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MASTER GRADUATE WORK

INCREASING MANAGERIAL DECISIONS EFFICIENCY of the enterprise, which has international economic activity

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INTRODUCTION

The basis of an economy of a country is its basic industry. For many years enterprises of basic industry were built in all big cities. They were very powerful and received all possible support from the government. They were located far from each other. However, they were closely related and depended on each other. Unfortunately when these relations were destroyed the enterprises started to lose their positions on the market.

That is what happened with the aircraft industry. Powerful enterprises turned out to receive no support from the government and as the personnel were not adjusted to the market their niche was soon taken by their competitors.

Over the last several years the aircraft industry has started to recover. More and more countries buy Ukrainian aircrafts. They overcome the competitors by many criteria; the main of them is the price.

The situation is not always stable and the management of the company must react on the changes on-the-fly. But still the decisions that are taken must be efficient as a manager’s mistake costs a lot to the company.

Effective decisions are especially important in international activity of the enterprises. A mistake decision not only leads to a failure the strategy of the enterprise but also undermines the prestige of the country on the international level.

Like any business process the process of decision making in international marketing has input, resources and the technology of the process. To increase the efficiency of decisions in international marketing we can influence either resources or the technology of the process.

What is essential to take the efficient decision is that a decision-maker must have complete and relevant information. He must dispose of both current information and the information about the previous periods. In order to collect the marketing information marketing researches are conducted. As the amounts of information are very big it must be stored somewhere. The information must be arranged and accessible.

The subject of this master degree diploma work is selection of the most appropriate and the most efficient way of collecting marketing information and the method of determining the best of two alternatives. In order to collect information either market research or marketing research can be conducted. Market research deals specifically with gathering of information about a particular market's size and trends. Marketing research covers a wider range of activities. While it may involve market research, marketing research is a more general systematic process that can be applied to a variety of marketing problems.

One of the methods of selection of the best one existing alternative is decision trees. Decision trees are excellent tools for helping the decision maker to choose between several courses of action. They provide a highly effective structure within which you can lay out options and investigate the possible outcomes of choosing those options. They also help the decision maker form a balanced picture of risks and rewards associated with each possible course of action.

The object of the research is marketing department of Kharkiv state aircraft manufacturing company, decision making in international marketing activity in particular.

The objective of the research is to increase the efficiency of decisions in international marketing applying the modern methods of collecting and storing information and choosing the best alternative between the existing ones. According to the chosen alternative the appropriate arrangements will be developed.

In order to obtain the above stated objectives the following tasks will be completed.

First of all the theoretical background of decision making in management and international marketing, including the decision support systems will be analysed.

Second, the financial-economic activity of Kharkiv state aircraft manufacturing company will be analysed, including the international marketing activity.

Third, the measures and recommendations how to increase the efficiency of decisions in international marketing will be provided. Furthermore the possible means of decreasing the cost price of the product will be offered.

The work was created on the basis of the Constitution of Ukraine, standards of accounting and the accounts and live data of the enterprise .

In the process of writing present work many methods of research were applied. Among them are principles of financial analysis, factor analysis, marketing research, comparison.

After the conducted analysis the methodical recommendations on the realisation of suggested arrangements on the enterprise were developed.

The problems of decision making process in general and decision making in marketing have been studied by many authors. Among them are D.J. Power, P.N. Finlay, R.H. Sprague, G.M. Marakas, S. L. Alter, P.G.W. Keen, P. Kotler, A. Pushkar, N. Lisitsa, and many other scientists from different countries [87,69,91,81, 57, 76, 78, 49, 39].

As the result of research of the literature the article under the title of “Basing of managerial decisions in international ecinomic activity” was published in the journal “Management of development”.

Grounding on the conducted studies we can say that decision that will be made depends not only on the system of decision support but also on the personal opinion and the type of personality of a decision maker. The task of management of an enterprise is to minimise the decisions that are made subjectively and to choose the most appropriate for the existing corporate structure of the enterprise being aware of available decision support systems and the basic principles of decision making.

CHAPTER 1
THEORETICAL BASE OF MANAGERIAL DECISION MAKING

1.1. Individual and group principles of decision making

Decision making is the cognitive process leading to the selection of a course of action among alternatives. Every decision making process produces a final choice. It can be an action or an opinion. It begins when we need to do something but we do not know what. Therefore, decision making is a reasoning process which can be rational or irrational, and can be based on explicit assumptions or tacit assumptions [76, 253].

Decision making is said to be a psychological construct. This means that although we can never “see” a decision, we can infer from observable behaviour that a decision has been made. Therefore, we conclude that a psychological event that we call “decision making” has occurred. It is a construction that imputes commitment to action. That is, based on observable actions, we assume that people have made a commitment to affect the action.

Structured rational decision making is an important part of all science-based professions, where specialists apply their knowledge in a given area to making informed decisions. For example, economic decision making often involves stating a price and selecting an appropriate marketing strategy. Some research using naturalistic methods shows, however, that in situations with higher time pressure, higher stakes, or increased ambiguities, experts use intuitive decision making rather than structured approaches, following recognition primed decision approach to fit a set of indicators into the expert’s experience and immediately arrive at a satisfactory course of action without weighing alternatives.

According to behaviouralist Isabel Briggs Myers [3], a person's decision making process depends to a significant degree on their cognitive style. Starting from the work of Carl Jung, Myers developed a set of four bi-polar dimensions, called the Myers-Briggs Type Indicator (MBTI). The terminal points on these dimensions are: thinking and feeling; extroversion and introversion; judgement and perception; and

sensing and intuition. She claimed that a person's decision making style is based largely on how they score on these four dimensions. For example, someone that scored near the thinking, extroversion, sensing, and judgement ends of the dimensions would tend to have a logical, analytical, objective, critical, and empirical decision making style.

It is generally agreed that biases can creep into our decision making processes, calling into question the correctness of a decision. It is not generally agreed, however, which normative models are to be used to evaluate what constitutes an erroneous decision. Nor is the scientific evidence for all of the biases agreed upon. So, while it is agreed that decision making can be biased, how to tell when it is, and specific cases of biases, are often challenged. The issue in general can be quite controversial among scholars in the field. Some of the more commonly debated cognitive biases are represented in the table 1.1[69].

Table 1.1

Cognitive biases

Bias	Description
1	2
Selective search for evidence	People tend to be willing to gather facts that support certain conclusions but disregard other facts that support different conclusions.
Premature termination of search for evidence	People tend to accept the first alternative that looks like it might work.
Inertia	Unwillingness to change thought patterns that we have used in the past in the face of new circumstances.
Contrariness or rebelliousness	Unwillingness to share a view with a perceived oppressive authority.
Experiential limitations	Unwillingness or inability to look beyond the scope of our past experiences; rejection of the unfamiliar.

Table 1.1 continuation

1	2
Choice-supportive bias	People distort their memories of chosen and rejected options to make the chosen options seem relatively more attractive.
Recency	People tend to place more attention on more recent information and either ignore or forget more distant information.
Repetition bias	A willingness to believe what people have been told most often and by the greatest number of different of sources.
Anchoring and adjustment	Decisions are unduly influenced by initial information that shapes our view of subsequent information.
Group think	Peer pressure to conform to the opinions held by the group.
Source credibility bias	People reject something if they have a bias against the person, organization, or group to which the person belongs: People are inclined to accept a statement by someone we like.
Incremental decision making and escalating commitment	People look at a decision as a small step in a process and this tends to perpetuate a series of similar decisions. This can be contrasted with zero-based decision making.
Inconsistency	The unwillingness to apply the same decision criteria in similar situations.
Attribution asymmetry	People tend to attribute our success to our abilities and talents, but they attribute their failures to bad luck and external factors. People attribute other's success to good luck, and their failures to their mistakes.
Role fulfillment	People conform to the decision making expectations that others have of someone in our position.
Underestimating uncertainty and the illusion of control	People tend to underestimate future uncertainty because they tend to believe they have more control over events than they really do. People believe they have control to minimize potential problems in our decisions.
Faulty generalizations	In order to simplify an extremely complex world, people tend to group things and people. These simplifying generalizations can bias decision making processes.

Ascription of causality	People tend to ascribe causation even when the evidence only suggests correlation.

Decision making in groups is sometimes examined separately as process and outcome. Process refers to the group interactions. Some relevant ideas include coalitions among participants as well as influence and persuasion. The use of politics is often judged negatively, but it is a useful way to approach problems when preferences among actors are in conflict, when dependencies exist that cannot be avoided, when there are no super-ordinate authorities, and when the technical or scientific merit of the options is ambiguous.

In addition to the different processes involved in making decisions, group decision support systems (GDSS) may have different decision rules. A decision rule is the GDSS protocol a group uses to choose among scenario planning alternatives. The most commonly known GDSS are shown in the table 1.2 [65, 28-32].

The methods shown in the table 1.2 describe different rules of decision making in group, marking out the quantity of the voices of the group members that is needed in order that the decision is taken. These rules are whether stated in the agenda or have cultural and traditional origin. In the enterprises the rules of decision-making in groups are wrote in the articles of the enterprise; in less formal situation these rules are accepted a priori by all the members or set by the leader of the group.

Table 1.2

GDSS protocols

Protocol	Description
1	2
Unanimity	Requires everyone to agree on a given course of action, and thus imposes a high bar for action.
Majority	Requires support from more than 50% of the members of the

	group. Thus, the bar for action is lower than with unanimity and a group of "losers" is implicit to this rule.
Range voting	Allows a group to select one option from a set by letting each member score one or more of the available options. The option with the highest average is chosen.
Consensus decision-making	Tries to avoid “winners” and “losers”. Consensus requires that a majority approve a given course of action. If the minority opposes the course of action, consensus requires that the course of action be modified to remove objectionable features.

Table 1.2 continuation

Gathering	Involves all participants acknowledging each other's needs and opinions and tends towards a problem solving approach in which as many needs and opinions as possible can be satisfied. It allows for multiple outcomes and does not require agreement from some for others to act.
Sub-committee	Involves assigning responsibility for evaluation of a decision to a sub-set of a larger group, which then comes back to the larger group with recommendations for action. Using a sub-committee is more common in larger governance groups, such as a legislature. Sometimes a sub-committee includes those individuals most affected by a decision, although at other times it is useful for the larger group to have a sub-committee that involves more neutral participants.

However not all group decisions are taken when applying the above-stated rules [65, 29]. Less desirable group decision rules are:

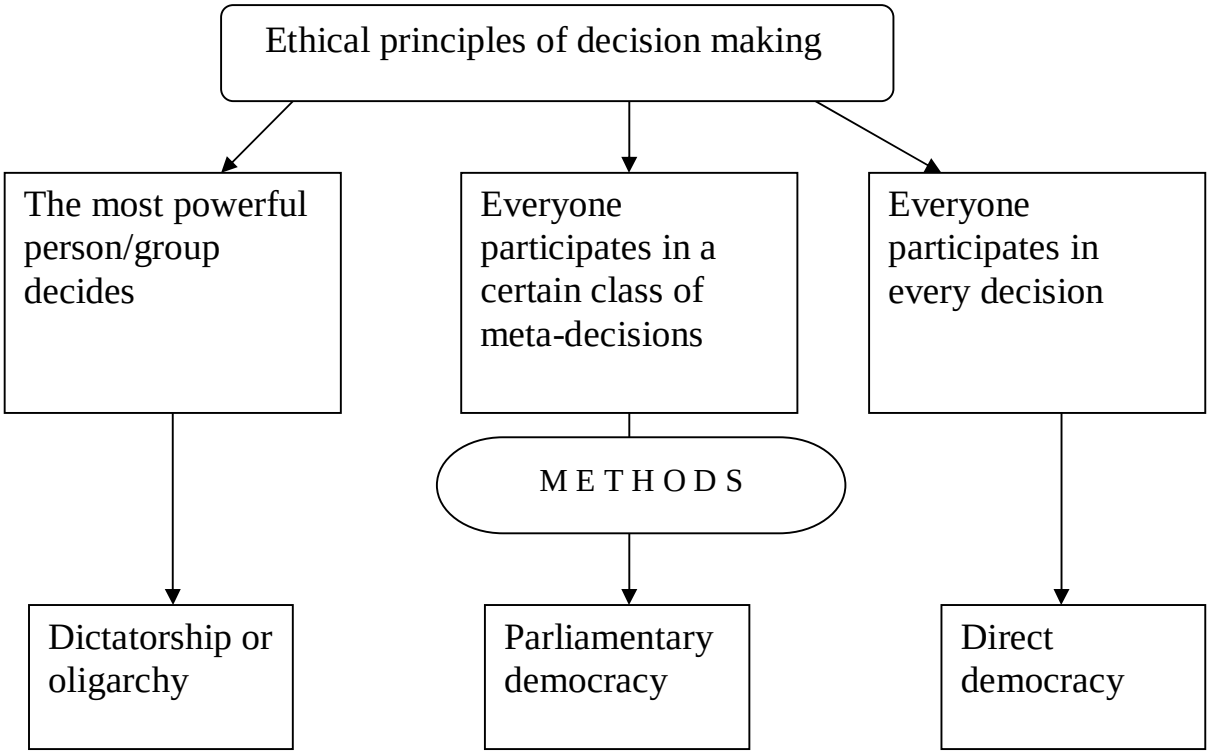
Plurality, where the largest block in a group decides, even if it falls short of a majority.

Dictatorship, where one individual determines the course of action.

Plurality and dictatorship are less desirable as decision rules because they do not require the involvement of the broader group to determine a choice. Thus, they do not engender commitment to the course of action chosen. An absence of commitment from individuals in the group can be problematic during the implementation phase of a decision.

There are no perfect decision making rules. Depending on how the rules are implemented in practice and the situation, all of these can lead to situations where either no decision is made or to situations where decisions made are inconsistent with one another over time.

The ethical principles of decision making vary considerably. Some common choices of principles and the methods which seem to match them are shown in the picture 1.1.



Pic. 1.1. Ethical principles of decision-making

There are many decision making levels having a participation element. A common example is that of institutions making decisions that affect those for whom they provide. In such cases understanding of what participation level is involved becomes crucial to understand the process and power structures dynamics.

1.2. Decision making in management

In general, business and management systems should be set up to allow decision making at the lowest possible level.

Several decision making models for business include:

a) SWOT Analysis - Evaluation by the decision making individual or organization of Strengths, Weaknesses, Opportunities and Threats with respect to desired end state or objective;
b) analytic hierarchy process - procedure for multi-level goal hierarchy;
c) buyer decision processes - transaction before, during, and after a purchase;
d) complex systems - common behavioural and structural features that can be modeled;
e) corporate finance:
    1) the investment decision;
    2) the financing decision;
    3) the dividend decision;
    4) working capital management decisions;
f) cost-benefit analysis - process of weighing the total expected costs vs. the total expected benefits;
g) decision trees:
    1) Program Evaluation and Review Technique (PERT);
    2) critical path analysis;
    3) critical chain analysis;
h) force field analysis - analyzing forces that either drive or hinder movement toward a goal;
i) grid analysis - analysis done by compairing the weighted averages of ranked criteria to options. A way of comparing both objective and subjective data;
j) linear programming - optimization problems in which the objective function and the constraints are all linear;

k) model (economics)- theoretical construct of economic processes of variables and their relationships;
l) Monte Carlo method - class of computational algorithms for simulating systems;
m) morphological analysis - all possible solutions to a multi-dimensional problem complex;
n) paired comparison analysis - paired choice analysis;
o) Pareto analysis - selection of a limited number of tasks that produce significant overall effect;
p) satisficing - In decision-making, satisficing explains the tendency to select the first option that meets a given need or select the option that seems to address most needs rather than the “optimal” solution;
q) scenario analysis - process of analyzing possible future events;
r) Six Thinking Hats - symbolic process for parallel thinking;
s) strategic planning process - applying the objectives, SWOTs, strategies, programs process;
t) ubiquitous command and control is a concept for dynamic decision making based on “agreement between an individual and the world”, and “agreements between individuals”.

The choice of the method depends on what kind of decision must be made, technical facilities and educational and cultural level of a decision-maker.

In the context of industrial goods marketing, there is much theory, and even more opinion, expressed about how the various “decision-makers” and “influencers” (those who can only influence, not decide, the final decision) interact. Decisions are frequently taken by groups, rather than individuals, and the official buyer often does not have authority to take the decision [63, 221].

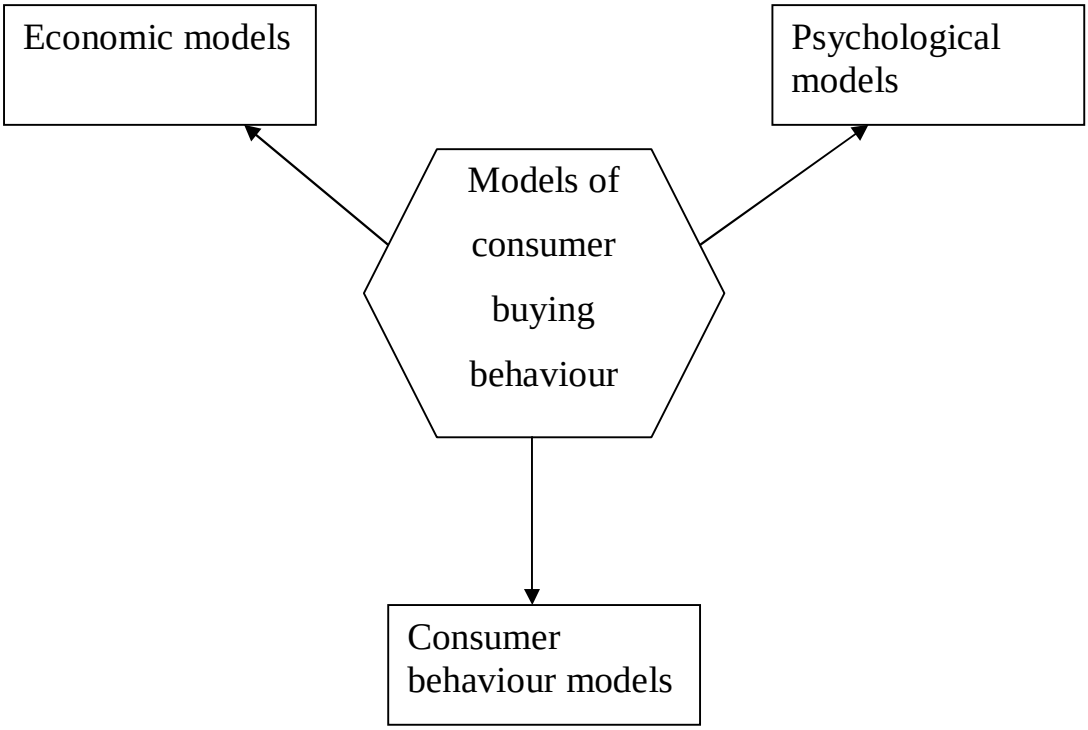
It is commonly known that the most important in business is to find the clients, the buyers of the goods the company produces. That is why it is necessary not only to study the process of management decision making but also to be aware of the buyer decision process.

