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ABSTRACT

Three keynote addresses from the W. Arthur Cullman Symposium are presented in this booklet. The first address, "Global Productivity: New and Renewed Perspectives," was delivered by John G. Keane, Director of the United States Bureau of Census. In his address, Dr. Keane proposed five guideline perspectives: recognizing emerging global unification forces, enhancing globalization perspectives, extending the productivity-planning time horizon, adopting zero-based thinking, and realizing government's role. He also stressed that the opportunity for global productivity continues to improve as its need escalates. In the second address, Hans B. Thorelli, E.W. Kelley Professor of Business Administration at Indiana University, explored "Productivity, Multinationality, and the Business-University Network." Dr. Thorelli said that a new focus is needed on the holistic and qualitative aspects of productivity, whether in business or in academia. Productivity also calls for multinationality and a revamping of the school-business relationship to encompass global concerns. Finally, Billy C. Christensen, Vice President and General Manager of IBM World Trade Corporation, spoke on "Global Productivity: Society's Goal, Business' Imperative." In his address, Mr. Christensen noted the need to think about the U.S. economy as part of the world economy rather than a self-contained unit and the need for increased productivity to compete in that world economy. (A list of panelists is included in the proceedings.) (KC)

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Global Productivity:
Roles for Executives and Educators

The Second Annual
W. Arthur Cullman Symposium
PROCEEDINGS

April 27, 1984

Fawcett Center for Tomorrow
The Ohio State University
Columbus, Ohio

Sponsored by the
College of Administrative Science
The Ohio State University

W. Arthur Cullman Symposium

The W. Arthur Cullman Symposium was established in 1981 to honor Art Cullman, professor emeritus at The Ohio State University. During his career, Dr. Cullman spent considerable time and energy working to improve the relationships between business and academe. The symposium series is intended to continue that effort.

The 1984 symposium focuses on strategies for preparing people to work in multinational business environments and on the emerging research issues related to global productivity.

Dr. W. Arthur Cullman, who was elected professor emeritus July 1, 1982, in the faculty of marketing of the College of Administrative Science, has been a member of The Ohio State University faculty since 1947. A specialist in strategy, policy, and advertising, he was director of graduate programs in business from 1966 to 1969. He was on leave of absence during 1969–70 to teach at IMEDE, a management development institute in Lausanne, Switzerland. He served as chairperson of the faculty of marketing from 1970 to 1973. Dr. Cullman served as president of the American Marketing Association from 1977 to 1978.

Born in New York City, Dr. Cullman prepared for college at Hotchkiss School, Lakeville, Connecticut. He attended Yale University, where he received the Bachelor of Arts degree in 1937, and he was awarded the Master of Business Administration degree from Harvard Business School in 1939.

After receiving his Master's degree, Dr. Cullman worked in various sales positions for Philip Morris, Inc., until 1943. He then joined Benson and Hedges, where he served four years. He left Benson and Hedges as executive vice president in 1947 to join The Ohio State University faculty as an instructor. In 1950, he was appointed assistant professor. He studied for his Doctor of Philosophy degree while teaching and received it from Ohio State in 1951. He was appointed associate professor in 1956 and professor in 1961.

Dr. Cullman is active in professional and university affairs. He is director of C. M. Media, Inc.; Camp Industries, Inc.; Columbus Show Case Company; Columbus Venture Capital Corporation; Decor Corporation; Distek, Inc.; Huntington Bancshares, Inc.; The Limited, Inc.; Matryx Corporation; OCLC, Inc.; Sensotec, Inc.; and Webster Industries. He is also serving on the Advisory Board for Battelle's Software Products Center. He is active as a business consultant and has served on the faculty of a variety of workshops and institutes.

A member of the faculty of the graduate school of sales management and marketing conducted at Rutgers and Syracuse Universities, Dr. Cullman is also a member of the faculty of the graduate school of credit and financial management, Dartmouth College. He was chairperson of the joint policy committee of The Ohio State University Executive Development Program from 1970 to 1975 and also served as chairman of the annual Ohio State Advertising Conferences.

Among the numerous Ohio State University committees and councils on which he has served are the Faculty Council, Graduate Council, Council on Instruction, Council on Student Affairs, University Senate, and the search committees for the director of the School of Journalism and dean of the College of Administrative Science. He is presently serving on the University's Task Force on International Involvement and the Cullman Symposium Committee.

He has been a leader in the workshop and orientation seminars of the American Management Association and in the marketing seminars of the European Productivity Agency and the Ford Foundation in England, Holland, and Germany. He has spoken on business topics in Hawaii, England, France, Japan, Hong Kong, Thailand, Turkey, Denmark, Switzerland, Italy, Germany, Holland, and the Philippines.

A member of the American Marketing Association, Dr. Cullman served on the Committee of Definitions, as vice president of the International Division from 1972 through 1974, as president-elect (1976–77), and as president (1977–78). In 1983, he was appointed to a three-year term on the Community Advisory Council of Capital University Graduate School of Administration.

He is a member of Alpha Delta Sigma, professional advertising fraternity; and Beta Gamma Sigma, business honorary. For over 20 years, he has been a member of Ohio Staters, Inc. He is presently serving as cochair of the fund raising project to celebrate Ohio Stater's 50th anniversary.

In 1953, Dr. Cullman was named Professor of the Year by students in his college. In 1959, he received the Ad Man of the Year award from the Columbus Area Chamber of Commerce and was also named Ad Man of the Year by the fifth district, Advertising Federation of America. He was awarded the Alfred J. Wright award for service to students at Ohio State in 1966. In 1978, he was selected to receive the Achievement in Marketing award from the Columbus chapter of the American Marketing Association.

In addition to articles in various professional journals, Dr. Cullman is coeditor of a book, *Management Problems in International Environment*, published by Prentice-Hall, Inc., 1972, as well as chapters in other texts.

