Using Problem Structuring Methods to Assist in Information Systems Strategy Development: A Case Study*

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This paper examines the use of problem structuring methods to assist an organisation in developing its information technology strategy. It overviews the Strategic Options Development and Analysis method and shows how this method was used in conjunction with Galliers' revised stages of growth model to help the managers of a Greek State Bank reach a consensus as to their current situation with regard to information technology and hence develop an effective information technology strategy.

1. Introduction

The formulation and application of an information systems strategy is becoming an increasingly important task for many organisations. This process, however, is not without difficulties. In developing a strategy the organisation intends to move on from its current situation to a more successful one. This can only be achieved if a proper understanding of the current situation exists, together with a clear view as to where the organisation should be heading.

Determining the current situation with regard to information technology in an organisation is not a particularly easy task to perform. Every individual and department of the organisation may have a different perception of the current situation with regard to their own particular needs and requirements. Thus the process of determining the current situation is often problematic and can be characterised as a messy problem. These problems of divergent perspectives on the organisation also apply when determining future strategy as different parts of the organisa-

tion may wish to progress in different directions or be subject to diverging resource constraints.

Decision making in 'messy' problem areas has been the focus of much work in Operational Research (Rosenhead 1992) and a number of problem structuring methods have been developed within the 'soft' operational research community to assist decision makers in these situations (Checkland 1981, Rosenhead 1990). This paper describes an attempt to make use of one of these techniques, namely Colin Eden's Strategic Options Development and Analysis (SODA), to assist an organisation in developing its information technology strategy.

The techniques of problem structuring within SODA are used as the investigative basis for Galliers' revised stages of growth model. Galliers' model reviews the current situation of the organisation with regard to information technology under a number of headings and attempts to classify them according to their stage of growth. From this understanding of the current situation, the model proposes a means of progressing on to the next stage. In practice, however, there is often considerable disagreement amongst the strategy developers as to where exactly the organisation is within the proposed classification. The problem structuring methods are therefore intended to highlight these differences and also offer a framework for resolving them.

The paper begins by overviewing the SODA method and then reviews Galliers' revised stages of growth model. The case study or-

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ganisation, a state owned Greek bank for industrial development, is then introduced before discussing the interviews that took place. As a result of the use of problem structuring methods, a strategy for the bank was developed and this is discussed, together with a consideration of the effectiveness of combining SODA with Galliers' model for information systems strategy development.

2. Strategic Options Development and Analysis (SODA)

An Introduction to SODA

Strategic Options Development and Analysis is a method that is used by consultants to help their clients work with messy problems (Eden 1990). The method is not intended to act as a 'problem solver', rather it is seen as a means of facilitating the decision making process by presenting the problems as they are. It attempts to highlight the causes, consequences and possible solutions of the problems and, in so doing, help the client group achieve a better understanding of the real situation in the organisation.

The SODA approach puts emphasis on the individual, trying to gain the direct involvement and commitment of each of the clients. When applied in organisations, teams are deliberately created so that each member of the team may offer a different perspective on the issue.

Members of the client group are seen to have their own legitimate, subjective views of the real problem, depending on their different roles, experiences and backgrounds. These different subjective views are expressed, presented and exploited through carefully designed interviews and workshops. In particular, the technique makes use of cognitive maps which are diagrammatic representations of the main ideas held by the individuals.

The approach is based on the idea that the protection of individuality is both legitimate and necessary and helps to ensure that the outcome of the project is both creative and consensual. However, exploiting individuality implies deliberately encouraging more richness in problem construction by accentuating complexity within problems (Eden 1990). The approach consciously encourages diverse opinions to be expressed in the individual interviews. It is because of this complexity and richness that arises from attention to subjectivity that negotiation becomes necessary in order to decide on an action. The consultant's role is to facilitate this negotiation and manage the necessary consensus and commitment among the members of the client group. However, this process of reaching agreement has its benefits as the participants in the negotiations are more likely to accept the resulting decisions as they can feel that their own inputs formed a significant part of the discussion and final decision.

The SODA Process

A typical SODA project is based on the interaction between the facilitator and the members of the client group, and consists of two rounds of interviews and a workshop. The members of the client group must be chosen carefully. In order to get as many different personal views of the problem area as possible, and have a holistic view of the organization in study, the facilitator should try to form a client group that consists of members of the organisation who have different backgrounds and play different roles, as these people are most likely to see the same things from different perspectives.