Buyer decision processes are the decision making processes undertaken by consumers in regard to a potential market transaction before, during, and after the purchase of a product or service [93, 301].

More generally, decision making is the cognitive process of selecting a course of action among multiple alternatives.

In general there are three ways of analysing consumer buying decisions. They are represented in the picture 1.2.

Economic models are largely quantitative and are based on the assumptions of rationality and nearly perfect knowledge. The consumer is seen to maximize their utility. Game theory can also be used in some circumstances.



Pic. 1.2. The way of analysing consumer buying behaviour

Psychological models concentrate on psychological and cognitive processes such as motivation and need reduction. They are qualitative rather than quantitative and are built on sociological factors like cultural influences and family influences.

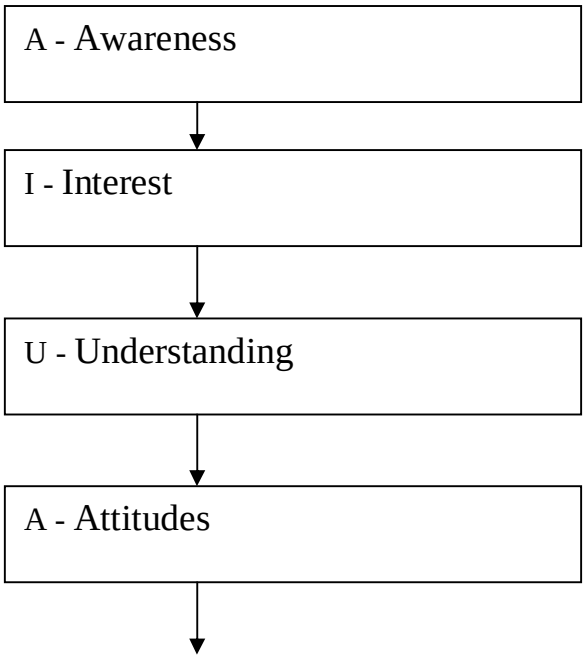
Consumer behaviour models are practical models used by marketers. They typically blend both economic and psychological models.

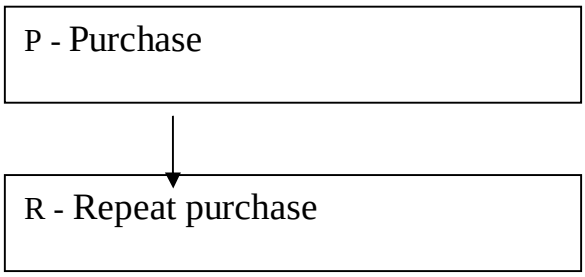
A Nobel laureate Herbert Simon sees economic decision making as a vain attempt to be rational [89, 179]. He claims that if a complete analysis is to be done, a decision will be immensely complex. He also says that peoples' information processing ability is very limited. The assumption of a perfectly rational economic actor is unrealistic. Often we are influenced by emotional and non-rational considerations. When we try to be rational we are at best only partially successful.

In an early study of the buyer decision process literature, Frank Nicosia [84, 8-21] identified three types of buyer decision making models. They are the univariate model in which only one behavioural determinant was allowed in a stimulus-response type of relationship; the multi-variate model in which numerous independent variables were assumed to determine buyer behaviour; and finally the system of equations model in which numerous functional relations interact in a complex system of equations. He concluded that only this third type of model is capable of expressing the complexity of buyer decision processes.

A general model of the buyer decision process consists of the following steps:

a) want recognition;
b) search of information on products that could satisfy the needs of the buyer;
c) alternative selection;
d) decision-making on buying the product;
e) post-purchase behavior.





Pic. 1.3. AIUAPR consumer behaviour model.

There is a range of alternative models, but that of AIUAPR (pic. 1.3), which most directly linked to the steps in the marketing/promotional process is often seen as the most generally useful.

Let us describe the elements of this model in details.

Awareness - before anything else can happen the potential customers must become aware that the product or service exists. Thus, the first task must be to gain the attention of the target audience. All the different models are, predictably, agreed on this first step. If the audience never hears the message they will not act on it, no matter how powerful it is.

Interest - but it is not sufficient to grab their attention. The message must interest them and persuade them that the product or service is relevant to their needs. The content of the message(s) must therefore be meaningful and clearly relevant to those target audience's needs, and this is where marketing research can come into its own.

Understanding- once an interest is established, the prospective customer must be able to appreciate how well the offering may meet his or her needs, again as revealed by the marketing research. This may be no mean achievement where the copywriter has just fifty words, or ten seconds, to convey everything there is to say about it.

Attitudes - but the message must go even further; to persuade the reader to adopt a sufficiently positive attitude towards the product or service that he or she will purchase it, albeit as a trial. There is no adequate way of describing how this may be achieved. It is simply down to the magic of the copywriters' art; based on the strength of the product or service itself.

Purchase - all the above stages might happen in a few minutes while the reader is considering the advertisement in the comfort of his or her favourite armchair. The final buying decision, on the other hand, may take place some time later, perhaps weeks later, when the prospective buyer actually tries to find a shop which stocks the product.

Repeat purchase- but in most cases this first purchase is best viewed as just a trial purchase. Only if the experience is a success for the customer it will be turned into repeat purchases. These repeats, not the single purchase which is the focus of most models, are where the vendors' focus should be, for these are where the profits are generated. The earlier stages are merely a very necessary prerequisite for this.

This is a very simple model, and as such does apply quite generally. Its lessons are that you cannot obtain repeat purchasing without going through the stages of building awareness and then obtaining trial use; which has to be successful. It is a pattern which applies to all repeat purchase products and services, industrial goods just as much as baked beans. This simple theory is rarely taken any further - to look at the series of transactions which such repeat purchasing implies. The consumer's growing experience over a number of such transactions is often the determining factor in the later - and future - purchases. All the succeeding transactions are, thus, interdependent - and the overall decision-making process may accordingly be much more complex than most models allow for.

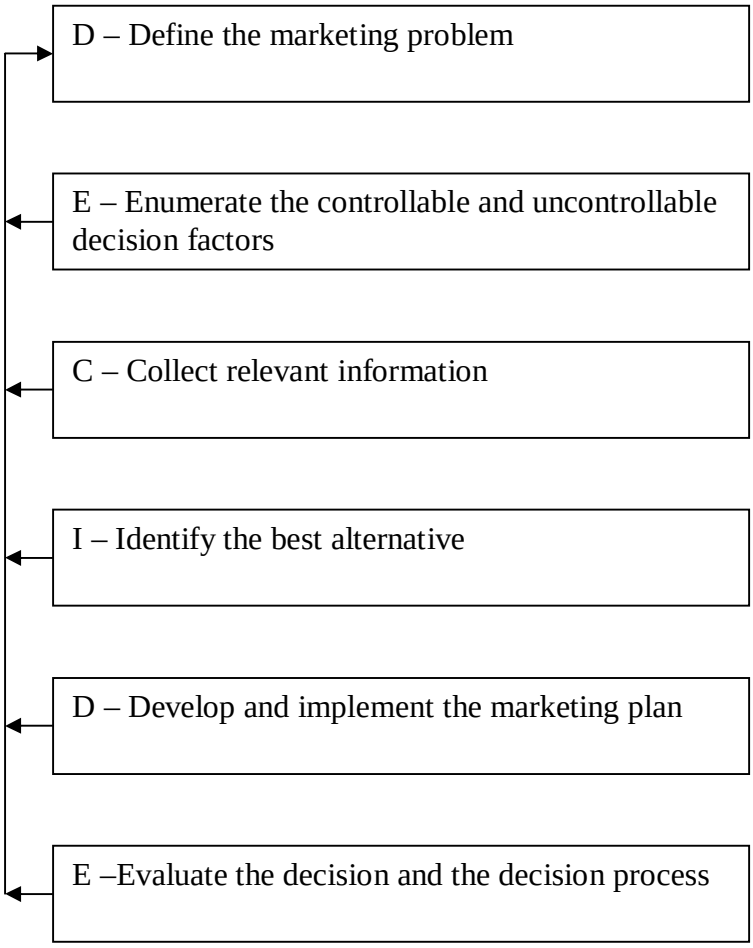
1.3. Decision making in international marketing

The decision making process in international marketing can be described by the DECIDE model (pic. 1.4).

Although research reports state the objectives or purpose of the research early on, this is not always the starting point. Often, considerable analysis of historical data or secondary information has been undertaken to help define in very clear and precise terms what is the problem or opportunity. Apparently, Albert Einstein went so far as to say that

“the formulation of a problem is often more essential than its solution”! Sometimes, exploratory research is required to help in the formulation of the research problem.

According to the defined problem the goals are formulated. Then the process of setting the methods begins. First of all the factors influencing on the decision must be identified. They can be controllable and uncontrollable. Controllable factors are those that can be varied by the company. That is marketing mix.



Pic. 1.4. DECIDE decision making model [58, 118]

The classical definition of marketing mix is the combination of following elements: product, price, place (distribution), promotion (pic 1.5).

Marketing mix	
Product	Place (distribution);
Price	Promotion

Pic. 1.5. Classical marketing mix

These variables are known as the marketing mix or the 4 P's of marketing [78, 45]. They are the variables that marketing managers can control in order to best satisfy customers in the target market. The marketing mix is portrayed in the following diagram:

The firm attempts to generate a positive response in the target market by blending these four marketing mix variables in an optimal manner.

The product is the physical product or service offered to the consumer. In the case of physical products, it also refers to any services or conveniences that are part of the offering.

Product decisions include aspects such as function, appearance, packaging, service, warranty, etc.

Pricing decisions should take into account profit margins and the probable pricing response of competitors. Pricing includes not only the list price, but also discounts, financing, and other options such as leasing.

Place (or placement) decisions are those associated with channels of distribution that serve as the means for getting the product to the target customers. The distribution system performs transactional, logistical, and facilitating functions.

Distribution decisions include market coverage, channel member selection, logistics, and levels of service.

Promotion decisions are those related to communicating and selling to potential consumers. Since these costs can be large in proportion to the product price, a break-even analysis should be performed when making promotion decisions. It is useful to know the value of a customer in order to determine whether additional customers are worth the cost of acquiring them.

Promotion decisions involve advertising, public relations, media types, etc.

But the marketing science is developing constantly and nowadays not only the elements of marketing mix change but also their number varies. According to the literature studies we can name following elements of marketing mix:

a) Promotion, Price plus Package development, Professionals, Personal selling;
b) People, Participants, Perception, Passion, Personality;
c) 4Ps plus Physical evidence, Participants, Process;
d) 4Ps plus People, Physical evidence, Process;
e) 4Ps plus Packaging, Positioning, Perception;
f) Probing, Positioning, Partitioning, Prioritising;
g) Performing, Pleading, Petitioning, Praying;
h) 4Ps plus Predatory practices;
i) 4Ps plus People, Presentation;
j) 4Ps plus Public image;
k) 4Ps plus People.

Marketing mix varies according to the industry or domain in which the company operates, that is marketing mix for consumer goods and industrial goods will consist of different elements.

In order to compose convenient marketing mix the decision maker must dispose of relevant marketing information. The decision maker obtains this information from the results of marketing research conducted whether by the personnel of marketing department of the company or by the companies that specialise on marketing research.

Market research and marketing research are often confused. “Market” research is simply research into a specific market. It is a very narrow concept. “Marketing” research is much broader. It not only includes 'market' research, but also areas such as research into new products, or modes of distribution such as via the Internet. There are many definitions of marketing research. American Marketing association gives such definition: “Marketing research is the function that links the consumer, customer, and public to the marketer through information - information used to identify and define marketing opportunities and problems; generate, refine, and evaluate marketing actions; monitor marketing performance; and improve understanding of marketing as a process. Marketing research specifies the

information required to address these issues, designs the methods for collecting information, manages and implements the data collection process, analyzes, and communicates the findings and their implications."

Obviously, this is a very long and involved definition of marketing research.

P. Palmer defines marketing research as the results of researching the whole of a company's marketing process.

This explanation is far more straightforward i.e. marketing research into the elements of the marketing mix, competitors, markets, and everything to do with the customers.

Marketing research is gathered using a systematic approach [61, 58]. An example of one follows:

a) Define the problem. Never conduct research for things that you would "like" to know. Make sure that you really "need" to know something. The problem then becomes the focus of the research.

b) How will you collect the data that you will analyze to solve your problem? Do we conduct a telephone survey, or do we arrange a focus group? The methods of data collection will be discussed in more detail later.

c) Select a sampling method. Do we use a random sample, stratified sample, or cluster sample?

d) How will we analyze any data collected? What software will we use? What degree of accuracy is required?

e) Decide upon a budget and a timeframe.

f) Go back and speak to the managers or clients requesting the research. Make sure that you agree on the problem! If you gain approval, then move on to step seven.

g) Go ahead and collect the data.

h) Conduct the analysis of the data.

i) Check for errors. It is not uncommon to find errors in sampling, data collection method, or analytic mistakes.

j) Write the final report. This will contain charts, tables, and diagrams that will communicate the results of the research, and hopefully lead to a solution to your problem. Watch out for errors in interpretation.

There are two main sources of data - primary and secondary. Primary research is conducted from scratch. It is original and collected to solve the problem in hand. Secondary research, also known as desk research, already exists since it has been collected for other purposes.

Primary marketing research is collected for the first time. It is original and collected for a specific purpose, or to solve a specific problem. It is expensive, and time consuming, but is more focused than secondary research. There are many ways to conduct primary research [61, 113-125]. We consider some of them:

a) interviews;

b) mystery shopping;

c) focus groups;

d) projective techniques;

e) product tests;

f) diaries;

g) omnibus studies.

Interviewing is the technique most associated with marketing research. Interviews can be telephone, face-to-face, or over the Internet.

Telephone ownership is very common in developed countries. It is ideal for collecting data from a geographically dispersed sample. The interviews tend to be very structured and tend to lack depth. Telephone interviews are cheaper to conduct than face-to-face interviews (on a per person basis). However this way of primary data collection has both advantages and disadvantages (table 1.3).

Table 1.3

Advantages and disadvantages of telephone interviews

Advantages of telephone interviews	Disadvantages of telephone interviews
Can be geographically spread	Respondents can simply hang up
Can be set up and conducted relatively cheaply	Interviews tend to be a lot shorter
Random samples can be selected	Visual aids cannot be used
Cheaper than face-to-face interviews	Researchers cannot behavior or body language

Face-to face interviews are conducted between a market researcher and a respondent. Data is collected on a survey. Some surveys are very rigid or “structured” and use closed questions. Data is easily compared. Other face-to-face interviews are more “in depth”, and depend upon more open forms of questioning. The research will probe and develop points of interest. Though face-to-face interviews give the possibility to receive exact information and estimate at once either the information is reliable or not. But in the same time there are some disadvantages of such method of collecting information. The summary of advantages and disadvantages of face-to-face interviews are represented in the table 1.4.

Table 1.4

Advantages and disadvantages of face-to-face interviews

Advantages of face-to-face interviews	Disadvantages of face-to-face interviews
They allow more “depth”	Interviews can be expensive
Physical prompts such as products and pictures can be used	It can take a long period of time to arrange and conduct
Body language can emphasize responses	Some respondents will give biased responses when face-to-face with a researcher
Respondents can be “observed” simultaneously	

The Internet can be used in a number of ways to collect primary data. Visitors to sites can be asked to complete electronic questionnaires. However responses will increase if an incentive is offered such as a free newsletter, or free membership. Other important data is collected when visitors sign up for membership. The advantages and disadvantages if Internet as the means of collecting primary data are represented in table 1.5.

In many countries, the mail survey is the most appropriate way to gather primary data. Lists are collated, or purchased, and a predesigned questionnaire is mailed to a sample of respondents. Mail surveys do not tend to generate more than a 5-10% response rate. However, a second mailing to prompt or remind respondents tends to improve response rates. Mail surveys are less popular with the advent of technologies such as the Internet and telephones, especially call centers.

Table 1.5

Advantages and disadvantages of the Internet

Advantages of the Internet	Disadvantages of the Internet
Relatively inexpensive	Only surveys current, not potential customers
Uses graphics and visual aids	Needs knowledge of software to set up questionnaires and methods of processing data
Random samples can be selected	May deter visitors from your website
Visitors tend to be loyal to particular sites and are willing to give up time to complete the forms	

Companies will set up mystery shopping campaigns on an organizations behalf. Often used in banking, retailing, travel, cafes and restaurants, and many other customers focused organizations, mystery shoppers will enter, posing as real customers. They collect data on customer service and the customer experience. Findings are reported back to the commissioning organization. There are many issues surrounding the ethics of such an approach to research.

Focus groups are made up from a number of selected respondents based together in the same room. Highly experienced researchers work with the focus group to gather in depth qualitative feedback. Groups tend to be made up from 10 to 18 participants. Discussion, opinion, and beliefs are encouraged, and the research will probe into specific areas that are of interest to the company commissioning the research (table 1.6).

Projective techniques are borrowed from the field of psychology. They will generate highly subjective qualitative data. There are many examples of such approaches including: inkblot tests - look for images in a series of inkblots; cartoons - complete the 'bubbles' on a cartoon series; sentence or story completion; word association - depends on very quick (subconscious) responses to words; psychodrama - imagine that you are a product and describe what it is like to be operated, warn, or used.