His civic and philanthropic activities include service as president of Buckeye Boys Ranch, a residential treatment center for disturbed boys; president of Walloon Lake Association; chairman of the Advisory Board of the Northwest Area Council for Human Relations; member of the Steering Committee of the Development Committee for Greater Columbus; and a member of the Board of Trustees of the Red Cross of Franklin County, the Columbus Symphony, Six Pence School, and the International Council of Mid-Ohio (now Columbus Council on World Affairs). He is a member of the Board of Directors of Riverside Methodist Hospital, Riverside Methodist Hospital Foundation, Torch Club, and the Yale Club of Central Ohio, and he serves as the Yale Club's representative to the Association of Yale Alumni. He is a member of the Harvard Business Club of Columbus and the Ohio State University Friends of the Libraries. He is also serving on the Columbus Area Chamber of Commerce 1984 Capital Formation Committee and is on the Development Board of the Northwest Counseling Services.

His interest in minorities is evidenced by his serving as a member of the Board of Trustees and chairman of the Selection Committee of the Whitney M. Young Jr. Foundation since 1980; as well as having served on the boards of Opportunity Products, Inc.; Creed; and the Business Resource Center. He developed several conferences and short courses designed to help minorities in conjunction with the Office of Minority Business Development.

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Keynote Addresses

- **"Global Productivity: New and Renewed Perspectives"**
  John G. Keane
  Director
  United States Bureau of Census

- **"Productivity, Multinationality, and the Business-University Network"**
  Hans B. Thorelli
  E.W. Kelley Professor of Business Administration
  Indiana State University

- **"Global Productivity: Society's Goal, Business' Imperative"**
  Billy C. Christensen
  Vice President and General Manager
  IBM World Trade Corporation

Global Productivity: New and Renewed Perspectives

by John G. Keane

John G. Keane
Director
United States Bureau of Census

President Reagan nominated John G. Keane as director of the Bureau of Census on November 16, 1983. The Senate confirmed his appointment on March 8, 1984, and Justice Sandra Day O'Connor swore him in as the 17th director on March 20 of that same year.

Before becoming director of the Census Bureau, Dr. Keane was president of Managing Change, Inc., of Barrington, Illinois. He founded this strategic counseling firm in 1972. Prior to that, he held various consulting, business research, and management positions with such diverse industry leaders as Booz, Allen, & Hamilton; U.S. Steel; and J. Walter Thompson.

Dr. Keane received his Ph.D. in economics from the University of Pittsburgh; an M.B.A. in marketing from Indiana University; a B.S.C. in business administration from the University of Notre Dame; and his A.B. in Russian studies from Syracuse University.

Director Keane's professional memberships include the American Economic Association, the American Statistical Association, the International Platform Association, the World Future Society, the North American Society for Corporate Planning, and the Economic Club of Chicago. He is a member of and served as the 1976–77 president of the American Marketing Association.

Dr. Keane regularly addresses government, academic, business, and other groups here and abroad. Periodically his views appear in the general press and various journals.

Let's start this global productivity symposium by recounting the story of three men—a Frenchman, a Japanese, and an American—who were facing a firing squad. Each was asked for his final request. The Frenchman asked to hear the French national anthem for the last time. The Japanese said he would like to deliver his lecture on productivity. The American asked to be shot first so he wouldn't have to listen to the lecture!

However humorous, this story also conveys a message in the nation-to-nation ebb and flow of global productivity developments. I commend the W. Arthur Cullman Symposium planners for picking such a current, crucial, and opportune topic as global productivity. Improving global productivity offers potential betterment for the more than four billion people inhabitating this earth. Perhaps predictably, a Census Bureau director would cast productivity in people terms. But isn't that truly the global productivity payoff—improving *life* for those billions now so delayed or denied in sharing that potential?

That possibility spurs me on to new and renewed perspectives about global productivity. I'll resist the temptation to argue definitions, cite comparative statistics, emphasize LDCs and MNCs, tout the Pacific Basin, or mouth cliches. Leading off, then, I'll cover these five guideline perspectives:

- Recognize emerging global unification forces
- Enhance globalization perspectives
- Extend the productivity-planning time horizon
- Adopt zero-based thinking
- Realize government's role

One caveat: to appreciate my perspectives, you may have to question yours!

Recognize Emerging Global Unification Forces

Whenever, wherever, and however the world comes closer together, it improves the *climate* for global productivity. In an uneven and deceiving way, that climate continues to improve through unification forces at work.

Bear with me through a few representative citings. Economic summitry brings leading industrialized nations at the highest levels to exchange views and values. These summits provide a recurring forum for geopolitics, common social ills, world terrorism, etc., beyond economic issues. Therefore, their efficacy should be judged within this enlarged context, and not so much on whether or not they solve international trade disputes.

Scientific, educational, and cultural exchange programs continue to broaden despite periodic setbacks, leading universities search the world—not just their country—for distinguished scholars. Mounting currency and financial interdependencies were never more apparent than now with more—not less—to come. From Concorde to COMSAT, developing transportation and communication systems continue to shrink nation-to-nation distances and differences.

Trade associations such as the International Association of Quality Circles, with its globe-girding membership rosters, bring shared interests closer. Country-to-country trade missions are becoming a way of life. Overall, there is increasing international cooperation on a host of arrangements spanning business, conservation, resisting terrorism, and in saving human life. Encouragingly, even ideological enemies sometimes cooperate. For instance:

- The United States and Cuba cooperate on a program to discourage hijackings;
- Russia and the United States (with Canada) formally and closely cooperate on a satellite-based search and rescue system for saving human life.

Surely such cooperation was part of the motivation of the late Italian industrialist, Aurelio Peccei, when in 1968 he founded the Club of Rome with its selectively-diverse worldwide membership devoted to studying and to ameliorating global problems. These unifying institutions are dissolving global differences and, thereby, steadily improving the global productivity opportunity.

Enhance Globalization Perspectives

Because attitudes usually precede behavior, there are some useful perspectives to adopt to enhance the globalization process, paving the path to global productivity improvement. In their self-interest, U.S. businesses would do well to think in international terms and trends even when their operations are not international. Nor should business shun foreign markets because of disdain for other cultures, currencies, languages, and redtape. Perhaps a key self-instruction is to rid ourselves of any national smugness suggesting that we don't need the rest of the world.

