' Macro recorded 7/7/2006 by kostas
'
'
    Range("E97").Select
    Selection.Copy
    ActiveWindow.SmallScroll Down:=-173
    Range("F1").Select
    ActiveSheet.Paste
End Sub
```

Module 2

```
Sub exportas()
'
' exportas Macro
' Macro recorded 7/13/2006 by kostas
'
    Application.Run "HRM.xls!resetall"
    Range("A102:Z175").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V101:Y174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
Sub exportfromgen()
'
' exportfromgen Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A12:Z85").Select
    Selection.Copy
```

```
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V11:Y74").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
Sub exportdfg()
'
' exportdfg Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A202:Z275").Select
    Application.CutCopyMode = False
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V201:Y274").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
Sub exportdkf()
'
' exportdkf Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A302:Z375").Select
    Application.CutCopyMode = False
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V301:Y374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
Sub exportdts()
'
```

```
' exportdts Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A402:Z475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V401:Y474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
Sub exportdad()
'
' exportdad Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A602:Z675").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V601:Y674").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
Sub exportdy()
'
' exportdy Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A702:Z775").Select
    Application.CutCopyMode = False
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V701:Y774").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
```

```
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
Sub exportdyk()
'
' exportdyk Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A802:Z875").Select
    Application.CutCopyMode = False
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V801:Y874").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
Sub exportden()
'
' exportden Macro
```

```
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A1002:Z1075").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V1001:Y1074").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportsent()
'
' exportsent Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A1102:Z1175").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V1101:Y1174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Range("A20").Select
End Sub



Sub exportdnar()
'
' exportdnar Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A502:Z575").Select
    Application.CutCopyMode = False
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V501:Y574").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
Sub export353()
'
' export353 Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A902:Z975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V901:Y974").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportnda()
'
```

```
' exportnda Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A1202:Z1275").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V1201:Y1274").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportndi()
'
' exportndi Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A1302:Z1375").Select
    Selection.Copy
```

```
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V1301:Y1374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportndbe()
'
' exportndbe Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A1402:Z1475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V1401:Y1474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportdne()
'
' exportdne Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A1502:Z1575").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V1501:Y1574").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportsdepn()
```

```
'
' exportsdepn Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A1602:Z1675").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V1601:Y1674").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportsmyn()
'
' exportsmyn Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A1702:Z1775").Select
```

```
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V1701:Y1774").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportkepal()
'
' exportkepal Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A1802:Z1875").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V1801:Y1874").Select
    Selection.Copy
```

```
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportkeporos()
'
' exportkeporos Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A1902:Z1975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V1901:Y1974").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
```

```
Sub exportyna()
'
' exportsyna Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A2002:Z2075").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V2001:Y2074").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportnaaiglh()
'
' exportnaaiglh Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
```

```
    Range("A2102:Z2175").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V2101:Y2174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportddmn()
'
' exportddmn Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A2202:Z2275").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V2201:Y2274").Select
```

```
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportns()
'
' exportns Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A2302:Z2375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V2301:Y2374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
```

```
Sub exportnk()
'
' exportnk Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A2402:Z2475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V2401:Y2474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportkefn()
'
' exportkefn Macro
' Macro recorded 7/14/2006 by kostas
'

'
```

```
    Application.Run "HRM.xls!resetall"
    Range("A2502:Z2575").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V2501:Y2574").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportsnd()
'
' exportsnd Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A2602:Z2675").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
```

```
    Range("V2601:Y2674").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportyy()
'
' exportyy Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A2702:Z2775").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V2701:Y2774").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
```

```
End Sub


Sub exportpon()
'
' exportpon Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A2802:Z2875").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V2801:Y2874").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub



Sub exportyf()
'
' exportyf Macro
' Macro recorded 7/14/2006 by kostas
'
```

```
'
    Application.Run "HRM.xls!resetall"
    Range("A2902:Z2975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V2901:Y2974").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportnna()
'
' exportnna Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A3002:Z3075").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
```

```
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V3001:Y3074").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportsdam()
'
' exportsdam Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A3102:Z3175").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V3101:Y3174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
```

```
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportnbne()
'
' exportnbne Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A3202:Z3275").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V3201:Y3274").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportnkkkiel()
'
' exportnkkkiel Macro
' Macro recorded 7/14/2006 by kostas
```

```
'


'
    Application.Run "HRM.xls!resetall"
    Range("A3302:Z3375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V3301:Y3374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportyin()
'
' exportsyin Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A3402:Z3475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
```

