Harnessing Technology for Better Urban Living

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Chairman and Chief Executive Officer
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Sixth of a series of perspectives on employing technology to solve the pressing problems of society.

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The 1970's may be remembered as the decade when mounting evidence made it impossible to ignore potential disasters in the areas of energy, food, natural resources, education and other concerns of worldwide dimension.

Possibly, it could also be the decade that will be remembered as the time when appropriate tools were resolutely put to work to solve those serious problems.

Technology is one word for those tools. In this series of papers, William C. Norris, chairman of Control Data, reflects on how to find, develop and apply technology and its many implications in our society.
Harnessing Technology for Better Urban Living

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HARNESSING TECHNOLOGY FOR BETTER URBAN LIVING

Having been a speaker at this occasion before, I know that it is unnecessary to waste time on warming up the audience so I will plunge in by noting that central to my presentation are two facts: one is that since our major societal problems of employment, energy, cities and environment are inter-related, their solutions ought to be inter-related; the other significant fact is that millions of new jobs will come from the development and production of alternate sources of energy, from conservation of energy, from greater environmental protection and from building and rebuilding cities.

We have yet as a nation to recognize these inter-relationships adequately and make serious efforts to establish national, regional, state and city policies and procedures for exploiting them effectively.

Until we do there will be continuing deterioration in our quality of life as major societal problems grow to crisis proportions.

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Rather than continuing to permit further deterioration, it is time to take a new approach and address these major problems as business opportunities — to convert solutions into growth industries of the future that provide the new jobs that are so badly needed.

One of the most urgent of our many societal problems is inner-city blight, even though there is a host of new and advancing technologies which, if properly harnessed, can vastly improve inner-city living and launch a new growth industry dedicated to building and rebuilding cities.

My presentation today will suggest ways that this can be achieved. After outlining some guiding principles and procedures, I will identify a number of applicable advancing technologies and related business opportunities. Very little of what I will be talking about is theoretical abstraction. Rather, it represents past experience and ongoing programs. Our society has grown so complex that it is virtually useless merely to advocate desirable change. One must, wherever possible, implement it to sufficient extent to demonstrate the benefits. That is being done not only by my company, but by other organizations in many important areas, and I will be drawing from those results today.

These comments are addressed to you as business persons of the future who will have broken from the present narrow, largely self-serving and almost blind preoccupation with immediate bottom line profit and instead are seeking business opportunities by helping to solve societal problems. Important orientation in planning the products and services of your businesses will be gained by participating in community planning and other cooperative activities involving all segments of society. It is my conviction that with this approach the profitability of
your businesses will at least equal today's levels or possibly exceed them, because offerings based on meeting societal needs will inherently enjoy the broadest and most consistent demand.

The initiative then for building and rebuilding cities should come from the business sector by providing the leadership for planning, managing and implementing the required programs in cooperation with government, universities, labor unions, religious organizations and other segments of society.

These programs should be planned within a national framework with appropriate cost-sharing between government and business.

NATIONAL FRAMEWORK

What is meant by a national framework? Simplistically, it is the assembly of information on replicable technologies that provide essential elements of quality urban living. The problems of the South Bronx are essentially those of inner Detroit. Solutions in one city should apply to another; today, one city doesn't know what worked and what didn't work in another.

Even worse, cities across the country are repeating the same mistakes. There has been an inordinate amount of bad replication among cities because there has been too little long range planning research and experimental development to guide urban development and growth. There has also been great hesitancy in trying creative and experimental alternatives to the traditional methods of meeting urban needs on an adequate scale. This is in sharp contrast to business and industry where plans are based on research, experimental development and model testing — keystones that underlie the vast industrial growth that has taken place in the past fifty years.

"...there has been too little long range planning research and experimental development to guide urban development and growth. There has also been great hesitancy in trying creative and experimental alternatives..."

On the other hand, in recent years there have been several small-scale urban models, constructed by visionaries, that are based on advancing technologies drawn from many fields. Many of the technologies are proven. Others are in the developmental stage. But the models, as promising as they are, have yet to be applied on a scale that is meaningful enough.

