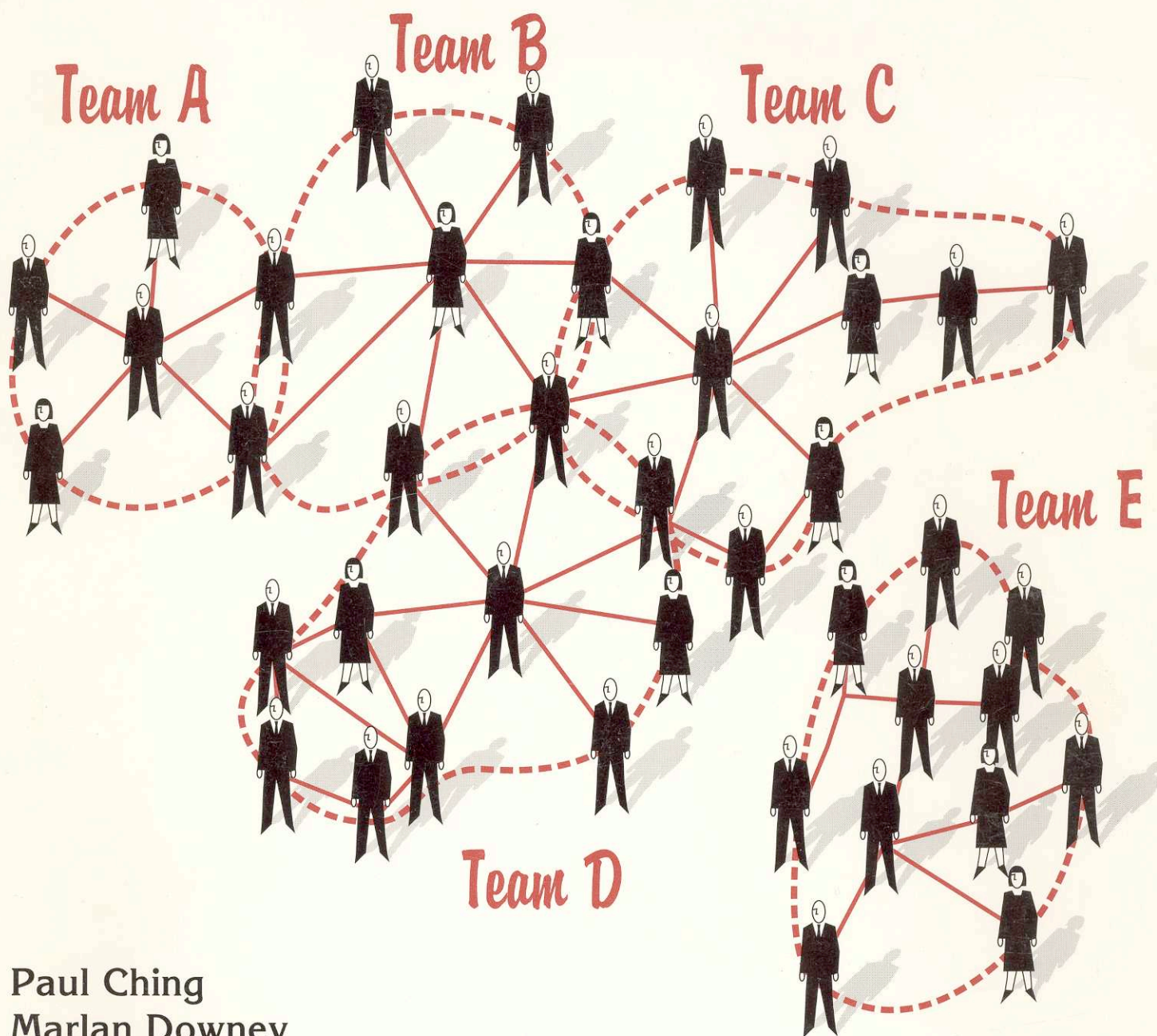


Creating, Managing, and Evaluating Multidisciplinary Teams



Paul Ching
Marlan Downey
John Greene
John Masters
Robert M. Sneider
Moderator: C. N. Tinker