```
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V3401:Y3474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportnke()
'
' exportnke Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A3502:Z3575").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V3501:Y3574").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
```

```
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportkasmn()
'
' exportkasmn Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A3602:Z3675").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V3601:Y3674").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportmtntan()
'
' exportmtntan Macro
```

```
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A3702:Z3775").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V3701:Y3774").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportnks()
'
' exportnks Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A3802:Z3875").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V3801:Y3874").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportydde()
'
' exportydde Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A3902:Z3975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V3901:Y3974").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
```

```
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportosman()
'
' exportosman Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A4002:Z4075").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V4001:Y4074").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportydra()
'
```

```
' exportydra Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A4102:Z4175").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V4101:Y4174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportspetsai()
'
' exportspetsai Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A4202:Z4275").Select
    Selection.Copy
```

```
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V4201:Y4274").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportpsara()
'
' exportpsara Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A4302:Z4375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V4301:Y4374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportsalamis()
'
' exportsalamis Macro
' Macro recorded 7/14/2006 by kostas
'
    Application.Run "HRM.xls!resetall"
    Range("A4402:Z4475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V4401:Y4474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportelli()
'
' exportelli Macro
```

```
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A4502:Z4575").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V4501:Y4574").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportlimnos()
'
' exportlimnos Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A4602:Z4675").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V4601:Y4674").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportadrias()
'
' exportadrias Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A4702:Z4775").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V4701:Y4774").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
```

```
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportaigeon()
'
' exportaigeon Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A4802:Z4875").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V4801:Y4874").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportnabarino()
'
```

```
' exportnabarino Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A4902:Z4975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V4901:Y4974").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportkoyntoyrioths()
'
' exportkoyntoyrioths Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A5002:Z5075").Select
    Selection.Copy
```

```
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V5001:Y5074").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportmpoympoylina()
'
' exportmpoympoylina Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A5102:Z5175").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V5101:Y5174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportkanarhs()
'
' exportkanarhs Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A5202:Z5275").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V5201:Y5274").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportthemistoklhs()
```

```
'
' exportthemistoklhs Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A5302:Z5375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V5301:Y5374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportnikiforosfvkas()
'
' exportnikhforosfvkas Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A5402:Z5475").Select
```

```
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V5401:Y5474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportxios()
'
' exportxios Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A5502:Z5575").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V5501:Y5574").Select
    Selection.Copy
```

```
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportlesbos()
'
' exportlesbos Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A5602:Z5675").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V5601:Y5674").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
```

```
Sub exportikaria()
'
' exportikaria Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A5702:Z5775").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V5701:Y5774").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportsamos()
'
' exportsamos Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
```

```
    Range("A5802:Z5875").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V5801:Y5874").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportrodos()
'
' exportrodos Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A5902:Z5975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V5901:Y5974").Select
```

```
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportglaykos()
'
' exportglaykos Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A6002:Z6075").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V6001:Y6074").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
```

```
Sub exporttriton()
'
' exporttriton Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A6102:Z6175").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V6101:Y6174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportproteys()
'
' exportproteys Macro
' Macro recorded 7/14/2006 by kostas
'

'
```

```
    Application.Run "HRM.xls!resetall"
    Range("A6202:Z6275").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V6201:Y6274").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportnireys()
'
' exportnireys Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A6302:Z6375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
```

```
    Range("V6301:Y6374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportposeidon()
'
' exportposeidon Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A6402:Z6475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V6401:Y6474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
```

```
End Sub


Sub exportamfitrith()
'
' exportamfitrith Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A6502:Z6575").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V6501:Y6574").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportvkeanos()
'
' exportvkeanos Macro
' Macro recorded 7/14/2006 by kostas
'
```

```
'

    Application.Run "HRM.xls!resetall"

    Range("A6602:Z6675").Select

    Selection.Copy

    Sheets("Transfer from ").Select

    Range("A301").Select

    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _

        :=False, Transpose:=False

    Sheets("assigned").Select

    Range("V6601:Y6674").Select

    Selection.Copy

    Sheets("Transfer from ").Select

    Range("AI300").Select

    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _

        :=False, Transpose:=False

    ActiveWindow.SmallScroll ToRight:=-12

    Range("A20").Select

End Sub


Sub exportpontos()

'

' exportpontos Macro

' Macro recorded 7/14/2006 by kostas

'


'

    Application.Run "HRM.xls!resetall"