The First Round of Interviews

During the first interview with a member of the client group, the facilitator asks questions which can help the interviewee to describe his/her own view of the problem area. In the first stages of the interview, the questions that are asked are quite general and their purpose is, on the one hand to help both the facilitator and the interviewee to define and understand the problem area, and on the other hand to allow the facilitator to ascertain in which areas the person feels most comfortable.

As the problem area is being described, the facilitator takes notes, using the cognitive mapping method, in order to create a model of the problem area, as described by the interviewee. The first concepts are written in the upper half of an A4 pad so that related concepts can be grouped together (Eden and Simpson 1990). The facilitator can ask questions to extend the map when the person stops talking or starts repeating ideas,

but this should be done in a way that does not interrupt the line of thinking of the interviewee that is being represented in the map. During the construction of the map the consultant must retain the terminology used by the client and it is important to ask questions if this terminology cannot easily be understood. In this way the map is used as a basis for the interaction between the consultant and the client. For more details about the techniques involved in cognitive mapping the reader is referred to Ackermann et al. 1990.

The maps that result from the first interviews are not tidy or complete and cannot be easily read or understood by anyone other than the note taker (Eden and Ackermann 1990). Soon after the interview, however, the maps can be tidied up and presented in a form that makes them suitable for use in the second interviews.

The Second Round of Interviews

The purpose of the second interview is to present the map to the problem owner so that it can be validated and extended. The consultant begins by explaining the broad structure of the map, with the goals at the top and the actions at the bottom. The problem owner is then taken through the map, explaining and changing concepts, checking links and their direction.

It may be thought that the messiness of the map will prove to be a problem for the client. In practice, however, this is rarely the case because the map is developed with the participation of the client who directs the corrections. If there are any problems, these are likely to be on the part of the facilitator who is trying to understand and represent the thoughts of the client in an organised manner.

Once the second round of interviews has been completed, the consultant examines all of the individual maps and tries to identify key points of agreement and difference, as well as the key concepts among the maps. The individual maps are then merged to produce the 'strategic' map (not to be confused with the strategy in this particular case study). This resulting map gives a holistic view of the problem area, as it contains everything that was said during the interviews.

As the strategic map is too complicated to be used during the SODA workshop an overview map, as an easily understood summary of the 'strategic' map, and a set of cluster maps that highlight the important aspects of the 'strategic' map are formed. When these maps have been prepared, the consultant is ready to establish an agenda for the workshop.

The SODA Workshop

According to Eden (1990) a SODA workshop can be arranged to take anything from two hours to two days, depending on the availability of the members of the client group and the perceived importance of the issue. The scheme for the workshop is, in principle, similar to that for the interaction between the facilitator and a single client.

At the beginning of the workshop the consultant takes the clients through the overview map. In this way, a holistic view of the problem area is presented and the key concepts are highlighted. The facilitator then presents the cluster maps one after another.

Once the presentation of the maps has finished, the members of the client team are encouraged to discuss the maps. Feeling free to express their own ideas and make comments, the members of the client group soon start taking part in open and friendly discussion, exchanging arguments and explaining their ideas. Once the clients become aware of the general situation and the ideas of others, the consultant should lead the discussion towards the definition of possible goals that should be set and the actions that should be taken in order to overcome the current problems and move towards the goals. It is hoped that during the workshop, with the help of the facilitator, the members of the client group will be able to reach a consensus concerning the nature of the problem area and the direction towards which the organization should move to overcome the current problems.