CREATING, MANAGING AND EVALUATING MULTIDISCIPLINARY TEAMS

INTRODUCTION

During the past few years, the oil and gas industry has been experiencing major changes worldwide, including a significant "downsizing" or "right-sizing" of professional staffs. Greater emphasis is being placed on carrying on exploration and production with smaller, more efficient work teams of geoscientists and petroleum engineers together with land, legal, accounting and administrative staff. The future will judge if the new teams will give a competitive and economic edge to those companies who commit to this change in organizational structure.

This course, "Creating, Managing and Evaluating Multidisciplinary Teams" grew out of a similar and very successful session given at the First Archie Conference in October 1990. Mr. Bob Millspaugh, AAPG's Educational Manager, recognized the value of this session and the great interest in the subject and recommended this course be given at the Annual Meeting to share the material discussed to a broader audience.

The course is presented by five petroleum business and technical leaders, Paul Ching, Marlan Downey, John Greene, John Masters and myself. This group has a wealth of experience in building, leading, evaluating and rewarding integrated teams of geologists, geophysicists, petrophysicists, petroleum engineers, and computer scientists.

The focus of this one-day course is on the competitive advantages gained by recognizing the role of people and teams dovetailed with improved technology in exploration and development. Emphasis is on several key subjects:

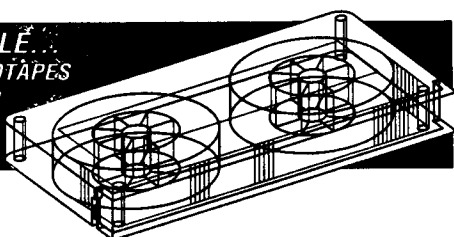
- Advantages and disadvantages of teams and teamwork.
- The significant role of people in making teams work.
- Why today's complex exploration and production problems cannot be solved by single minds, but rather by interdisciplinary teams.
- Using integrated database systems and interactive workstations to effectively handle, analyze and solve complex exploration and production problems.
- Building teams and making them effective in larger exploration and production organizations.

CREATING, MANAGING AND EVALUATING MULTIDISCIPLINARY TEAMS

- Removable of traditional organizational structure to facilitate development networks that enhance creativity and innovation of individual teams.
- Recognizing organizational and personality barriers to effective teams and teamwork, and how to overcome these barriers.
- Rewarding team players and teams.

Discussion will follow each presentation. At the end of the formal presentations, a two-hour group discussion will allow the class participants to discuss specific problems or questions with the instructors. Mr. C.N. (Tom) Tinker of Shell Oil will coordinate the discussion. Please give your questions to Tom at the breaks or before lunch so that he can organize the questions into appropriate subjects and direct the question to the instructors.

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Production Manager for Shell
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John A. Masters, Retired;
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Moderator: C. N. (Tom)
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THE ECONOMIC VALUE OF A SYNERGISTIC ORGANIZATION

Robert M. Sneider

Part I

Synergy is defined as the "action" of discreet agencies so that the total effect is greater than the sum of the effects taken independently". Within the context of the petroleum exploration and production business, synergy means that geologists, geophysicists, petroleum engineers and others work together on a project more effectively and efficiently as a team than working as a group of individuals (Sneider, 1986). The Synergistic team approach has been tried by several large and small oil companies in the 1970's and 80's in order to compete more effectively and profitably with fewer staff and managers.