Table 1.6

Advantages and disadvantages of focus groups

Advantages of focus groups	Disadvantages of focus groups
Commissioning marketers often observe the group from behind a one-way screen	Highly experienced researchers are needed. They are rare
Visual aids and tangible products can be circulated and opinions taken	Complex to organize
All participants and the research interact	Can be very expensive in comparison to other methods
Areas of specific interest can be covered in greater depth	

Product tests are often completed as part of the “test” marketing process. Products are displayed in a mall of shopping center. Potential customers are asked to visit the store and their purchase behavior is observed. Observers will contemplate how the product is handled, how the packing is read, how much time the consumer spends with the product, and so on.

Diaries are used by a number of specially recruited consumers. They are asked to complete a diary that lists and records their purchasing behavior of a period of time (weeks, months, or years). It demands a substantial commitment on the part of the respondent. However, by collecting a series of diaries with a number of entries, the researcher has a reasonable picture of purchasing behavior.

An omnibus study is where an organisation purchases a single or a few questions on a “hybrid” interview (either face-to-face or by telephone). The organisation will be one of many that simply want to a straightforward answer to a simple question. An omnibus survey could include questions from companies in sectors as diverse as heath care and tobacco. The research is far cheaper, and commits less time and effort than conducting your own research.

Secondary marketing research, or desk research, already exists in one form or another. It is relatively cheap, and can be conducted quite quickly. However, it tends to have been collected for reasons other than for the problem or objective at hand. So

it may be untargeted, and difficult to use to make comparisons. There are a number of such sources available to the marketer, and the following list is by no means conclusive:

a) trade associations;
b) national and local press Industry magazines;
c) national/international governments;
d) websites;
e) informal contacts;
f) trade directories;
g) published company accounts;
h) business libraries;
i) professional institutes and organisations;
j) omnibus surveys;
k) previously gathered marketing research;
l) census data;
m) public records.

Basing on the information obtained in the process of marketing research different variants of possible decision are formed. The decision maker must choose the one. It can be made using one of the methods described in the previous chapter.

The next stage is forming the marketing plan.

A marketing plan is a written document that details the actions necessary to achieve a specified marketing objective(s). It can be for a product or service, a brand, or a product line. It can cover one year (referred to as an annual marketing plan), or cover up to 5 (sometimes referred to as five) years [61, 238].

A marketing plan may be part of an overall business plan. Solid marketing strategy is the foundation of a well-written marketing plan. While a marketing plan contains a list of actions, a marketing plan without a sound strategic foundation is of little use.

The content of marketing plan depends on the size of the company. Thus, marketing plans of small companies typically include:

a) demographics of customers;
b) description of competitors, including the level of demand for the product or service and the strengths and weaknesses of competitors;
c) description of the product or service, including special features;
d) marketing budget, including the advertising and promotional plan;
e) description of the business location, including advantages and disadvantages for marketing;
f) pricing strategy;
g) market segmentation;

The main contents of a marketing plan of medium-sized and large organizations are:

a) executive summary;
h) situational analysis;
i) opportunities / issue analysis - SWOT analysis;
j) objectives;
k) strategy;
l) action program (the operational marketing plan itself for the period under review);
m) financial forecast;
n) controls.

In detail, a complete marketing plan typically includes:

a) executive summary

b) current situation:

1) microenvironment: economy, legal, government, technology, ecological, sociocultural, supply chain;

2) market analysis - market definition, market size, market segmentation, industry structure and strategic groupings, Porter 5 forces analysis, competition and market share, competitors' strengths and weaknesses, market trends;

3) consumer analysis - nature of the buying decision, participants, demographics, psychographics, buyer motivation and expectations, loyalty segments;

4) internal - company resources (financial, people, time, skills), objectives, mission statement and vision statement, corporate objectives, financial objective (marketing objectives, long term objectives, description of the basic business philosophy), corporate culture;

c) summary of situation analysis: external threats, external opportunities, internal strengths, internal weaknesses, critical success factors in the industry, our sustainable competitive advantage;

d) marketing research: information requirements, research methodology, research results;

e) marketing strategy:

1) product - product mix, product strengths and weaknesses, product life cycle management and new product development, brand name, brand image, and brand equity, the augmented product, product portfolio analysis (B.C.G. Analysis, contribution margin analysis, G.E. multi factoral analysis, quality function deployment);

2) place - segmented marketing actions and market share objectives by product, by customer segment, by geographical market, by distribution channel;

3) price - pricing objectives, pricing method (cost plus, demand based, or competitor indexing), pricing strategy (skimming, or penetration), discounts and allowances, price elasticity and customer sensitivity, price zoning, break even analysis at various prices;

4) promotion: promotional goals, promotional mix, advertising reach, frequency, flights, theme, and media, sales force requirements, techniques, and management, sales promotion, publicity and public relations, electronic promotion (Web, or telephone), word of mouth marketing (buzz), viral marketing;

5) distribution - geographical coverage, distribution channels, physical distribution and logistics, electronic distribution;

implementation: personnel requirements, assign responsibilities (give incentives, training on selling methods), financial requirements, management information systems requirements, month-by-month agenda, monitoring results and benchmarks, adjustment mechanism, contingencies;

f) financial summary: assumptions, pro-forma monthly income statement, contribution margin analysis, breakeven analysis, Monte Carlo method, ISI: Internet Strategic Intelligence;

g) scenarios: prediction of future scenarios, plan of action for each scenario;

h)appendix: pictures and specifications of the new product, results from research already completed.

Marketing decision support systems (MDSS) is an information system that helps with decision-making in the formation of a marketing plan [58, 106]. The reason for using a MDSS is because it helps to support the vendors' planning strategy for marketing products; it can help to identify advantageous levels of pricing, advertising spending, and advertising copy for the firm's products. This helps determine the firms marketing mix for product. The general outlook of marketiong decision support system is represented in appendix A.

1.4. Decision support systems

Because there are many approaches to decision-making and because of the wide range of domains in which decisions are made, the concept of decision support system (DSS) is very broad. A DSS can take many different forms. In general, we

can say that a DSS is a computerized system for helping to make decisions. A decision is a choice between alternatives based on estimates of the values of those alternatives. Supporting a decision means helping people working alone or in a group gather intelligence, generate alternatives and make choices. Supporting the choice making process involves supporting the estimation, the evaluation and/or the comparison of alternatives. In practice, references to DSS are usually references to computer applications that perform such a supporting role.

The term decision support system has been used in many different ways [86] and has been defined in various ways depending upon the author's point of view. Finlay [69, 57]and others define a DSS rather broadly as "a computer-based system that aids the process of decision making." Turban [94, 28] defines it more specifically as "an interactive, flexible, and adaptable computer-based information system, especially developed for supporting the solution of a non-structured management problem for improved decision making. It utilizes data, provides an easy-to-use interface, and allows for the decision maker's own insights." Other definitions fall between these two extremes. For Keen [76, 253] a DSS couples the intellectual resources of individuals with the capabilities of the computer to improve the quality of decisions. For Sprague [91, 16] DSSs are “interactive computer-based systems that help decision makers utilize data and models to solve unstructured problems.” In contrast, Keen [75, 130] claims that it is impossible to give a precise definition including all the facets of the DSS (“there can be no definition of decision support systems, only of decision support”). Nevertheless, according to Power, the term decision support system remains a useful and inclusive term for many types of information systems that support decision making. He humorously adds that every time a computerized system is not an on-line transaction processing system (OLTP), someone will be tempted to call it a DSS. As you can see, there is no universally accepted definition of DSS.

In the absence of an all-inclusive definition, we focus on the history of DSS. According to Keen, the concept of decision support has evolved from two main areas of research: the theoretical studies of organizational decision making done at the

Carnegie Institute of Technology during the late 1950s and early 1960s, and the technical work on interactive computer systems, mainly carried out at the Massachusetts Institute of Technology in the 1960s. It is considered that the concept of DSS became an area of research of its own in the middle of the 1970s, before gaining in intensity during the 1980s. In the middle and late 1980s, executive information systems (EIS), group decision support systems (GDSS), and organizational decision support systems (ODSS) evolved from the single user and model-oriented DSS. Beginning in about 1990, data warehousing and on-line analytical processing (OLAP) began broadening the realm of DSS. As the turn of the millennium approached, new Web-based analytical applications were introduced.

It is clear that DSSs belong to an environment with multidisciplinary foundations, including (but not exclusively) database research, artificial intelligence, human-computer interaction, simulation methods, software engineering, and telecommunications.

DSSs also have a weak connection to the user interface paradigm of hypertext. Both the University of Vermont PROMIS system (for medical decision making) and the Carnegie Mellon ZOG/KMS system (for military and business decision making) were decision support systems which also were major breakthroughs in user interface research. Furthermore, although hypertext researchers have generally been concerned with information overload, certain researchers, notably Douglas Engelbart, have been focused on helping decision makers in particular.

As with the definition, there is no universally accepted taxonomy of DSS either. Different authors propose different classifications. Using the relationship with the user as the criterion, Ндttenschwiler [72, 105] differentiates passive, active, and cooperative DSS. A passive DSS is a system that aids the process of decision making, but that cannot bring out explicit decision suggestions or solutions. An active DSS can bring out such decision suggestions or solutions. A cooperative DSS allows the decision maker (or its advisor) to modify, complete, or refine the decision suggestions provided by the system, before sending them back to the system for validation. The system again improves, completes, and refines the suggestions of the

decision maker and sends them back to him or her for validation. The whole process then starts again, until a consolidated solution is generated.

Using the mode of assistance as the criterion, D.J. Power [87] differentiates communication-driven DSS, data-driven DSS, document-driven DSS, knowledge-driven DSS, and model-driven DSS.

A model-driven DSS emphasizes access to and manipulation of a statistical, financial, optimization, or simulation model. A model-driven DSS uses data and parameters provided by users to assist decision makers in analyzing a situation; they are not necessarily data intensive. Dicodess is an example of an open source model-driven DSS generator.

A communication-driven DSS supports more than one person working on a shared task; examples include integrated tools like Microsoft's NetMeeting or Groove.

A data-driven DSS or data-oriented DSS emphasizes access to and manipulation of a time series of internal company data and, sometimes, external data.

A document-driven DSS manages, retrieves and manipulates unstructured information in a variety of electronic formats.

A knowledge-driven DSS provides specialized problem solving expertise stored as facts, rules, procedures, or in similar structures.

Using scope as the criterion, Power [85, 265] differentiates enterprise-wide DSS and desktop DSS. An enterprise-wide DSS is linked to large data warehouses and serves many managers in the company. A desktop, single-user DSS is a small system that runs on an individual manager's PC.

Once again, different authors identify different components in a DSS. Sprague and Carlson [90, 268] identify three fundamental components of DSS:

a) the database management system (DBMS);
b) the model-base management system (MBMS);
c) the dialogue generation and management system (DGMS).

Ginzberg et al. describe these three components in more detail: the Data Management Component stores information (which can be further subdivided into

that derived from an organization's traditional data repositories, from external sources such as the Internet, or from the personal insights and experiences of individual users); the Model Management Component handles representations of events, facts, or situations (using various kinds of models, two examples being optimization models and goal-seeking models); and the User Interface Management Component is of course the component that allows a user to interact with the system [70, 97].

According to Power [85, 302], academics and practitioners have discussed building DSS in terms of four major components:

a) the user interface;
b) the database;
c) the model and analytical tools;
d) the DSS architecture and network.

Ндttenschwiler [72, 110] identifies five components of DSS:

a) users with different roles or functions in the decision making process (decision maker, advisors, domain experts, system experts, data collectors);
b) a specific and definable decision context;
c) a target system describing the majority of the preferences;
d) a knowledge base made of external data sources, knowledge databases, working databases, data warehouses and meta-databases, mathematical models and methods, procedures, inference and search engines, administrative programs, and reporting systems;
e) a working environment for the preparation, analysis, and documentation of decision alternatives.

Marakas [81, 195] proposes a generalized architecture made of five distinct parts:

a) the data management system;
b) the model management system;
c) the knowledge engine;
d) the user interface;
e) the user(s).

There are several ways to classify DSS applications. Not every DSS fits neatly into one category, usually it can be classified as a mix of two or more architecture in one.

Holsapple and Whinston [73, 197] classify DSSs into the following six frameworks: Text-oriented DSS, Database-oriented DSS, Spreadsheet-oriented DSS, Solver-oriented DSS, Rule-oriented DSS, and Compound DSS.

A compound DSS is the most popular classification for a DSS. It is a hybrid system that includes two or more of the five basic structures described by Holsapple and Whinston.

The support given by DSS can be separated into three distinct interrelated categories (Hackathorn and Keen): Personal Support, Group Support and Organizational Support.

a) additionally, the build up of a DSS is also classified into a few characteristic inputs: this is used so the DSS can have factors, numbers, and characteristics to analyze;
b) user knowledge and expertise: This allows the system to decide how much it is relied on, and exactly what inputs must be analyzed with or without the user;
c) outputs: This is used so the user of the system can analyze the decisions that may be made and then potentially;
d) make a decision: This decision making is made by the DSS, however, it is ultimately made by the user in order to decide which criteria it should use.

DSSs which perform selected cognitive decision-making functions and are based on artificial intelligence or intelligent agent technologies are called Intelligent Decision Support Systems (IDSS).

As mentioned above, there are theoretical possibilities of building such systems in any knowledge domain.

DSS is extensively used in business and management. Executive dashboards and other business performance software allow faster decision making, identification of negative trends, and better allocation of business resources.

A growing area of DSS application, concepts, principles, and techniques is in agricultural production, marketing for sustainable development.

A DSS has many applications that have already been spoken about. However, it can be used in any field where organization is necessary. Additionally, a DSS can be designed to help make decisions on the stock market, or deciding toward which area or segment to market a product.

CHAPTER 2
ANALYSIS OF ECONOMIC ACTIVITY OF KSAMC

2.1. General characteristics of Kharkov State Aircraft Manufacturing Company

Kharkov State Aircraft Manufacturing Company is one of the oldest aircraft manufacturing companies in Ukraine. It was founded on September 17, 1926.

At present Kharkov State Aircraft Manufacturing Company is one of the leading companies in the field of aviation industry of Ukraine. Thanks to the effective cooperation with Antonov ASTC, competitiveness of the manufactured production and strategically sound marketing policy, KSAMC ranks among leading aircraft manufacturers at the international market, having gained popularity in the sector of regional and transport vehicles.

KSAMC today is an active and consistent adherent to the principle of the integration into the world aviation complex. Besides, the company is one of the remarkable participants of CIS's aviation market where it holds the superiority in the quantity of the manufactured civil aircraft.

Keeping up its glorious historic traditions, providing today sustainable development of its activities, Kharkov State Aircraft Manufacturing Company aspires to the prospective future. That is proved by energy, ambitions, persistence and determination of the company's staff ready to tackle any tasks: mastering new airframes, production expanding, maintaining its positions at the existing markets and penetrating into new ones. The company relies on the new designs, high technologies and constant modernization of the production, strictly adheres to the principles of economic feasibility and healthy competition, and uses effectively scientific achievements and results of international cooperation.

Over years KSAMC produced more than 4,000 airplanes.

Pilot-line production has created 12 types of experimental airplanes and airframes.

Aircrafts manufactured by KSAMC were operated in 23 countries of the world.

Kharkov State Aircraft Manufacturing Company is a manufacturer of An-140, the first serial aircraft of the independent Ukraine.

Kharkov State Aircraft Manufacturing Company today is an advanced high-technology enterprise with modern production facilities. KSAMC consistently implements new technological processes and applies new aviation-certified materials striving to ensure the topmost quality of the aircraft it manufactures.

The distinctive feature of the manufacturing process is not only high production standards, innovation and professionals' creativity, but also wide use of automatic systems of computer-supported design and CAD/CAM at developing technological processes and producing the equipment, as well as implementation of the company integrated management system. At present computer network covers the considerable part of the company's workplaces. Besides, KSAMC has patents and licenses Administration Department that provides a wide range of activities on national and international protection of intellectual property rights. Altogether it is a guaranty of the successful development and production of promising aircraft.

Manufacturing on KSAMC includes:

a) welding and fitting shops processing wide range of parts from screw-nuts and screws to machined integral wing panels;
b) blank production and stamping shops that cut out the material, produce complex 3D parts, sections and tubes for all the aircraft systems;
c) coating shop that chemically treats the parts, applies metal painting and paint coat on parts and units, and carries out the aircraft external painting;
d) non-metal production shop for parts of plastic, rubbers and composites, including aircraft interior;
e) aggregate assembly shops are responsible for assemblage and attachment of fuselage, wing, vertical and horizontal stabilizers, engine nacelles;
f) the final assembly workshop for wiring in bundles, tube laying, radio equipment and special equipment installation and all aircraft systems testing;
g) flight-test center performing ground and flight aircraft tests as well as full complex of predelivery procedures;

h) after-sale maintenance and overhaul workshops that carries out all types of after-sale and post-warranty services of all the operated aircraft produced by KSAMC;
i) preproduction and auxiliary production shops, producing technological equipment (tools, fixtures, moulds, holding frames, stand fixture equipment), which are necessary for aircraft manufacturing.

Apart from primary production workshops, Kharkov State Aircraft Manufacturing Company also has subdivisions as TORA, Aircraft Repairing and Servicing Plant, which provides aircraft technical support, repair, maintenance and overhaul; Sokolniki plant, manufacturing a wide range of consumer goods, beginning with ladders and furniture up to playgrounds equipment; Chuguev Aircraft Repairing Plant, producing various equipment and techniques facilities.

The production quality policy is the guiding principal for every participant of the manufacturing and is a part of the whole technical and marketing strategy of the company.

Aircraft built by KSAMC meets all customers' needs, strictly complies with technical documentation and is delivered in accordance with agreed terms. Therefore, our company proved itself as a reliable partner at the market.

Since 1977 KSAMC has been applying a comprehensive production quality control system (KS UKP) with focus on constant upgrade in compliance with the international standards ISO 9001. High quality of its products is ensured by:

a) new progressive technologies;
b) economical efficiency;
c) manufacturing process strictly complying with international rules and standards;
d) preference to suppliers of high quality products;
e) modified avionics;
f) supporting and developing effective quality system;
g) centralized manufacturing control system.