To facilitate the establishment of a national framework we need to build one or more new cities incorporating these technologies on a large enough scale to demonstrate conclusively their effectiveness. At the same time, several cities should start programs to rebuild individual communities incorporating new technologies for better living. I
like to call the new city an "innovative city" and a rebuilt inner-city community an "innovative community".

INNOVATIVE CITY

The main advantage of an innovative city is that it can be built with very few of the constraints inherent in an existing city, thus permitting a bold approach to urban living based on renewable energy technologies. Much of the technology is available to create a city which generates a high percentage of its own energy, recycles wastes, grows food, and provides more efficient transportation, education and health care.

A minimum size for a conclusive demonstration might be of the order of one thousand households. Costs would vary widely, depending upon design, but a ballpark number is $200 million. I will come back to the matter of financing later.

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INNOVATIVE COMMUNITY

A decade or more will be required for an innovative city to progress far enough to demonstrate successful application of policies and technologies of improved urban living.

To delay massive and widespread efforts to start revitalizing inner cities for a decade would be intolerable, and unnecessary, because new technologies can be introduced through new structures and systems or modification of existing structures and systems to effect more immediate and substantial improvement. So we must move ahead aggressively with innovative communities — many communities are planning to rebuild, but most plans at present are confined to housing refurbishment and/or new construction in the conventional mode.

FINANCING

Given the urgent need and much applicable technology, how do we proceed to plan, finance and implement the programs? Let me address financing first, because it is mind-boggling unless it is approached realistically. The key is cost-sharing between the government and the private sector. Too often the financial burden of rebuilding our cities is viewed as belonging primarily to government. With government already overloaded with commitments, that is clearly not the answer. Instead, the main burden has to be in the private sector, but with substantial assistance from government, both local and federal.

More specifically, the federal government should underwrite the cost of completing the development of needed individual technologies and
integration into a holistic approach. Construction costs should be shared. However, the cost of refurbishing existing structures should be financed mainly by the private sector. The new technologies that are developed at federal expense would be available for other cities to use as appropriate.

PLANNING

Turning now to planning, it should be noted first that any plan to build or rebuild must be based on providing job opportunities to the inhabitants. It has been proven that without an adequate number of jobs, a rebuilt area will only deteriorate again because of the inability of unemployed residents to pay rent, buy or maintain homes, get access to health care, food, transportation and so on. The alternative of replacing the poor with the more affluent, only shifts the problem to another area.

Jobs and profit-seeking enterprises will provide the key to the process of revitalization. Jobs are the most fundamental need around which all political forces, residents, community institutions and national resources can be coalesced. Jobs will fuel the energies of revitalization.

Small enterprises will play an important role for rebuilding neighborhoods, commercial centers, transportation systems and for providing health and human services. The revitalization process must be flexible, dynamic, responding, building. Participation in enterprises gives control to residents of the inner-city and provides them the long-absent economic opportunity and incentives for success. Enterprises will provide the means for residents to turn to each other for the resources they need to participate in the planning, building and servicing of a vital community. And a revitalization process founded on diverse profitable enterprises rather than dependent upon a host of public programs will be a principal means of rebuilding a community which can become self sufficient and responsive to changing needs from within.

"Participation in enterprises gives control to residents of the inner-city and provides them the long-absent economic opportunity and incentives for success."

Obviously revitalization plans will vary widely, but each must address the broad categories of job creation; better knowledge and education systems; energy supply and conservation; resident participation; enterprise formation; housing demolition, renovation, construction, management and maintenance; health and social services delivery; security; transportation; waste recycling; public works; parks and open spaces.

An inner-city rebuilding plan will require comprehensive reinvestment, encompassing diverse problems, resulting in a holistic living/working environment, with job considerations woven into every aspect of the plan.
Because of the many and diverse factors to be considered I will talk next about a better living/working environment restricted mainly to housing and human services considerations. This scenario then will serve later as a setting for emphasizing the six fundamental components of any plan; jobs, knowledge, education, energy, resident participation and small business. To ignore one or more of these is to repeat failures of the past.

