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MACRO-MIDRO-MICRO: THE "TRIPLE-M" MODEL FOR ANALYZING COMPLEX ORGANIZATIONS

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Abstract

This article presents the "Triple-M" Model, which offers a graphical tool to analyze complex organizations. This model has been developed under the postmodern organization design approach. "Triple-M" is a middle-range model representing the second generation of the Systems Approach. The "Midro", a middle level between the Macro and Micro levels, is a new term especially developed for the purpose at hand to express, in both an autonomous and integrative way, the middle level in complex organizations. The proposed model can be used, in an integrative-conceptual way, as a non-linear hierarchical tool for organization structure mapping, procedures, and people. The model offers organizational researchers, consultants, and managers an improved way to map, describe, understand, and manage organizations. As a theoretical concept, the framework centers on the "Midro" and its uses in creating flexibility in organizations while responding to their changing environments. It helps to explain and locate conflicts and power struggles between the different levels and can be used as a method of accounting for different types of behavior in organizations. In locating behavior within the model, the concept of hierarchy moves beyond the simplistic notion of linearity and unity of command and attempts to address non-linear aspects of the organization. Finally, an implementation of the model is presented using a detailed case study.

Keywords: complex organization, systems approach, postmodern organization, organizational design

1. INTRODUCTION

The Systems Approach (SA) is known as a common approach for Complex Organizational (CO) analysis. For several decades, scholars have termed the study of CO "open" or "living systems" approaches (Daneke, 1997). These approaches were

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especially characterized by the presence of various non-linear dynamics. In recent research, models of hierarchy in SA have been slowly modified, but not abolished. We can consider that hierarchies as well as bureaucracy are breaking down with the appearance of flat, flexible, empowered postmodern organizational forms ([2] Clegg, 1990). Perhaps these organizations do truly demand that we re-think what we mean by 'hierarchy', but can they really exist without or beyond hierarchy?

We fully accept that the outside boundary of many organizations has become blurred, i.e. co-operative partnerships with suppliers, outsourcing, external competitive tendering of services previously serviced in-house, strategic alliances, etc. It is reasonably easy to build a picture of organizational structures where hierarchy changes its type. Hierarchy moves away from being a marker of rank, status and preferential treatment, in which the hierarchy raises "impediments and barriers" making difficult "the flow of information, co-operation, decision-making and learning" (Galbraith et al., 1993) to a picture in which the flatter hierarchy seems to be espoused as the epitome of cooperation and fulfillment of all organizational forms. This new postmodern organization sees greater collaboration amongst colleagues on the same organizational level as they work, helping and assisting each other in self-managing, involved, empowered work teams. This leads us to a position where such networked organizations, scorning the secretive, distrusting ways of the past are being seen as "...becoming the organization of choice for many companies" (Galbraith, et al., 1993). There is no denying that this paints an idyllic and enviable picture of organizational life and certainly one tempting to those seeking competitive advantage through the effective utilization of their human resources, yet is it real?

This paper will seek to argue that for many people the restrictions of hierarchy remain a reality and that hierarchies, in persisting, create potentially very strong divisions within organizations, giving rise to real constraints, differences in power and politicking. Hierarchy marks the way in which people are divided and structured into working units. In the same way, it also marks the ideal vehicle by which to analyze those people, their typical behavior and their working units and the extent to which the organization is able to work effectively as an integrated unit. In the Summary section, this paper proposes that hierarchy remains a powerful explanatory tool when dealing with CO. Thus, a hierarchical mapping tool for CO within the framework of the SA is required. Before charting the new framework, let us first review the relevant literature.

2. LITERATURE REVIEW

This chapter describes the main trends in organizational mapping within the past decades, starting with hierarchy organizational structure, through the system approach to end with the common post modern models that were introduced in the past few years.

A basic perception for most organization was, for many years, the hierarchy model. Hierarchical linear models are used to encompass analyses of designs with people nested within organizations (Davison et al., 2002). These models recognize partial interdependence of individuals within the same group (Lee, 2003). It seems that the problem raised with the concept of hierarchy

in general, is partly rooted in a gap between the nominal and operational definitions of the term. The main problems with the hierarchical organization are that parts of the nominal definitions do not obligate linear order or unity of command. Moreover, centralized decision making systems have well known difficulties with respect to mobilizing and efficiency (Foss, 2003).

Thayer (1973) suggests under the title of "an end to hierarchy" that organizations can have limited or non-existent hierarchies. Engdahl (2005) claims that this old approach, based on centuries-old command and control concept has died, but has not been given a proper burial yet. Finally, hierarchical organizations do not disappear, but some major changes may be included.

New models are led by the Systems Approach (SA) concept - a framework for most middle-range theories that deal with organizations (Drucker, 1993; Stacey, 1992, 1999; Stacey et al., 2000; Pinder and Moore, 1980). In this approach, the self-control concept is functional prerequisite for success in terms of the design, development and control of organizations (Wunderer, 2001). Main criticisms of this paradigm claim concentrating on low levels of the organization. Although SA looks at the whole and its parts simultaneously, insufficient tools were provided on the methodological level. Rousseau (1985) and Schneider (1985) emphasize the need not to neglect the level at which data is collected, its analysis and conclusions: one should not conclude about the whole organization from data collected at only one level. In this way, the literature seems to point to the need for a more holistic approach.

The identified weaknesses of the SA, together with the changes occurring in organizations, necessitated a second generation of SA (Bahlmann, 1990). Thus, other tools for mapping organizations were developed, among which the meso-analysis between micro and macro levels (House and Rousseau, 1992; Lennon, 1989). "Meso" level was defined as the crossing of an organizational level dimension, financial performance, with an individual level dimension, leader behavior (Scully, et al., 1996). House (1991) defines "meso" research as the simultaneous study of at least two levels of analysis wherein a) one or more levels concern individual or group behavior processes or variables, b) one or more levels concern organizational processes or variables, and c) the process by which the levels of analysis are related is articulated in the form of bridging or linking, propositions and tested or inferred". The "meso" approach was implemented by Schneider (1987), Courtright, et al. (1989), Yukl (1989), and others.

In Recent years, new kinds of non-linear relations between components were developed (Austin, 1990; Passmore, 1987; Wright, 1985). Kolind (1990) introduced the Spaghetti approach, which claims that the company should be defined broadly as a first class service firm with products developed and fitted individually for customers. Best (1990) suggests critical linear chains, noting the value of good buyer / vendor relations. Research into 'clusters' (e.g. Bianchi, 1993) and 'networks' (Clegg, et al., 1996; Nohria and Eccles, 1993) emphasize the benefits of local, temporary co-operative 'units' existing for each member organization's mutual benefit. Saltmarshe et al. (2003) introduce the performance framework, based on SA concepts. Rhee (2000) uses the SA to the study of politics as a complex system. The "Autopoietic Approach" is an example of second generation SA. According to this

approach, hierarchy within the organization should be replaced by ever-changing relationships between the components of the organization (Buhl, 1987; Esposito, 1984). Agranoff and McGuire (2001) suggest four implementations for existing models, including top-down, donor-recipient, jurisdiction-based and network models.