In 1998, 2001 and 2005 the quality control system of the Company was granted with the ISO-9001-2000 certificate by an independent international ranking entity Quality Veritas Intl. (QVI).

Manufacturing and maintenance facilities of the Company comply with the national CAA and interstate CIS Aviation Committee AR MAK requirements.

Kharkov State Aircraft Manufacturing Company has always put special emphasis on the technical support and maintenance of the aircraft that the company produces. Lately, as KSAMC began to sell more An-140 aircraft to different operators, this part of the company's work has become the main focus of attention. Perfectly understanding the needs of aircraft operators, KSAMC offers not just an airplane but the integrated product and provides the full cycle of works associated aircraft manufacturing, marketing, and technical servicing and support during the operation.

Kharkov State Aircraft Manufacturing Company has designed and implemented the program of aircraft servicing, which includes: technical support and maintenance of the aircraft, deliveries of spare parts, modernization, organization and equipping of maintenance bases, flight and engineering personnel training, provision with technical documentation and vendor items maintenance bases.

2.2. Financial analysis of economic activity of KSAMC

Nowadays each company must estimate not only its own financial condition, but also the financial condition of its partners and business rivals, especially when acting on international market. Much attention must be paid to analyzing the financial condition of the companies. Commonly the financial analysis is the means of estimation and forecasting of financial condition of the structure based on accounting documents. In order to make reasonable and lucrative decisions, which is very important in the domain of marketing, the structure must monitor continuously its financial condition, estimate possible reserves and to make the best use of them.

The objective of this express-analysis of financial condition of the KSAMC is the general estimation of the results of its economic activity and financial condition during the recent period; it means pictorial estimation of financial prosperity of the enterprise and the dynamics of its development. In the present express-analysis the results of structure of the KSAMC are evaluated, the trends of basic activities are determined, and the changes in financial condition of the structure are followed. In order to imagine the general outline of the development of the enterprise some ratios are used and the most meaningful of them are grouped in tables.

Economic analysis of financial and economic activity of the structure starts with the estimation of its financial condition according to the figures from balance sheet.

According to the financial statements the structure of aggregated assets in the view current/non-current assets is approximately in the proportion 50/50 with insignificant fluctuations and the trend of growth of the portion of current assets (generalized data is shown in the table 2.1).

It is reputed that if the part of non-current assets exceeds 40% than the enterprise has "heavy" structure of the assets, which testifies to the considerable overhead charges, high level of sensitivity to the changes of sales. it is not surprising as the KSAMC is the enterprise of engineering industry, that is why the structure of its assets testifies to the low mobility of the property of the enterprise. But on the other hand such structure of the capital indicates at the adequate provision of KSAMC with the funds. Nonetheless a small change in the structure of assets should be pointed out in the 2003-2005 years which contributes to the acceleration of turnover because of the diminution of the part of permanent assets.

Thus a following conclusion about the placing of the capital of the enterprise can be made: recently the enterprise tries to invest more in current funds (production resources, goods in process, finished commodities, goods) and decrease the part of non-current assets (building in process, key assets).

Table 2.1

Structure of assets and liabilities of KSAMC according to the data from Form №1

№ №	Ratios	Absolute value of assets and liabilities, thousands of hrivnas (in brackets – percent of change according to the previous year)			Weight, %		
		2003	2004	2005	2003	2004	2005
1	Non-current assets	62396	45516,3 (+27%)	48354,9 (+6%)	62,51 %	48,99 %	48,58 %
2	Current assets	37415	47396,6 (+27%)	51180,2 (+8%)	37,49 %	51,01 %	51,42 %
3	General sum of assets	99811	92912,9 (-7%)	99535,1 (+7%)	100%	100%	100%
4	Capital stock	90947	82637,9 (-9%)	91488,3 (+11%)	91,12 %	88,94 %	91,92 %
5	Sum total of long-term liabilities	2146	1444,4 (-33%)	739 (-49%)	2,15 %	1,55 %	0,74 %
6	Sum total of short-term liabilities	6718	8830,6 (+31%)	7307,8 (-17%)	6,73 %	9,50 %	7,34 %
7	Sum total of liabilities	99811	92912,9 (-7%)	99535,1 (+7%)	100%	100%	100%

We can also see from the table 2.1 that the sum total of assets of KSAMC is about 10 mln hrivnas with fluctuations. In general according to the figures of the balance sheet of 2003-2005 we can tell that the sum of available assets varies slightly - in 2004 it decreases for 7%, in 2005 - increases for 7%. First of all it is connected to the reduction of the part of key assets in the sum total of assets of KSAMC (in 2004), and also to the increase of the cost of finished commodities, goods in process, accounts receivable. in other words if the sum total of assets lowers for almost 7% in 2004 because of the reduction of the part of key assets, in 2005 it increases for more than 7% due to the increase of current liabilities. in its turn it influenced the structure

of the assets: we can see from the table 2.1 that reduction of the part of non-current assets and the augmentation of the part of current assets is observed. It is possible to point out that this trend can be traced during all the analysed period.

Accumulation of big stocks could have been the evidence of fall in business activity of the enterprise, deceleration of turnover of current assets, but generally such augmentation of stocks of KSAMC can be called defensible, because the growth rate of production stocks and the growth rate of sales do not differ very much, this means that the enterprise functions harmonically, since we can even observe the growth of the turnover of current assets, stocks included. Hence, we can call it a positive change.

As is obvious from the table 2.1 all the foregoing changes in the credit part of balance sheet were caused by the changes in the sources of assets of the enterprise. Let us study in more details the changes in the owned and loaned capital of KSAMC.

The main source of forming the assets of KSAMC is owned capital that forms about 90% of the sum total of liabilities (with small deviations to the side of increase or decrease during the analysed period). Such structure of the sources of forming signifies for the high financial stability of any enterprise. Such situation is attractive for banks and investors as it is more reliable when the part of owned capital of the clients is higher. It excludes the most part of financial risks. For the enterprise it would be better to draw loaned capital, as having received the loan at smaller rate of interest than the economic profitability of the enterprise it would be possible to extend the production and to increase the profitableness of the owned capital of the enterprise.

If we study the structure and the dynamics of owned capital we could observe that decrease of the part of assessed capital and the increase of the part of additional capital and inappropriate balance testifies to the effective activity of the enterprise and the upgrowth of business activity of KSAMC.

During the analysed period the part of loaned capital composed an insignificant part of the total assets of the enterprise (about 10% with minor surging), we could notice the trend of decrease of long-term loaned capital and the increase of the part of

short-term liabilities (table 2.1), but the possibility of the reduction of financial stability doesn't threaten to KSAMC because having such significant part of owned capital the risk of this reduction becomes insignificant in long-term prospect.

The decrease of long-term liabilities of KSAMC can not be called a negative moment as the drawing of long-term credits to form the assets testifies to the considered financial strategy of the enterprise. On the other hand we can state that the enterprise pays off the long-term credits of the banks and refills its assets with its own capital, which reflects positively on financial stability of KSAMC.

In general we can make a conclusion about relative stability of almost all the balance sheet accounts, both assets and liabilities, during the period of 2003-2005 with insignificant variations which tells about harmonious functioning of KSAMC.

Let us consider the business activity of KSAMC in the aspect of analysis of its financial activity. Under this definition we will understand the current production and commercial activity of the enterprise.

Business activity of KSAMC shows in the dynamics of its development, in obtaining the stated objectives, in effective using of economic potential, in expanding the markets. As the speed of the turnover influences peculiarly on the paying capacity of the enterprise, let us estimate the business activity of KSAMC on the qualitative and quantitative levels, using the indexes of turnover shown in the table 2.2.

Table 2.2

Estimation of business activity of KSAMC

Ratios	Years		
	2003	2004	2005
Ratio of assets turnover(transformation ratio)	0.4454	0.6701	0.7850
Ratio of key assets turnover (return on funds)	0.7395	1.4680	1.8949
Ratio of current assets turnover	1.1883	1.3136	1.5266
Ratio of accounts receivable turnover	6.6435	6.9020	8.4311
Ratio of accounts payable	8.9346	8.4123	13.1804
Ratio of stock turnover	1.5442	1.7210	1.9592
Turnover of bank assets	30.8953	68.3268	67.3655
Duration of operational cycle, days	291.30	264.97	229.60
Duration of financial cycle, days	250.45	221.58	201.90

At first sight on the table 2.2 we can notice the growth of the speed of the turnover of the assets that at other equal conditions reflects the increase of productive and technical potential of KSAMC. Such growth of all these ratios is first of all connected to the 40% growth of net sales revenue in 2004 and to the 25% growth of net sales revenue in 2005, which in its turn affected the growth of business activity of the enterprise. The reason of such growth of revenue could be analysed using additional information. It may be connected to the sales politics of KSAMC. Thus basing on the calculations shown in the table 2.2 following conclusions can be made.

a) The turnover of the assets has been growing gradually during the analysed period. It ended up in increasing considerably, almost twice.

b) The turnover of key assets grew almost twice in 2005 comparing to the 2003. It should be mentioned that the rate of growth of key assets was much more impetuous than that of the current assets turnover. It is connected to the changes in the balance sheet structure where the part of key assets decreased and the part of current assets increased.

c) The turnover of accounts receivable also increased due to the growth of the sales revenue. And even the fact of increase of the accounts receivable in 2004 for

almost 72% haven't had negative influence on the growth of the turnover. In order to compare the conditions of commercial crediting of KSAMC and its business rivals it would be useful to compare this ratio with the mean ratio in the field and the ratios of the rivals.

d) If we compare ratios of accounts receivable and accounts payable we can say for sure that the credit conditions rendered by KSAMC to its clients are much milder comparing to those the KSAMC uses to loan from the banks, it means that the time constraints of accounts receivable are higher than the time constraints of accounts payable.

e) The speed of settling the accounts of KSAMC accelerates, the growth of the ratio of the accounts payable turnover testifies to it.

Consequently the growth of the current assets turnover reduces the necessity of them and allows KSAMC to set free a part of current assets to the long-term production shortages or to the additional goods production. Now the enterprise needs less stock of raw materials, fuel, goods in process, in other words the resources that were invested in stock are being set free.

Generally we can talk about the increase of business activity of KSAMC during the period of 2003-2005.

Concerning the financial results of KSAMC we can state the constant growth of all absolute values of financial results basing on the data of Form №2. The calculations are shown in the table 2.3.

Profit is an important resumptive characteristic of the final results of the activity of KSAMC. The formation of current assets, the fulfilment of liabilities before the budget, the paying capacity of the enterprise etc. depend on its size.

Table 2.3

Financial results of economic activity of KSAMC

№	Ratio	2003	2004	2005	Growth comparing to the previous year	
					2003	2005
1	Net sales return	44458,4	62259,4	78130,5	40%	25%
2	Cost price of sold production	19969,8	23244,1	33321,4	16%	43%
3	Gross profit(loss)	24488,6	39015,3	44809,1	59%	15%
4	Financial results of operation activity	6678,8	13397,6	15457,8	101%	15%
5	Financial results of common activity	5316,2	9680,5	11243,9	82%	16%
6	Net profit (loss)	5316,2	9680,5	11243,9	82%	16%

From the table 2.3 we can see that the net profit of KSAMC has a trend of increasing: in 2004 it grew up for 82%, in 2005 the figure was about 11,244 mln hrivnas having increased for 17%. Such positive changes in financial results are determined by the following factors.

Firstly, it is the increase of sale proceeds for over 40% in 2004 and for 25% in 2005 comparing to the recent year.

Secondly, it is the reduction for over 14% of payments of VAT to the budget.

Thirdly, it is the growth of gross profit for 59% in 2004 and for 15% in 2005.

Fourthly, we should mention that even the fact of increase of cost price of the sold production for 16% and for 43% during the 2004 and 2005 correspondingly has not influenced negatively the positive changes in the financial results of KSAMC.

Thus, the financial results from operational activity grew up for almost 57% during the analysed period of three years, but in consequence of some losses from financial and investment activity the net profit grew up at slower rate comparing to the financial results of operation activity - it increased only for 53% (which results

into the figure of 5,99277 mln hrivnas). So, this increase was caused by the growth of the profit from the operational activity during the analysed period.

But the financial results of each enterprise are described not only with the absolute characteristics. Let us analyse the financial results of the activity of KSAMC using the relative characteristics - the profitability ratios (table 2.4), which are the relative characteristics of the effectiveness of the functioning of the enterprise. They characterise the effectiveness of work of KSAMC in general and in different directions. Relative ratios reflect more completely comparing to the net profit the final results of the activity of the enterprise as their value shows the correlation of the effect to the resources that were expended.

Thus two first indexes characterise the production activity of KSAMC, they show the payback of the expenses, in other words how much of the net profit each hrivna invested in the production and sales brings; the third ratio shows the return on sales, the last ones - the profitability of the assets and its separate parts. On the whole all the profitability ratios must be compared to the similar in the branch, without comparison we can only follow their dynamics.

Table 2.4

Analysis of relative financial indexes of the results of functioning of KSAMC

№	Ratios	Years		
		2003	2004	2005
1	Return on production activity, hrn./hrn.	0.2662	0.4165	0.3374
2	Return on production assets, hrn./hrn.	0.0658	0.1433	0.1658
3	Return on sales, hrn./hrn.	0.1196	0.1555	0.1439
4	Return on assets, hrn./hrn.	0.0533	0.1042	0.1130
5	Return on investment capital, hrn./hrn.	0.0571	0.1151	0.1219
6	Return on owned capital, hrn./hrn.	0.0585	0.1171	0.1229

From the table 2.4 we can see that all the indexes except the return on production activity and return on sales increased but at different rates (the reason of

the fall of these ratios is the growth of the cost price of the production). Generally such changes could be estimated as positive but in order to make more detailed conclusions the further analysis must be done.

For this purpose a detailed study of the influence of different factors on positive changes in the financial results of KSAMC is made. In order to understand due to what the return on assets increased (ratio of profit to the sum total of assets - ROA) let us analyse the interdependency of return on assets, return on sales and the turnover of the assets k (ass.t). ROA reflects the efficiency of the activity of the enterprise and according to the factor model of the firm “DuPont” the return on assets is:

$$ROA = ROS * k_{(ass.t)} \quad (2.1)$$

Thus with the help of this formula we will find out what had bigger influence on the growth of the return on assets - the return on sales, the turnover speed of these indexes hand the equal influence. Usage the DuPont model permits to determine the absolute value of influence of each factor and to show the change of the return on assets ratio due to each factor. Necessary data is shown in the table 2.5.

Thus following the calculations of the table 2.5 we can see that during the 2003-2004 both the return on sales and the assets turnover increased and these two indexes influenced positively on the return on assets: due to the acceleration of the turnover speed the return on assets increased for 4,1%, and due to the growth of the return on sales - for 1,9%. In total the return on assets had a 6% growth.

In its turn the growth of the speed of the turnover of the assets was influence by the factor the growth of sales proceeds and decrease of sum total of assets, and the insufficient growth of the return on sales was caused by the negative results of financial and investment activity of KSAMC. But still the positive results from operation activity offset this fact and due to the growth of the sales proceeds both return on sales and return on assets increased. In other words the acceleration of the turnover influenced more on the growth of the profitability of the assets than on the

growth of the return on sales. Total positive influence of these two factors resulted into 6% growth of return on assets in 2004 - 2005. In 2005 the figure was 11,3% which means that each hrivna brought on average 11,3 kopecks of net profit (comparing to 2003 - 5,3 kopecks).

Let us estimate the financial condition of KSAMC in the view of short-term and long-term outlook.

Table 2.5

Factor analysis of the return on assets during the 2003-2005

№	Index	2003 year	2005 year
1	Sales proceeds (thousand hrn.)	44458,4	78130,5
2	Net profit (thousand hrn.)	5316,15	11243,85
3	Sum total of assets (thousand hrn.)	99811	99535,1
4	Return on assets, ROA	0,0533	0,1130
5	Return on sales, ROS	0,1196	0,1439
6	Assets turnover ratio	0,445	0,785
7	Growth of ROA due to:		
8	1. k (ass.t)	0,041	
9	2. Return on sales ROS	0,019	
Total:		0,060	

In the long-term view the financial condition of the enterprise is characterised by the structure of assets, the grade of dependence of the enterprise on external investors and creditors. There are no common standards of the ratio of owned and loaned capital, but it is widely believed that the part of owned capital mast be rather big - not less than 60%. The stability of activity of any enterprise in the long-term view is one of the most important characteristics of the financial condition of any enterprise; it is connected to the general financial structure of the enterprise, the grade of its dependence on the creditors which is estimated by the indexes shown in the table 2.6.

Table 2.6

Dynamics of the indexes which characterize the financial stability of KSAMC

№	Index	Years			Critical level of the index
		2003	2004	2005	
1	Autonomy index	0.9112	0.8894	0.9192	More or equal 0,5
2	Owned and loaned assets ratio (financial risk index)	0.0975	0.1243	0.0880	Less or equal 0,5
3	Index of financial dependence	1.0975	1.1243	1.0880	Less or equal 2
4	Index of owned assets manoeuvring	0.3139	0.4492	0.4715	More or equal 0,5, better to compare with the average on the field
5	Index of autonomous sources of stock forming	0.8873	0.9309	0.9640	-
6	Index of providing of stock with owned assets	1.0207	1.0650	1.1198	More or equal the index №5; for industrial enterprises – varies from 0,6 to 0,8
7	Index of providing with owned assets	0.7631	0.7832	0.8428	More or equal 0,1
8	Discharge index	5,569	5,367	7,004	More or equal 1,5

According to this table KSAMC could be estimated as absolutely financially steady enterprise, that is the enterprise is stable and almost doesn't depend on the external creditors as it is virtually completely financed by the state; it can be seen from the part of owned assets on the sum total of the assets invested in the enterprise. In general it is a positive fact as the financial stability is growing, the risk of financial problems in the future decreases and the security of returning the liabilities of the enterprise increases.