3. Galliers' Revised Stages of Growth Model

The phases of introduction of information technology into an organization have been widely studied and a number of models have been proposed and evaluated. However, many of these models have proved to be inadequate because

Table 1. The seven Ss (Pascale and Athos 1981)

Strategy:	Plan or course of action leading to the allocation of a firm's scarce resources, over time, to reach identified goals
Structure:	Characterisation of the organization chart (i.e., functional, decentralised etc.)
Systems:	Proceduralised reports and routinized processes such as meeting formats.
Staff:	'Demographic' description of important personnel categories within the firm (i.e. the number of engineers, entrepreneurs, MBAs etc.).
Style:	Characterisation of how key managers behave in achieving the organization's goals; also the cultural style of the organization.
Skills:	Distinctive capabilities of key personnel of the firm as a whole.
Superordinate goals:	The significant meanings or guiding concepts that an organization imbues in its members. Superordinate goals can also be described as the shared values or culture of the organization.

they were either based on simplistic or subjective assumptions, lacked a management and organizational focus and therefore could not help to create a successful information systems function within an organization or described how an organization could place itself within a particular stage of information systems planning maturity without describing what should be done so that the organization could progress through to more mature stages of growth (Galliers and Sutherland 1991). These models just described elements in the growth of computing within an organization. What was needed was a model that would combine these elements with the important elements of an organization in general and would indicate how an organization could develop its use of information technology and the organization of its information systems function.

Thus, a tentative model was built based on the so called seven Ss that were used by McKinsey & Co (Pascale and Athos 1981). It was designed to avoid the weaknesses of the earlier models. The tentative model was then applied to four organizations in the Perth region and was refined and corrected. The model has been further refined and developed by numerous participants at conferences and short courses.

The seven Ss are strategy, structure, systems, staff, style, skills and superordinate goals. They are summarised in Table 1. These seven facets of the organization are mapped onto six stages of growth. At the start there is ad hocracy, then starting the foundations, a move towards centralised dictatorship, then democratic dialec-

tic and cooperation, entrepreneurial opportunity and finally 'the age of aquarius'.

In the Galliers' model each of the S elements is examined in terms of the information technology function within the organization, rather than the organization overall. It should be noted that the S elements for the technology function usually are quite different from the elements for the organization as a whole.

Based on a description of each of the S elements in each stage of maturity, the model can provide a prescription of what to do to move into the next stage. This prescription is based on what constitutes the seven Ss in the next stage. According to Galliers and Sutherland (1989), if each of the elements in the Ss is intelligently addressed within the organization, the technology component should mature as the organization matures.

It is beyond the scope of this paper to describe each of the elements in the 6x7 grid formed by combining the six stages of growth with the seven Ss. However, a number of examples will be given to demonstrate the concepts.

Stage 1: Ad-hocracy

Although all organizations begin at this stage, some of them do not remain in it for a long time, but move very quickly to later stages (sometimes being urged by the market in which they operate). The first stage is characterised by an ad-hoc and uncontrolled approach to the use of information technology.

Strategy. The strategy at this stage is to allow and encourage the introduction of technology, so that the most important needs of the organization can be satisfied through its use. Thus emphasis is put on the acquisition of hardware systems and software such as ready made packages. In many cases, external suppliers may be contracted to develop specific applications, rather than having applications being developed inhouse.

Stage 2: Starting the Foundations

In the second stage of the model some of the main and most urgent needs concerning the introduction and use of technology are satisfied and the organization starts taking information technology (IT) more seriously. However, most of the problems of the previous stage remain unsolved. Whereas stage 1 may be quite short lived, stage 2 may continue for quite some time.

Structure. An IT department is created. This is quite small, typically located under the finance or accounting function and provides limited services.

Stage 3: Centralised Dictatorship

This stage is described by an overall management concern on IT issues. There is often some form of IT planning and, by this stage, most business activities have some IT aspects.

Systems. Most systems are centrally developed, installed and controlled by the data processing department. As there is not a proper communication among endusers and the data processing department, inappropriate systems are built which cause maintenance and security problems.

Stage 4: Democratic Dialectic and Cooperation

By this stage, the IT department becomes more outward looking and will often actively involve users in the design of individual systems. They also involve users in more general issues of system development.

Staff. The traditional staff are joined by business analysts, who may be employed by the various data processing departments, but communicate with the rest of the IT staff in the central information services department.

Stage 5: Entrepreneurial Opportunity

The fifth stage of the maturity model is characterised by the fact that it not only supports the organizational function, but can also start to provide a strategic benefit in its own right.

Style. The predominant style at this stage is that of the product champion who conceives a good idea and pushes it through the necessary approval procedures so that it can be promoted and implemented. In this case, the idea is for information systems that will lead to a strategic advantage for the organization.

Skills. Entrepreneurial and marketing skills are shown by some of the members of the IT staff and there are knowledgeable users in some information systems areas.