    Range("A6702:Z6775").Select

    Selection.Copy

    Sheets("Transfer from ").Select

    Range("A301").Select

    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _

        :=False, Transpose:=False
```

```
    Sheets("assigned").Select
    Range("V6701:Y6774").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportpapanikolhs()
'
' exportpapanikolhs Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A6802:Z6875").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V6801:Y6874").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
```

```
    Range("A20").Select
End Sub


Sub exportmatrvzos()
'
' exportmatrvzos Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A6902:Z6975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V6901:Y6974").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportpipinos()
'
' exportpipinos Macro
' Macro recorded 7/14/2006 by kostas
'
```

```
'

    Application.Run "HRM.xls!resetall"

    Range("A7002:Z7075").Select

    Selection.Copy

    Sheets("Transfer from ").Select

    Range("A301").Select

    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _

        :=False, Transpose:=False

    Sheets("assigned").Select

    Range("V7001:Y7074").Select

    Selection.Copy

    Sheets("Transfer from ").Select

    Range("AI300").Select

    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _

        :=False, Transpose:=False

    ActiveWindow.SmallScroll ToRight:=-12

    Range("A20").Select

End Sub


Sub exportkatsonhs()

'

' exportkatsonhs Macro

' Macro recorded 7/14/2006 by kostas

'


'

    Application.Run "HRM.xls!resetall"

    Range("A7102:Z7175").Select

    Selection.Copy

    Sheets("Transfer from ").Select

    Range("A301").Select

    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
```

```
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V7101:Y7174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportnikh()
'
' exportnikh Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A7202:Z7275").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V7201:Y7274").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
```

```
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportdoxa()
'
' exportdoxa Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A7302:Z7375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V7301:Y7374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exporteleftheria()
'
' exporteleftheria Macro
' Macro recorded 7/14/2006 by kostas
```

```
'


'
    Application.Run "HRM.xls!resetall"
    Range("A7402:Z7475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V7401:Y7474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportarmatolos()
'
' exportarmatolos Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A7502:Z7575").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
```

```
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V7501:Y7574").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportnavmaxos()
'
' exportnavmaxos Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A7602:Z7675").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V7601:Y7674").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
```

```
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
Sub exportkasos()
'
' exportkasos Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A7702:Z7775").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V7701:Y7774").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportpolemisths()
'
' exportpolemisths Macro
' Macro recorded 7/14/2006 by kostas
```

```
'


'
    Application.Run "HRM.xls!resetall"
    Range("A7802:Z7875").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V7801:Y7874").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exporttolmh()
'
' exporttolmh Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A7902:Z7975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
```

```
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V7901:Y7974").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportormh()
'
' exportormh Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A8002:Z8075").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V8001:Y8074").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
```

```
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
Sub exportmaxhths()
'
' exportmaxhths Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A8102:Z8175").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V8101:Y8174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportnikhforos()
'
' exportnikhforos Macro
' Macro recorded 7/14/2006 by kostas
```

```
'


'
    Application.Run "HRM.xls!resetall"
    Range("A8202:Z8275").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V8201:Y8274").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub



Sub exportahtthtos()
'
' exportahtthtos Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A8302:Z8375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V8301:Y8374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportkrataios()
'
' exportkrataios Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A8402:Z8475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V8401:Y8474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
```

```
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportlaskos()
'
' exportlaskos Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A8502:Z8575").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V8501:Y8574").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportmpletsas()
'
```

```
' exportmpletsas Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A8602:Z8675").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V8601:Y8674").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportmykonios()
'
' exportmykonios Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A8702:Z8775").Select
    Selection.Copy
```

```
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V8701:Y8774").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exporttroypakhs()
'
' exporttroupakhs Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A8802:Z8875").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V8801:Y8874").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportkabaloudhs()
'
' exportkabaloudhs Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A8902:Z8975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V8901:Y8974").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportxenos()
```

```
'
' exportxenos Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A9002:Z9075").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V9001:Y9074").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportdegiannhs()
'
' exportdegiannhs Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A9102:Z9175").Select
```

```
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V9101:Y9174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub



Sub exportsimitzopoulos()
'
' exportsimitzopoulos Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A9202:Z9275").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V9201:Y9274").Select
```

```
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub



Sub exportstarakhs()
'
' exportstarakhs Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A9302:Z9375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V9301:Y9374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
```

```
End Sub



Sub exportbotshs()
'
' exportbotshs Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A9402:Z9475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V9401:Y9474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportpezopoulos()
'
' exportpezopoulos Macro
' Macro recorded 7/14/2006 by kostas
'
```