From the table 2.6 we can see that in 2005 the part of drawn assets fell. The indexes of autonomy and financial risk tell about it. In other words in 2004 for each hrivna if owned assets the enterprise had only 8,8 kopecks of loaned assets, though this part varies insignificantly. Generally we can say that the KSAMC almost doesn't depend on external creditors (the index of financial dependence is much lower its critical level), financial stability is high and in 2005 it changes due to:

a) growth of the part of net surplus in 2004 and 2005 for 72% and 44% respectively;

b) 34% decrease of short-term bank loans in 2005;

c) 33% and 49% decrease of long-term liabilities in 2004 and 2005 respectively;
d) decrease of current liabilities on the payment of advances received; if in 2003 the compose only 0,21% of all assets and in 2004 they grow up twelve times, in 2005 the liabilities are cleared and lowers till the point of 0,06% in the sum total of liabilities. It testifies to the fact that KSAMC tries to receive all payments with its clients on account. This form of payment is more reliable to for the enterprise.

Autonomy index and the index of financial risk vary insignificantly, though they are almost on the same level during the analysed period, and, we must notice, exceed extremely their critical values.

Concerning the flexibility in using the owned assets of the enterprise (manoeuvring index), it grows gradually, which testifies to the increase of the part of owned assets in the turnover of the enterprise. In other words the part of owned assets grows in the form that allows manoeuvre freely these assets, the other part of which is capitalised (it is located in the non-current assets - intangible assets, building in process, key assets, financial invetsments). It can be explained by the fact that KSAMC belongs to the industrial field where the part of key assets in the sum total of assets is usually very big. Thus, KSAMC stands out with rather high level of manoeuvring of owned assets, which is determined by the decrease of the part of non-current assets and the growth of net surplus. Such dynamics of slight growth of the manoeuvring index is reputed to be normal as the enterprise on one hand reduces the dependence on the external creditors, and on the other hand - diminishes the part of non-current assets and it causes the growth of the owned assets manoeuvring index, and as a result, the growth of the flexibility in using the owned assets.

We must point out the big part of owned assets in the sum total of the sources of financing of the stock of KSAMC, we can notice the trend of its growth (index of autonomous sources of stock forming), which confirms once again the trend of decrease of dependence of the enterprise if the loaned sources of financing and is estimated positively. The owned assets exceed the volume of stock (index of

providing of stock with owned assets), which indicates the complete coverage of the coast of stock by the owned assets and secures the enterprise from the bankruptcy.

Let us analyse the structure of the capital of KSAMC with the help of the indexes shown in the table 2.7.

According to the information in the table 2.7 following conclusions could be made.

First, the index of long-term loaned assets fell considerably, that is the part of the loaned assets in the financing of the capital investments decreases as the long-term liabilities decrease for 33% in 2004 and for 49% in 2005. On one hand it once again proves the high financial stability of the enterprise in the long-term view, and on the other hand it testifies to the insufficiently considered financial strategy of KSAMC. Maybe it would be more profitable to draw long-term credits in order to increase the return on assets, as the formation of the strategy must be as optimised and rationalised as possible.

Table 2.7

Indexes of the structure of the capital of KSAMC

№	Index	Years		
		2003	2004	2005
1	Index of long-term loaned assets	0.0231	0.0172	0.0080
2	Index of short-term liability	0.4082	0.4761	0.5407
3	Index of account payable	0.5909	0.7317	0.8000
4	Index of financial stability	10.2603	8.0426	11.3695
5	Index of financial steadiness	0.9327	0.9050	0.9266
6	Index of creditors' protection	38.8037	18.8205	28.1099

Second, the short-term liabilities composes a considerable part in the sum total of loaned assets, that is the enterprise uses short-term loans in the most part of the cases, and each year their number rises. We can see it from the index of short-term liabilities, its growth connected to the increase of current liabilities for the goods,

works, services, for the payments for the advances received, for the remuneration of labour, with the budget, for the insurance. Exactly the growth of short-term liabilities decreases the liquidity of the enterprise that is its stability in the short-term period.

Third, annually during the analysed period the index of accounts receivable grows, that is KSAMC tries to use mostly the short-term credits instead of middle- and long-term credits and we must point out that the debts before the suppliers, the budget as well as before the buyers and personnel exist.

Fourth, we must point out that the financial stability of KSAMC remains on the high level, as the capital stock the enterprise owns is 11 times bigger than the loaned capital (index of financial stability). Financial steadiness is also very high due to the big part of capital stock. As distinct from the financial stability the financial steadiness shows the part of the key assets in the sum total of the assets that is it includes long-term credits.

And finally, fifth, we should make a conclusion about the high level of protection of the creditors of KSAMC: the index of creditors' protection shows that the revenue of the enterprise in 2005 was 28 bigger than the necessary sum to pay the interest on the loans. So, the KSAMC is very attractive for the creditors.

On one hand the absolute financial stability characterises the enterprise very positively. But on the other hand such situation can not be called perfect, as the very big part of capital stock (almost 92% in 2005) means that the management whether does not know, does not want or does not have the possibility to use outside sources of drawing assets to the basic activity of the enterprise. Possibly it is connected to the state policy in the aerospace field. But the enterprise needs to use in its activity more long-term loaned assets. it will increase considerably the return on owned capital without losing the financial stability as they have considerable reserves of the latter.

In the short-term view the criteria of estimation of the financial condition of KSAMC are liquidity and paying capacity that is the ability to settle short-term liabilities completely and in time.

Financial condition of any enterprise in the short-term view is estimated by the indexes of liquidity and paying capacity. These indexes characterise the ability of

timely and complete clearing off all the short-term liabilities. Under the paying capacity we understand the availability of the funds and their equivalents enough to clear off the accounts payable that have to be paid at once.

Liquidity is a more spacious determination as it characterises not only the current condition of the assets of the enterprise but also their future condition. The liquidity of the balance sheet is determined as the grade of coverage of the liabilities of the enterprise by its assets, the term of transformation of which corresponds the term of the payment of the liabilities. Let us estimate the liquidity of the balance sheet of the KSAMC basing on the method of the estimation of the liquidity of balance sheet by comparing the sums of groups of assets categorised by the level of the liquidity (the speed of transformation to the cash) and the groups of liabilities, categorised by the deadlines of payment periods.

During the analysed period the balance sheet of KSAMC can not be called absolutely liquid as theoretically we can see the lack of the most liquid assets to cover the most urgent liabilities. This lack in the group of the most liquid assets where we can include current financial investments and cash in national and foreign currency is rather big. But still such situation is not threatening for KSAMC as the lack is made up due to the marketable assets (integrated products, merchandise, accounts receivable and other current assets in cost parameter). It is also necessary to mark that such indemnity is only theoretical as in real the less liquid assets can not replace completely the more liquid ones.

The ratio of current incomes and payments during the analysed period shows the lack of funds of the enterprise to pay off all the current liabilities and this lack has a trend of growth. It is connected to the reduction of the cash and its equivalents in national and foreign currency, to the growth of accounts payable for the merchandise, works and services.

The enterprise should control the situation and to reduce the lack or at least slow down the trend of its growth as at present time such situation can cause the deterioration of financial condition of KSAMC as the negative trend of the lack of funds to clear off the urgent liabilities increases. The payment of the accounts

receivable by the buyers, the receipt of funds for the goods, payments on the notes could help to reduce the lack of the most liquid assets.

The above stated analysis of the liquidity of balance sheet is approximate; let us analyse it in more details with the help of the indexes of liquidity (table 2.8). From the table 2.8 we can see that during the period of 2003-2005 the general liquidity of balance sheet increased. It can be seen from the complex index of liquidity. Thus, the ability of KSAMC to pay off not only its current liabilities but also the potential ability to pay off the long-term liabilities grew up.

If the complex liquidity index shows the ability to clear off both the most urgent and the distant liabilities, the three relative liquidity indexes give the outlook of possibilities of paying off the short-term liabilities. They differ by the set of liquid funds considered as the coverage of short-term liabilities.

As we can see from the index of absolute liquidity KSAMC does not have the opportunity to clear off all its short-term liabilities (it is lower of its critical level), more, during the analysed period it dropped considerably. It indicates on even less ability of KSAMC to clear off all its debts.

Table 2.8

Balance sheet liquidity indexes of KSAMC

№	Index	Years			Critical level of the index
		2003	2004	2005	
1	Absolute (immediate) liquidity index	0.2142	0.1032	0.1587	For the countries with transitional economy – within 0,2 and 0,35
2	Quick (urgent) liquidity index	1.2839	1.2242	1.5464	Close to 1,5
3	Current liquidity index	5.5694	5.3673	7.0035	within 1 and 2
4	Complex liquidity index	2.9324	2.8761	3.3945	Doesn't have critical level, is used to compare the liquidity in different periods.

Concerning the predicted abilities to pay in condition of timely payments of the debtors the situation is much better which can be seen from the quick (urgent) liquidity index which is close to its normal (wanted) level. So, KSAMC is able to clear off all its short-term liabilities at the condition the debtors settle their accounts in time.

As for the adequacy of available current assets of KSAMC their sum is more than enough to clear off all the current liabilities. It could be seen from the current liquidity index (according to the common standards it must be within 1 and 2). Thus, the risk of bankruptcy does not threaten to KSAMC.

Moreover we can notice the exceeding of current assets over short-term liabilities for more than 5 times in 2003, and in 2005 - for more than 7 times. Such situation is not desirable as it says about the breach of the capital structure: as it was already stated above it would be better for KSAMC to work on the external capital which would have raised the profitability as the part of owned assets is too big. Such high liquidity index could be explained by the scope of activity of KSAMC, the structure and the quality of its stock, the duration of the production and commercial cycle.

Nevertheless KSAMC should use its assets more rationally and to optimise the structure of the balance sheet. The optimisation can be obtained by whether reduction of short-term liabilities or by increasing the sum of funds (maybe by making debtors settle their liabilities or by using more optimal forms of payments with the buyers) what will advance the state of the balance sheet of KSAMC to the absolutely liquid in the short-term period. If speaking about the general liquidity of the balance sheet of KSAMC (basing on the current liquidity index) on the condition of timely payment of the debtors and adequate sales payment abilities of the enterprise are sufficient to clear off all the short-term liabilities.

Let us analyse the risk of bankruptcy of KSAMC. The diagnostics of the bankruptcy is the system of target financial analysis directed to the revelation of the

parameters of the crisis development of the enterprise which produce the danger of its bankruptcy in the future.

There are many procedures of the bankruptcy diagnostics; they differ by the objects of the observation, stages of the analysis, scales of analysis, by the number and quality of the indexes. In the western countries the factor models of bankruptcy risk and solvency estimation of famous economists Altman, Liss, Taffler are widely spread. Basing of these models the table 2.9 with the calculations for the KSAMC was made. In the table 2.9 we could see as well the estimation of the financial condition of KSAMC according to the Russian and Ukrainian algorithms.

From the table 2.9 we can see that according to the foreign systems of bankruptcy estimation the calculated for KSAMC values exceed significantly the recommended limits; that is according to the models of Altman, Liss and Taffler the possibility of the bankruptcy of KSAMC is very low. As for the Russian model it does not have the critical value and is used to estimate the dynamics of increasing or decreasing of the risk. Thus we can say that the possibility of the bankruptcy of KSAMC decreases annually. In general such considerable exceeding of the indexes of KSAMC over their recommended values is connected to the state form of property and conformably 90% part of the capital stock and small part of liabilities in the sum total of the balance sheet of KSAMC. And as these models are elaborated for the western enterprises and they include the ratios of capital stock and loaned assets they are not very suitable for Ukrainian enterprises because our enterprises have a big part of capital stock.

That is why it is better to use Ukrainian system of bankruptcy risk estimation. According to this system the bankruptcy estimation is made by the economic indicator of the characteristics of the current paying capacity. So, negative result of this indicator testifies to the current paying incapacity of KSAMC (table 2.9) and its growth during the recent period. Thus the financial condition of KSAMC corresponds to the juridical determination of the debtor who is not able to clear off its monetary liabilities before the creditors. But according to this system the indicator should be compared to the coverage index and to the capital stock provision index (indexes №6

and №7 in the table 2.6); that is why the paying capacity level of KSAMC can not be called critical as the indexes are far from their critical values.

Hence having made the analysis of economic activity of KSAMC during the 2003-2005 we can make following conclusions. The structure of the sum total of assets of KSAMC from the angle of current/non-current assets is approximately in the proportion 50/50 with insignificant variations and the trend of increasing of the art of current assets. The main source of forming the property of KSAMC is capital stock which makes approximately 90% of the sum total of liabilities; it testifies to the high financial stability and the attraction for the banks and investors. The acceleration of the speed of the assets turnover is observed; at other equal conditions it reflects the rise of production-technical potential of KSAMC. Almost by all the profitability indexes we can observe the increase due to the growth of the sales but at different rates.

Table 2.9

Bankruptcy estimation of KSAMC according to different models

№	Model	Years			Critical level
		2002	2003	2004	
1	Altman model	5,489	4,771	6,558	More than 1,23
2	Liss model	0,064	0,092	0,103	More than 0,037
3	Taffler model	2,564	3,066	4,215	More than 0,25
4	Russian model of bankruptcy risk estimation	2,231	2,343	2,636	-
5	Ukrainian system, thousand hrivnas.	-5149	-7766,4	- 5995	More than 0

The financial position in the long-term view is estimated as absolutely stable, but in the short-term view the balance sheet of the enterprise can not be called absolutely liquid; it could be reached if all the debtors paid in time so more attention must be paid to the accounts receivable and their regulation.

2.3. Analysis of international activity of KSAMC

Ukrainian aircraft industry produces the techniques of the world level. For the plants of such level and with such potential as KSAMC it is very important nowadays that the authorities determine their priorities: if until present time the aircraft industry developed only at the expense of internal investments and have not lost the leading position neither in Ukraine nor in the world than the support of the government will increase considerably the rate of its growth.

International activity is one of the basic forms of economic relationship of Ukraine with foreign countries. Each grand enterprise such as KSAMC has international activity because without international relationship no export-import operation is possible.

International activity of the enterprise is identified with the export operations. The promotion of Ukrainian aircrafts to the international market has its real prospects. Ukrainian airplanes have very good reputation on the aircraft expositions, presentations; many countries of the world are interested in them.

In order to start the analysis of international activity of KSAMC it is necessary to describe the aircrafts it produces. There are three modifications of the aircrafts, two of them are destined for the military aviation and one is for the civil purpose.

The An-74 - the multi-purpose An-74 family includes several versions specially conceived to fulfil civil, peace-making and humanitarian missions.

The An-74 jet family of aircraft personifies the designers' determination to engineer the platform with maximum options up from the ground to achieve the impressive effectiveness in virtually every mission. The aircraft of this family universal in the wide sense are specially tailored to carry cargo, passengers and equipment; indispensable at humanitarian and special missions; remarkably effective for maritime patrol and surveillance. Military transport missions include handling and paradropping cargo and troopers, border patrol, medevac and intensive therapy. The high degree of commonality between aircraft units and systems - the family concept - gives more flexibility in route and operations’ planning for different types of

missions and at the same time saves his money on cross-crew training and maintenance.

An-74-300 was created purposely to meet requirements, first of all the revenue service operators' needs in fuel efficiency, safety and comfort. The exceptional design potential enabled engineers to create a number of modifications, including:

a) passenger aircraft;
b) business jet;
c) transport aircraft;
d) transport convertible aircraft;
e) intensive therapy station.

The An-140-100 aircraft is intended to carry up to 52 passengers, luggage, mail, and cargo on domestic and international routes with high traffic. It can be operated on both concrete and unpaved airfields

The An-140-100 is the first regional turboprop designed in the modern Ukraine to provide the most flexible and profitable operation in airlines. Being reliable, fuel efficient and ecologically friendly, the aircraft has other advantages such as high performance and high level of comfort on board. These distinctive features rank the aircraft among the new generation turboprops providing excellent work in all climatic zones and geographical conditions. Besides, the lowest life-cycle cost in its class and modern concept of after-sale servicing allow its customers to adjust the aircraft for both regular operation and Tableer programs where operational costs are the most important factor.

As we see the An-74-200 and its modification An-74-300 are due to the military purpose; An-140-100 is the civil jet.

If we analyse generally the markets of KSAMC we can say that at present the aircrafts produced by KSAMC are sold in the CIS, the Near East and Northern Africa. The perspective markets are South-Eastern Asia and Latin America. We can state that the sales on the market of CIS are inert, though the growth of sales up to the 309 aircrafts is predicted during the next 8 years. The main rival of the An 140-100

on the territory of CIS is Il-114 produced in Russia. There is a threat of used aircrafts of foreign production. The ratio of these aircrafts on the market of CIS is 45:45:10.

To begin with let us analyse the geographical structure of the markets of KSAMC. There are some reasons that determine the limits of the possible markets of KSAMC. First of all it is the politics. As the purchase of the aircraft presumes long-term collaboration in the form of technical support by these or that reasons not all countries are willing to buy from Ukraine. These are the countries that are influenced by the others more powerful ones and with the developed aircraft industry.

The second group of countries that are ready to collaborate with Ukraine is so-called “outcasts”. In other words these are the countries for which it would be impossible to buy the military equipment from the developed aircraft producers. As the other limitation factor we can name the traditional relationship. The countries that have been supplied with Ukrainian aircrafts for a long period of time are still operating them. In this direction there is a demand on the spare parts and technical support. Besides, even if the old plane is put out of the operation all the staff and facilities are adjusted to it. So it is economically inefficient to replace the old aircrafts with the new ones of the other producer.

The third criterion of the geographical segmentation is the economic efficiency of Ukrainian aircrafts. The countries that fall under this criterion do not have any political prejudice, they are basing on the economic efficiency of the operation of the aircraft.

So according to the above-stated principles of the segmentation we can mark out the following groups of countries:

a) Commonwealth of Independent States and Baltic (Russian Federation, Azerbaijan, Kazakhstan, Moldova, Tajikistan, Lithuania);
b) The Near East and the Middle East (Iran, United Arab Emirates, Saudi Arabia, Jordan);
c) South-Eastern Asia (Iran, Laos, Thailand, Bangladesh, Malaysia);
d) Southern and Central America (Argentina, Brasilia, Peru, Venezuela);
e) Africa (Sudan, Egypt, Libya, Rwanda, Angola).