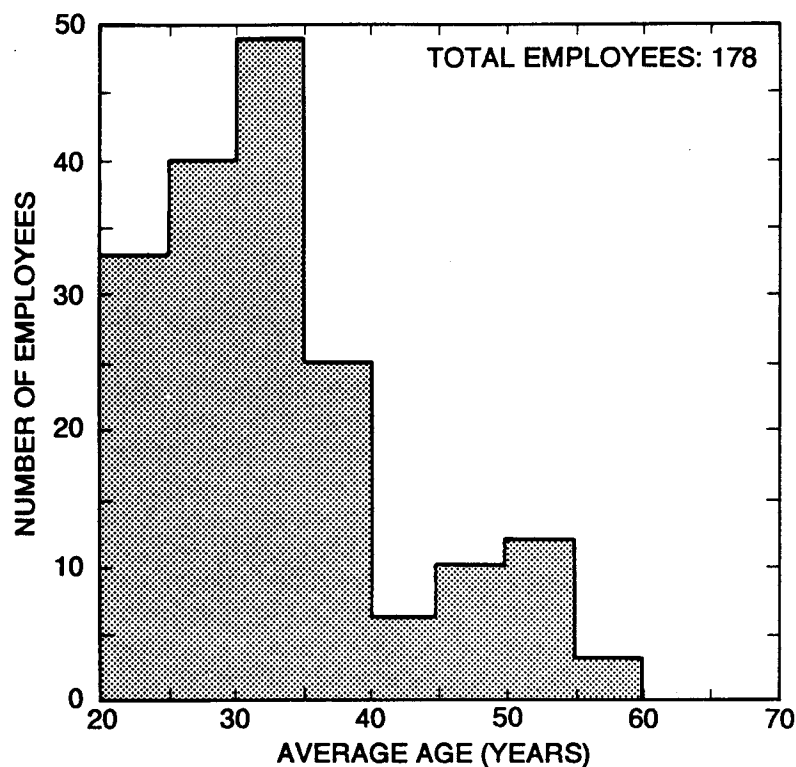
During the past sixteen years, I have had the opportunity to build or help build both small and large synergistic teams and organizations. Although it is relatively easy to measure qualitatively a group's performance, it is very difficult to evaluate quantitatively the technical and economic benefits of a synergistic team and organization versus that of other traditional E & P organizations. Also, it is very difficult to determine what are the critical ingredients that make one organization more effective, productive and profitable than another. The following "experiment" is the only attempt that I know of to help evaluate quantitatively the technical benefits and economic value of the "traditional" versus "synergistic" team approach in

exploration and production.

"How can you really prove that synergistic teams are more effective and profitable?" This question was posed to me by a senior director (banker) of a large oil and gas company. I proposed an "experiment" that I thought would unequivocally provide the answer: Form a small synergistic E & P company that would compete on an exactly equal basis with one of the company's E & P divisions.

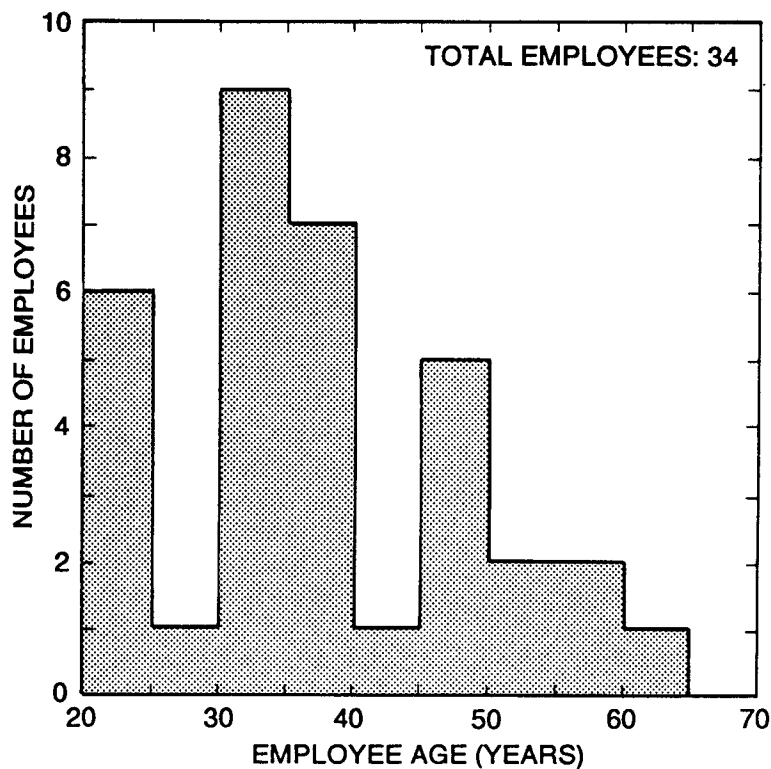
The Board of Directors agreed to a three to five year test and hired a president to form the new company organized as integrated, multidisciplinary teams. This small company of about thirty-five professionals and support staff competes in the same geographic area with the larger traditional exploration and production division, which has about 175 professionals and support staff. The age distribution and experience of the staffs (Figure 1), the budgets, technical data bases and economic/risk criteria for projects of the small and large groups are essentially identical. The organizational structure (Figure 2) and approach of the two groups are different. The small group is organized by plays or projects and has a very flat organization. The production operations group is organized into projects like the acquisition group. Most of the staff are members of several teams/projects.