```
'
    Application.Run "HRM.xls!resetall"
    Range("A9502:Z9575").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V9501:Y9574").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportblaxabas()
'
' exportblaxabas Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A9602:Z9675").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
```

```
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V9601:Y9674").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportmaridakhs()
'
' exportmaridakhs Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A9702:Z9775").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V9701:Y9774").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
```

```
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exporttournas()
'
' exporttournas Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A9802:Z9875").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V9801:Y9874").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportsakiphs()
'
' exportsakiphs Macro
' Macro recorded 7/14/2006 by kostas
```

```
'


'
    Application.Run "HRM.xls!resetall"
    Range("A9902:Z9975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V9901:Y9974").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportroussen()
'
' exportroussen Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A10002:Z10075").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
```

```
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V10001:Y10074").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportdaniolos()
'
' exportdaniolos Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A10102:Z10175").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V10101:Y10174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
```

```
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportkrystallidhs()
'
' exportkrystallidhs Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A10202:Z10275").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V10201:Y10274").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportgrhgoropulos()
'
' exportgrhgoropoulos Macro
```

```
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A10302:Z10375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V10301:Y10374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exporteratv()
'
' exporteratv Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A10402:Z10475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V10401:Y10474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportevroph()
'
' exportevroph Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A10502:Z10575").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V10501:Y10574").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
```

```
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportkallistv()
'
' exportkalistv Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A10602:Z10675").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V10601:Y10674").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportalkyon()
'
```

```
' exportalkyon Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A10702:Z10775").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V10701:Y10774").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportkleiv()
'
' exportkleiv Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A10802:Z10875").Select
    Selection.Copy
```

```
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V10801:Y10874").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportavra()
'
' exportavra Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A10902:Z10975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V10901:Y10974").Select
    Selection.Copy
    Sheets("Transfer from ").Select
```

```
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportahdon()
'
' exportahdon Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A11002:Z11075").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V11001:Y11074").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportkixlh()
```

```
'
' exportkixlh Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A11102:Z11175").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V11101:Y11174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportkissa()
'
' exportkissa Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A11202:Z11275").Select
```

```
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V11201:Y11274").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportpleias()
'
' exportpleias Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A11302:Z11375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V11301:Y11374").Select
    Selection.Copy
```

```
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportpromyueys()
'
' exportpromyueys Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A11402:Z11475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V11401:Y11474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
     Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
```

```
Sub exportaliakmon()
'
' exportalaikmon Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A11502:Z11575").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V11501:Y11574").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportaxios()
'
' exportaxios Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
```

```
    Range("A11602:Z11675").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V11601:Y11674").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportzeys()
'
' exportzeys Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A11702:Z11775").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V11701:Y11774").Select
```

```
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub


Sub exportoyranos()
'
' exportoyranos Macro
' Macro recorded 7/14/2006 by kostas
'


'
    Application.Run "HRM.xls!resetall"
    Range("A11802:Z11875").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V11801:Y11874").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
```

```
Sub exportorion()
'
' exportorion Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A11902:Z11975").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V11901:Y11974").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportyperion()
'
' exportyperion Macro
' Macro recorded 7/14/2006 by kostas
'

'
```

```
    Application.Run "HRM.xls!resetall"
    Range("A12002:Z12075").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V12001:Y12074").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportkefallhnia()
'
' exportkefallhnia Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A12102:Z12175").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
```

```
    Range("V12101:Y12174").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub

Sub exportiuakh()
'
' exportiuakh Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A12202:Z12275").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V12201:Y12274").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
```

```
End Sub


Sub exportkerkyra()
'
' exportkerkyra Macro
' Macro recorded 7/14/2006 by kostas
'

'
    Application.Run "HRM.xls!resetall"
    Range("A12302:Z12375").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V12301:Y12374").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub



Sub exportzakynuos()
'
' exportzakynuos Macro
' Macro recorded 7/14/2006 by kostas
'
```

```
'
    Application.Run "HRM.xls!resetall"
    Range("A12402:Z12475").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("A301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Sheets("assigned").Select
    Range("V12401:Y12474").Select
    Selection.Copy
    Sheets("Transfer from ").Select
    Range("AI300").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=-12
    Range("A20").Select
End Sub
```

Module 3

```
Sub solver()
'
' solver Macro
' Macro recorded 7/24/2006 by kostas
'