Stage 6: Integrated Harmonious Relationships

Most maturity models depict the final stage as presenting 'maturity', a stage of near perfection in which the hard won lessons of the earlier stages are put to good effect. However, the 'maturity' label is not used to describe stage 6 in the Galliers model. Although this stage does present a phase which incorporates the accumulated wisdom of the earlier stages, it does not represent an ultimate goal to which all organization should aspire. For example, a stage 7 might be added, concerned with the provision of a flexible IT infrastructure and integrating IT into both formal and informal organizational forms.

Superordinate goals. The main values at this stage are interactive planning, interdependent team work and good relationships. Emphasis is put both on collaborative work in the organization to produce strategic information systems and on strategic alliances outside the organization.

4. The Case Study: The Hellenic Industrial Development Bank S.A. (ETVA)

In the following description of the bank it should be noted that translations of the Greek terminology have been used to describe the structure of the bank although this terminology may not match its common English usage. For example, the IT function is provided by "The direction of organization and IT".

The Hellenic Industrial Bank S.A. was founded in 1964 by the merger of the Organization of Industrial Development, the Organization of Financing Financial Development and the Organization of Tourism Credit. At the time of its foundation ETVA had two main purposes. On the one hand, it was to finance investments which contributed to financial growth and on the other hand it was to help these investments become a reality. This second aim was advanced by the bank's support of industrial areas. Both activities were financed by the Bank of Greece.

Over time the activities of the bank have changed and it now issues bonds and deals with long-term (15–20 years) loans to industry, tourism and shipping. It has an exclusive right to found and extend industrial areas in the country and is responsible for the installation of industrial units in these areas.

The initial introduction of information technology took place during the early 1970s in an attempt to satisfy the urgent needs of that time in terms of payroll, accountancy data and information concerning loans. Since the mid 1980s, the bank has been expanding its facilities quite rapidly. To date, the provision of information systems can be regarded as satisfactory although there are still significant problems concerning the utilisation and management of the technology.

5. The First Round of Interviews

Before the first interviews took place the facilitator met with the deputy assistant director of the "direction of organization and IT" who described the general situation at the bank. He also discussed the process of the interviews and he provided information about the people who

were to take part in the SODA process and outlined their roles in the bank. He then arranged for the facilitator to meet all the interviewees before the actual interviews took place. Seven people were interviewed in the bank, six of them were directors and one was an assistant deputy director.

Individual Map 3: The Director of the Direction of Organisation and IT
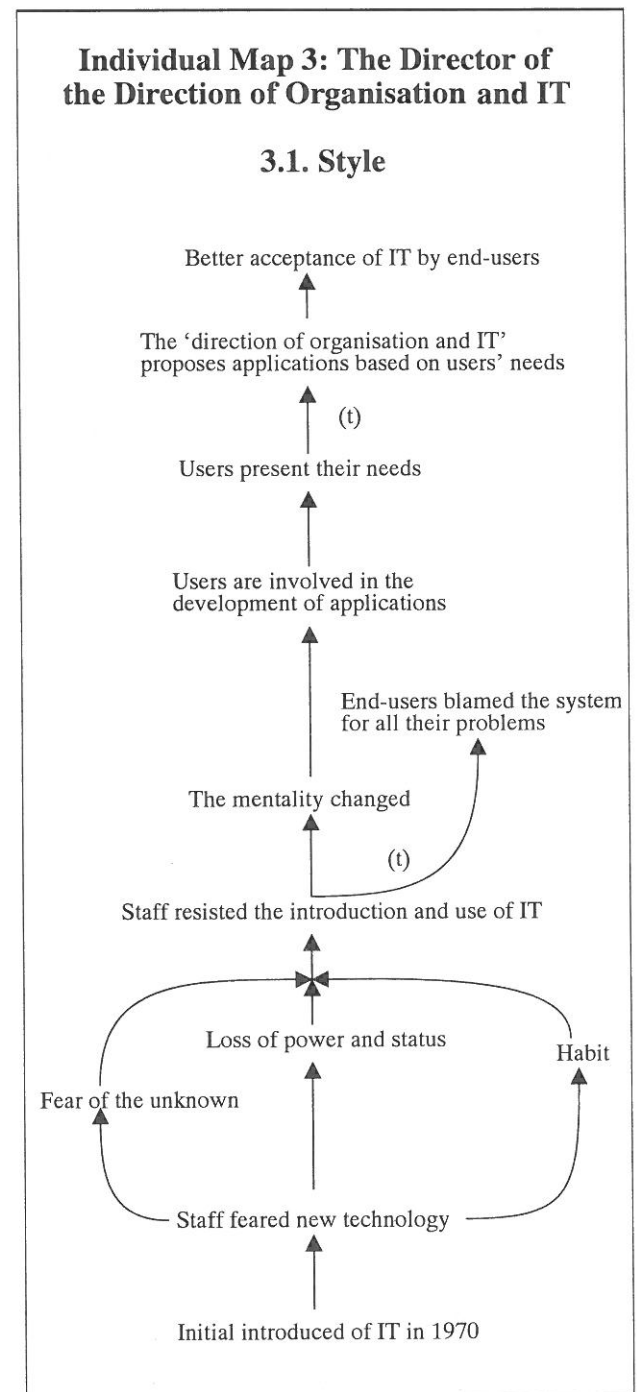
3.1. Style