In recent years, the postmodern organization was introduced and began replacing bureaucratic control with market control (Jones, 2000). Many believe that postmodern organizations exist and have unique characteristics (Bergquist, 1993; Cole, 1997; Boje and Dennehy, 1993; Boje, 1995, 1998, 1999 and others). Post modern organizations are different from modern ones in aspects of planning, organizing, influencing, leading and controlling (Boje and Prieto, 2000). Critical postmodern theory is about the "play of differences of micropolitical movements and impulses of ecology, feminism, multiculturalism, and spirituality without any unifying demand for theoretical integration or methodological consistency" (Boje, 2001; Boje, Fitzgibbons, and Steingard, 1996). Clegg and Courpasson (2004) found that project organization has distinct modalities of control such as reputational, calculative, and professional, which fit the postmodern organization. Jones, (2000) suggests the implementation of postmodern in R&D organizations.

The postmodern organization may be defined as that comprising a networked set of diverse, self-managed, self-controlled teams with many centers of coordination that fold and unfold according to the requirements of the tasks. Likewise, these teams are organized in flat design, employees are highly empowered and involved in the job, information is fluid and continuous improvement is emphasized throughout (Boje and Prieto, 2000; Boje and Dennehy, 2000). The postmodern organization's characteristics include long-term profit goals, flexible production, the worker as an investment, work teams, multi-skilled workers, labor-management cooperation, many-voices and diversity as a decentralized asset and self control. Stephens (2001) expanded the term of trust and Hirschhorn (1997) the terms of leading and following in the postmodern organization.

The "Triple-M" model, presented in this paper, emphasizes the hierarchy existing between the three distinguishable levels in the organization: the Macro, the Midro and the Micro. This model is part of the postmodern organization approach used for organizational design. Organizations design is frequently used in literature for improving organizational structure and management (i.e. MacBryde and Mendibil, 2003; Benders and Verlaar, 2003; Green, 2002; Gittell, 2002 and others). The model suggests, within the framework of SA, an improved mapping tool for organizations. The following section introduces the methodology used for developing the new approach.

3. THE TRIPLE - M MODEL

The development of the "Triple-M" model is based firmly on empirical research, gathered during the simultaneous undertaking of two procedures:

a) Three case studies in three different CO undertaken in Israel.

b) Conceptual development of new terms and theoretical rules - the "Triple-M" model.

In each case study, a mapping of the organization was made using the "Triple-M" model, and long-term observations (ranging

from 18 to 24 months) were performed. The organizations were a schooling network, an industrial concern and the Israel Defense Forces (IDF). In the first two organizations, the focus of the case study was on the place of the midro in the organizational structure (a school in the network, a plant in the concern). In the IDF, the focus was on the place of the midro (a force) in an organizational procedure - the changing of incentives for non-commissioned officers. Thus, the methodology is a result of a synthesis between inductive and deductive reasoning. Therefore, the "Triple-M" model includes a concept of rules about CO and the midro level within them, from the single case to the general rule (see Kvale, 1996). It also uses the refinement of the rules derived from the cases, into the "Triple-M" model.

This article presents the model. The next section introduces terminology of the model, followed by the graphical description of the suggested model.

3.1. Terminology

The following section defines terms used in constructing the "Triple-M" model:

3.1.1. Hierarchy - The model emphasizes hierarchy between three distinguishable levels (spanning zones - (see 3.1.2). as well as the following aspects of the complexity of hierarchy in CO:

- Non-linear hierarchy - replacement of the linear hierarchy, typical for bureaucratic organizations, by spanning zones - a process which enables viewing organizations both horizontally and vertically, at the same time.

- Eliminating the unity of command - the existence of multiple chains of command (e.g., in matrix organization). A number of organizational echelons and structures may exist simultaneously, both within and between spanning zones.

- Flexibility in component movement - spanning zones enable components within the organization to move freely, especially within the spanning zone. This allows the organization to be more flexible and compatible with its environment.

- Flattening of the organization - relating to only three definite levels enables us to flatten the organization, in terms of the analysis. For example, in the analysis of an industrial concern, the plant level is a definite organizational level (midro- see 3.1.3), but under it, there is only one definite level, which is the micro, e.g. departments.

Focusing on these aspects of hierarchy raises the need for new terms describing the complexity of hierarchy in CO:

3.1.2. "Spanning Zones" - Zones that include all components belonging to the same specific level (macro, midro, or micro). The span of each zone (the comprising components) changes from one organization to the other, and even within the same organization regarding different analyzing needs or points in time. Each spanning zone has its own typical behavior. Definition of the continuity between the three zones allows us to diagnose and develop organizations from the bottom up and vice versa. The spanning zones are in constant conflict between particular actions and needs and the necessity to maintain the organization as a whole. The level of legitimacy of conflict shows the level of differentiation in the organization. The model applies to two axes of examination; in one, each of the spanning zones is explored autonomously; in the other, the interaction between the spanning zones on the organizational level is examined.

3.1.3. "Midro" - A new term especially developed for the purpose at hand to express, in both an autonomous and integrative way, the middle level of structures, procedures and human beings in CO. The midro spanning zone is created to help the macro to manage the organization, especially to enable (1) the decentralization of managerial processes from the macro and (2) direct and immediate involvement of the midro in the different environments surrounding the organization. The organization may emphasize the role of the midro as the top executioner in the organization, where in this case the midro acts as a senior micro. The organization may also emphasize the role of the midro as a body that locally exercises the organization's overall strategy. In the latter case, the organization may diversify its niches without overloading the macro.

3.1.4. "Overlapping Zones" - Zones that include components simultaneously belonging to more than one spanning zone. There are four overlapping zones: macro-midro, macro-micro, midro-micro, and a fourth zone, the "Organization's Heart", which comprises components belonging to all three spanning zones. The latter emphasizes components comprised mostly of employees and managers from different spanning zones, working together as one team to achieve a common goal, for example Quality Circles or TQM.

Overlapping Zones and the Organizational Environment - Overlapping zones exist between the organization and its environment. In these zones, there exists a mutual overlapping between the organization and the environment, enabling a better fit.

Functionality of Overlapping Zones - Overlapping zones include mechanisms of melting communication (see below), integration and coordination. They facilitate the flow of information and procedures between the three levels and vertical and horizontal movement of employees, without changing their organizational status. This procedure allows organizational flexibility.

Dysfunctionality of Overlapping Zones - Overlapping zones are expensive in terms of time and communication efforts. Overexpansion of overlapping zones causes ambiguity in the organizational structure.