Our university system also needs a nudge. Until comparatively recently, business education was woefully weak on international business courses. Typically, rationalizing itself with a lack-of-an-experienced-faculty disclaimer and disagreement on approach, its courses were too few and lacked language and cultural integrations. Academe has even been self-critical on its dereliction. For example, eminent and emeritus Ohio State University Professor Robert Bartels recently wrote about the myopic university emphasis on domestic marketing courses: "This is attested to by the fact that internationalization of business school programs had to be prescribed by the AACSB (American Association of Collegiate Schools of Business), rather than initiated voluntarily by the school."[1]

Rashmi Mayur, an Indian internationalist put it stronger yet. Writing in the April 1984 issue of *The Futurist*, he bluntly asserted: "I think teaching anything national should be eliminated. We should teach global subjects and global history. We must strive to give people a global perspective."[2] That assertion overstates the case, but it does rightfully cause us to question the academic balance between national and international emphasis.

An apparent step in the right direction is the Graduate School of International Studies at the University of Denver. It "offers interdisciplinary M.A. and Ph.D. degrees in international/comparative studies. The faculty is drawn from various disciplines including political science, economics, and history."[3] (Perhaps panel member, Professor Chadwick Alger—a trained political scientist—would have reactions to such curriculum integration.)

Extend the Productivity Planning Time Horizon

This is a universal plea spanning countries and the institutions which compose them. Changes in national leadership, bringing in different international policies and programs, often disrupt the rationale and rhythm of already-established, productivity-related efforts. That's at the national government and policy level.

Within the business community, the old earnings-per-share-per-quarter measurement standard still holds, perhaps further entrenched by the 1982 severe recession. This time-honored maxim is more of an assumptive case than a proven case. It seems rooted in business cliches, such as "You can't go broke making a profit" and "Maximizing profit in the short run means maximizing profit in the long run." I take strenuous exception to those seemingly hallowed business dicta, particularly during these times of volatile business environment changes—the prevailing condition in the post-OPEC world.

Potential productivity gains at sectoral, national, and global levels are constrained by that mindset and the rewards systems which reinforce it. Whether you are a business executive, business educator, or business student in this audience, you have a chance to break this short-run mindset. We need to elongate our productivity perspectives and performance measurements. Domestically and internationally—it is consistency, continuity, and cooperation among trading partner nations and their governments that offer promise for global productivity efforts to convert potential into performance. Short-run dominance, plus shifting partners and policies, does more harm than even our most sophisticated econometric models can trace.

Adopt Zero-Based Thinking

Does it seem to anyone else that the whole productivity issue needs some fresh insights? Are we revisiting cliches rather than revitalizing our concepts? My answer is "Yes" with the accompanying plea for what I term *zero-based thinking*. Here are some thought-starter notions:

- We need to renew our locked-in business mindset. Then maybe the United States and other countries would have been quicker to explore Japan's just-in-time materials inventory system versus our conventional U.S. just-in-case system.
- Another example is stepped-up barter transactions with foreign countries such as Indiana's grain-for-goods program with currency-strapped Mexico. (Likely the state of Ohio has similar barter transactions to cite.) Note that this is a *state*-level—not a national—transaction with Mexico.
- In advancing productivity, perhaps sending business executives to the Aspen Institute instead of to the American Productivity Center would produce a superior productivity payoff.
- Let's rigorously explore the tie-in of employee health (including stress-related ailments) with productivity. Skyrocketing medical-care costs are surely an additional incentive to study this connection. Ironically, while business executives continue to decry such escalating costs, they seem reluctant to invest in this opportune area for substantive, sustained research.
- For the academic community, it's time for getting out of the single department, single discipline rut. The productivity opportunity is for stepped-up cross-discipline research, publishing, and teaching to integrate, for example, behavioral science and econometrics in productivity studies.

Global and domestic productivity students *share* the need for innovative thinking and experimentation. This whole issue could stand what British creative-thinking expert Dr. Edward de Bono labels as "lateral thinking." Here is a sample of Dr. de Bono's provocative insight: "General agreement about an assumption is no guarantee that it is correct. *It is historical continuity that maintains most assumptions—not a repeated assessment of this validity.*"[4]

Why not revisit some of our time-honored assumptions about productivity? Do they still hold? Or do we *hope* they do?

Realize Government's Role

An old joke poses the question, "What are the world's three greatest lies?" The answer winds up with the third greatest lie and punchline: "I'm from the government and I'm here to help you." The snide insinuation is that government is counterproductive.

That insinuation is more funny than fair. Particularly when it comes to *global* productivity, there are some necessary actions where the government fulfills a necessary role. Only government can accomplish some things. On others, government does them best. Here are a few examples to buttress the assertion.

The U.S. Patent and Trademark Office has worked continuously with the People's Republic of China on its new patent law development. As a result, what is emerging is a new system (effective April 1, 1985) similar to the laws of most Western nations. Implicit is the Chinese rejection of the Soviet Union's and other socialist countries' approaches that typically rely on a combined system of patents and inventors' certificates which reserve exclusive right of use to the state.

This new Chinese system is compatible with the Paris Convention for the Production of Industrial Property. That agreement governs the United States and 92 other members on worldwide patent and trademark issues. With it, industrialized countries are far more likely to make financial commitments to China and R & D investments *within* China for its own and global productivity advancement. This important advance is one that only government could facilitate.

Another example concerns metric system conversion. The United States is the last hurrah among major industrial nation holdouts. Since standard weights and measures directly and positively influence international commerce and productivity, our holdout (however understandable) detracts from improving global productivity. But the point here is that *if and when* the U.S. decides to convert to the metric system, it would require considerable governmental support and guidance. (Just don't hold your breath. Thomas Jefferson proposed to the first Congress that our republic convert to a system similar to the French metric system. It still hasn't happened 200 years later!)

Let's turn to the United States Census Bureau to round out my list of examples. Although indirect, their global productivity implications should be apparent.

Within our Center for International Research is an international data base. Residing there are demographic, economic, and social data for 202 countries in the world. On-line access is now available to public sector users with private sector on-line access under discussion. Of course, off-line accessibility (by telephoning or writing) continues to be available to both sectors.

This same center routinely engages in subject-matter research; for example, it makes available input/output tables and analysis for Russia and China. Expertise and library-materials support distinguish this activity.

Also current in this center is the Women in Development project sponsored by the Agency for International Development. The project's purpose is to study the comparative role of women in the development process of countries, notably in less developed countries. Here women's role in productivity is under study on an *international* basis. (Incidentally, on the center's future agenda is an assignment to study ways to keep aging populations productive. Again, the proposed study will be international in scope and focus on the ways some countries are helping their aging populations contribute to—rather than drain—productivity.)