Fig. 1. A sample individual map

The first round of interviews took place over

the period of one week and began with a brief description of SODA and Galliers' model and how these would be applied in the study. Once this introduction had been completed the participants felt reasonably comfortable about the process and purpose of the study. The interviews began with general questions about the "what had been done so far in the bank concerning IT" but soon moved on to more specific questions that were generated during the discussion and which aimed to clarify the issues mentioned by the interviewee or to fill gaps in the individual map being constructed.

After this stage seven individual maps were produced, one for each interviewee. A sample individual map is shown in Figure 1.

6. The Second Round of Interviews

The second round of interviews took place approximately one week after the last interview in the first round. Upon completion of the first interview the need for a second interview was outlined and this was again explained at the start of the second interview. It was emphasised that it was the interviewees who were to decide whether the maps reflected the situation as they had described it.

As the problem owner was the one who would validate the maps, the facilitator tried to introduce the 'language' of the maps. It was expected that this understanding would enable the interviewees to follow the work of the facilitator. However, in practice, quite the opposite occurred. The problem owners were able to read the map and were soon making their own corrections to the map. Indeed they were so conversant with the process that the second round of interviews only lasted for about fifteen minutes (in contrast to the hour for the first interview). The interviewees were quite pleased but also surprised to discover that their ideas were presented in the maps exactly as they had been expressed in the first interview.

The Position of ETVA in Galliers' Model

After the second round of interviews, and once the individual maps had been validated by the problem owners, the information that had been collected so far about the seven Ss was examined to determine the stage of maturity for each of the factors.

Strategy

As far as IT strategy is concerned, the bank is mainly at stages 2 and 3 of the model, having few elements in stage 4. The basic element of stage 2 in ETVA is the IT audit. This means that the IT staff attempt to find out about user needs and try to meet them, simply checking what has been and is being done, with the future being seen simply as a linear extension of the past. Wanting to identify the users' needs and trying to make the system acceptable to them, the IT staff approach the users by means of interviews and discussions. As a result a tight project management approach is not applied in the development of applications. The fact that the need for comprehensive planning is recognised and embraced wholeheartedly by some senior managers of the management team is an element of stage 3 of the model. IT has been under central control so far, but it sometimes cannot be effectively controlled. The answer is perceived to be in top down planning. There is an awareness in the bank that many of the systems developed thus far are rather operationally oriented and do not actually meet all real business needs. There is a general recognition that IT should support the organization. The element from stage 4 concerns the emphasis that the bank now puts on cooperation and coordination between the data processing departments and the endusers.

Although state investment banks can and should be interested in searching for the benefits of business driven IT planning, they nevertheless require some form of government approval for any major strategies and this limits the flexibility of the bank concerning IT matters.

Structure

As far as the IT structure is concerned, the bank could be classified somewhere between stage 3 and 4. This means that the bank is more advanced than most organizations in stage 3 but does not yet have all the necessary characteristics of stage 4.

The bank is at stage 3 because its IT department is centralised with all official IT power

invested in the department and its head. Another element from stage 3 is the fact that the head of the IT department does not participate in strategic business decision making. Although the IT department is centralised, the situation is not a centralised dictatorship because the staff cooperate with endusers in the development of applications and systems.