3.2. A Graphical Mapping Tool for the Analysis of CO

We now turn our attention to the emerging model, which attempts to describe in a theoretical (yet visual way), the relationship between the three discernible parts of the hierarchies of CO.

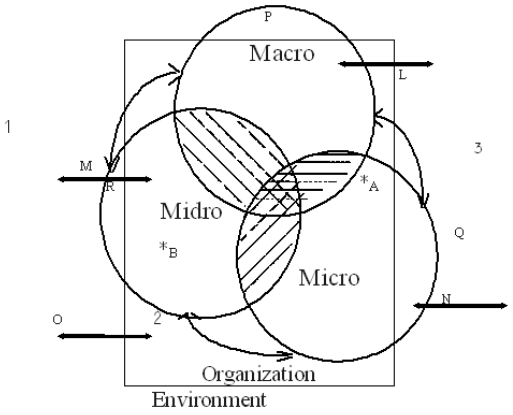


Figure 1 - The "Triple-M" Model for Analyzing CO

In Figure 1, the square figure represents the organization as a whole. The three circles represent the three spanning zones: macro, midro and micro. The overlapping zones are shown as striped areas that occur when the circles overlap. Each spanning zone also contains an area that exceeds the organization's borders (P', Q', R') and shows

its direct involvement with the environment. The organization (the square figure) stands for more than the sum of its components, and comprises inputs, throughputs and outputs (over and above those that relate to each of the three levels) marked by the arrow "0". The organization operates in an environment containing other organizations. No hierarchical relationship exists between organizations like the relationship existing between components within the organization. Instead, there is a mutual dependency that is based on the equilibrium between organizations.

With the tightening of relations, overlapping zones may be created between them as shown in the model. The autonomous activity of the spanning zones, representing horizontal differentiation within the organization, appears in direct contact with the environment, both in matters of input and output (as shown by the arrows marked "L", "M", "N"). The autonomous activity also appears in independent activity, represented by the area in which there is no overlapping of organizational levels.

The inter-level relationship and integration are apparent both between independent levels (curved arrows 1, 2, 3) and in shared activities in the overlapping zones. The overlapping zones reflect a boundary, as in the borderline of the circle, and at the same time, possible interaction as in the striped areas. On the one hand, the model stresses the linear aspect of the hierarchy, where the Macro circle is higher than the Midro circle, and both are higher than the Micro circle. On the other hand, it also stresses the non-linear aspect, where a Micro-level component (e.g., point A) may be higher than a Midro-level component (e.g., point B).

3.3. Typical Behavior of each Spanning Zone

The following section introduces a short summary of the typical behavior of each of the three levels (macro, midro, micro) based on the data collected in the three case studies. This material helps to bring together the three aspects of hierarchy: structure, procedure and human resources.

Typical Macro Behavior

The macro's task is to define the organization's strategy and calibrate the organizational systems toward its attainment. This calibration consists of setting the levels of centralization and decentralization, differentiation and integration, authority, responsibility and autonomy that are at once permitted and demanded from the midro's actions. The macro cannot decentralize all the roles of integration or all organizational responsibility. Decentralizing all the roles of integration will disturb the organization's harmonious operation and may lead to strategic failure, in spite of and concurrently with tactical successes on the midro level. This stems from the fact that delegation of all the roles of integration prevents the organization from coping with the inter-relation between small problems, and rather causes it to break big problems up into small ones, which can then be solved by various units within the organization. Unfortunately, this can lead to a failure to 'see the big picture'.

Organizations tend to apply procedures of control, consultation and change more on the midro and micro levels and less on the macro. This lowers the macro's (and thus the whole organization's) ability to receive feedback on the implementation of organizational strategy. Macro-level

managers extensively use mutual coordination procedures that are suited for managing low numbers of subordinates, which can arise and become 'useful' because of their convenience and familiarity rather than their strategic effectiveness.

Typical Midro Behavior

Midro behavior is mainly influenced by its place within the organization. The midro does not set its own strategy, but rather has to deduct its strategy, goals and the parameters of its activities from the macro's strategy. In addition, the midro operates as the manager of an organizational system or process, mainly, as far as concerns the micro. The midro is thus forced to act as a juggler between the macro and the micro, trying to derive as much as possible from the definitions of role, authority and responsibility not set by it, but subject to its own influence and power. The midro's role is to describe, interpret and 'color in the spaces', left loose in the policies, etc. and set by the macro.

From the coordinating processes in the organization, the midro mostly uses the standardization of inputs, throughputs and outputs. Nevertheless, in our field research, examples of mutual coordination were found as well, especially vis-à-vis the macro or among midro managers.

The levels of decentralization, differentiation and autonomy held by the midro are set by the macro. Yet, both independence and differentiation were found typically among midro managers of the same organization as to their ability to be proactive and independent, despite having clear parameters set for them. It is the midro's task to carry out the differentiation within the organization. As could be expected, in all of the three organizations involved in this research, the midro units differ from each other according to their fields of specialization and geographical regions. This differentiation necessitates independent action toward the environment.

The level of differentiation between midro units central to macro strategy often finds its expression in informal human utterances that are insufficiently backed up by formal and structural statements. For instance, the variance between schools of the net originated to a great extent from the headmasters' personalities and qualifications rather than from a strategy of differentiation. This point in particular demonstrates that hierarchy and order extends beyond structures, procedures and lines of authority and responsibility, to the human dimension in organizations.

The differentiation between each of the midro units, or between midro and macro units, also serves as a source of power for the midro, and lends legitimacy to conflicts. A midro manager's success is measured according to his unit's attainments. He can reach these attainments vis-à-vis the environment, other midro units, and the macro, including the use of macro resources for the benefit of his midro unit. Such behavior of a midro manager is often based on tactical rather than strategic considerations. Indeed, of all the organizational levels, the midro is in charge of the tactical view, whereas the macro is in charge of the strategic view. The midro's proficiency on the tactical level provides it with an advantage over the macro in the sense that it acquires a level of expertise and up-to-date knowledge not possessed by the macro. Another source of power is derived when the midro acquires a specific niche in the organization's environment.

The midro's attitudes regarding the levels

of authority and responsibility it possesses are dualistic. On the one hand, it (the midro) strives to enlarge its fields of authority in order to gain power. On the other hand, it suits the midro that responsibility rests with the macro and not within. This creates a dangerous situation for the organization. Covert cooperation between macro and midro is necessary so as not to decentralize authority, while from the organization's point of view it would be profitable to delegate the authority to the midro. This kind of situation may also be analyzed through the difference between the structural and procedural aspects of hierarchy that demand decentralization and differentiation, and the human aspect of hierarchy - the fears of both macro and midro managers from decentralization and differentiation.