Housing: The housing problems must be attacked at the neighborhood scale. One modest-sized neighborhood of 2,000 homes with an average fair market value of $30,000 represents a capital asset of $60 million. At present there is no organized system to manage that asset although the quality of the whole neighborhood determines the value of the individual home.

It is also useful to think of neighborhoods in terms of a cycle consisting of construction, deterioration and maintenance, reconstruction, deterioration and maintenance, reconstruction, and so on. Depending on the type of the initial construction, this cycle may turn several times and with differing frequency. Or, after one or two turns it may be ended — with the land cleared and replacement taking place, with new residential dwellings or with other uses.

"...A broad replacement of entire obsolescent neighborhoods is needed..."

Neighborhood revitalization, then, must be a recasting of several strategies. Programs of maintenance and renovation are needed at the neighborhood scale where clusters of contiguous neighborhoods are properly managed to maximize the return on capital investment in those areas whose productive life is not yet spent. A broad replacement of entire obsolescent neighborhoods is needed — at a scale where the full force of new construction technology can be applied.

The system for accomplishing this will be a variety of new enterprises modeled on today's community development corporations, tenant management corporations, townhouse management corporations and similar enterprises that have been proven effective in serving an aggregated housing market.

Human Services: The burgeoning demand for human services is another force to be channeled into urban revitalization. Massive federal appropriations for human services have come with neither a marketplace framework nor coordinated management. Delivery through government bureaus epitomizes the unresponsiveness of monopolistic structures, and fragmentation has frustrated even the best attempts to treat the whole person.

There is now an unprecedented opportunity to recast the human service system with a variety of new technologies and delivery capabilities. The first step is to diversify the delivery system, building on the foundations of a purchase-of-service approach. We must move from a "grant-in-aid" strategy at the city or county level — which merely ex-
tends the reach of public bureaus— to a purchase arrangement . . . providing local government the technology to manage such a system where many services are still delivered by non-profit organizations but an increasing number are delivered by private businesses. One technology to facilitate this is computerized data bases for immediate, comprehensive information and referral services to health care, housing, child care, counseling employment, chemical dependency services, and others; another is a computerized management system that can individually diagnose and prescribe services which empower each person to better understand his needs and to control and procure the appropriate help from a marketplace of comprehensive services.

After establishing a responsive, private-enterprise-based market structure through purchase of service, improving access to the market, and developing the ability to tailor services to the needs of the individual, we need to move away from a focus on the disadvantaged as the primary consumers to a community-wide purview for human services. Through a decentralized delivery system which is responsive to individual need, human services can be made available to all residents of the community. Those who cannot afford to pay will be provided vouchers which the vendor redeems at city hall. This expansion provides a fundamental opportunity to enhance the vitality of the community, and creates a new spectrum of professional and para-professional human service jobs for community residents.

Reform of health care is another essential ingredient to the urban revitalization effort. The current system harbors incentives for doctors to over-prescribe, for hospitals to over-equip, and for patients to be overdependent on treatment. The emergence of the health maintenance organization, with its incentives to practice preventive health care, demonstrates that better lower cost health care can be achieved through a restructuring of the delivery system and the utilization of extensive health care education.

"New technologies for access to knowledge and information will weave the fabric of a holistic living/working environment."

New technologies for access to knowledge and information will weave the fabric of a holistic living/working environment. Individualized computer-based education (CBE) technology which is now available will free the individual from the institutional constraints of the traditional education setting by making high quality education available wherever it is needed throughout the community. More than providing improved accessibility, each user will be able to interface with an advanced communication network that will form the foundation of a new intellectual environment, stimulating creative achievement and cooperation in many areas of community endeavor.

Other Technologies: As obsolete neighborhoods are replaced by new construction, technologies will be incorporated to integrate the man-made environment with the natural environment. These technologies
will exploit alternative energy sources, attractive and efficient underground construction methods, waste recycling, communication, transportation, agriculture and recreation. Many of the technologies to achieve this are available now.

