

OVERVIEW OF MSC'S PLANS AND PROJECTS

by

Joseph F. Gloudeman
President and Chief Executive Officer
The MacNeal-Schwendler Corporation

Introduction

The 1988 MSC World Users Conference is a noteworthy event, especially because it serves to help us officially celebrate the 25th Anniversary of The MacNeal-Schwendler Corporation.

I would like to start by giving you a brief overview of our business environment, followed by the factors that influence our research, development and maintenance efforts. This leads to a discussion on recent development thrusts and identification of some of the major tasks ahead. Following this is a discussion of the role the clients play - both in helping us chart our future and in helping to minimize our risks.

MSC's Business Environment

MSC has fared quite well in coping with the process of going public and is now recognized as a small but growing high-technology company. We have learned many valuable lessons which I believe serve to strengthen us and help better prepare us for the future. Our planning process is a key ingredient because we encourage the involvement of every employee in the company and through them inputs from external sources. The Mission Statement for MSC is:

"MSC provides quality engineering software and related support services for the long-term".

In order to help us continue to take the steps necessary to fulfill this mission, we update annually our Strategic Objectives, our 5-Year Plan, and our Annual Operating Plan. For those of you who would like more information about this planning process please contact Lou Greco, our Chief Financial Officer, who serves as general secretary for all these planning efforts.

Our growth in revenues has continued in the 25 - 30% range each year. In order to provide further development and adequate client support, our staff has continued to grow in a corresponding manner. In addition to our regional offices in Los Angeles, Dallas - Ft. Worth, Milwaukee, and New York, we now have established subsidiary offices in Sacramento, Atlanta, Detroit, and Philadelphia.

In the Far East, under the umbrella of our headquarters office in Tokyo, Japan, we have incorporated in Hong Kong and have representatives in Taiwan, Singapore, and South Korea, as well as a new branch office in Osaka, Japan.

Our European headquarters office in Munich, Germany, now has under its umbrella an incorporated MSC office in London, England, a branch office in Hamburg, as well as representative offices in Rome, Madrid, Paris, Oslo, and Israel.

We also have a representative office in Argentina to handle our South American business and a representative office in Sydney, Australia.

All of these domestic and global areas are represented at this meeting. I am truly proud of the caliber of our team around the globe and I hope that you take the opportunity to get to know some of them during the next several days.

In recognition of client needs, we are constantly on the look-out to add new software products in the best possible way. In December of last year we reached agreement with A. O. Smith Corporation to acquire their CAD COMP, Inc., division in Milwaukee, Wisconsin. In addition to the expertise they have shown over the years, through the excellent papers given at our MSC Users Conferences every March, the CAD COMP team has developed excellent software for solving problems in electromagnetism.

I draw your attention to the CAD COMP representatives at this meeting and encourage you to meet with them at your convenience. A review of their past presentations at these Users Conferences shows that their excellence in engineering mechanics and their mastery of the intricacies of MSC/NASTRAN, especially in modeling and DMAP, make them a truly formidable consulting arm.

Motivational Factors for MSC

The best source of information comes from you....our clients. Through our "hot line", and other forms of client support, you let us know of things that we have not done or have not done well enough. Client demand ranks as the highest priority for effecting change at MSC.

MSC must also remain alert to changes in technology. Our senior engineers and scientists are constantly on the look-out for breakthroughs in engineering theory, applied mathematics, and other areas in the realm of computer science. We have to stay on top of the highly dynamic computing hardware business and we must be alert to what our competition is doing. Competitive thrusts motivate us to do a better job. Competitive products also serve as a useful yardstick for you to assess how well we are doing; and we do our very best to respond and meet the challenges.

We get many useful ideas from our internal staff - some excellent - but they are not always that way. We give every idea a fair hearing and give the originator an objective assessment of what is wrong with those inputs which are not accepted for development. Do your best to meet the MSC people - both during the breaks in the conference and at our social events.

Recent Developments

In fulfilling our corporate mission and, in response to the challenges discussed in the above paragraphs, MSC has been making substantial investments in the past years and will continue to do so. At last year's Users Conference our Keynote Speaker was Professor Garrett Vanderplaats who talked so effectively on design optimization. Another version of that talk was given at our Users Conference in Tokyo last October by Professor Miura - in Japanese! This effort has gone quite well and will be a part of our Version 66 release later this year. You have also heard in the past about our New Executive system which is also scheduled for release in Version 66. This offers the opportunity for improved data management and enables us to better cope with anticipated changes in computer architecture.

For several years now you have been hearing about our thrusts to significantly improve our interactive pre- and postprocessing with a product we didn't want to name until we knew when it would be ready - hence, we call it MSC/X. This is a vital tool for the future - both in providing excellent user interfaces and in enabling us to more fully exploit ongoing advances in MSC/NASTRAN such as data management and design optimization.