AVERAGE AGE OF EMPLOYEES LARGE DIVISION



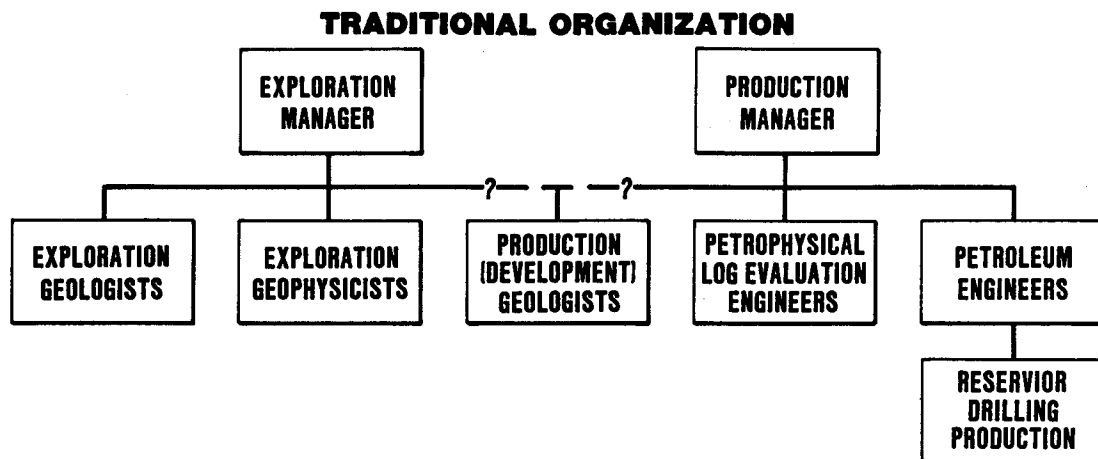
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AVERAGE AGE OF EMPLOYEES SMALL COMPANY