The International Statistical Programs Center is yet another pertinent activity within the Census Bureau.

This is a training and counseling arm of the bureau.

Through this center, we aid Saudi Arabia virtually in all of its census and survey work as part of the United States-Saudi Arabian Joint Commission on Economic Cooperation. Currently the center is preparing to launch a Spanish language statistical school covering a variety of applied statistics and survey courses for Latin American countries. Pending is the center's potential work for China. This would entail cooperative counsel on its 1986 industrial census and direct help in upgrading China's university system of statistical education.

These census bureau activities continue to enhance its global reputation as objective, non-political, and expert. Other countries can productively gain from our experience and counsel, secure in the knowledge that they can embrace our ideas without having to embrace our ideologies.

Parting Perspectives

In launching this symposium, I exit with two fast—and I hope lasting—thoughts. First, the opportunity for global productivity ever-improves as its need escalates.

Secondly, fresh insights and inroads should magnetize our efforts to capitalize on that ever-improving opportunity—and mounting need.

The world draws closer, periodically overcoming short-run military, economic, and geopolitical dislocations. Note how quickly and quietly normalization occurs after such dislocations. If not, how do we explain the following:

- Despite the official China outcry when its tennis star Hu Na defected to the United States, that same day the new Chinese ambassador to the United States routinely presented his credentials to President Reagan.
- Within months of the Soviet downing of Korean Airlines flight 007, global trade with Russia was "business as usual."
- And all during the British-Argentine war over the Falkland Islands, Evita played to standing-room-only audiences in London.

From a global productivity standpoint, as with silt deposits on a river bed, such individual symptoms go undetected and under-appreciated for their true significance. They are more resultful than eventful. But the opportunities suggested will surely go unrealized or under-realized unless an emboldened mindset surfaces. Composing our mindset should be an outside-in, cooperative view of the world; a renewed willingness to explore and to experiment; a questioning of old and a quest for new perspectives regarding "global productivity." My clarion call is for that mindset within an enlightened troika of academe, business, and government jointly guided by a future focus. How apt that sentiment seems for this symposium in this building—the Fawcett Center for Tomorrow.

References

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2. Staff, "The Third World and Tomorrow: An Interview with Rashmi Mayur," *The Futurist*, April 1984, p. 22.
3. See the September 22, 1982 issue of *The Chronicle of Higher Education* advertisement for "Dean—Graduate School of International Studies, University of Denver," p. 42.
4. Edward de Bono, *Lateral Thinking* (New York: Harper & Row, 1970), p. 91.

Hans B. Thorelli
E. W. Kelley Professor of Business Administration
Indiana University

Hans B. Thorelli is the E. W. Kelley Professor of business administration and former chairperson of the marketing department in the graduate school of business, Indiana University, where he teaches strategic planning, marketing management, and international business. His industry experience includes over three years at General Electric headquarters as a research and corporate consulting executive. While at GE, Dr. Thorelli was a member of the team which initiated the PIMS (Profit Impact of Market Strategies) program, now run by the Strategic Planning Institute. He is currently engaged in research on this unique data bank of 2,500 businesses from all kinds of industries.

Dr. Thorelli has extensive consulting experience in different industries and trades in the United States and overseas. In addition he has served as a consultant to consulting firms as well as to the United Nations, the OECD, and various U.S. and foreign government agencies. He has conducted executive development programs in a dozen countries and engaged in field research in another dozen, including the People's Republic of China.

He is an author or editor of 10 books and close to 100 articles in professional and trade journals. Dr. Thorelli is the editor of *Strategy + Structure Performance: The Strategic Planning Imperative*. The book presents the papers of the first interdisciplinary conference on the subject, a conference which he arranged in 1976. He headed up the team at the University of Chicago that developed the *International Operations Simulation* (INTOP), a widely used, computer-based, multinational, strategic planning exercise in the management game form. He also edited *International Marketing Strategy*, a readings book in international business. He has a special interest in economic growth in the less developed countries, as witnessed by his book, *Consumer Emancipation and Economic Development: The Case of Thailand*.

Dr. Thorelli was a delegate to President Ford's Summit Conference on Inflation and the Economy in 1974, and served on that president's Consumer Advisory Council. In September 1983, he was a U.S. delegate in the negotiations for an International Sugar Agreement in Geneva. He has been a vice president of the American Marketing Association. His Ph.D. and LL.B. degrees are from the University of Stockholm. He is an elected fellow of the Royal Academy of Engineering Sciences in Stockholm. Dr. Thorelli is listed in *Who's Who in the World* and numerous other directories. He is a public representative on the National Advertising Review Board (NARD).

Productivity, Multinationality, and the Business-University Network

by Hans B. Thorelli

Productivity Is a Multisplendored Thing

Speaking broadly, productivity expresses the relationship between goal achievement (output) and resources expended (input).[1] This definition is deceptively simple—but only if you assume, with the Chicagoans, that profit maximization is all that business is about. But in real life, no one knows whether he is really maximizing profits or not. In practice, management aims at a targeted rate of profitability and is satisfied if the rate is attained. Thus it is that *the modern corporation is not in business to earn profits, it earns profits to stay in business.* If profits are still a core objective, they are now surrounded by lots of satellite goals, such as market share, product leadership, employee and consumer satisfaction, quality assurance, and so on. We may also refer to such broad concepts as "social indicators" and the "quality of life of various stakeholder groups." To study productivity in all its ramifications, it is necessary to know *all* the objectives of an organization, as well as their relative weight, the degree of substitutability and the temporal sequencing among them. We would need to know analogous data about the inputs that go to produce these outputs.

This is a tall order indeed—and yet I suggest we should broaden our perspective even more. Traditionally, productivity has been seen as closely related to *efficiency*—the latter being the ratio of results actually obtained to the maximum results (theoretically) possible given the resource inputs. Thus, a certain turbine-generator may be said to convert hydro energy into electrical at 60 percent efficiency. By contrast, *effectiveness* concerns the *adequacy* of an organization's programs and pertains to the degree of goal attainment in and of itself. We know, for instance, that in some situations energy needs may be met more effectively by coal- or oil-based generation or by nuclear power than by hydroelectric. There is always a certain amount of tension between efficiency and effectiveness. We need to incorporate both when we think about productivity. Top management, especially, needs to raise the prior question of effectiveness more often before middle management gets carried away with its latest efficiency project. We tend to forget that typically it is more difficult to face the issue, "Are we doing the right thing?"