The macro's patterns of invasion into everyday management may lead to the truncation of part of the midro's authority, sometimes leaving the midro saddled with the responsibility. This additional problem in midro operation springs from non-compatibility (in degree or nature) between responsibility demanded and authority granted.

When the macro makes the transition from micro to midro, management of entire sectors of micro operations shifts to the midro. This was done, for example, by delegation of authority and incentives for non-commissioned officers in the IDF and by the building of profit centers in the industrial concern. This kind of transition must be accompanied by a thorough preparation of the managers of midro units, including extensive training and mentoring, as well as structural and processes changes within the organization. Such preparations were not carried out in any of the organizations of our field study, and maybe this explains part of the unsuccessful transmission of the proposed changes. As transpires from our field study, the operational shortcomings of the midro appear mostly in relation to the macro and less to the micro or other units of the midro. In this way, day-to-day operations continue, but potentially strategic coordination is lost. Thus, the problem in transition is not so much a problem in maintaining the 'unity of command' as a problem in maintaining the 'unity of direction'. Clearly, organizations could do more to overcome the problems and conflicts existing between the macro and the midro. If we move away from purely considering the position of the macro (with regards to moving towards midro and micro management), to viewing the transition from the perspective of the organization as a whole, we can see that many of the same difficulties are experienced. A sizeable part of the organization's control procedures are carried out on the midro level. These procedures focus on the control of processes, mainly of production, which are relatively well-documented. The methods of control at this level are mostly taken from the field of Industrial and Manufacturing Engineering.

Our field study was punctuated with terminology from this level of control, but because of the lack of coordinating techniques and procedures for control at the strategic level (macro) we were left with incomplete control of integration processes between midro-level units or of their suitability to organizational strategy. This tendency of organizations to exercise control mainly on the median and lower levels seems to agree with the tendency to avoid sanctions and to refrain from change and improvement (such as training and counseling) on the macro level (and sometimes even on the midro level).

Typical Micro Behavior

Essentially, the micro forms the executioner level of the organization: the production floor of the plant in the industrial concern, the direct management of teachers and teaching itself in the network, the worker's motivation by a direct commander as part of the incentives process in the IDF.

The location of the micro defines its power. A firm cannot exist without the management of its production floor; neither can a schooling network do without teachers, etc. The micro's direct connection with the business environment is relatively weaker than that of the midro and the macro. Behavior patterns and relationships between the macro and the midro have a definite influence on the behavior of the micro, so in an organization whose midro has no authority, delegation of authority to the micro-level cannot be expected.

The completion of organizational mapping by use of the "Triple-M" model's diagnostic tools, points out problems in the existing state of the organization. To simplify that process, a mapping sentence for organizations was constructed consisting of eight facets. This mapping sentence makes it possible to test the completion of the diagnostic process and the location of incompatibility between and within facets.

A mapping sentence for CO is presented in Figure 2.

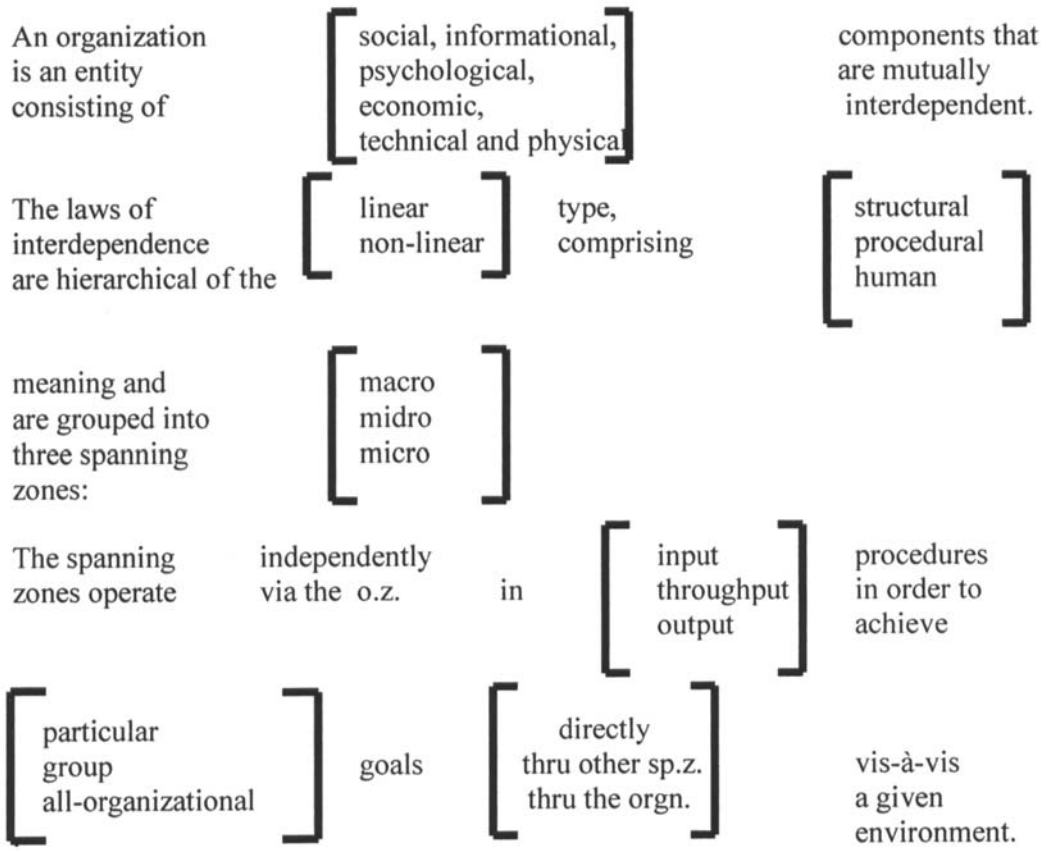


Figure 2: Mapping Sentence for Complex Organizations

4. THE MODEL'S IMPLEMENTATION - A CASE STUDY

This section introduces the implementation of a model of an organization. This case study includes a short background, mapping and charts.

4.1. Background

"Amal" is a network of junior and senior high schools and vocational training centers, belonging to the "Histadrut", Israel's largest labor union association, and linked with the labor party. During the period of the intervention, the network was led by a leader with a strong vision. The network was undergoing a fast growth and development and consequently a large budget deficit.

The deterioration of the financial situation brought about a financial control by the labor union and a decline in the network financial independence. In that period, the labor party was in the opposition, and this aggravated further the financial situation of the network and had declined its power vis-a-vis the environment. This led to managerial difficulties caused by lack of authority in all the organizational levels.