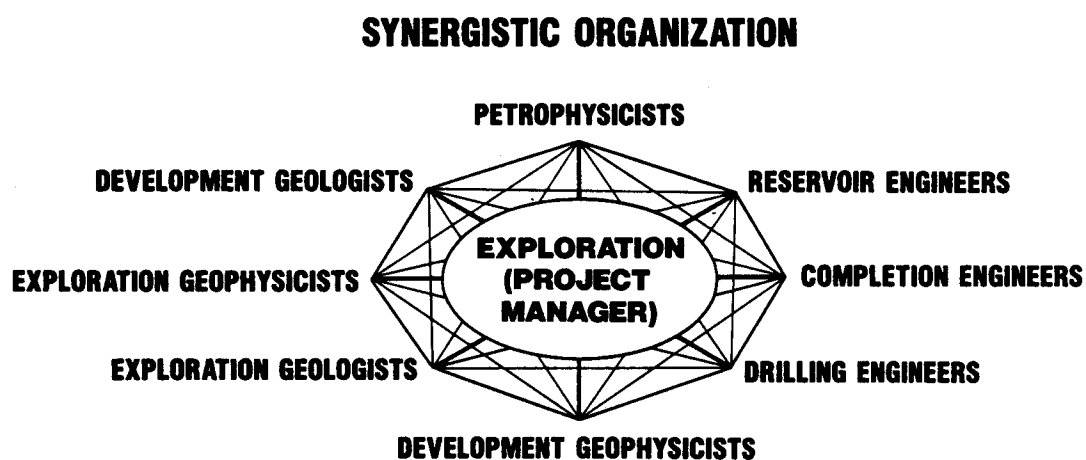


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Fig. 1. Comparison of the age distribution of the large company division and the small synergistic company.

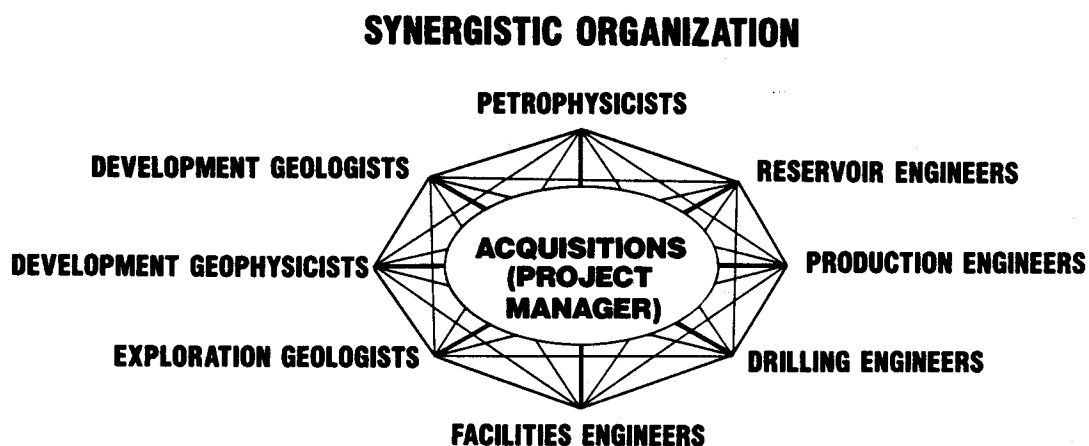


A.



B.

RMS892867



C.

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Fig. 2. Comparison of the organization of the traditional large company division (A) and the small synergistic company (B & C). The small company has from four to six teams of exploration and production technical and support staff.