We have continued to listen to our clients who have or want to have their computing work done in a distributed heterogeneous environment. Several years ago we developed MSC/ACCESS and MSC/TRANS to help in the effective interchange of MSC/NASTRAN data between different types of computer hardware. In addition, we have cooperated with other vendors in the MCAE marketplace, notably with CAD/CAM companies. One of last year's achievements was a tight coupling of MSC/NASTRAN with CADAM.

Mike Gockel will tell you more about our thrusts in these matters along with efforts on composite materials, nonlinear analysis, improved efficiency and further advances in design optimization.

We will also continue to cope with the changing world of computing hardware as we witness improved opportunities in vector and parallel processing. Mike Gockel will also cover this in more detail.

Some Unresolved Challenges

As we push ahead towards providing our clients with an integrated system for engineering analysis, we can see that we have taken some significant steps forward. But much remains to be done, especially in data management and 3D solids modeling.

It is most unfortunate that we haven't yet been able to find a database management system offering the functionality, versatility, accountability, efficiency, and user-friendliness that our clients need, especially in large problem solving. We have watched major developments take place in business applications but these simply do not meet the necessary criteria for our needs. We will continue to work with selected vendors in this area to do what we can to point them in the right direction and to assure that we end up with compatible system interfaces.

Similarly, we are trying to find the right way to go in 3D solids modeling. We must identify the correct approaches that offer general acceptability, standards that we can live with, and the best opportunity for effective, efficient and accurate finite element modeling and properties computation. Don McLean, who is the most senior MSC/NASTRAN Computer Scientist, has been given the full-time responsibility to chart our course in this direction.

Client Roles and Responsibilities

In shaping our organizational relationships, MSC has made a strong effort to develop close ties with you, our clients, and end users. MSC is, in fact, an effective extension of your own organization in helping you meet your requirements and cope with your problems. In any team situation, both parties must be given an ample opportunity to participate and I am pleased with the way so many of you have worked with us over the years.

First and foremost, we need your prioritized inputs. You can get these to us via telephone or in writing - and, if other channels don't work - you can always send a letter to the President.

We have also had excellent success in minimizing our development risks through client involvement during the early development phases of a new capability. For example, several years ago we worked together with Ford and Northrop to incorporate design sensitivity analysis into MSC/NASTRAN. That capability has now had a chance to mature and it forms an excellent base for the work of Professor Vanderplaats in overall design optimization. We, of course, welcome your financial participation in some of these efforts because it encourages the payee to make sure we don't both end up with a "white elephant". Our primary interest is not the financial investment from the client - we want your active participation through the design and development phase to make sure that we end up with a most useful improvement or new capability. I encourage you to let us know about your needs during your time here to see how we can work together to solve your problem.

Targets for the Future

Traditional crystal balls just don't work well for the business that we are in. The dynamics of change make it impossible to have a firm handle on all the things that will happen. In view of this, it is best to talk about what MSC is doing now and will be doing in the near future.

Most importantly, we will continue to expand and improve MSC/NASTRAN in every possible and practical way in areas such as finite element theory, algorithms, solution sequences, restart/recovery, reliability, efficiency, documentation and error reporting and correction.

One can gain good insight into what is happening by looking at many of our major client installations with a plethora of computing hardware types running MSC/NASTRAN. We see personal computers linked to workstations which in turn are connected to superminicomputers, minisupercomputers, mainframes and supercomputers. And, by the way, these labels that we currently use for different classes of computers are becoming fuzzier all the time as the chip manufacturers continue their advances both in price and performance.

MSC intends to provide the software necessary for you to work in that environment. We see our clients moving towards this distributed heterogeneous computing environment with many concerns and we hope to be a part of solving these problems and challenges. The different hardware platforms must communicate with each other effectively and efficiently. Similarly, there must be excellent compatibility of software, especially in passing data from one application to another and from one type of hardware to another. The user and his management must feel a strong sense of control over this environment both in

steering and monitoring the applications analysis efforts and in managing the data. This data management challenge is formidable in assuring accountability, archiving, status, configuration management, and cost effectiveness. MSC is a Charter Member of the Network Computing Forum which was formed to solve these problems.

Some of you face challenging problems for which MSC/NASTRAN may not provide all the answers. I have already mentioned our firm commitment to improve MSC/NASTRAN, but should this not prove to be the best course of action we will look for other solutions. This is seen in our acquisition of CAD COMP which makes MSC a strong competitor in the field of electromagnetism. We have the will and the resources to take similar steps, as necessary.

There is no easy guarantee to success but MSC intends to work hard and listen carefully to you, our clients, to help us minimize the risk and give you, our clients, what you really want and need to get your job done.