Systems

The bank is mainly at stage 3 as far as its systems are concerned although it does have a tendency for some elements to move towards stage 4. Most systems are centrally developed, operated and controlled by the IT department. At the same time, there are a number of applications which have been developed by endusers and which may overlap or operate in isolation. This has been realised by most members of senior management and a general wish has been expressed for a better coordination between the systems and applications in the bank. Efforts are being made towards the creation of decision support systems and an integrated management information system (stage 4).

Staff

The IT staff at ETVA could be characterised as being at stage 2, having a tendency towards stage 3. The staff are primarily programmers and analysts with some software engineering skills (stage 2). The head of the IT department does not report to the financial director but to one of the assistant governors of the bank.

Style

The predominant style of the IT staff in the bank is one of friendly cooperation with the endusers. The IT staff are extremely busy creating and maintaining applications but they are open to the users' suggestions and involvement. However, the IT department still has all the responsibility for all the applications and systems that operate in the bank. Therefore the bank is at the end of stage 2 and the beginning of stage 3.

Skills

The bank is at stage 1 as far as IT skills are concerned as they are mainly of a technical and not of an organizational or business nature.

Superordinate Goals

The bank is at stages 2 and 3. There are business goals but these are not clear and shared by everyone, as it is the case of Japanese companies, for example. The IT goals are shared within
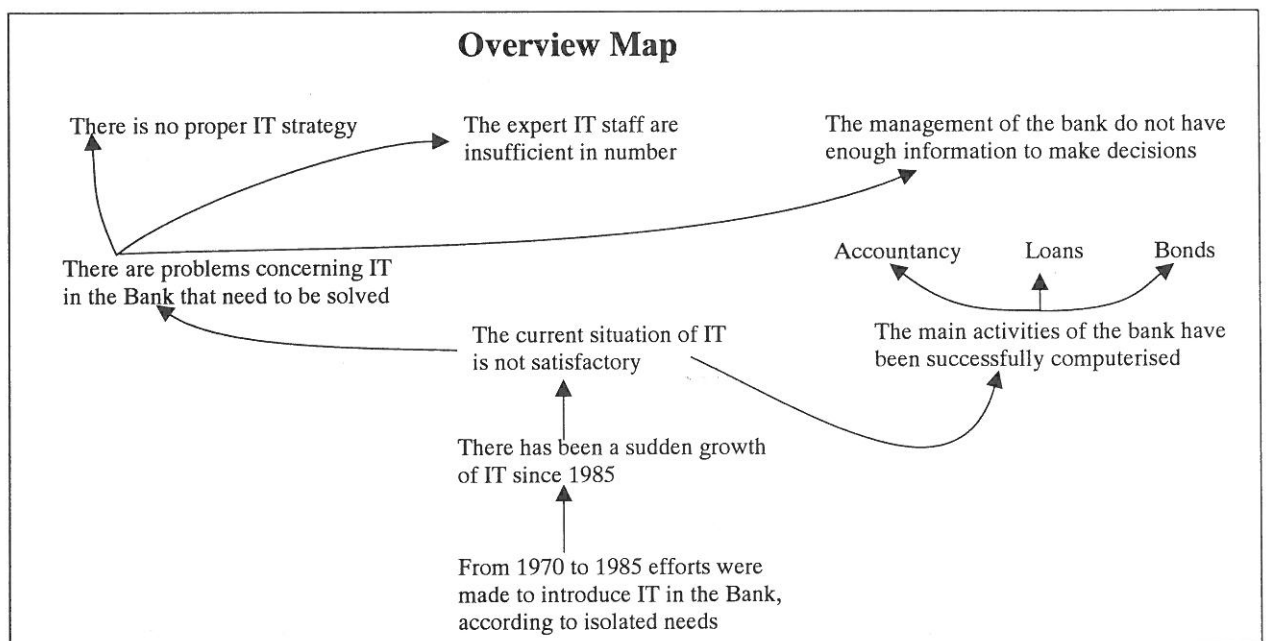

Fig. 2. A sample overview map

the IT department but not generally in the bank. Effort is being made so that the IT goals support the general business strategy but this is not done in a systematic way.