According to this segmentation we can predict the following number of orders (table 2.10).

From the table 2.10 we can see that the most important markets of KSAMC are Africa and the Near East. The markets of Asia and Latin America are potentially very big but the considered marketing policy is needed to conquer them. The European markets are difficult to conquer as the competition level is very high there and what is more important the European countries put into practice the policy of protection of the local producers; that is why there are many technical barriers on this market. First of all they are represented by the different systems of quality assurance and certification. Sometimes for Ukrainian aircrafts it is impossible to get the needed certificate to enter the market.

Table 2.10

Forecasted volume of orders of the aircrafts (geographically divided)

№	Region	Number of aircrafts	Weight, %
1	Africa	39	32,77
2	Asia	12	10,08
3	CIS	8	6,72
4	Europe	2	1,68
5	The Near East	52	43,7
6	Southern and Latin America	8	6,52
Total:		119	100,0

If we analyze all the markets in the view of the production we can divide all possible orders into three groups. This division is shown in the table 2.11.

Table 2.11

Forecasted volume of orders of the aircrafts (according to the type of the aircraft)

№	Aircraft model	Number of aircrafts	Weight, %
1	An 140-100	54	45.38
2	An 74 TK-200	43	36.13
3	An 74 TK-300	22	18.49
Total		119	100

According to the table 2.11 we can say that the biggest demand is for the civil aircrafts An 140-100, but in general the modifications of the military plane take the most part of the sales. Ukrainian military aircrafts are of more demand on the international market as they can be easily adjusted to the extreme conditions of the operating, such as high temperature, high humidity, strong winds and so on. And we must notice that for the military purpose no certificate is needed but the demands are more specific. The benefits of the airplanes produced by KSAMC are that the planes they produce can satisfy any specific demands of the buyers; the second benefit is that the price of the aircrafts produced by KSAMC is almost twice lower than of the similar planes produced in the USA.

If we describe the business rivals of the aircrafts produced by KSAMC we can say that the aircrafts of the similar type are also produced in Italy, France, Russia and

Holland. But not all these producers are sold on all the markets where our enterprise operates. The table 2.12 shows the main business rivals on different markets.

Table 2.12

World aircraft producers

Aircraft model	Producer	Market	Price, mln USD	Ratio with the price of KSAMC aircrafts, %
1	2	3	4	5
ATR-42-500	Italy-France	Europe, Russia, South-Eastern Asia	17	170
Bombardier Dash 80-300	Canada	Europe	15	150
MA-60	China	South-Eastern Asia	11	110
Il-114	Russia	South-Eastern Asia, CIS	11	110
Fokker 50	Holland	Russia, South-Eastern Asia, CIS	13	130
SAAB 200	Sweden	Russia, South-Eastern Asia, CIS	14	140
An140-100	Ukraine	Europe, Russia, South-Eastern Asia, CIS	10	100

We can say that on different markets aircrafts produced by KSAMC compete with different aircrafts. The fact that many potential clients prefer to purchase the aircrafts of more famous models that were in use must be taken into account. If the management of KSAMC takes necessary measures the market share taken by used aircrafts could be replace with the new aircrafts produced by KSAMC.

In conclusion we can say that the aircrafts market potential is very big. The demand on passenger and military aircrafts is constantly growing. And the production of KSAMC is competitive, it has many advantages comparing to the other production, presented on this market. Among them are:

a) relatively low price of aircrafts;
b) assembling and supply of the production in the minimal terms;
c) the aircrafts are easily customised to the exploitation in the extreme conditions.

But regardless the numerous advantages there are still many conditions that prevent the production of KSAMC from market expanding:

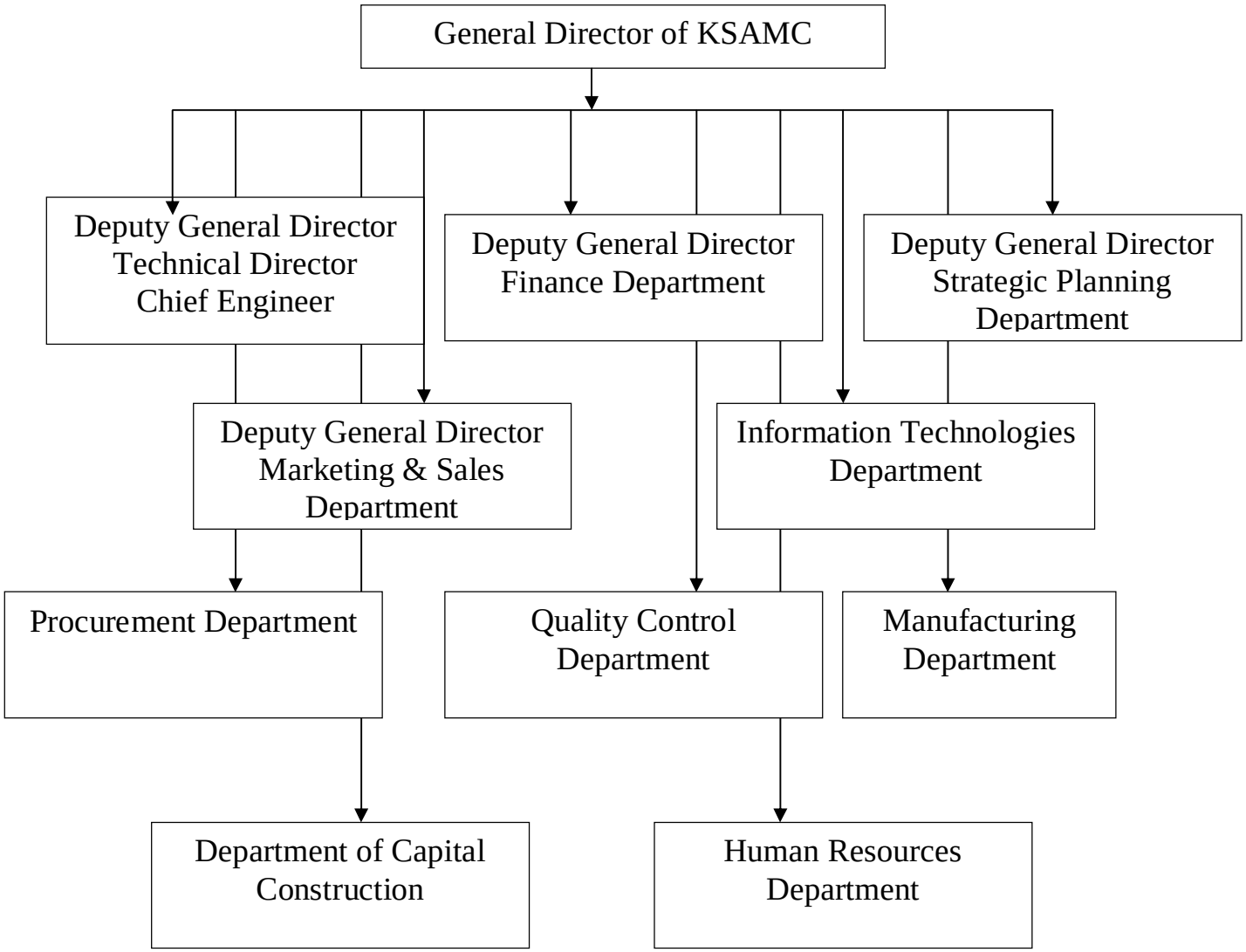
a) underdeveloped system of after-sale service;
b) absence of the ground-based training apparatus for the pilots;
c) incomplete system of payments, as the production is rather expensive and the clients can not pay the total sum. It leads to the lack of current assets;
d) difficulties with the certification of civil aircrafts;

Except of the parameters that could be influenced within the manufacturing and marketing process there are some market characteristics that are difficult to control. The most influential of them is the politics. If the country purchases a military aircraft it has to establish long-term cooperation with Ukraine, as the further technical and information support is needed. Nowadays it is difficult because of unstable political situation in Ukraine.

CHAPTER 3
DEVELOPMENT OF THE ARRANGEMENTS ON INCREASING INTERNATIONAL MARKETING MANAGEMENT DECISIONS EFFICIENCY OF KSAMC

3.1. Definition of possible strategies of development of the enterprise

One of the most important criteria of the efficiency of a decision is the aspect of time. The decision must be both taken and implemented quickly. One of the most important factors influencing the speed of the process of decision making is the organizational structure of the enterprise.



Pic. 3.1. Outlook of organizational structure of KSAMC

KSAMC is a large enterprise and it has very branchy structure that is why we will analyse only the most important and the largest departments. Generally the organization structure of KSAMC is shown on the picture 3.1.

According to the picture 3.1 we can define the basic and auxiliary business processes of the enterprise.

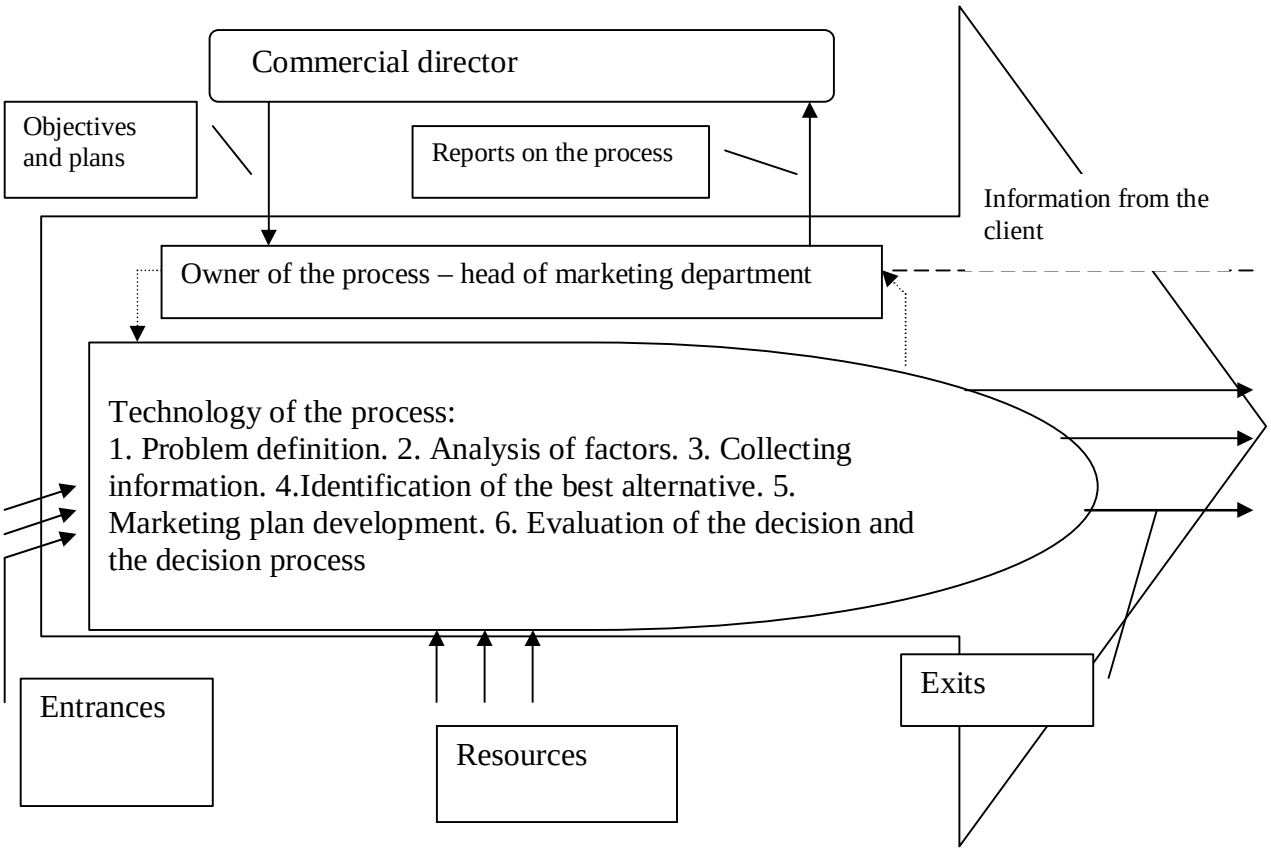
Basic business process is the process of the main activity of the enterprise that creates products and adds value to the product.

Auxiliary business process is the process oriented on the support and assistance of the basic processes. They add value to the product.

Having analysed the organisation structure of KSAMC we can point out that basic business processes take place in the following departments of the enterprise:

a) manufacturing department (production and assembly workshops);
b) marketing and sales department (international activity division, marketing division).

The auxiliary processes take place in the rest of the departments.



Pic. 3.2. Scheme of decision making process in marketing.

We defined business process of the decision making in international marketing activity as the basic process. Let us analyse it. (pic. 3.2).

All business processes have entrances, exits and resources.

Entrance of the business process is the product that is changed into the exit during the business process. The exit of the business process is its result that can be material or informational object or service that is further consumed by the clients. . In our case the exit of the process is a decision that defines marketing plan of the enterprise and thus has effect on the value of the product. It is because the marketing expenses are added to the cost of the product and according to the different styles of the product promotion and positioning the price can vary.

The owner of the process is the decision maker. In our case the owner is the head of the marketing department. The person he reports to is the head of the marketing and sales department. The latter also defines the objectives and sets plans to the marketing department.

We must also point out that according to the specific character of the enterprise (it is the strategic object of Ukrainian military industry) all the decisions taken in the sphere of international activity of the enterprise are to be confirmed by the head of the division of military policy. That is why the final decision is difficult to make as it takes much time to come to an agreement with all the supervising organs.

Thus according to the above stated we can say that the entrances of the analysed business process are:

a) a problem;
b) information about the resources of the enterprise;
c) information about the available financial resources.

As the resources of this business process we must point out the following:

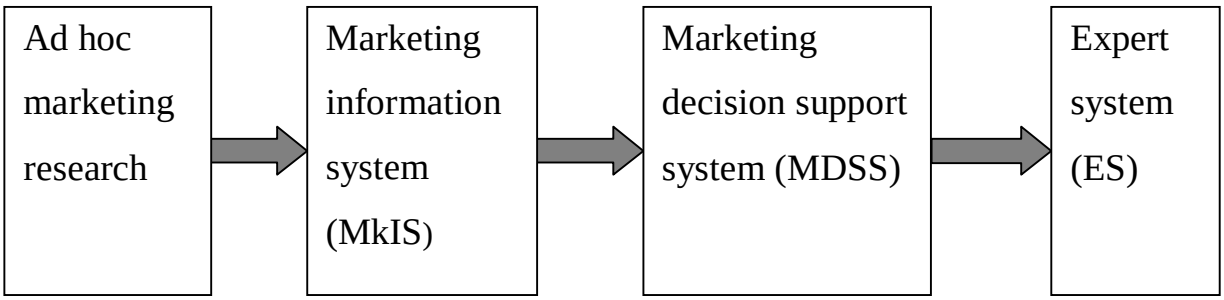
a) personnel;
b) software;
c) communications;
d) hardware and office equipment.

In order to increase the efficiency and the speed of decision making we can vary the resources of this process.

The first and maybe the most important one is personnel. The quality of the analysis, the rationality of the marketing plan and the decision support of the decision maker depend of the level of qualification and the amount of experience of the personnel.

Another very important factor is software. The decision maker must dispose of the best set of the program products that support the decisions, help to structurise and analyse the problem. Nowadays there are not only systems that help to provide the analysis but also to choose the best alternative from the existing ones.

The marketing support systems were evolving constantly from the moment when the decision makers became aware of the necessity to save and analyse big amounts of information. The evolution of systems for decision making is shown in the picture 3.3 [67. 114].



Pic. 3.3. Evolution of systems for supporting decision making.

Managers need information in order to introduce products and services that create value in the mind of the customer. But the perception of value is a subjective one, and what customers value this year may be quite different from what they will value next year. Thus, the attributes that create value cannot simply be deduced from common knowledge. Rather, data must be collected and analyzed. The goal of marketing research is to provide the facts and direction that managers need to make their more important marketing decisions.

The following stage of the evolution of decision support systems is a marketing information system.

A marketing information system (MkIS) is intended to bring together disparate items of data into a coherent body of information. An MkIS is more than raw data or information suitable for the purposes of decision making. A MkIS also provides methods for interpreting the information the MkIS provides. Moreover, as Kotler's definition says, an MkIS is more than a system of data collection or a set of information technologies:

“A marketing information system is a continuing and interacting structure of people, equipment and procedures to gather, sort, analyse, evaluate, and distribute pertinent, timely and accurate information for use by marketing decision makers to improve their marketing planning, implementation, and control” [78, 375].

Marketing decision support systems (MDSS) is an information system that helps with decision-making in the formation of a marketing plan. The reason for using MDSS is because it helps to support the vendors’ planning strategy for marketing products; it can help to identify advantageous levels of pricing, advertising spending, and advertising copy for the firm’s products. This helps to determine the firm’s marketing mix for products.

An expert system is a computer program that simulates the judgement and behaviour of a human or an organization that has expert knowledge and experience in a particular field. Typically, such a system contains a knowledge base containing accumulated experience and a set of rules for applying the knowledge base to each particular situation that is described to the program. Sophisticated expert systems can be enhanced with additions to the knowledge base or to the set of rules.

According to the DECIDE model the decision making process bases on the marketing information. The information must be complete and relevant. One of the methods of increasing the efficiency of marketing information is conducting the in-depth marketing research.

Marketing research covers a wider range of activities. While it may involve market research, marketing research is a more general systematic process that can be

applied to a variety of marketing problems.

Information can be useful, but what determines its real value to the organization? In general, the value of information is determined by:

a) the ability and willingness to act on the information;
b) the accuracy of the information;
c) the level of indecisiveness that would exist without the information;
d) the amount of variation in the possible results;
e) the level of risk aversion;
f) the reaction of competitors to any decision improved by the information;
g) the cost of the information in terms of time and money.

Once the need for marketing research has been established, most marketing research projects involve these steps:

a) define the problem;
b) determine research design;
c) identify data types and sources;
d) design data collection forms and questionnaires;
e) determine sample plan and size;
f) collect the data;
g) analyse and interpret the data.