4.2. The chairman's vision of change

On top of the above mentioned characteristics, the network suffered from a flawed image in the public, and was not attractive to strong populations. The chairman decided on a project dedicated to the increase in entrepreneurial culture within the network. In addition, the first author was asked to run an organizational diagnosis and to make suggestions to improve the situation. The author carried out an extensive organizational mapping, using the framework of the Triple-M-Model and different methodological tools for each organizational level: Macro- individual interviews with all Macro members and present observations in different meetings; Midro- interviews and questionnaires; Micro- questionnaires.

4.3 Mapping the network using the Triple- M-Model

a) Hierarchical mapping

The organization, including all its institutions, was built of components in the three levels:

The Macro Level included the chairman, CEO, and seven heads of divisions, who were relatively involved in all managerial aspects and especially in human resources, finances and inspection.

The Midro Level included the different schools and institutions. The main quality of the Midro was the vast diversity between the schools which was linked to four aspects: (1) the ownership - some of the schools belonged to the network, others represented joint ventures mostly with local authorities. (2) Different structure - size and the services they supply. (3) Human - diversity in school headmasters was linked to different backgrounds (teachers/managers) and personal qualities emphasized by the lack of adequate job descriptions, selection and training systems for the positions and (4) The extensive growth led to difficulties of the Macro to implement integration into the organization.

The Micro Level included teachers holding managerial positions. The influence of teachers holding managerial positions was expressed only in their school level - there was hardly any influence of the micro on the Macro-or organizational level. This led to the

Macro being dependent on the Midro as a link to the micro.

b) Overlapping between spanning zones:

Macro - Midro: This presents the largest overlapping zone. It was expressed by Midro members participating in most of the decision making forums and projects in the organization, and moreover, had a great influence on decision making. Nevertheless, not all Midro members were active vis-à-vis the Macro and the whole organization.

Midro-Micro: In most schools, management at the school level was carried out by a team made up of Midro and Micro members, which emphasized the overlapping zone between the two levels. Again there was a strong diversity in the size and qualities of the overlapping.

Macro-Micro: This overlapping zone hardly exists in the organization. The Macro blamed the teachers for lack of involvement but was doing very little to motivate them.

Organizational heart: The size of the organizational heart depends on the size of the overlapping zones it derived from. Since the Micro-Macro zone was small, the organizational heart was small as well. The geographical aspect played a role as well - some of the schools were far from the network center.

Existing expressions for the organizational heart was observed in the inspection work. The inspectors saw their work as a supporting body, for the Midro and the Micro, in various managerial, pedagogical, and technical issues.

c) How the three levels conceived each other:

The Macro sees himself as a pedagogue, manager, and technological leader for the schools. A headquarters which supports the schools, raises funds, manages human resources, and supervises the schools. The chairman claimed "we need a headquarters which is strong in the head but not in the muscle". The Midro saw the Macro mainly as supervisor of funds, claiming the schools could manage on their own with other aspects.

This discrepancy in the perceived role of the Macro caused discrepancy in the expectations and the success factors of the Macro. The Macro valued its success in growth, in the quality of the services provided and in balancing the budget. The Midro measured the Macro by the availability of funds. The Midro saw the Macro as too cumbersome and too centralized.

The Midro - Both the Macro and the Midro members see the Midro job as responsible for everyday management of the school and interactions with the community. The Macro emphasized the Midro as the executor of the organizational policy while the Midro emphasized more its relationship and obligations to other organizations in the community. Factors of Midro success were perceived in the same way by Macro and Midro: students' achievements, student integration in the community, social life and school climate. The Midro added status and relationships with other organizations and the community.

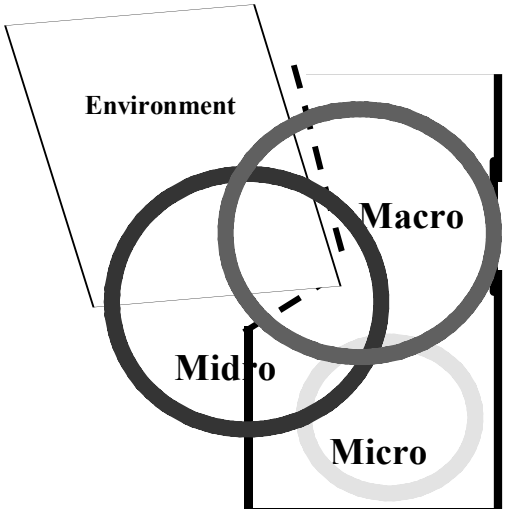
Pitfalls of the Midro: the Macro sees the Midro not involved enough in all organizational activities and blames Midro members in political activities resulting in the weakening the Macro. The Midro saw his weakness in lack of resources and the authority to use them and felt overloaded with everyday managerial issues which left too little time for projects and changes. Midro managers see themselves as having

much less authority, than they are perceived by the Macro, and especially the Micro.

Micro - The macro and the midro saw the micro as a partner for managing learning processes, and strengthening humanitarian, national, and labor movement values. The micro sees his job mainly in teaching and educating. Part of the teachers refused to be involved in strengthening labor movement values.

His Pitfalls according to the Macro and Midro are lack of initiative, and involvement. The organization was trying to deal with it in the entrepreneurial project.

The graphical mapping of the network is described in Figure 3.



- ☒ Invasion of the environment (as shown in the missing part of the org' space.
- ☒ Strong Midro and Macro
- ☒ Very small Organizational heart – strong overlapping Midro-Macro.
- ☒ Weak, uninvolved Micro

Figure 3 - Graphical mapping of Amal Schools Network using the "Triple-M" Model

This mapping presented in Figure 3 explains the need for changing processes to include all organizational levels - this point will be addressed later and together when we will deal with the entrepreneurial project.

d) Gap between authority and responsibility

Most of the authority (especially in budgeting and human resources management) is concentrated in the hands of the Macro, and even the environment (e.g. - the financial control of the union). There is a strong diversity in the level of authority that is different than Midro managers succeed to mobilize. Stronger headmasters managed to improve their school outcomes by mobilizing resources from the environment or by creating a deficit which the Macro had to cover. These activities were carried, in many cases, against regulations (with no authority). In many cases, sanctions were taken too late or no sanctions were taken because of the relative strength of the Midro and the lack of overall evaluation and control mechanisms. This situation is described in figure 4.

A more detailed mapping shows that:

1. The variation in the gap according to different managerial issues (e.g. the Midro is responsible and have authority to the interrelationship with local authorities. The Micro has a high level of both authority and responsibility in pedagogical issues etc.).
2. The differences in levels of authority and responsibility to different organizational levels e.g. the entire network, the school, units within the school.