'
End Sub
Sub resettransferfrom()
'
' resettransferfrom Macro
' Macro recorded 7/24/2006 by kostas
'

'
    Range("D25:D100").Select
    Selection.ClearContents
End Sub
Sub resettransferto()
'
' resettransferto Macro
' Macro recorded 7/24/2006 by kostas
'

'
    Range("D25:D200").Select
    Selection.ClearContents
End Sub
```

Module 4

```
Sub solvetransferfrom()
'
' solvetransferfrom Macro
' Macro recorded 7/31/2006 by kostas
'


'
    SolverOk SetCell:="$A$150," MaxMinVal:=1, ValueOf:="0," ByChange:= _
        "$D$25:$D$100"
    SolverSolve
    ActiveWindow.SmallScroll Down:=-178
    Range("A25").Select
End Sub
```

Module 5

```
Sub comparecandidates()
'
' comparecandidates Macro
' Macro recorded 7/31/2006 by kostas
'


'
    Range("D25:D100").Select
    Selection.AutoFilter
    Selection.AutoFilter Field:=1, Criteria1:="1"
End Sub
Sub showall()
'
' showall Macro
' Macro recorded 7/31/2006 by kostas
'


'
    Application.Run ("HRM.xls!comparecandidates")
    Range("F10").Select
    Selection.AutoFilter Field:=1
End Sub
Sub resetall()
'
' resetall Macro
' Macro recorded 7/31/2006 by kostas
'


'

    Range("A301:Z400").Select
```

```
    Selection.ClearContents
    Range("AB301:AF350").Select
    Selection.ClearContents

End Sub
```

Module 6

```
Sub sorttransferfrom()
'
' sorttransferfrom Macro
' Macro recorded 8/5/2006 by kostas
'


'
    Range("A301:AA375").Select
    Selection.Sort Key1:=Range("AA301"), Order1:=xlDescending, Header:= _
        xlGuess, OrderCustom:=1, MatchCase:=False, Orientation:=xlTopToBottom, _
        DataOption1:=xlSortNormal
End Sub
```

Module 7

```
Sub solvetransferfromupdate()
'
' solvetransferfromupdate Macro
' Macro recorded 8/5/2006 by kostas
'


'
    Application.Run "HRM.xls!deselectall"
    Application.Run "HRM.xls!resettransferfrom"
    Application.Run "HRM.xls!restorepropertransferfrom"
    Application.Run "HRM.xls!sorttransferfrom"
    Application.Run "HRM.xls!solvetransferfrom"
End Sub
Sub deselectall()
'
' deselectall Macro
' Macro recorded 8/5/2006 by kostas
'


'
    Sheets("Lists").Select
    Range("AA2:AA101").Select
    Selection.ClearContents
    Sheets("Transfer from ").Select
End Sub


Sub deselectalll()
'
' deselectalll Macro
' Macro recorded 8/5/2006 by kostas
'
```

```
'
    Sheets("Lists").Select
    Range("AE2:AE177").Select
    Selection.ClearContents
    Sheets("Transfer to").Select
End Sub
```

Module 8

```
Sub saveunassigned()
'
' saveunassigned Macro
' Macro recorded 8/17/2006 by Kostas Agas
'

'
    Msg = "You are about to add records to the unassigned database. Do you want to
proceed?"
    Title = "Change unassigned database notification"
    Config = vbYesNo
    Ans = MsgBox(Msg, Config, Title)
    If Ans = vbNo Then Exit Sub
    Sheets("unassigned").Select
    Rows("1001:1076").Select
    Selection.Copy

    Range("A900").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False

    Rows("21:999").Select
    Application.CutCopyMode = False
    Selection.Sort Key1:=Range("B21"), Order1:=xlDescending, Header:=xlGuess _
        , OrderCustom:=1, MatchCase:=False, Orientation:=xlTopToBottom, _
        DataOption1:=xlSortNormal
    Sheets("Transfer from ").Select
End Sub
Sub exportunassigned1()
'
' exportunassigned1 Macro
' Macro recorded 8/17/2006 by Kostas Agas
```

```
'


'
    Sheets("unassigned").Select
    Rows("21:899").Select
    Selection.Copy
    Sheets("Transfer To").Select
    Range("A3021").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False

End Sub

Sub exportunassigned2()
'
' exportunassigned2 Macro
' Macro recorded 8/17/2006 by Kostas Agas
'