The construction of new neighborhoods will also permit experiments with new social and structural concepts for serving the elderly, the single parent family, neighborhood-scale commercial enterprise, and decentralized human service delivery. New options for "urban agriculture" will be exploited in conjunction with underground housing technology, with application of the greenhouse effect both for solar energy collection and plant production, and extensive use of new methods of food production.

Implementation: Revitalization must be energized by an infusion of management skills, technology and capital. The effort is substantial in scale and breadth. It must draw from the widest range of technologies. It must be founded on large-scale management knowhow. It must be financed by substantial capital commitments from external sources, public and private, in all forms — grants, loans, equity investments — through the broadest range of public and private financing instruments.

"New options for 'urban agriculture' will be exploited in conjunction with underground housing technology..."

These resources do not exist in an inner city. They must be marshalled externally and systematically infused into the inner city to energize the revitalization process.

A consortium should be created by a number of major corporations to provide the mechanism to assemble the resources and manage projects of this type. A consortium can provide expertise in each vital area. Large corporations best understand the processes of job creation, enterprise formation, capital investment, production, maintenance and servicing. They are practiced in the skills of large scale project management of raising investment capital, and in structuring and providing supportive resources necessary for enterprises to succeed and grow.

COMPONENTS FOR SUCCESS

Having outlined a new approach to urban innovation along with a scenario for planning, management and implementation I will review the six fundamental components that such efforts must include if they are to succeed.

Jobs: The creation of an adequate number of jobs with appropriate skill levels is not only the key to success of any inner-city plan, but the single most difficult and time-consuming task. Even more important, it is the element that must set the pace for the others.

The main methods of providing jobs are to induce existing businesses
to relocate or expand into the inner-city, and create new businesses. All methods should be used, but business expansion and new business formation should be emphasized because relocation will normally result in merely shifting jobs from one community to another.

"The main methods of providing jobs are to induce existing businesses to relocate or expand into the inner-city, and create new businesses.

Knowledge: Integral to the success of job creation and better urban living are effective knowledge and better education systems.

A more effective knowledge system is a better means of locating needed knowledge; i.e., knowhow or technology. I should hasten to point out that information and knowledge are not the same. Our libraries and publications are better geared to furnishing information than knowledge. As a result, as previously mentioned, one city doesn't know what worked and what didn't work in another city. This is equally true for neighborhoods within a city.

You may have heard of "sweat equity." This is the approach where residents in a neighborhood — a city block or two — work as volunteers on refurbishing housing. The phrase was coined in the Bronx a few years ago by a priest, Monsignor Fox. He organized work teams on weekends — fifty to sixty people to renovate a tenement building. The project took five years to complete and was highly successful. Since then some forty other "sweat equity" projects have been undertaken in New York City.

"You may have heard of 'sweat equity.'"

According to Monsignor Fox, there has been very little knowledge relative to the most efficient renovative methods used by one group transferred to another. There hasn't been time or other resources available to document the knowledge gained in the course of the work. And so, one project lacks information about the knowledge gained by the others.

More efficient transfer of knowledge can now be achieved through the use of the computer, operating in a worldwide communications network. Knowledge is stored in the computer memory and is easily accessed by terminals virtually any place in the world.

This is another of the host of new and advancing technologies that I mentioned earlier.

Education: An improved education system is a corollary of an effective knowledge system. Deficiencies in the present educational system is one of the root causes of the high rate of minority youth unemployment in our inner cities. Equally important is adult continuing educa-
tion to train and retrain workers in consonance with the ever changing products and services needed by society.

There are now available advancing technologies that have the power to revolutionize the quality, productivity and availability of education. These are principally the electronic ones—television, radio, audio and videotapes and disks, computers, computer conferencing, cable TV, microwave and satellite transmissions, and computer-based education.

“There are now available advancing technologies that have the power to revolutionize the quality, productivity and availability of education.”

These technologies can be assembled to provide the required educational facilities and are further examples of the host of new technologies applicable to better urban living.