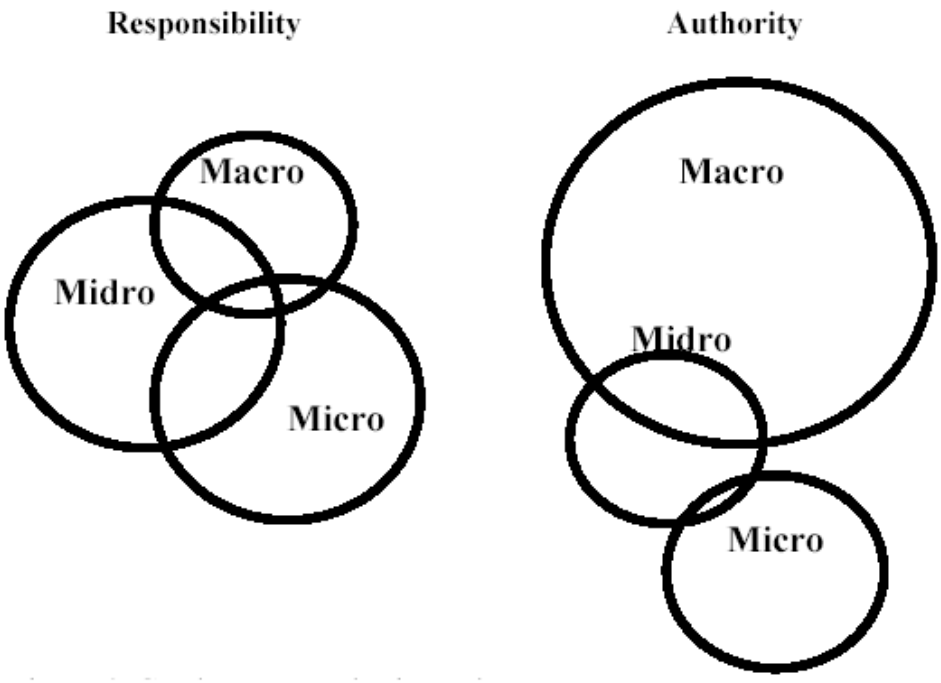


Figure 4. Gap between authority and responsibility

e) Design and process issues

Table 1 maps different designs and process issues in regard to the three different levels.

Table 1: Mapping design and process issues using the "Triple-M" Model - the Amal case study

Issue	Macro	Midro	Micro
Structure/ Borders: 1. Perception of the whole organization	Perceived the entire network as their whole organization	Perceived mostly the schools as their whole organization	Perceived only the schools as their whole organization
2. Perception of the environment	The union, ministries of labor and education, other educational networks	The network, the local community, supervisors.	The macro, supervisors, the local community

3. Perception of the client	The union, schools and the large society.	The local community, the students, the teachers	The students
4. Cross level borders	Macro jobs were characterized by different specializations and came for different backgrounds.	The head of the midro is a combination of "the best micro" and a manager. All the school headmasters were in fact teaching a few hours a week.	
5. Cross-level promotion	There was hardly any promotion from midro to macro.	Most of the midro managers were promoted from micro level position.	
6. Accountability for a whole unit	Chairman and CEO were accountable for the entire network. Other macro managers felt responsible for their function only.	Accountability to the most obvious organizational unit- the school	Responsible for a subunit or function within the school
Main organizational pattern	Machine bureaucracy	Professional bureaucracy	Professional bureaucracy/ Simple Organization
Centralization - decentralization	In most aspects the macro managed to balance centralization and decentralization: unified policy making and strategic decision making were centralized; every day's management was decentralized to the midro. In two aspects (human-resources and budgeting) the macro invaded the Midro's role.		

Integration – differentiation	The differences between the schools as midro units, and their managers, created an extended differentiation and influence in the outcomes of the schools and the entire organization. The network did not manage this differentiation and in fact let the headmasters drag it to managerial and financial difficulties. The midro claimed that the macro were unable to support local initiations and preferred unified managerial patterns. The human (non formal) expression of the hierarchy caused differentiation, while the structural and procedural expression of hierarchy tended to integration.		
Mechanism of Coordination 1. Direct control			By the Macro and midro- micro, especially in pedagogical aspects.
2. Input - standardization		Standard of: human resources, budget and teaching utilities. Some of the standards were national and created by the macro.	
3. Throughput - standardization		In most aspects of the Midro everyday - operation	
4. Output - standardization	Mostly external standards, such as percentage of graduates, marks, diplomas.		
5. Mutual adjustment	Existed mostly in overlapping zones and between the organization and other organizations in the environment		

Control	Was subjected to two control systems: the union internal audit and the ministries of education and labor supervisors.	Was subjected to two control systems: the macro and the ministries of education and labor supervisors. Headmasters were against the double mechanisms and especially the macro's supervisors.	Was subjected to two control systems: the union internal audit and the ministries of education and labor supervisors.
Power	Control over resources especially budget and human.	Direct connections to the environment, especially heads of local authorities. Independent funds rising. Control over the knowledge at the school level.	Relatively weak. Its main power is vis-à-vis the client - the students.
Conflicts	With the environment-mostly because of the environment's invasion to resource allocations.	The macro blamed the midro for not being involved enough. The midro blamed the macro for not being able to fulfill the school needs	With Midro especially over teaching hours and other human-resources issues.

4.4. The Entrepreneurial Project

The chairman decided to change the organizational climate by strengthening the entrepreneurial spirit in the network. A steering committee was created with members from Macro levels, a public foundation that donated money to the subject, and organizational consultants. The committee advertised the project through the network looking for entrepreneurs and projects. The main issue was to concentrate on projects at the field level, meaning the schools. Three entrepreneurs were chosen in three different schools. In each school a team was developed with the participation of staff members and students.

The author used a dichotomy Macro - Micro approach, ignoring the school's headmasters (the Midro). This fact made it difficult for the headmasters to identify and cooperate with the change and caused fears from the process. Because of the relative power of the Midro - the project did not succeed. On the Macro level, no project was carried on even though this was the original

purpose. This seems to be an example of a common phenomenon: paying lip service to the different levels while working only with one. Since a diagnosis survey has been carried out, it was relatively easy to save the project. According to the triple - M - Model two elements had to be changed: Involving all the three relevant levels, and increasing the overlapping zones.

This was done by involving the schools headmasters in the steering committee and by sending all members (from all three levels) together to a course and workshops. The results were more projects on the Macro level, three successful projects (two of them won prices and helped in changing the organizational image) and many more applications for projects from other schools.