The Discussion During the Workshop

During the presentation of the maps the interviewees were taking notes and were more than eager to talk afterwards. They commented on the ideas presented in the maps and exchanged views. The problem owners were surprised to realise that four maps managed to capture the whole situation in the bank concerning IT. The climate during the session was very friendly. A sample overview map from the workshop is given in Figure 2.

7. The Results of the Study

The Main Points Raised in the Workshop

During the discussion emphasis was mainly put on three issues, the existence of an IT strategy in the bank, the number of IT staff and the needs of the senior management for automated information.

IT Strategy in ETVA

The facilitator introduced this issue by repeating briefly what had been said during the interviews. The main idea in the facilitator's presentation was that there was not and had never been an IT strategy in the bank. The growth of IT had been based on actual needs and wishes of individuals and groups in the bank. Following the ideas expressed by the interviewees the facilitator talked about the frequent changes in the top management of the bank and the fact that the bank was controlled by the government, which made strategic planning for IT difficult. In the discussion that followed, a common wish was expressed among the interviewees for a more systematic approach to IT in the bank. There was, however, a disagreement regarding whether the bank had an IT strategy or not. The view that was expressed on the part of the department was that there was an IT strategy which dealt mainly with technical issues, such as the creation of new applications, the maintenance of

the existing ones and the acquisition of software and hardware. On the part of the some of the users, another view was supported. This suggested that an IT strategy should not be concerned only with the technical side of IT but also with the impact of IT on the organization's performance. An IT strategy should be based on long-term strategic planning, and be designed to support the business strategy in order to help the bank gain a competitive advantage. Based on such a more general and business driven definition of IT strategy , the view expressed by a minority on the part of the users suggested that there was not a proper IT strategy in the bank. Even the director of the direction of organization and IT, according to who the bank had an IT strategy, admitted that this strategy could not always be properly planned or implemented, either because the direction was not informed in time about the new activities of the bank, or because state bureaucracy did not allow the direction to be as flexible as the bank would need it to be.

As there was common agreement that there were problems associated with the strategic planning of IT in the bank, the facilitator encouraged the problem owners to propose solutions to these problems. They all suggested the existence of a steering committee that would consist of directors, and would be responsible for IT matters. The idea was that this committee would improve the communication, cooperation and coordination among the directions in the bank regarding IT issues. The existence of a 'general director' who would be responsible for the implementation of the decision of the board of governors was another solution that was proposed. This person would be the link among the directions and the top management of the bank. Another solution that was proposed in the workshop, concerned the existence of a representative of IT in the board of governors of the bank. However, this idea was not accepted by all the problem owners, as some of them thought that such a representation would not be necessary. The conclusion of the discussion, concerning the IT strategy of the bank, was that there should be specific strategic planning for IT based on the goals of the general business strategy of the bank.

The Staff in the Direction of Organization and IT

A serious problem that the bank faced at the time of the study, concerned its expert IT staff. According to the problem owners the expert IT staff were inadequate in number. There were complaints, on the part of the direction, that there was not a proper reward system and that there was limited possibility for the staff to move up the hierarchy. For these reasons the direction complained that some of the members of its expert IT staff had already left or are soon likely to leave the direction to work in another direction of the bank or in the private sector where salaries are much higher.

In addition to the complaints of the IT people, there were grievances on the part of the users. The latter noted that, because of their limited number, the expert IT staff could not produce all the applications that were requested and thus many things had to be postponed. The IT experts were too busy to specialise in the various functions and activities of the different 'directions' of the bank and thus could not provide the kind of advice that they seemed to need.

In order to overcome these problems a small percentage of the problem owners proposed the use of external consultants as a possible solution. However, the majority of the problem owners considered this solution as necessary but not desired. They seemed to believe that because external consultants could not understand the functions of the bank that they were expected to computerise in depth, the systems that they produced were not always of high quality and the documentation they left behind was insufficient. Thus the bank would have to rely on the consultants for the maintenance of the systems and the maintenance costs would be very high.

The Needs of Management and Top Management for Automated Information

During the two rounds of interviews it became clear that there are problems associated with the information that the management of the bank receives. This subject was raised in the workshop discussion and concerned the vertical and horizontal flow of information at all levels of hierarchy in the bank.