'
    Sheets("Transfer To").Select
    Rows("2021:2899").Select
    Selection.Copy
    Range("A1025").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Rows("1025:1899").Select
    Selection.Sort Key1:=Range("B1021"), Order1:=xlDescending, Header:=xlGuess _
        , OrderCustom:=1, MatchCase:=False, Orientation:=xlTopToBottom, _
        DataOption1:=xlSortNormal
    Application.Run "HRM.xls!resettransferto"
```

```
End Sub
Sub exportunassigned()

'
' exportunassigned Macro
' Macro recorded 8/17/2006 by Kostas Agas

    Application.Run "HRM.xls!exportunassigned1"
    Application.Run "HRM.xls!exportunassigned2"

End Sub
```

Module 9

```
Sub restorepropertransferfrom()
'
' restorepropertransferfrom Macro
' Macro recorded 8/22/2006 by Kostas Agas
'


'
    Range("V301").Select
    Selection.Copy
    Range("AC301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Range("X301:Y349").Select
    Application.CutCopyMode = False
    Selection.Copy
    ActiveWindow.SmallScroll Down:=-30
    Range("AD301").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    ActiveWindow.SmallScroll ToRight:=2
End Sub
```

Module 10

```
Sub removerecord()
'
' removerecord Macro
' Macro recorded 8/23/2006 by Kostas Agas
'


'
    ActiveCell.Offset(0, 1).Range("A1:G1,I1:N1,P1:T1").Select
    ActiveCell.Offset(0, 16).Range("A1").Activate
    Selection.ClearContents
    ActiveCell.Offset(0, -15).Range("A1").Select
End Sub
Sub updatecardremove()
'
' updatecardremove Macro
' Macro recorded 8/23/2006 by Kostas Agas
'


'
    Sheets("assigned").Select
    Msg = "You are about to update the assigned database. Do you want to proceed?"
    Title = "Change database card notification"
    Config = vbYesNo
    Ans = MsgBox(Msg, Config, Title)
    If Ans = vbYes Then Application.Run "HRM.xls!importtransferfrom"
    If Ans = vbNo Then Exit Sub
End Sub
Sub color()
'
' color Macro
' Macro recorded 8/23/2006 by Kostas Agas
```

```
'


'
    ActiveCell.Range("A1:U1").Select
    With Selection.Interior
        .ColorIndex = 3
        .PatternColorIndex = xlAutomatic
    End With
End Sub
```

Module 11

```
Sub importtransferfrom()
'
' importtransferfrom Macro
' Macro recorded 8/30/2006 by Kostas Agas
'


'
    Sheets("Transfer from ").Select
    Range("A501:U576").Select
    Selection.Copy
    Sheets("assigned").Select
    Range("A4302").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
End Sub
```

Module 12

```
Sub eliminateduplicatesunassigned()
'
' eliminateduplicatesunassigned Macro
' Macro recorded 9/10/2006 by Kostas Agas
'


'
    Rows("21:899").Select


    Range("B20:B899").Select
    Range("B20:B899").AdvancedFilter Action:=xlFilterInPlace, Unique:=True


    Range("A21:B899").Select


    Selection.Copy
    Application.CommandBars("Task Pane").Visible = False


    Range("A1100").Select
    ActiveSheet.Paste


    Range("B21").Select
    ActiveSheet.ShowAllData
    Rows("21:898").Select
    Range("B21").Activate
    Selection.ClearContents


    Rows("1100:1999").Select
    Selection.Copy
    Range("A21").Select
    ActiveSheet.Paste
End Sub
```

Module 13

```
ub updatecardtransferto()
'
' updatecardtransferto Macro
' Macro recorded 9/12/2006 by Kostas Agas
'


'
    Range("A4025:T4200").Select
    Selection.Copy
    Range("A4525").Select
    Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
        :=False, Transpose:=False
    Application.Run ("HRM.xls!sorttransferto")
        Ans = MsgBox("You can only transfer 5 records at a time. Only the first 5
records will be transferred. Click OK to continue")



End Sub


Sub sorttransferto()
'
' sorttransferto Macro
' Macro recorded 9/12/2006 by Kostas Agas
'


'
    Range("A4025:T4200").Select
    Selection.Sort Key1:=Range("B4025"), Order1:=xlDescending, Header:=xlNo, _
        OrderCustom:=1, MatchCase:=False, Orientation:=xlTopToBottom, _
        DataOption1:=xlSortNormal


End Sub
```

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