There *is* a grave danger in a one-sided emphasis on any single measure of productivity. For example, in the age of robots and computers, the classic, all-absorbing concern with *labor productivity* becomes a kind of theater of the absurd. We must also not let our obsession with numbers make us lose sight of the *quality* of output. The hand calculator industry in the 1970s provides a brilliant example of dramatic growth in productivity from several points of view. decreasing cost while drastically increasing quality in terms of functions performed and lessening weight and size. The achievements in efficiency were paralleled in effectiveness, in that consumers could fill ever more sophisticated needs at ever lower prices.

In sum, our message here is that we need a new focus on holistic and qualitative aspects of productivity, no matter that this will redouble our challenge. By the way, it should hardly need saying—but probably does—that the issues we have raised concerning productivity are equally relevant to academia in general and business schools in particular as they are to business itself.

Productivity Calls For Multinationality, Multinationality Calls For Productivity.

Herman Kahn taught us that in addressing the future we need a scenario. It is obvious that economic and technological forces inexorably move the economies of the world together, as witnessed by communications satellites, Ford's "World Car" (the Escort), GM's newly announced policy of global sourcing, and the simple fact that for three decades world trade volume has increased at a rate around twice that of the volume of global output. We live in a world of constantly greater interdependence in the sense of ever-growing opportunities to gain productivity from division of labor and differential advantage in terms of location, resource endowments, and skills. But scenarios are not made by environmental trends alone. They depend just as much on man's reactions to these trends.

This prompts us to sketch two alternative scenarios. We must take note of the fact that the prevailing mood is one of increasing resistance to change, to retard or reverse the dynamic of the world environment. Let me call this "the spirit of UNCTAD" (the United Nations Conference on Trade and Development), the organization which stands for maximum government intervention in the world economy. This mood originates in two factors. The first is nationalism. The second is the short-term concerns of politicians, certain captains (I would rather call them second lieutenants) of industry, and labor leaders anxious to preserve their power another few years with as little effort as possible. In 1934 there were some 100 nations. Fifty years later we have 167. Just imagine a world of 167 suboptimization centers where my productivity gains are made at your expense, and the average level of productivity is considerably lower than if we both had a global concept. This is *the scenario of provinciality*. It is neatly epitomized in that forgettable phrase, "The world is small, but Boston is big."

Our second view of the future is *the scenario of multinationality*. Under this scenario mankind is ready to embrace change, recognizing that global productivity calls for global resource utilization. This mood is "the spirit of GATT" (the General Agreement on Tariffs and Trade), the organization under whose aegis we have seen a groundswell of world economic intercourse. The prime mover has been the multinational corporation (MNC), which has done a lot more for international cooperation than the UN, its affiliate organizations and member governments put together. The trend toward multinationality is also observable at the individual level. Research in half a dozen Western countries in which I took a major part has identified the "information seekers," a segment of consumers common to the industrial countries of the world with surprisingly similar lifestyles and definitely cosmopolitan outlook.[2]

Assuming for a moment that the scenario of multinationality will prevail, what would be some of its implications? We need to strengthen GATT, adding some teeth to its enforcement provisions. The United States needs to resume its leadership role in resisting trade restrictions now being so vigorously propounded by special interest groups, of late at least as active here at home as abroad. We clearly need another reform of the world's monetary system. Perhaps even more badly we need to realize that the key bottleneck in economic development is the motley crew of so-called development economists who have populated the United Nations and most universities in the world for over 30 years. Their monotone gospel of promoting infrastructure, magnificent government buildings, and heavy industry is now more than ready for Chapter 7 bankruptcy proceedings. This "gang of 4,000" has even less idea than the man in the moon about what it takes to *motivate people*, to stimulate the common man to *want* to work for development. We need consumer emancipation, to make agriculture priority No. 1 (the splendid realization of the PRC), to devote enormous attention to incentive systems at the micro level, to transform LDC-type "cryptocapitalism" from being an obstacle to development to being an engine driving development.[3] We must act on the fact that real development is *balanced* development: balance between rural and urban, between managed and open sectors, between light and heavy industry, between short and long terms, and between self-interest and social responsibility in the LDC motivation structure.

This new emphasis on motivation—already so obvious in the huge-scale economic experimentation in the world's most populous nation—is bound to affect at least two major areas of public and private policy in the industrialized world. I am referring to public economic and technical development assistance policy and to the activities of multinational corporations (MNC), to which we will return in a moment.

Productivity calls for multinationality. As the experience of our steel and auto industries amply demonstrates, competitive survival in an environment of multinationality also calls for constant attention to productivity. Indeed, this is a key reason why multinationality is indispensable for global progress.

Productivity calls for networking. Of such diverse parentage as political science and physics, the idea of networking is currently being imported into marketing and other business disciplines.[4] Referring to long-term configurations of formally independent organizations, networks may be found in the interface between what Oliver Williamson has called markets and hierarchies.[5]

that is, between open competition and that semi-closed system, the individual organization. The nodes of the network are organizations; the linkages are flows of money, utilities, information, and, significantly, of power (influence), trust, social and professional bonds, and values. Distribution channels and standing relationships between industrial buyers and suppliers are familiar examples of business networks, as are trade associations, and, less savory, cartel arrangements. Clearly, networks may involve governments and non-profit organizations as well.