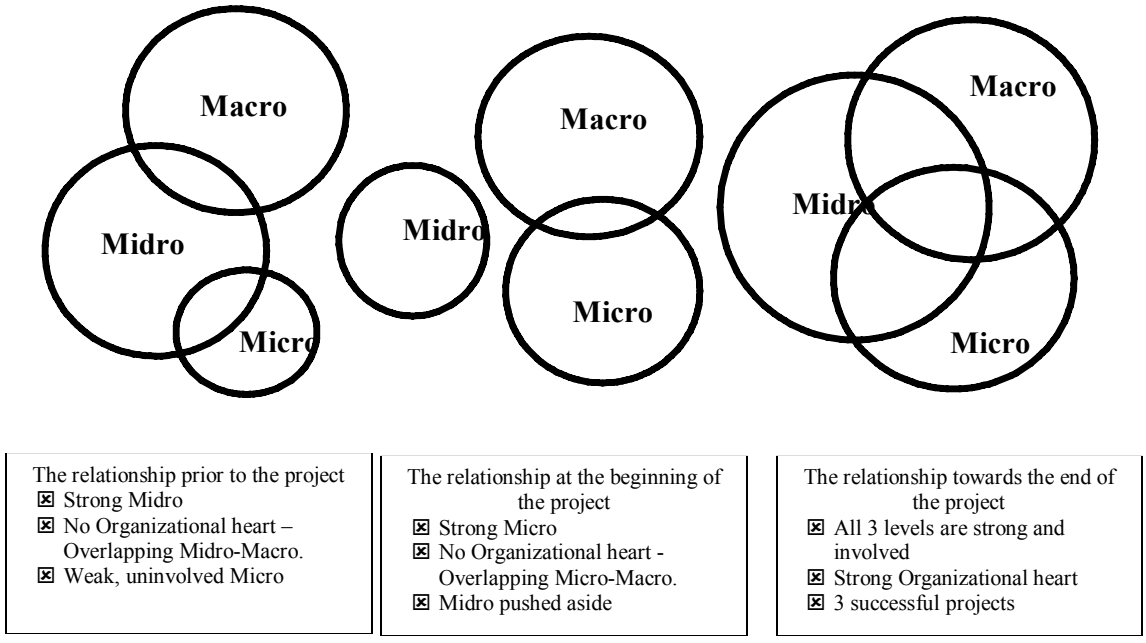


Figure 5. The entrepreneurial project fazes mapped by The "Triple-M" Model

The use of the Triple M - Model helped the network in a few aspects:

1. The realization of the importance of the spanning and overlapping zones helped the macro to create a better equilibrium between the different levels especially by expanding the organizational heart, and by improving the management of whole Midro units.
2. The new equilibrium helped the network in other changes and processes, such as delegating budgeting authorities to the Midro.
3. A more pro-active attitude towards the level of diversity needed to keep the freedom of the midro on the one hand (more authority), and the overall integration on the other (change in regulation and control mechanisms).

5. THE MODEL'S CONTRIBUTION

The previous section introduced the model and its implementation in an

organization. The model provides a better and more comprehensive understanding of CO. The model grants conceptual and graphical expression to three main points:

1. Hierarchy - The model suggests a dynamic conceptualization of hierarchy, which is not necessarily linear. The meaning is that there is no single chain of command in CO.

2. Spanning zones - The model offers the conception of spanning zones and the different kinds of interactions between them. This enables us to make changes, not so much in the components themselves as in the interactions between them. Investigating a CO while ignoring any one of the three spanning zones will give incomplete results. Two dialectics exist within CO: (1) a dialectic between autonomous and all-organizational activity of the spanning zones and (2) a dialectic between contradictory activities within the organization, such as integration (carried out mostly by the macro and the overlapping zones) and differentiation (carried out mostly by the midro).

3. Midro - The accentuation on the midro level and its role, facilitate the organization's transition from the management of single components to "midro management". The management of a concern will, for instance, focus on the management of entire divisions or plants. The bulk of everyday management, including contacts with the environment, will be executed by the midro on the plant level and not by the concern. Adopting midro management will considerably facilitate the sale or acquisition of midro components or the shifting of their attachment from one organization to another.

5.1. Contribution to the Systems Approach

The above-described conceptual framework evolves from the Systems Approach and relates to it as a Meta-Theory. The novelty proposed by this study is aimed at providing a model adjusted to post-modern realities of complex organizations, by supplying new hierarchical concepts and terminology:

- The mapping of each level's typical behavior (non-existent in SA), can lead to a better understanding and a more accurate management of complex organizations.

- The SA emphasizes the existing flow: input-throughput-output and the preference for equilibrium. The "Triple-M" model stresses the interrelationships between components, and the importance and legitimizing of conflicts between components on the same level, and even more so regarding those on different levels, as well as the cost of loss of equilibrium.

- The model highlights the existence of a double dialectic in complex organizations between all organizational activity of the spanning zones and contradictory activities within the organization, such as integration (carried out mostly by the macro and the overlapping zones) and differentiation (carried out by the midro). This double dialectic contributes to the organization's dynamics, and enables us to make changes, not so much in the components themselves as in the relations between them.

- The flow described in SA is "flat": input-throughput-output and back to input. The proposed approach emphasizes the non-linear hierarchical movement in the organization alongside the "flat" movement.

- The SA stresses the importance of the environment, whereas this paper emphasizes the dynamic processes within the organization on the one hand, and the direct connection between the different spanning zones and the environment on the other. In addition, the proposed model is voluntary in its representation of the organization when considering the voluntary-deterministic continuum. We remind the reader that the voluntary approach presupposes the presence of choice and influence by the system on its environment, whereas the deterministic approach presupposes the imposition of the environment on the system.

Approach to Organizational Theory talks about "interwind" components. The approach of the "Triple-M" model before us deals with the overlapping of spanning zones as well as with the interdependency and interwind known to exist between components. In the process of overlapping, each level surrenders part of its independence in return for cooperative action, as exemplified in the overlapping zones. The graphical illustration of these differences is shown below in Figure 6.

The model provides a clearer and more comprehensive understanding of CO. In particular, it offers a dynamic

Figure 6: Interaction between Components

The SA concentrates more on processes and less on structures. The graphical presentations proposed by SA for organizational structure, like the block-chart or the pyramid of levels (for example, the division of the organization into strategic, managerial and operational levels) is based on a bureaucratic approach to organizations (Modell, 1988). The model proposed here accounts for structure, procedures and their interrelation, and suggests a new graphical technique to define the organization.

Interaction between Components - the first generation of SA deals with the interdependency between components - each component is independent but there is a linear relationship of cause-and-effect between components. The Autopoietic

conceptualization of hierarchy and the importance of the median-midro range for the purpose of mapping, description, understanding and management of structures and procedures in the organization. When translated into action, this understanding contributes to the organization's capacity to survive. The model allows for a dualistic state to exist between structures and procedures within the organization. This carries importance both on the theoretical level and in the field: on the theoretical level, the model contributes to a better understanding of CO; in the field, an operative model for the analysis and change of the organization is proposed. The main points stressed by the model are:

- The view of hierarchy as an expression

of the dynamic order and distribution of labor between components and spanning zones in the organization.

- The accentuation of the positioning, functions and characteristics of the "midro" spanning zone in the organization relative to other spanning zones.
- Granting expression for, and allowing for synthesis between, contradictory forces and processes in the organization.
- Giving graphical representation to the nature of interaction between the organization's components.
- Permitting graphical expression for informal procedures in the organization.
- Allowing conceptual and graphical expression for the direct interaction between spanning zones and the environment.
- Identifies a mapping sentence for complex organizations.