Energy: A fourth component which is fundamental to urban innovation is energy conservation and the adoption of alternate sources of energy. Future vitality of urban areas will be directly dependent upon sufficient, affordable sources to provide energy for space heating, transportation, and other needs. The implications are profound for redesign of the urban infrastructure. Any urban innovation strategy which fails to integrate effective energy considerations will be obsolete before it is built.

Resident Participation: Resident participation is the fifth component. Effort to rebuild an inner-city area must be rooted in participation of residents. From his two decades of experience in the Bronx, Monsignor Fox has concluded that personal investment of residents is an indispensable factor in generating the motivation and energy necessary for long term success. The urban power brokers will not easily relinquish control yet they will be hard pressed to manipulate residents who have organized to implement the rebuilding effort and who have a personal investment in their destiny.

Monsignor Fox also has pointed out that revitalization efforts are long term and will require new and sustained behaviors by residents far in excess of what they will initially anticipate. Therefore it is imperative that the effort be complemented by a program of horizontal human development. Such a program must establish peer support systems that empower the residents to become self-actualized and to take full advantage of the new resources which will be infused into their community.

Small Business: The sixth fundamental component is small business. As stated earlier, small businesses provide the essence of self-determination, and may be the only means for inner-city residents to overcome the paralyzing alienation, cynicism and despair which they have acquired through the years. In a moment, I will elaborate on how these businesses can be formed.
COOPERATION FOR URBAN INNOVATION

However, next I want to address the issue of cooperation. How will we marshal the diverse resources that are essential to overall solutions? How can we harness the new and advancing technologies to get them usefully employed?

The theme of cooperation has run throughout my remarks, from the creation of a national framework, and sharing the burden of financing, to the formation of a corporate consortium to plan and manage major urban innovation, to grass roots resident participation in carrying out such innovation.

"There must be a pulling together of these efforts at a regional or state level to identify, prioritize and facilitate problem solutions with the implementation being done in the traditional manner in the private sector."

COOPERATION OFFICE

Yet no ongoing mechanism exists for sustained cooperation among societal segments on large scale efforts. We have been unable to provide a focus for the myriad of individuals, and community organizations now engaged in inner city revitalization, fostering the start-up of new businesses, helping to finance new plant construction and other important efforts that help solve major problems and create jobs in the process. But these efforts are usually too small in scale, too fragmented and unnecessarily duplicative. Involvement of big business, labor unions, churches, university and local government units is inadequate. They are micro solutions to macro societal problems. These are massive problems requiring massive resources and entailing many controversial issues.

There must be a pulling together of these efforts at a regional or state level to identify, prioritize and facilitate problem solutions with the implementation being done in the traditional manner in the private sector.

The major focus must be on jobs. The reason is twofold. Jobs are the most powerful means for self-actualization and hence for energizing the processes of revitalization. And jobs are something everyone agrees we need more of. With a strong shared concern for job creation, we have a firm basis for cooperation.

Although the central thrust is solving unemployment, the new jobs will come from the formation and growth of enterprises which can solve other pressing problems. Put another way, the job creation mission of the cooperation office will be integrated with the need for new solutions to societal problems; new solutions will result in the business opportunities which will create new jobs. As I described in my scenario for urban innovation, the inner-city offers tremendous opportunity for the formation of new, problem-solving enterprises.
Regional or state cooperation offices would be staffed mostly by volunteers from all segments of society. The cooperation office would promote job creation first by identifying appropriate programs and then by motivating businesses to assume implementation leadership with support from government and other segments of society.

More specific functions of the cooperation office would include:

1. Identifying and selecting appropriate societal problems for attack in cooperation with community organizations.
2. Encouraging businesses to assume the leadership of projects for solving the problems, and encouraging cooperation among businesses and other sectors of society in implementing solutions.
3. Stimulating companies to make their technologies available to others for non-competitive uses.
4. Assisting aspiring entrepreneurs and inventors in preparation and evaluation of business plans and start-up, together with identification of financing sources.
5. Promoting state and federal legislation as required.

The area cooperation office would be privately operated and manned by a small permanent staff. Professional expertise needed for program selection and promotion would be filled by volunteers and by retirees.