The emerging idea of network management is especially important in international business operations. Perhaps the most outstanding example is the network around the F16 NATO fighter, comprising literally hundreds of suppliers and scores of government units in addition to half a dozen assembly lines in as many countries.[6] More recently, we have General Motors' historic announcement that in the interest of competitiveness the world's largest manufacturer will make a deliberate switch from essentially national to essentially global sourcing of thousands of components. Networking is also the concept behind Peter Drucker's notion that the MNC of the future will be primarily a global marketer, leaving "production sharing" to scores of subcontractors in different countries.[7]

By far the most important potential of networking is its application to the relationship between LDC host governments and MNC. In the past this relationship too often was based on abuse of power by the MNC, or, more recently, by the LDC. Not infrequently it degenerated into a kind of illicit love affair with both parties involved in a web of cozy corruption. What is needed now for the sake of economic development is a broad recognition that in the MNC mankind has at its disposal an instrument for the transfer of technology—and I mean management and marketing technology as much as engineering—superior to any other alternative we have seen. It is equally important that networking between the MNC and the LDC be based on partnership and mutual respect. By the way, equal treatment will also be demanded by the increasingly more common MNC domiciled in the LDC as they will be facing protectionism and charges of "unfair" competition by "cheap labor" from host countries in the industrialized world.

Ideally, the LDC-MNC network might be manifested in a kind of "social contract," covering the entire range of mutual performance expectations. If so, it is natural to envisage a kind of periodic "management audit" or "productivity review," in effect examining the performance of the other party from the many different angles indicated by multiple goal structures.[8] Someone might object that this is productivity in too broad a sense. Our answer is that most of the melodramas of the past probably originated in too narrow—not to say narrow-minded—a view of objectives and, hence, of productivity itself.

Implications for the business-university network. We have it from an old Greek philosopher that humanity may be divided into two classes: those who divide humanity in two classes and those who do not. While obviously facetious, this dichotomization seems no more artificial than the drawing of rigid distinctions between businessmen and academics, doers and thinkers, or the short-hairs of the real world and the long-hairs of the ivory tower. By way of example, our friend Art Cullman has demonstrated that a single individual may combine all these roles, and find his way in different worlds, come short hair or long! It does not seem far-fetched, however, to divide managers into generalists and specialists.

What about the relative distribution of these two managerial types in the future? The answer depends on what scenario you believe in, that of provinciality or that of multinationality. In the scenario of provinciality we would see the development of new specializations and the further refinement of old ones. This has been the trend ever since World War II. In other words, under this scenario all we have to do is to carry on what I like to call the "school of business as usual."[9]

In the scenario of multinationality the specialists will still have their day. But they will be supplemented by a growing proportion of generalists. Generalists will provide the integrative, cross-functional force necessary to balance off the provinciality and propensity to suboptimize which are almost by definition the hallmarks of the specialist. The key characteristic of a generalist worth her or his mettle is not that she or he knows just a little about a lot of things but that she or he can see the forest for the trees. Most importantly, the generalist has a feel for *overall* productivity and multiple goals. There simply is no better breeding ground in which to develop this sense than multinational operations. Internationalizing the business school curriculum should be a top priority for the business-university network. Indeed, the MNC will need a lot more MBAs who are not just streetwise in the Harvard tradition but world-wise in the traditions of IMEDE and INSEAD. Jacques Maisonrouge uses the telling epithet "Renaissance person" to describe the international manager of the future.[10] This breed of MBA has cross-cultural transferability and can also fill an important role as a roving ambassador of MNC headquarters—a role that American business should learn to adapt from the diplomatic service.

Internationalization of the business school curriculum may be accomplished in several ways. The current philosophy of the American Assembly of Collegiate Schools of Business appears to be the traditional one of injecting some international contents into standard MBA courses. Experience strongly indicates that if this is all we do it is a mighty long and slow process. A special major in international business is another answer, which has worked very well for participants. The trouble is, however, that typically only a modest minority of students will then seek the benefits of international training, as company recruiters on campus generally look only for functional specialists, lofty boardroom declarations to the contrary notwithstanding. To me it is clear that we need to push in both directions.[11]

Among the "heavies" of the business school world, Wharton is taking an important initiative. In the past, the school has been content to be a slow follower of the AACSB signals about internationalizing standard courses. Following a major donation from Estee Lauder, Inc., specifically earmarked for the purpose, Wharton plans a new MBA in international business. Each year the school will enroll a cohort of some 50 students in the two-year program. One-half of the students will be American, one-half from overseas—the idea being cross-cultural pollination. The curriculum will be strongly international in orientation, a foreign language will be required (English in the case of the overseas students), and students will be expected to devote some time to area study of a world region.

Business-university networking could be the vehicle of promoting multinationality among the business schools in many other ways. MNC could offer internships in their international divisions "at home" or, even better, in their overseas operations in the summers between undergraduate and graduate schools or between the two graduate years. American business has taken remarkably trivial interest in AIESEC, the international internship exchange program sponsored by business school students around the world.

For overseas positions, U.S. companies should start hiring some Americans directly upon graduation. In the past, they generally have placed only foreign students in their native countries. While this is often natural and practical, if the company is to render its maximum contribution to a country as a change agent, it may not always be the best policy to hire only nationals of that country. As an erstwhile Scandinavian, I have found that the Viking spirit is alive and well among the young of this country. Rather than nipping this spirit in the bud by insisting that everyone conform to the corporate mold as traditionally interpreted, XYZ Corporation might do much better by hiring international business graduates, putting them through its regular one-year management trainee program, and then sending them overseas.

Meantime, let us not forget that foreign companies active in this country constitute an excellent proving ground for Americans interested in international business. Business schools should do a lot more networking with such companies than is presently the case. Let me add that a key point in the internationalization of the business school curriculum is learning to face the issues in meeting overseas competition here at home—currently a sadly neglected area.

In the field of research, there is also plenty of room for business-university cooperation. Let me just point to three areas of mutual interest. The first is focused on the crucial issue of standardization vs. differentiation in multinational business strategy. The key here is to find the balance between efficiency and effectiveness elements of productivity in international business operations. Despite its cardinal importance, we have just scratched the surface of this issue. The second (area of interest) concerns the relations between the LDC and the MNC. Why have they so often gone wrong in the past? What are the determinants of successful MNC-LDC networks? The third area may be defined as incentive structures for economic development, taking into account cross-cultural differences in social and political values, styles of life, and motivation. Especially crucial here is continuous monitoring of the incentive-structure experiments going on in the world's largest laboratory, the People's Republic of China. Such research should not be confined to the macro level but extended to joint ventures and the wholly owned operations of 3M and AMC as well.

We should not forget the mutually stimulating ideation produced by such beautiful illustrations of business-university networking as executive-in-residence-type seminars, academic consulting on business problems, and, of course, the Cullman Symposium itself.