ORGANIZATION STRUCTURE

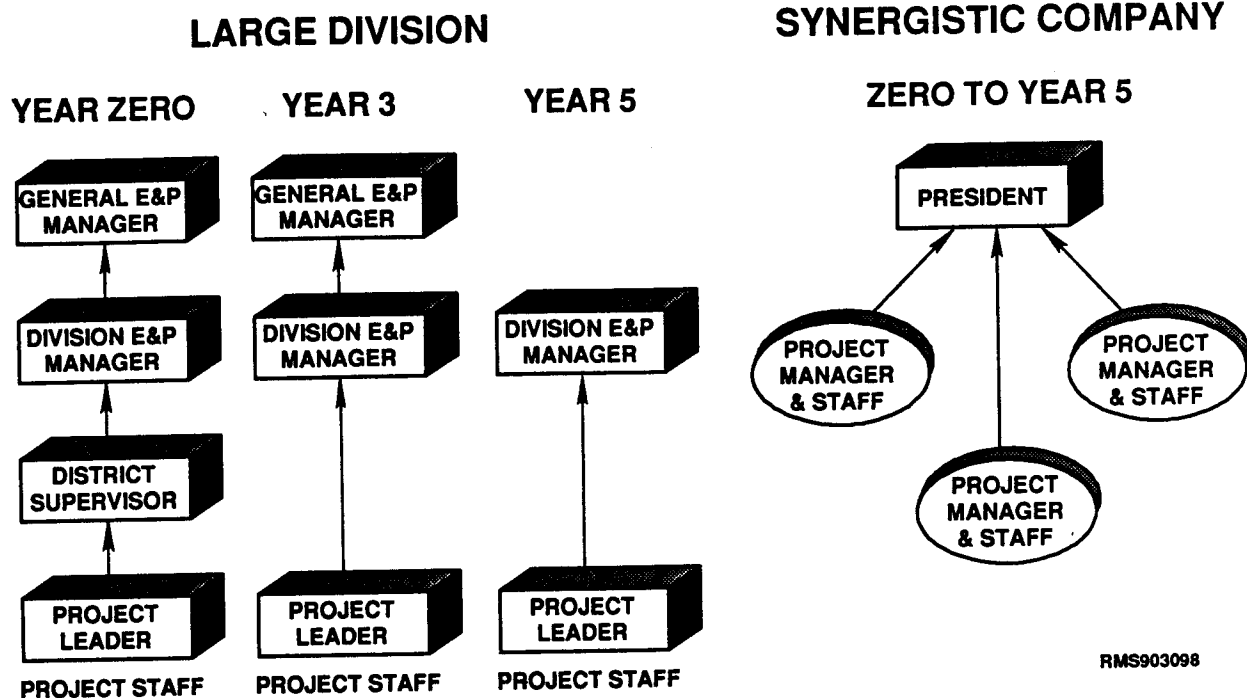


Fig. 3. The management hierarchy of the large division and the small company. At the beginning of the "experiment" the large division had four levels of management and authority. The number of levels were reduced to three in the third year and to two in the fifth year. The synergistic company had two management levels from the beginning to year five.

Project/play supervisors report directly to the president (Figure 3). The individual team leaders have a great deal of technical and monetary authority. In contrast, the larger organization is structured as a traditional exploration and production group with four levels of management and review before project/play approval (Figure 3). Figure 3 shows that at the beginning of the "experiment", the large division had four levels of supervision compared with two in the small synergistic company.

The two groups have had similar budgets each of the first five

years of the "experiment", which ranged from more than 35 to 60 million U.S. dollars per year. The economic criteria and minimum field-size targets for the two groups are identical. The two groups did not know that they were competing with each other.

The results of the first five years of competition are amazing. Figure 4 shows that the small synergistic team found about 2.8 times the reserves at about half the finding costs. The development costs are significantly lower for the smaller group.

PROVED RESERVES AND FINDING COSTS AFTER YEAR 5

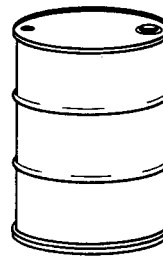
LARGE DIVISION

SYNERGISTIC COMPANY



X

BARRELS



2.8 X



8.97

FINDING COST
\$/BBL



4.31

RMS903084

Fig. 4. Comparison of the proved reserves found and the finding cost for the large division and the small company for five years.

Based on the findings of the first three years of the "experiment", the parent company reorganized the larger group more along the lines of the synergistic group. It eliminated one level of management and increased the monetary authority and pushed decision-making to lower management levels. After year five, the management of the larger organization eliminated another level of management and technical supervision in order to approach a more streamlined organization. The Board of Directors was convinced that fewer management levels and increase of authority to lower levels in the larger organization resulted in improved efficiency and profit. Some of the keys to the increased

efficiency and profitability of the synergistic company and the "streamlined" large division are (1) fewer meetings and therefore, much more time for work, (2) the delegation of financial responsibility downward, and (3) excellent communication of objectives, goals and results between management and staff.

For synergistic teams to be a significant force in an organization and for it to be truly effective in exploration and production, all participants must be open to new ideas and both the individuals and management must want and be able to work and share. There are barriers to synergism and the synergistic team. Some participants have a personality

that is not suitable, others lack good communication skills - an essential ingredient, and some fear that by working in a team that their contributions will not be fully recognized. Some managers lack the understanding of the concept or do not wish to share the glory, defeats or problems with other managers. Some organizational structures inhibit synergistic decision-making.