5.2. Understanding of the Organization as a Whole

In addition to the above, some points are worthy of further expression and exploration.

Grasping the differences between the organization as a whole entity and the constellation of its components helps to understand the strategic and integrative level of the organization. It also helps understanding the division in treatment of the organizational level and of the three spanning zones that make up its components. This division also enables us to differentiate between the output and contribution of each spanning zone (especially the macro and midro) and of the organization as a whole. The definition of the threefold quality of hierarchy gives us a complete and integrative view at the organizational level and the possibility to treat the various aspects concurrently. Other models stress one or two aspects, but never all three, as in this model. This approach constitutes an improved analytical mapping tool of the organization (as recommended by Rousseau, 1985).

Dealing with whole Spanning Zones - The complexity of organizations, and especially the multitude and variety of their components, make the reference to one single component difficult, if not impossible, requiring the ordering of entire groups of components, as is done by the use of spanning zones.

Hierarchy - The proposed reference to hierarchy simplifies management of the organization by stressing, firstly, the non-linear aspects of hierarchy and secondly the relevant spanning zones that exist in the hierarchy of organizations, their relevance, and their typical behavior. These ensure order among the organization's components, while preserving flexibility and the dynamic quality of the organization. In doing so, we can keep some order that is necessary for keeping the organization functioning while decreasing the malfunctioning that is normally connected to hierarchy.

Mapping the Components of the Organization into Three Spanning Zones - The proposed hierarchical division and the new term "spanning zones", as opposed to the dichotomous approach (macro - micro), make it possible to put each of the organizational components in its exact position on the all-organizational map. In this way, the entire hierarchy in the organization and its division into levels of structures, processes or people can be seen at a glance, at the user's convenience. This mapping technique aids the work of the manager or the consultant: for instance, it enables the detection of sources of inter-level conflict stemming from incompatibility

between the structural, procedural and human dimensions of the hierarchy, and facilitates their solution. Classification of the normative behavior of each spanning zone furthers the understanding of variance and the correction of deviances in their behavior.

The Overlapping Zones - The overlapping zones, and especially the organization's heart, serve as a tool for preserving the whole organization (integration) in spite of the differentiating forces working inside it. This tool is requisite for the organization's daily existence, and even more so, during change processes. The term "melting communication" defines the type and magnitude of connections existing in the overlapping zones. The size of overlapping zones helps to classify organizations and fit them with compatible coordination systems. Organizations based on standardized outputs, inputs and processes need smaller overlapping zones relative to their size, because the work is pre-prescribed and routine. An organization, using mutual agreement or consensus as its main system of coordination, needs bigger overlapping zones, in which this integrating action can take place. Defining the overlapping zones between the organization and other organizations in its environment helps to understand the connection between both the organization and each spanning zone and the environment.

The Use of Methods and Techniques of Research and Intervention - defining the spanning zone enables us to specify the most suitable research and intervention tools for each level, which will prevent the application of conclusions from findings derived from one spanning zone on others or on the whole organization.

The Midro Level - Perhaps the main contribution of this study lies in its presentation of "the Midro" and in its emphasis that this level should serve as a permanent analyzing unit for complex organizational systems. The midro level fulfills theoretical and pragmatic needs of the analysis and management of organizations. The midro reflects a vital need of the organization; the organization's source of power lies in the accurate management of the midro level, in particular because the midro enables the organization operational flexibility vis-à-vis differing environments. Insufficient awareness of the midro level may lead to failure of the entire organization.

Transition to "Midro Management" - The very nature of the midro level and the accentuation of its boundaries within the organization, on the one hand, and its interaction with other levels and with the environment, on the other, facilitate the organization's transition from management of single components to midro management. The management of a concern will, for instance, focus on the management of entire plants, while the bulk of everyday management, including contacts with the environment (suppliers, clients), will be executed by the midro on the plant level and not the concern. Adopting midro management will considerably facilitate the sale / acquisition of midro components or the shifting of their attachment from one organization to another (acquisitions, mergers, etc.). This makes the system of midro management eminently suitable for present CO patterns such as multi-nationals, profit centers (separate business units) and holding companies.

Transition to midro management forces the macro to decentralize procedures and delegate authority to the midro, including organizational change processes. The objective of decentralization is to free the

macro to concentrate on its main role: strategy and the organization's viability - while at the same time calibration of the midro units is carried out without disturbing everyday management mainly through the overlapping zones. This leads to a better fit between the line and the staff.

Management by midro units helps create differentiation among midro units, in culture, management patterns, phenomena and procedures. Consider, for instance, the management of R&D units in a matrix structure and in a decentralizing and cooperative style, opposite centralized management of production units. The organization can simultaneously be in various stages of growth (flexibility of space and time) and thus regulate the advantages and shortcomings of the different growth stages.

Organizations have a tendency, on the individual / micro level, to create uniform and homogeneous methods of operating and interacting. In midro management, in contrast, integration on the midro level does not necessarily require integration also on the micro level. This means that the organization can decentralize and leave it to the midro to decide about the extent of variance between the micro and individual units. The organization can thus combine the advantages of a small organization (with few components) especially simplicity in management; with the advantages of a big organization - especially control over the environment. Management of midro systems will consequently affect solutions to problems caused by a break in direct communication between the macro and the micro.

Managing midro units may cause difficulties to the macro with altering processes, work patterns and organizational culture. Actions toward change may, therefore, be more likely to change in a number of midro units, or the entire change may take place in the midro and not reach the macro level. The midro, which was created to assist the macro in managing the micro, may develop blockages by amassing too much power and information, or by exaggerated sympathy for either the macro or the micro especially when conflicts occur. The spanning zones, and especially the organization's heart, may assist the organization to avoid or overcome these pitfalls, by placing, at these times, the interests of the whole organization, at the forefront.

6. CONCLUSIONS

This paper presented a model and case studies in which it was implemented. One case study presented a school network that implemented this model and the results that followed the changes. Two other case studies, described more briefly, present the use of the model in an organization as well. These case studies enable other organizations to understand and actually implement the model in their organization. The proposed model offers organizational researchers, consultants and managers an improved way to map, describe, understand and manage organizations.

This mapping system will enable them to attain the desired structure, build organizations that are more flexible, connect procedures and structures to people, relate to the environment with a pro-active approach, and most importantly: supply prompt answers to the different environments in which the three levels of the organization, and especially the midro units, operate. Thus,

the model expresses a more flexible train of thought concerning the dialectics between: autonomous action (the macro - the midro - the micro) and integrative action, while relating both to structure and processes (from the organization inward) and to the environment (from the organization outward).

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