Thus conducting the complete marketing research will allow determining the possibilities of development of the enterprise and to determine existing alternatives for the enterprise.

The standard market research report serves an integral role in helping marketers make business decisions. While sometimes viewed as a rather dull document, the information contained in a research report may shed important light on marketing issues otherwise not recognized by the marketing organization.

Basing on the results of marketing research we can say that the enterprise has to choose between two possibilities. The first one is to increase the market share on

the existing markets or to expand on the other markets where the production of the enterprise is not selling yet.

3.2. Mechanism of decision making on selection of the development strategy of the enterprise

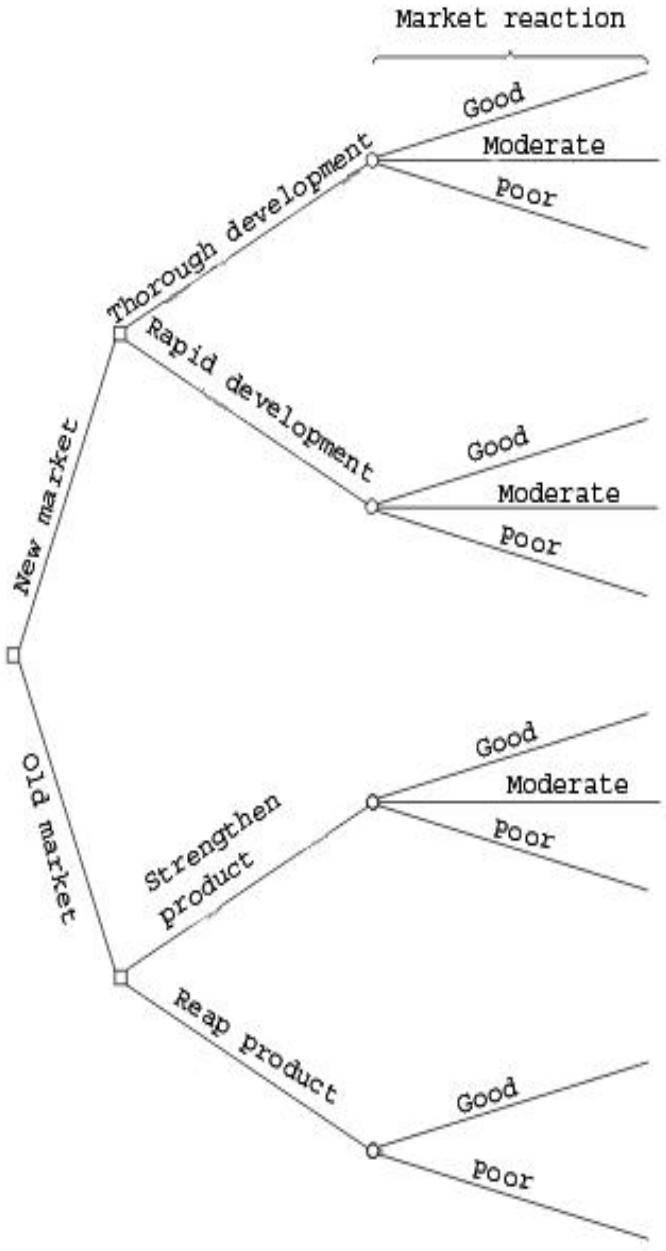
In the previous chapters we pointed out that at present the production of KSAMC is sold on the markets of the CIS, Near East and Northern Africa. The perspective markets where the predicted volume of the orders is big are the markets of South-Eastern Asia and Latin America. The market potential is big but there are many limitations on these markets. First and the most important one is the high level of competition. Ukrainian products are in the disadvantageous position as the countries on these markets have been already exploiting aircrafts of different models and the support and maintenance bases are formed in order to serve only specific types of the aircrafts. One more difficulty with new markets is the training base for the pilots as if the aircraft is purchased the pilots are to be trained to use it. The training base must be situated in the corresponding country as the training in Ukraine is not convenient.

The markets where the production is already sold are also lucrative. Besides, KSAMC has strong positions and, what is also important, Ukrainian aircrafts are reputed to be reliable and efficient in use.

In this situation we have to determine the best alternative (which will maximize the return and minimize the expenses). It would be logic in this case to apply the method of decision trees. The construction of the decision tree has several stages. On the firs one we determine the general outlook of the tree. It has two branches. The first one indicates the further development of the existing markets and increasing of the market share on them. The second branch shows the possibility of expanding the markets (pic 3.3).

On the first stage we also define the possible variants of the development of the situation on each market. We have three variants: good, moderate and poor.

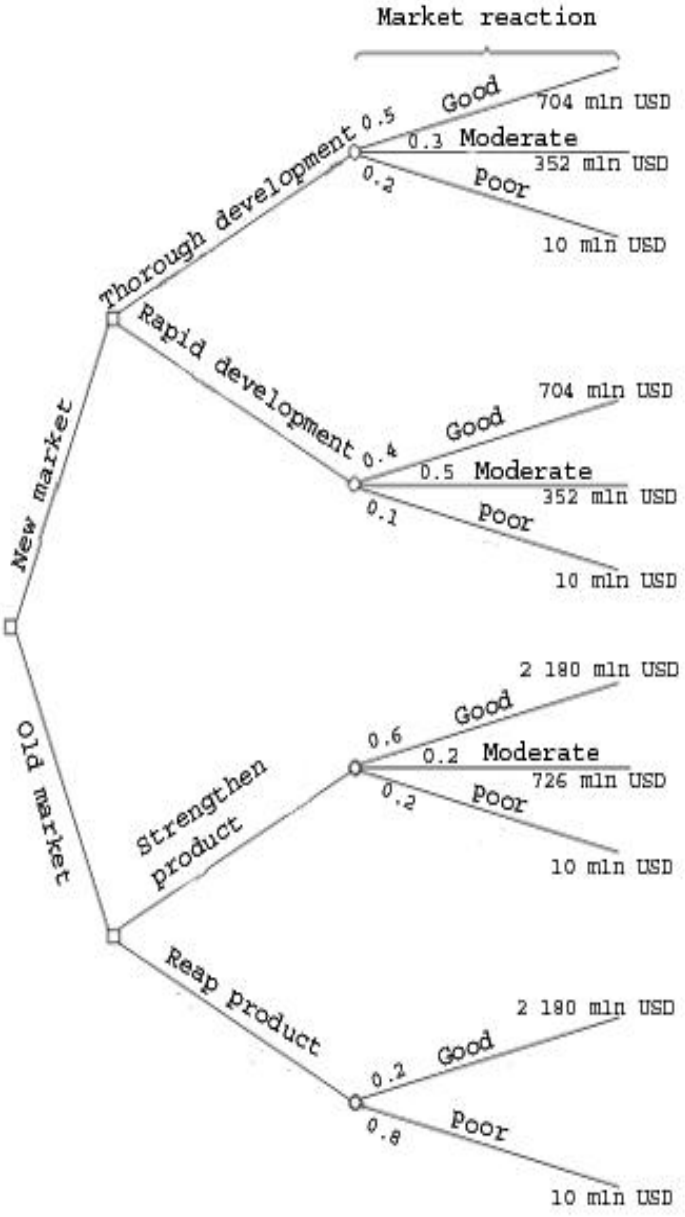
On the existing market we also have different variants of the strategy. We may either sell what we have without any further embellishments or satisfy the demand more completely by modifying the construction of the aircrafts and increasing its efficiency.



Pic. 3.3. First step of the construction of the decision tree.

The new market can either develop quickly or thoroughly, when the products win their market share step by step.

The second stage of the decision tree construction is estimation of the probability of the possible variants of the development. We also predict the final result of each branch by estimating the possible revenue from each scenario (picture 3.4).



Pic. 3.4. Probabilities estimation

According to the price of the aircraft (10 mln USD), the market capacity (88 machines) and the presence of business rivals on the market we can suppose that the maximum market share of KSAMC can be 80%. In quantitative estimation it will be

704 mln USD. The poorest variant of the development is that only one aircraft is sold. It makes 10 mln USD. The moderate variant will be 40% of the market share - 352 mln USD. This estimation is valid with both scenarios of the development on the new market.

If we consider the existing markets we can say that the capacity is 363 aircrafts. Suppose that the market share of KSAMC on the old market will be less than on the new one (60% and 20%). Thus we estimate the possible outcomes of the scenarios as follows: good - 2 180 mln USD, moderate – 726 mln USD, poor – 10 mln USD.

The next stage is to choose the best outcome from the node. The estimation of possibilities' outcomes was made by the expert method, being precise the method of direct estimation. The summary of the probability estimation by the expert method is represented in the table 3.1.

Table 3.1

Probability estimation of certain outcomes

Outcome / Alternative	Good		Moderate		Poor		Total	
	Votes	Weight	Votes	Weight	Votes	Weight	Votes	Weight
Thorough development	5	0,5	3	0,3	2	0,2	10	100
Rapid development	4	0,4	5	0,5	1	0,1	10	100
Strengthen product	6	0,6	2	0,2	2	0,2	10	100
Reap product	2	0,2	-	-	8	0,8	10	100

We chose ten experts to estimate the probability of certain outcomes. Each expert had to give his vote to one of the variants on each node. This method is

applied when there is no complete information. As the reaction of the buyers can not be forecasted we apply exactly this method.

The results of estimation of the outcomes is shown in the table 3.2.

Table 3.2

Calculation of the values for uncertain outcomes.

Scenario	Probability of outcome	Estimation of outcome, mln USD	Value of outcome, mln USD
Thorough development:			
good	0.5	704	352
moderate	0.3	352	105.6
poor	0.2	10	2
Total			459.6
Rapid development:			
good	0.4	704	281.6
moderate	0.5	352	176
poor	0.1	10	1
Total			458.6
Strengthen product:			
good	0.6	2180	1308
moderate	0.2	726	145.2
poor	0.2	10	2
Total			1455.2
Reap product:			
good	0.2	2180	436
poor	0.8	10	8
Total			444

We can see from the table 3.2 that the most lucrative variant will be the thorough development of the market as the benefit from it exceeds the benefit from the rapid development.

On the old market we must choose to strengthen the product as the revenue from this scenario is much bigger than that of the others.

Now in order to make a final decision we must compare the possible benefits from the outcomes to the costs of these outcomes. The expenses of operating on the markets are shown in the table 3.3.

Table 3.3

Market operation expenses

Expenses line	Old market (thousand USD)		New market (thousand USD)	
	Strengthen product	Reap product	Rapid development	Thorough development
Advertising campaign	-	-	-	200
Negotiations	-	-	-	10
Tenders and exhibitions	200	-	100	500
Public relations	20	-	10	30
Research and development	3 000	-	-	-
Training	500	-	10	350
Support and maintenance	1 000	-	500	500
Total	4 720	0	620	1560

The expenses on advertising campaign include the cost of research that help understand the behaviour of the target audience – 50 000 USD; advertisements in the mass media – 130 000 USD; the development of the advertising concept, the creation of the symbols, slogans – 20 000 USD.

The negotiations include the searching of the partner, the demonstration of the production, negotiations when signing the contract.

Tenders and exhibitions can be organized on national and international levels. The participation fee of exhibition on national level varies from 40 000 USD to 60 000 USD and on international level is 80 000 USD. Strengthening the product on the old market the enterprise has to take part in 3 national and one international level exhibition; when developing thoroughly the new market the enterprise must take part in three international and one national level exhibition.

In order to create the positive image of the company on the new market the enterprise must organize different press-releases, conferences, publish news regularly. According to the specific product of the enterprise these expenses are not that big and the public image is mostly created by tenders and exhibitions.

In order to strengthen the product the enterprise has to conduct scientific researches and to implement the innovations.

The training means proving training centers for pilots and service personnel. For the new markets it costs much as these centers must be organized in the country where the products are sold. As the old market has bigger capacity the number of training centers must be bigger; that is why the costs are high.

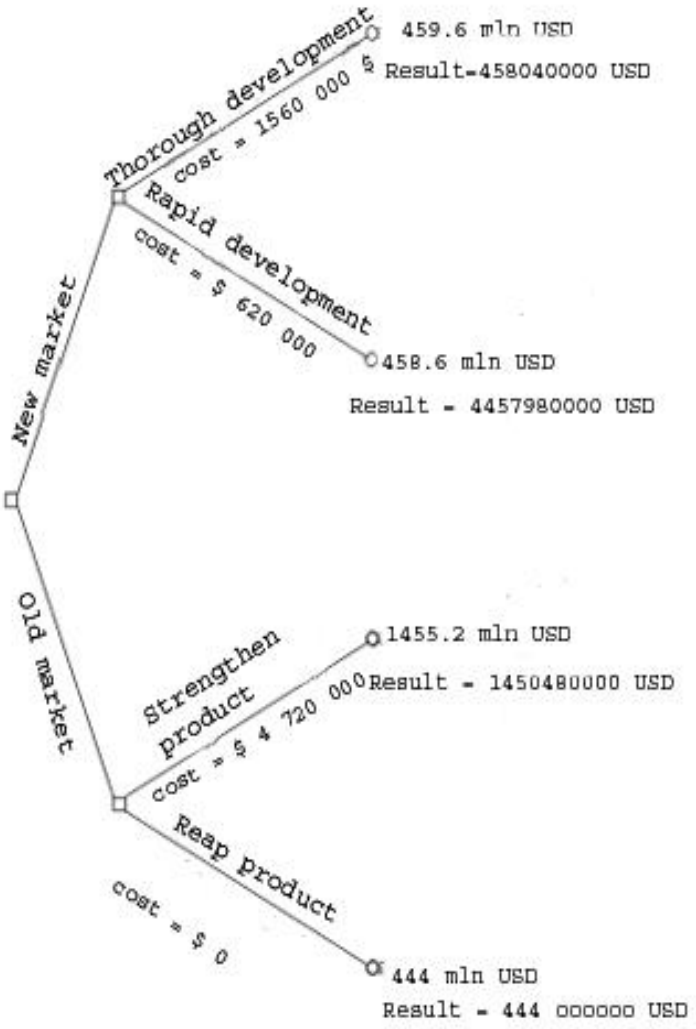
One of the points of strengthening the product is the excellent support and maintenance. That is why this issue costs more on the old market.

From the table 3.1 we can see that the cost of strengthening the product on the old market is much increased by the cost of the research and development as in order to implement new technologies they should be developed and tested carefully. The other strategies are less pricy.

Now, on the final stage of the construction of the decision tree (pic. 3.5) we are ready to take the final decision.

Regardless the high cost of research and development the operation on the new market will bring more profit than expanding on the new one.

On the old market the enterprise must accept the policy of strengthening the product – that is decreasing the cost price and improving the technical characteristics.



Pic. 3.5. Selection of the final decision.

The possible variants of the decrease of the cost price will be described in the following chapter.

3.3. Store optimization as the direction of efficiency increasing of the exported production

Cost price is the base of stock-taking. The expenses on the acquiring of the stock do not have fixed value and change according to the fluctuations of the prices on the merchandise. That is why the same product can have different cost price depending on the date of purchase. In such a situation it is difficult to estimate the cost of the merchandise at stock and in process. That is why the succession of the merchandise that enters the production process is considered as the flow of costs. According to the concept of the flow of costs there are the following methods of the stock cost estimation: 1) specific identification method; 2) average cost, weighted average cost and moving average cost; 3) first-in-first-out – fifo; 4) last –in-first-out – lifo.

The specific identification method means the registration of the flow of the merchandise at the factual prime cost.

The estimation of the stock according to the average cost is based on the application of the formulas of the average. This method is simple to use but it gives no possibilities to manipulate the level of the revenue.

The estimation of stock founded on the fifo method assumes that the stocks enter the production process in the same sequence as they were purchased. That the stocks that were the first to be proceeded must be estimated according to the cost of the first consignment. The consequence of this method is that the stock at the end of the period are estimated by their factual cost price and in the cost price of the products sold only the prices of the most ancient purchases are taken into account. But in the result of such approach the enterprises can tend to give too high price of the products sold explaining it by the increase of the prices on the inventories, regardless the fact that the inventories which are being used in the production process were purchased before the rise in prices. That is why when using the fifo method the net revenue of the enterprise can be estimated too high.

The substance of the lifo method is that the entrance of the inventories in the production process is estimated by the cost of the most recent purchase and the cost price of the stock is estimated by the cost of the most ancient purchases. This method permits to estimate the prime cost of the production and the net sales profit more

precisely. In contrast to the fifo method the lifo method permits to smooth over the effect of the inflation as when the prices are rising the enterprise can understate the profit in the accounts.

The method of the stock estimation has considerable effect on the profit of the company.

Let us compare the volume of profit of the enterprise applying different methods of the inventories account. The information about the inventories of the enterprise is represented in the table 3.4.

Table 3.4

Entry of one type of inventories during the month

Date	Entry of the inventories		Total cost price, thousand USD
	Quantity, units	Cost price of one unit, USD	
01.02.07	5800	15.0	87000 (rest for the beginning of the period)
05.02.07	2700	15.1	40770
09.02.07	7600	15.2	115520
09.02.07	6700	15.2	101840
15.02.07	7000	15.3	107100
18.02.07	1500	15.4	23100
28.02.07	2800	15.5	43400
Total	34100	-	518730

Thus we see that the price of the materials rose during one month. Now the problem is to determine the total price of inventories that will be included it the prime cost of the production. During one month the enterprise received at stock 28300 units

of inventories for the sum total of 431730 USD. In the end of the month the total quantity of the inventories ready for the realization was 34100 units. Only 29800 units were brought about; 4300 units rested for the next period. We have to determine the gross profit applying different methods of estimation of the inventories described above if the sales during this period were 10 000 000 USD.

We suppose that the surplus inventories at the end of the period consisted of 2380 units purchased on the February, 5; 980 units – on the February, 15; and 940 units – on the February, 28. In order to calculate the cost of inventories at the end of the period by the method of the cost price of purchased production we must multiply the quantity of the inventories by their cost. Thus we receive 6550.2 thousand USD.