The use of synergistic teams is for both large and small companies. These teams have an easier chance for success in smaller organizations. In larger companies, synergism is and can be employed, although bureaucracy and size often tend to dilute and hinder it, sometimes to the point of ineffectiveness.

Part II

Following the first five years, the small company expanded to about 60 people and 7 to 9 teams. Three of the additions to the company were senior technical advisors - one is a geoscientist, another is a petroleum engineer and the third is a business (financial/administration) manager. The first two advisors, are just that, advisors on technical issues to the president and to the teams. In addition, they help the president in staff administration, especially in evaluating team and individual performance. Also, they work with the president to establish individual and team rewards and locate teachers when specific training is required for the professional and support staff.

The small company is still very successful in terms of reserve additions, finding costs, development costs and profitability. What is their secret? What do they do special? This next section examines some of principles and actions that the management and staff do especially well.

Management Role

The president establishes and monitors the overall profitability goal - maximize profit and profitability growth. With the help from his two technical advisors and project managers the president:

- develops and communicates the corporate strategy.
- selects the projects that have the opportunity for highest profitability growth potential.

- communicates and clarifies each project's objectives to all technical and support staff.

- monitors each project's progress and establishes priorities, especially where there are conflicts involving people's time or resource availability.

- look for and eliminate real and "imaginary" barriers that impede project and individual progress.

The president communicates to the teams what level of risk he thinks is acceptable. He tries to balance completed staff work to reduced risk versus the value of time to react to business opportunities.

Once the projects are underway, the president acts as a coach, "cheerleader" and keeps up-to-date by frequent, short, informal meetings with the teams. His role is to add value to the team's effort without creating unnecessary distractions and extra work. This is no small task.

The president establishes and conveys the reward system for the team's work and of course he participates in determining individual merit awards.

Project Managers

The project manager or leader is the critical person in the multidisciplinary team approach. His selection is extremely important to the efficient and effective progress of the team. The manager wears many hats.

He must be capable of overcoming imperfect management and individual decisions as well as overcoming project shortcomings. He must be enthusiastic, push or pull the team members along and at the same time help the team accelerate or leap-frog to decisions, and when necessary, shut down the effort when negative results warrant.

As pointed out under the section on the president's role, the manager is a leader, a coach and skillful at removing barriers between individuals, within and between teams.

All the project managers are technically skilled and have a lot of experience (11 to 22 years). Each one can and does perform technical work. Most work on projects more than 60 percent of their time. Most of the project managers also contribute technically to at least one other team.

Since internal team communication is an essential ingredient, the project manager encourages short, informal, and frequent team meetings. Both the technical and support staff are involved. Meetings are less than 20 minutes in length and all meetings per week are usually less than 2 hours.

Team Members

The individual team members have a wide range of knowledge, skills and experience. All are encouraged to share their experience and talents. One reason they share so well is because the president has made it clear that all the members of a team are responsible for all the results.

The team members have a "roll-up-the-sleeves and get after it" attitude, all do independent thinking and understand that the team will be rewarded if the team is successful. They also understand that it is okay to fail provided they understand the reason for failure.

The team members learn more about the dynamics of the team and how to solve problems through a team approach the more times they have gone completely through solving the objectives of a project.

The new project managers come from the teams.

Communications

Good communication within and between teams and with management is critical to being able to make rapid decisions as well as to recognize and focus on solving difficult problems areas.

All the company employees have had training in oral and written communication.

Concluding Remarks

The success of the small company is in doing business well. Nothing really special! The company has good people using good technology. They do not waste a lot of time. The teams are focused. The boss is available and cheers them on.

People who are uncomfortable working in the team environment are asked to leave.

The teams feel they are appreciated and rewarded.

Reference Cited

Sneider, R.M., "The Synergistic Team Approach...Its Value to Petroleum Exploration and Development in the Next Decade", Keynote paper presented at the Eighth Australian Geological Convention, Adelaide, Australia, Feb. 16-21, 1986, p. 16-19.