The cost of supporting the permanent staff and a limited number of research studies would be borne by annual contributions from the participating organizations.

The modus operandi of an area cooperation office is best explained by reviewing three programs that might be undertaken.

**Urban Projects:** Obviously one major program is business opportunities addressing the subject at hand – better urban living.

The area cooperation office would work with community groups in planning specific programs and facilitating their implementation. In other words, make it happen on the required scale.

**Solar Energy:** Fostering additional activity in the development of alternate sources of energy is another program. Concentration on the development of solar sources would be particularly appropriate for the upper midwest because of its many potential uses in urban revitalization agriculture.

The approach is to identify the projects with the best potential and then community leaders in the area cooperation office would meet with the top managements of the best qualified companies to induce them to undertake implementation. Where the risk is too high, or financial commitments are beyond the means of individual com-
panies, then joint ventures should be encouraged — either by collabora-
tion between existing companies or through the formation of new
companies. For example, Battelle Institute and Northwestern Mutual
Life Insurance are cooperating in a solar energy irrigation project.

"The most basic program is that of fostering the
start-up of new, small enterprises."

_Entrepreneurial Enterprise_: The most basic program is that of foster-
ing the start-up of new, small enterprises. A new business entity
means new jobs. An inventor has an idea for a new product or service,
and wants to start a company to develop and market it. Financial
backing from the usual sources is not available. Venture capitalists
are ordinarily not interested in unproven ideas. Money sources are
approached for furnishing the initial capital. Since there is substantial
risk, the total amount required is spread among a large number of
investors. Investors include all types of businesses, labor unions, re-
ligious organizations and city and county organizations.

While there are other programs that could be referenced, the ones
I've described suffice to further illustrate the inter-relationships among
societal problems and the fact that solutions of most problems are
beyond the reach of a single community — or even large city — yet
each can better contribute and benefit if there is an established
mechanism for cooperation.

**SMALL BUSINESS OPPORTUNITIES**

My last major point is the subject of small business.

Earlier I talked about the importance of small enterprises in imple-
menting urban programs and a number of opportunities for small
business were mentioned. Because of the great importance of small
business in creating and maintaining an attractive urban society, I
will add to the list and elaborate on some previously mentioned.

_Technical Resource Center_: One of the most urgent needs and in turn
best business opportunities is in providing numerous types of assis-
tance to small businesses. An effective means of achieving this is with
a business called a "technical resource center", that provides pro-
fessional consulting help and offers shared facilities and services for
small companies.

A cluster of buildings containing flexible laboratory and office space
is subdivided and leased to small businesses that are starting up. Also
contained within the buildings are centrally shared facilities and serv-
ices, including library, model shop, drafting services, purchasing,
clean rooms, and a complete range of computer services, including
technology transfer services and computer based education.

Economies of scale will make it possible to provide occupants needed
facilities and services for considerably lower cost than if each pro-
vided them himself. Benefits will also be obtained from the enhanced
environment for peer interchange.
Computer-based education provides enhanced collaboration and technology interchange with widely dispersed universities and government laboratories.

In addition to full-time professional staff members, a large roster of outside professional consultants could be maintained.

There will be many variations of the technical resource center concept. Some will provide only professional consulting to small companies to help in developing and marketing new products and services.

Social Services: As mentioned earlier, the broad sector of human services needs provides an excellent foundation for expanded urban enterprises. All indications suggest a continuing dramatic growth in the demand for human services. Delivery of these services through independent agencies instead of government bureaus will facilitate consumer choice and adaptation of innovative arrangements through the use of vouchers, purchase of service contracts, and fee-for-service offerings.

"New technologies for housing construction, renovation, retrofitting, and maintenance are becoming available which will be the basis for many small companies offering specialized and comprehensive services throughout the inner-city."

Housing: New technologies for housing construction, renovation, retrofitting, and maintenance are becoming available which will be the basis for many small companies offering specialized and comprehensive services throughout the inner-city.