Education, research, and consulting are classic areas of business-university cooperation. Let me make a final recommendation that goes a bit beyond past experience. Most members of the present audience are familiar with the Committee for Economic Development (CED). There are counterpart organizations in several countries—indeed, I once had the pleasure of heading the Swedish one. Perhaps now is the time to think about forming the Committee for Global Economic Development. This would be a joint venture between business and the academy in the best CED tradition.

Ladies and gentlemen, we have attempted to give a brisk overview of productivity and its meaning and requirements in the context of multinationality. We have also traced the implications of a global productivity approach to networking between the MNC and the LDC and, hence, to business education. This discussion provided the basis for our thoughts on new roles for business and the universities, for executives, and for educators. It seems to me that we can proceed at least a light-year further in business-university networking, harvesting mutual benefits—and yet without sacrificing the justly treasured independence of the academy.

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Global Productivity: Society's Goal, Business' Imperative

by Billy C. Christensen

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He was elected vice president, IBM World Trade Corporation, and president of IBM Europe in October 1967. In June 1971, he returned to the United States and was appointed assistant general manager, operations, of IBM Corporation's Data Processing Group. He was named assistant group executive of the DP product group in January 1972. Mr. Christensen was elected vice president, operations staff, and director of IBM World Trade Corporation in February 1973. In September 1973, he was appointed a member of the Management Office Committee. In 1974, he was elected vice president and member of the Board of Directors and the Executive Committee of the IBM World Trade Europe/Middle East/Africa Corporation. He assumed his present position in 1975.

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I applaud your choice of topics for this symposium. Global productivity is, in my conviction, the number one challenge facing us. It is *imperative,* it is *urgent* that we raise our productivity performance dramatically. Why? Because if we don't, our country will be unable to compete effectively in the marketplace. That marketplace, as you know, is the world.

Thinking about our ability to compete on a global scale is rather a new experience for us. Historically, Americans haven't been used to that view of things. For so long, we have worn mental blinders and thought our only real competition was within our own national borders.

But that's an attitude we can no longer afford—one more appropriate for the 1950s than the 1980s.

Today's world economy is highly interdependent, and the U.S. economy reflects that fact. Today we import and export twice as much of our GNP as we did just two decades ago.

Megatrends' author John Naisbitt put it like this: America is "going from a national economy—almost a self-contained economy—to a global economy. I'm not talking about a mere increase in world trade among 150 countries," Naisbitt said. "But rather a basic shift from a collection of country economies to a single, unitary, global economy."

Only those nations with strong productivity growth rates can win in this expanding and fiercely competitive arena. Productivity growth means getting more output per unit of input of our resources. Output, of course, refers to actual goods and services; input means labor, capital, and material resources.

As I've said, productivity and ability to compete go hand-in-hand. So we need now to look at America's productivity story. I'm afraid it's not a happy one. Let's open with the period between 1950 and 1965, when the rate of growth of labor productivity in the private business sector averaged three percent a year. In the next chapter—1965 to 1973—it slipped to 2.13 percent a year, and from 1973 to 1981, it collapsed to 0.64 percent annually. In just the four years between 1978 and 1982, we fell virtually flat on our faces turning in the worst performance since the early days of the Depression.

We hear now of a productivity revival with predictions of a return to the heady days of the early 1960s. While the very recent chapters of our story are promising, a strong note of caution is necessary. Historically, productivity jumps in the early stage of economic recovery for reasons which have no bearing on long-term improvement. What we must strive for is a *sustained* productivity growth rate. And that is why I call this an imperative for our society and for business at this crucial point. The danger is *complacency.* Instead, our sense should be *urgency.*

Long-term, sustained growth rates are essential for a competitive edge vis-a-vis other nations. Let's see how the U.S. compares. Between 1973 and 1981, Japan's labor productivity growth ranked the highest among the major industrialized countries with an average annual increase of 6.8 percent. The U.S. came in sixth after Japan, France, Germany, Italy, and the United Kingdom.

To appreciate the significance of this, we only have to do a little arithmetic. Let's say there is a country whose productivity growth is 5 percent a year faster than ours. If we started even, in 14 years, their average worker would be producing about twice as much as one of ours. Right now, the United States still has the highest absolute productivity, but in a few years, it won't. Not, that is, if other countries continue to have higher growth rates and we fail to raise our own.

Meanwhile, let's not overlook a rising challenge from the newly industrialized countries, or NICs as they're called, Mexico, Brazil, Korea, Hong Kong, Singapore, Taiwan. They're emerging as pretty stiff competitors in markets such as steel and consumer goods.

Against these countries, the U.S. has a sharp competitive disadvantage owing to its high wages. We get paid more than people elsewhere, no matter what job classification we may have. For production workers, the cost issue is most troubling. The demographics are just irrefutable. The developing countries have huge numbers of young relatively uneducated people—all of them flocking to the cities in hopes of a job. Even other industrialized nations have lower costs. For every dollar in wages and benefits paid to a U.S. production worker—a French worker gets 68 cents; a Japanese gets 49 cents; a Mexican gets 23 cents; and a Korean gets 11 cents.

That's quite a comparison. Consider products that require equal labor. When you have U.S. wage costs that are five times higher, you define a productivity improvement task of challenging proportions. And it's not one that we've attacked aggressively, as witnessed by our low productivity growth in the past decade.

To put it simply, we can't go on getting paid more unless we produce more. We have a standard of living that we've taken for granted in this country. But let's remember that this was achieved in the '50s and '60s when there wasn't the world competition we have today. Yet, labor expects to keep earning more, raising the standard of living indefinitely. The fact is, we cannot sustain—let alone improve—this standard of living without steady and significant productivity growth.

We've now defined the challenge we're facing and why it must be seized as a top-priority, national goal. So let's get to the solutions. First, I must emphasize that neither the public nor private sector can do it alone.

Management, labor, government, educators—all have roles to play in achieving such lasting productivity improvement. But I want to bear down hardest this afternoon on business.