Table 3.5

The calculation of the cost of inventories by the method of moving average

Entry	Cost	Available	Relised, units	Sum	Rest, units	Rest, USD	Cost	Total
5800	15,00	-	-	-	-	-	-	86400
2700	15,10	8500,00	7500,00	111942,4	1000,00	14925,6	14,93	40468
7600	15,20	8600,00	-	-	-	-	15,08	114760
6700	15,20	15300,00	-	-	-	1301,6	15,08	101080
7000	15,30	22300,00	15000,00	226646,4	7300,00	110301,2	15,11	106180
1500	15,40	8800,00	7300,00	110662,4	1500,00	22738,8	15,16	23100
2800	15,50	4300,00	-	-	-	65208,8	15,16	42470
34100	-	-	-	-	-	-	-	514460

Applying the method of the weighted average we calculate the average price and count the inventories at this cost. The calculations of the cost of the inventories at the end of the period by the method of moving average are represented in the table 3.5.

The calculation of the cost of inventories at the end of the month by this method is made in several steps. On the first step we calculate the total sum of available inventories at certain date. Then we calculate the total cost of the inventories that were realized in the production at this date. The mobile average shows the average cost of each unit of purchased inventories. It is calculated as the average from the cost of the inventories that were purchased and the cost of the rest of the inventories at certain date.

We say that the inventories from the stock were put into production in three parties. At the same date there were new entries of the inventories at another price.

Thus when applying the method of the moving average the cost price of the inventories is calculated for each new purchase of the merchandise.

Table 3.6

Calculation of the gross profit in different methods

№	Indicators	Methods of inventories estimation				
		By the cost price of purchased production	By the average cost price		Fifo	lifo
			By the weighted average	By the moving average		
1	Volume of sales	10 000 000	10 000 000	10 000 000	10 000 000	10 000 000
2	Inventories for the beginning of the period	87000	87000	87000	87000	87000
3	Coming in during the period	28300	28300	28300	28300	28300
4	Cost price of inventories ready for the realisation	518730	518730	518730	518730	518730
5	Inventories at the end of the period	65502	65403	65164,5	66500	64500
6	Cost price of sold production	453228	453327	453565,5	452230	454230
7	Gross profit from sales	95467720	95466730	9546434,5	9547770	9545770

The results of the calculations of the cost of the inventories at the end of the period are represented in the table 3.6.

From the table 3.6 we can see that only changing the estimation method of one sort of inventories the gross profit can be increased.

In the case of KSAMC it would be better for the enterprise to state its profit bigger as first of all it will give the opportunity to release funds and to reinvest them to the of increase the salaries of the workers or into the renovation of the equipment. If the objective of the enterprise would be to reduce the taxes then it would be obvious for it to apply the lifo method of the stock estimation as thus the stated profit is decreased.

Now when we determined that the best method of the estimation of the inventories is fifo we must calculate the efficient order quantity**.** It is made according to the efficient order quantity (EOQ) model. The objective of this model is to minimize the expences connected to the inventories, including theis prime cost, expenxes on placement the order and the cost of storing.

The general view of this model is:

$$EOQ = \sqrt{\frac{2 * V * Cp}{Cs}}, \qquad (3.1)$$

where V is the volume of the consumption,

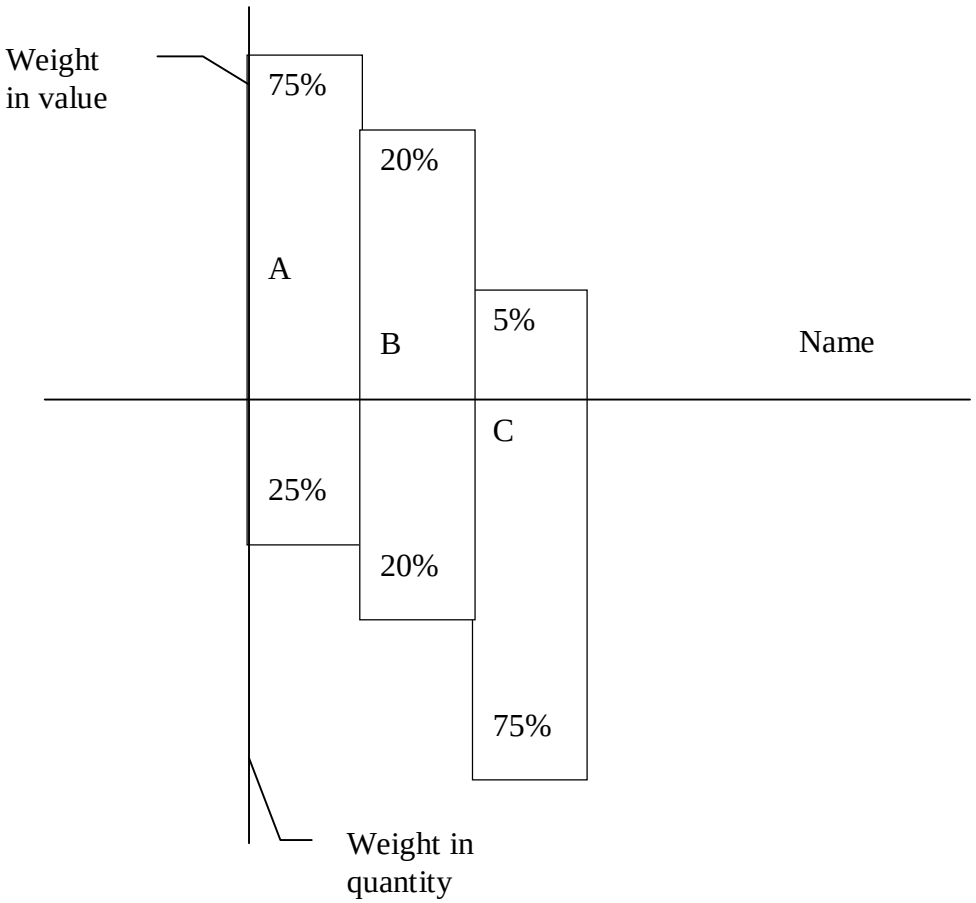
Cp – cost of the placement of the order,

Cs – storing cost.

The main idea of this model is to release the funds that are involved in the inventories and to reinvest them into the development of the enterprise.

Among the systems of controlling the inventories the most famous in Europe is the ABC method. It consists of division of the inventories into three parts according to their price, volume, the frequency of the use and the negative effect from the lack of them in the activity of the enterprise.

There is a rule that also goes with this method: 75% of the sum total of cost is provided by 5% of the items. The graphics of the ABC method of the inventories estimation is shown in the picture 3.7.



Pic. 3.7. The ABC method

The other method of the estimation of the inventories is so called XYZ method. According to this method the inventories are divided into three parts according to the probability of the prediction of their volume.

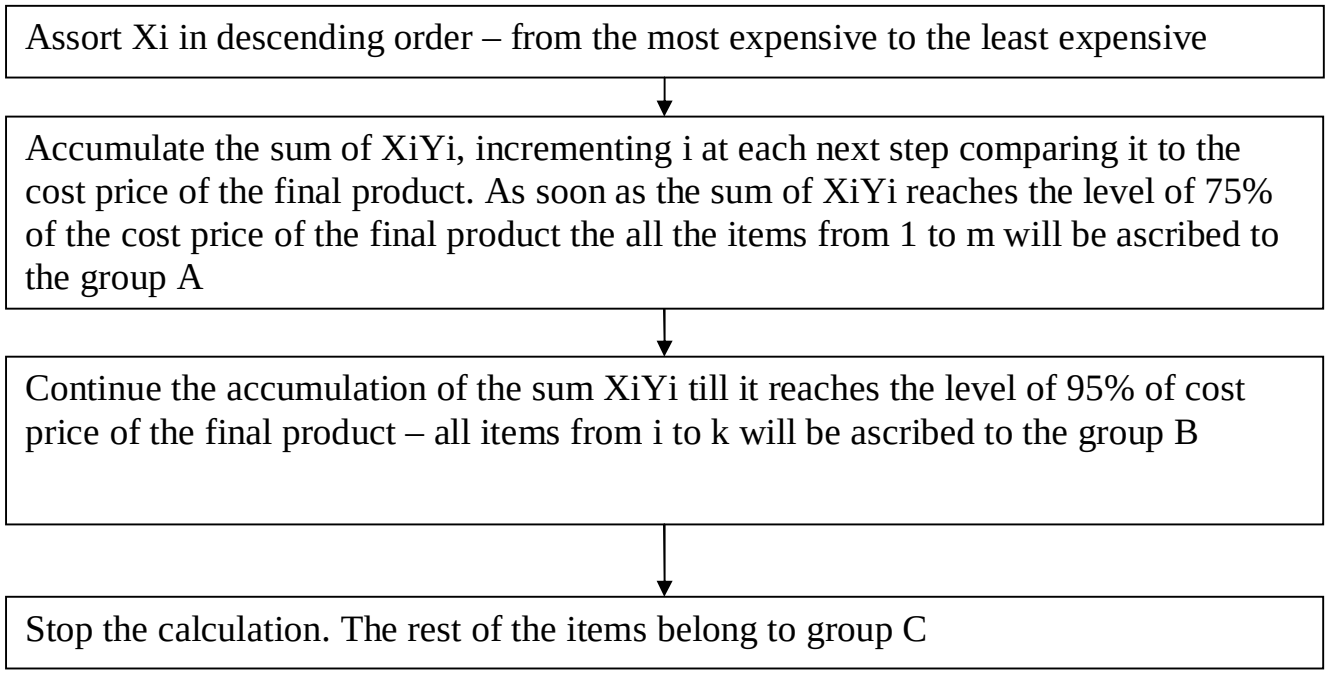
The inventories that are classified to the group X are constantly used by the enterprise in the production process and there is no surplus merchandise at stock.

The level of Y group of inventories is higher than optimal and the accuracy of the prediction is lower.

The third group of the inventories – group Z – consists of the inventories that are used rarely in the production process and are only bought according to the present order.

Let us consider the algorithm of division the inventories into three groups according to ABC method. The algorithm is represented on the picture 3.8.

Let us denote the number of items of inventories as N. The cost of each item per unit will be Xi; as Yi we will mark the quantity of the inventory item is needed to produce the final product. The sum of XiYi will be the prime cost of the product. There are two checkpoints that must be considered during the cumulation of the sum. The first one is 70%, the second one is 95%.



Pic. 3.8. The algorithm of inventories division into three groups by ABC method

Application of this algorithm will permit to group the inventories and to facilitate this process. On the base of following algorithm the process of the regroupment of inventories can be automated by creating the computer program – separate or included as a module in the system of enterprise management.

It is reasonable to analyse and to control the first group of the inventories.

In one month the enterprise consumes 29800 units of metal-roll, the cost of each unit is 15.16 UDS. The cost of storage is 0.5% from the cost of the unit per month. The cost of placing the order is 20 USD. Using the EOQ we will calculate the

optimal size of the order, the quantity of the orders per year, the volume of the surplus inventory if the enterprise plans to have at stock the reserve for one unit of assembled production (to produce one aircraft the enterprise uses 12410 units of metal-roll); determine the volume of the first order knowing that the enterprise has 5800 units at stock; calculate the monthly usage of metal-roll units. What month will the enterprise run out of engines, what day should the enterprise place the order if it is accomplished in three months.

Let us calculate the size of the order:

EOQ = √(2*29800*20)/(0,05*15,16) = 1254 units

In one month we have to make 24 orders. As there are 5800 units at stock at the moment the first order must be (2800+12410-5800) = 13664 units. As the enterprise uses 29800 units a month the orders must be made every day if not taking into account the reserve.

According to the EOQ model the enterprise has to stock 13664 units at one moment. The storing expenses will be 683,2 USD per month. Adding the cost of placing the order we will receive the total of 1163,2 USD per month. Before the expenses on the service of stocks were 18454 USD.

Now we can calculate the efficiency of the application of this method by comparing two values of expenses. Thus, the efficiency is 1,6, that is the expenses were decreased at 1,6 times or at 682 USD per month. This will result into 8184 USD economy per year.

Thus we can say that the efficiency of the decisions can be increased whether from inside of the process or from outside. The internal methods include the application of the new technologies of collection of the information or the scientific methods of selection between two alternatives. From outside the process of decision making can be supported by the modern technologies of communications.

At present the personnel of marketing department procures market research. It gives only information about the present market situation. In order to increase the efficiency of decisions it is necessary to make marketing research. When choosing the best alternative it is recommended to apply the method of decision trees. It not

only helps to structure the problem but also to estimate the possible outcomes of the scenarios.

Grounding on the results of research two alternatives were determined: the expansion on the new market and the increase of market share of existing markets. With the help of decision tree we found out that the best alternative for the enterprise would be to increase the market share of existing markets. On the existing market the enterprise must strengthen its products. One of the variants of it is to reduce the price. The price can be reduced by manipulating the inventory account method. In this case the enterprise should apply the fifo method which permits to reduce the cost considerably and to vary the profit rate. For this purpose the inventories size must be optimized. This is made according to the EOQ model.The EOQ model synchronises the input and the output flow of the inventory and thus allows optimizing the expenses.

CONCLUSIONS

Decision making is a cognitive process that leads to selection of the course of action. The process of decision making happens under conditions of uncertainty or risk. Economic decision making often involves stating a price and selecting an appropriate marketing strategy.

Often the decision depends on the bias of the person. But the most widespread method of decision making is decision making in groups. There are some group decision support systems protocols, among them are: unanimity, majority, range voting, consensus decision-making, gathering and sub-committee. The rules are selected according to the situation and to the organization structure of the company. However there are several rules that are not desirable to apply in the process of group decision-making, such as dictatorship and plurality.

Decision making in business should be set up to allow the decision making at the lowest possible level. There are many decision making models in business. Among them are SWOT analysis, cost-benefit analysis, decision trees, linear programming, Pareto analysis and other. The choice of the method depends on what kind of decision must be made, technical facilities and educational and cultural level of a decision-maker.

The process of decision making could be analysed from two points of view. The first one is the managerial decisions. The second one is the buyer decision process, as the managers must forecast the reaction of the buyers in order to make efficient decisions. One of the models that describe the buyer decision process is AIUAPR.

Generally the decision making in international marketing can be described by the DECIDE model. According to this model the stages of decision making process in international marketing have the following consequential steps: problem definition, analysis of factors, collecting of relevant information, identification of the best alternative, development and implementing of marketing plan, evaluation of decision.

The definition of the problem helps set clear the methods of the research and to determine the method that can be applied to solve the problem.

The uncontrollable or external factors are political, economic, cultural situation; in general they are the factors that the company can not vary. However there are factors that can be changed by the company. These factors form the marketing mix.

Classical definition of marketing mix is the combination of such elements as product, price, place, production. These elements can vary according to the sphere of activity of the enterprise.

The decisions on marketing mix are made basing on relevant marketing information. This information is received from marketing research. Often the market research and the marketing research are mixed up. They are absolutely different concepts. Market research is simply research of a specific market. It is a very narrow concept. Marketing research is much broader. It not only includes market research, but also areas such as research of new products, or modes of distribution such as via the Internet.

There are two sources of marketing information: primary and secondary. Primary research is conducted from scratch. It is original and collected to solve the problem at hand. Secondary research, also known as desk research, already exists since it has been collected for other purposes. Conducting the marketing research the specialists must combine these two data sources.

Grounding on relevant marketing information the business plan is formed. A marketing plan may be a part of an overall business plan. Solid marketing strategy is the foundation of a well-written marketing plan. While a marketing plan contains a list of actions, a marketing plan without a sound strategic foundation is of little use.

The summit of collecting and analysing information is the decision support system. There are many decision support systems on different domains of activity. A DSS is a structured system that helps the decision makers to define the problem correctly and further to take the best possible decision. Usually the decision support system is implemented in computer application.

In the second chapter the economic activity of KSAMC was analysed. KSAMC has the leading position on the market if the CIS in aircraft production. It produces both military and civil aircrafts.

Having made the analysis of economic activity of KSAMC during 2003-2005 we can make the following conclusions. The structure of the sum total of assets of KSAMC from the angle of current/non-current assets is approximately in the proportion 50/50 with insignificant variations and the trend of increasing of the art of current assets. The main source of forming the property of KSAMC is capital stock which makes approximately 90% of the sum total of liabilities; it testifies to the high financial stability and the attraction for the banks and investors. The acceleration of the speed of the assets turnover is observed; at other equal conditions it reflects the rise of production-technical potential of KSAMC. Almost by all the profitability indexes we can observe the increase due to the growth of the sales but at different rates.

The financial position in the long-term view is estimated as absolutely stable, but in the short-term view the balance sheet of the enterprise can not be called absolutely liquid; it could be reached if all the debtors paid in time so more attention must be paid to the accounts receivable and their regulation.

Analysing the international activity of KSAMC we can say that the aircrafts market potential is very big. The demand on passenger and military aircrafts is constantly growing. And the production of KSAMC is competitive, it has many advantages comparing to other products, presented on this market.

The market of military aircrafts is very politically dependent and it is very difficult for the enterprise to receive an order from the new client. Nowadays we can see the trend of economically based buyer decisions.

Analysing the international marketing activity we discovered that the enterprise does not conduct profound marketing research. Conducting the complete marketing research will allow determining the possibilities of development of the enterprise and determining existing alternatives for the enterprise.

Basing on the results of marketing research we can say that the enterprise has to choose between two possibilities. The first one is to increase the market share on the existing markets or to expand on the other markets where the production of the enterprise is not sold yet.

Applying the method of decision trees we determined that the best alternative for the enterprise would be the product strengthening on the old market.

In order to strengthen the product the management of the enterprise must reduce the cost price of the product. One of the ways to do it is the selection of appropriate method of estimation of inventories. The best method for the enterprise is to apply fifo method in combination with the EOQ model, that helps to synchronise the input and output flow of inventories.

The business process of decision making in international marketing has communications as one of the resources. In order to increase the speed and the quality of transmission of the information it was proposed to set up wireless mesh network (WMN) on the territory of the plant. This will help to receive faster and more reliable access to Internet which will allow connecting all distant divisions of the enterprise. After installing WMN all departments of the enterprise that are situated on the same territory but in distant places will be connected into common network.

The installation of WMN will in no way increase the level of electromagnetic field and will not damage the health of the workers. No additional measures in labour protection are needed.

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