Training: The field of training offers small business many opportunities. With the advent of computer-based education, small companies will be able to obtain high quality CBE courseware covering basic subjects, such as chemistry, physics, electronics, management and adapt them to new fields as they develop — such as waste recycling and alternate energy equipment installation and maintenance, urban farming and new types of building construction and maintenance.

"Small business will find many products to manufacture and market in the field of solar energy."

Solar Energy: Small business will find many products to manufacture and market in the field of solar energy. There are already some two hundred solar energy companies in the United States, many of them small. As solar energy becomes more widely used there will be additional opportunities in the installation and maintenance of solar energy systems.
**Microcomputers:** Microcomputers is another area. They will be widely used in controlling environments in many different types of structures where alternative sources of energy are used and in water and waste recycling. Computer terminals will become widely used in the home, and so on. Small businesses can install and maintain these devices.

"Further ahead in the future there will be opportunities in urban farming."

**Urban Farming:** Further ahead in the future there will be opportunities in urban farming. As fossil fuel costs increase along with growing shortages of non-renewable resources, the production of vegetables in open spaces and under cover will become economically attractive using renewable energy sources, hydroponic and aeroponic food growing techniques, recycled water, waste heat, carbon dioxide from smokestacks, etc.

**CONCLUSION**

In concluding, rather than summarizing what I have been saying, I will make two observations—one relating to the Minnesota experimental city project and the other to a business philosophy.

**Minnesota Experimental City:** Some of you may not be aware of the Minnesota experimental city project which was started in 1965 under the auspices of the University of Minnesota. The objective was to develop a design for a city that afforded alternatives for significant improvement in urban living; e.g., a basic transport system which was to be a high capacity automated roadway and the public utilities of water, electricity, fuels, heat sewage, solid waste were to be provided by an integrated system designed to be highly efficient and capable of accommodating alternative sources of energy. Advanced concepts were incorporated into the community's educational and health care system.

The state of Minnesota created a special state authority to assist in planning, and a number of corporations provided part of the funding. In spite of the considerable state government and private support, the project stalled because of the absence of federal urban development policies and lack of widespread public perception of the benefits to be ultimately derived. However, much was learned from the effort which will contribute to ongoing programs.

**Business Philosophy:** Finally, the business philosophy is a simple one—"There is no security in this world, only opportunity". I'm not sure of the origin of this wisdom, but it has served me well and I suggest that it will do as much for you as you seek business opportunities in solutions to societal problems. Not only will you be rewarded, but you will be helping to assure the preservation of our private enterprise system. Society will not tolerate indefinitely the ever-rising costs of living, unemployment, underemployment, urban blight, ever-
increasing energy problems, environmental degradation and inadequate education. The message is clear. Private enterprise will solve these problems or another system will take its place. If you don’t provide the initiative and leadership in the years ahead for our business system, who will?

"The message is clear. Private enterprise will solve these problems or another system will take its place. If you don’t provide the initiative and leadership in the years ahead for our business system, who will?"
Other Papers in This Series:


*Via Technology to a New Era in Education*, reprinted from the Phi Delta Kappan Journal and drawn from an address at the 1976 Congress of the Society for Applied Learning Technology in Washington, D.C.

*A Policy for Export of Products and Technology*, from an address given at the Fifteenth Goddard Memorial Symposium of the American Astronautical Society on April 1, 1977 in Washington, D.C.

*Technology and Full Employment*, from an address to a public hearing of the Minnesota Full Employment Action Council in Minneapolis, Minnesota, on September 6, 1977. On October 28, 1977, Senator Hubert H. Humphrey (D-Minn.) entered the speech in the Congressional Record along with some of his observations.

*Back to the Countryside Via Technology*, given to the National Agri-Marketing Outlook Conference on November 8, 1977, in Kansas City, Missouri.

*Technology for Improving the Image of Business*, given at a seminar organized by The Minnesota Project on Corporate Responsibility at The Spring Hill Conference Center, Long Lake, Minnesota, on November 16, 1977.

*Technology for The Inner City — Experience and Promise*, given to the principals of Chicago United, a consortium of the leading black, white and Latino business leaders of Chicago, on September 1, 1978.