At the level of the directions two problems were identified concerning the way in which the needs for automated information are met. First, there is not a proper bottom up flow and collection of data. As a result, the information that the directions receive is not enough to make decisions. Second there are gaps in the communication among the directions which are due, to a certain extent, to the insufficient information received by the directions.

The defective flow of information at the level of directions leads to incomplete provision of information at the level of the assistant governors and the governor. Thus, top management often has to rely on manual records in order to be informed about an activity of the bank and cannot always have automated information whenever this is needed.

The solution that was proposed during the workshop was the creation of integrated management information systems at the higher levels. These would be responsible for the collection, processing, exchange, filtering and presentation of information in a way that would effectively support decision making.

8. Conclusions

Assessing SODA

The idea to structure the study in the form of a typical SODA project proved to be quite a success. It could be claimed that the smooth progress of the whole research study was due to the use of SODA. Going through the project, it was found that SODA has a number of characteristics which can be proven to have very useful benefits in the cases in which a facilitator tries to help a number of problem owners to structure a problem situation.

One of the main advantages of SODA is that its whole process is based on cognitive mapping. The cognitive maps that were produced significantly helped the communication between the facilitator and the problem owners. The problem owners easily got used to the maps and their 'language' and immediately detected errors in the maps. The maps proved to be a quick and easy way to capture the whole problem area.

A second advantage of SODA is the fact that it is based on the active involvement of the problem owners. During the two rounds of interviews and the workshop the problem owners play the most important role. In addition to this, the problem owners are as free as possible to express their ideas about the problem area in their own way. This is achieved by the fact that the interviews are not based on a strict prearranged questionnaire. The facilitator, of course, follows a certain questionnaire but this is used rather as a guide and it is not imposed on the facilitator or the interviewee. The questions are asked in a way to minimise the interruptions while the interviewee is talking. In this way, the true thinking of the problem owners can be captured because the ideas expressed are not guided by a questionnaire.

Another advantage of SODA is the fact that the data collected by the facilitator is validated by the problem owners twice, in the second round of interviews and then in the workshop. On one hand, this helps the facilitator to make sure that he is on the right path. On the other hand, the problem owners feel that they are the ones who play the main role in the whole project. In addition to these, the multiple meetings and discussions among the facilitator and the problem owners help to improve the relationships among them.

A fourth advantage concerns the fact that the facilitator needs limited time to carry out the whole SODA project. The time needed can be specified in advance and is approximately 1–2 hours for each interview in the first round, 10–20 minutes in the second round and two 2–3 hour sessions for the workshop. In this way, both the facilitator and the interviewees can plan what they are going to discuss, bearing in mind that the available time is limited.

Finally, during the workshop, the problem owners have the possibility to determine what the problem really is and exchange views so that they have a more holistic view of the organization.

Assessing Galliers' Model

The application of the model, as opposed to the use of SODA, did present a number of problems. The main problem was faced when an effort was made to find the stages of IT growth and maturity in the bank at the time of the study. It became clear that the order of the stages and their characteristics as described in the model were not realistic. Cases were found in which the bank had characteristics of more than two different stages. For example, in the case of the IT strategy ETVA was found to have characteristics of stages 2, 3 and 4. This does not seem right. A case in which the characteristics would belong to neighbouring stages would seem reasonable, but the difference between stages 2 and 4 is too great to dismiss our findings. Thus either the characteristics of each stage should change and become more detailed, or there should be extra intermediary stages in the model.

Another problem was that the last of the seven Ss of the model, the superordinate goals, could not really be applied to a Greek situation. The interviewees had difficulty understanding questions concerning superordinate goals and were not really sure how they should be answered.

The Combination of SODA and Galliers' Model

The combination generally was successful. On the one hand, SODA presented all the advantages concerning the exploitation of the problem area. On the other hand, Galliers' model was used as a useful guide to the study of the most important issues that were associated with IT in the bank.

At the beginning the study was based on the assumption that people in an organization like ETVA consider the same issues from different perspectives and cannot easily reach a consensus. Although this has not exactly been the case in ETVA, as the interviewees basically shared the same needs concerning IT, the combination of SODA and the model gave the problem owners the chance to have a more holistic and clear view of what they already knew.

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