What must business do? First and foremost, raising productivity needs to be made a central goal of long-run business strategy. Allow me to use IBM here to illustrate this basic point. Our chief executive officer, John Opel, articulated four specific goals for the corporation at the beginning of the 80s: growth, product leadership, efficiency, and profitability. The core of each is productivity. And the third goal spells it out clearly: to be the most efficient in everything we do—to be the low-cost producer, the low-cost seller, the low-cost servicer, and the low-cost administrator.

So our dedication to improved productivity is recognized at the top and communicated to each employee throughout the company.

This is obviously essential because if employees don't know where you're going, how can they be expected to help you get there?

With increased productivity defined as the goal post, how does business move down the field? The onus is on management. But that's not to say that employees are on the sidelines. In fact, the secret to success is teamwork, and I will drive that point home before long. For now, let me lay out the three keys that will turn on the productivity engines for business. They are product innovation, process innovation—and that is where technology plays a big part—and third, mobilization of resources.

By product innovation, I mean the development of new goods and services that truly meet the needs of consumers. These needs are changing dramatically, as the world changes. The innovative producer must be ahead of the game, understanding not only the demand today, but more important, the demand tomorrow.

For example, Japanese businesspeople began planning for the videocassette recorder more than 25 years ago. And the personal computer is a good illustration of meeting a radically changing market. The person who buys a computer today could be anyone, whereas in former years, he or she was typically a professional in the field. So, computers themselves must be different, must be easy to use, inexpensive, and produced in high volumes.

Product innovation takes investment in research and development. It also requires willingness to take risks. There will, of course, be some failures. But risk-taking must be encouraged in business. The objective is not to avoid mistakes, but to recognize and correct them quickly.

This spirit is alive and well in IBM today. Let me give you an example. To spur innovation and growth in new high-potential areas worldwide, such as telecommunications and robotic systems, IBM's solution is one of the most exciting, creative moves the company has ever made.

We've formed independent business units, called IBU's for short. These are like venture capital companies—they're small, have a clearly defined mission, their own board of directors, and are freed from the usual, time-consuming IBM headquarters reviews.

These units have the advantage of IBM's total resources backing them up. Yet, they're free to move quickly and creatively, which is essential to compete in their areas of focus where changes happen overnight. In case this strikes you as a great textbook theory, I think you'll change your minds when I tell you the first product to come out of an IBU was the IBM personal computer.

Closely allied to product innovation is *process* innovation. We're talking about moving the product from the drawing board to the market. Innovation here means finding new, cost-effective ways of doing business: making manufacturing improvements, streamlining administrative processes, reducing paperwork for office workers, and selling and servicing products in more efficient ways.

Here's where technology lends a helping hand. From the telephone to telecommunications, from the electronic typewriter to the mainframe computer—technology makes all these processes more efficient and cost-effective—which leads, of course, to increased overall productivity for the business.

Now let's turn to the third key to productivity which we call mobilization of resources. That sounds like a boring, complicated concept. But, relax. This is the human side of the picture. It's so simple that it isn't taught. But it's so difficult that it's rarely accomplished. It's called getting along together—consensus building between employees and management. Maybe—hopefully—the competitive challenge we face will *force* us to learn how to work as a team, like a wagon train coming together in a circle.

Unfortunately, too often we see a paralyzing animosity between management and employees. In fact, a recent study showed that only *13 percent* of American workers identify with their companies' goals. It is imperative that we replace this adversarial relationship with a cooperative one. Imperative if we are to pull our industry from its productivity slump and drive growth rates upward on a sustained basis.

At the heart of this cooperative spirit is identification with the company's goals. Employees must see their well-being as synonymous with that of their organization. Obviously, their jobs are at stake—if the company fails, they're unemployed. That's important, but job security need not be the sole reason employees identify with their organization. Rather than feeling that they're just putting in time, just earning a living, employees who are enthusiastic about helping their company will have a lot more fun on the job and—incidentally—be more productive.

There are ways that management can encourage this identification with the company's goals. First, as I mentioned earlier, these goals must be communicated from the top down.

For employees to see productivity as a high priority, attention must be paid at the top management level—vice presidents focusing on this, for example—and then the message must be communicated to every level throughout the company.

Management must offer real incentives, both financial and nonfinancial, to managers and employees working together as teams to achieve greater productivity growth and competitive ability. If you need long-term improvement, you must be sure to include long-term incentives.

As companies innovate and become more cost effective, changes are inevitable. Certain jobs may disappear or require different skills or greater knowledge. Adaptability is crucial for the employee in this situation. This will happen when they have identified their interests with the company's.

Management's job is to provide retraining opportunities and education to prepare employees for future needs.

Jobs may become obsolete, but people should not. Just as management looks ahead and plans for market changes, they must also look ahead at what skills will be needed in the future. They must do everything possible to prepare employees for change. This attitude incorporated in overall planning fosters employees' trust in management and thus cooperation.

There are numerous other ways to involve employees in striving toward corporate goals, such as quality circles, gain-sharing compensation systems, encouraging investment in the company. Each employee of People Express Airlines, for instance, has an average of $40,000 worth of stock in the company. That's what I call having an interest in your company.

These are a few of the ways companies can foster this cooperative spirit essential for industry to meet the competitive challenge.

If you're at all skeptical, let me assure you it's working for many companies. You may have heard about the Delta Airlines experience in late 1982. To thank Delta for a totally unexpected pay raise, the employees got together and, through their own contributions, literally bought a $30 million Boeing 767 for the company. This happened during a very depressed time for the airline industry. Other airlines were laying people off. Delta didn't, although its profits were falling, as well. Historically, Delta has had that kind of positive relationship with its employees that I've been describing, based on excellent pesonnel policies.

That's a dramatic and amazing example of employee identification. I can actest to many examples within my own company over the 34 years I've been with IBM. Again and again, I've seen employees show this spirit through willingness to adapt to change within the company. Some years back, we converted an entire plant from traditional electromechanical production to sophisticated micro-circuitry.

One hundred percent of the employees were trained for new and considerably more challenging responsibilities. Employees demonstrated a commitment to the changes and in a survey expressed their approval of the decision despite personal and professional disruption.

It is the responsibility of management to create an atmosphere in business for this kind of cooperation. The means I've described are but a few. I hope many more will be introduced in years to come.

Now I've talked about what business can and must do—and how steep a hill we are climbing to achieve our goal. But again, I stress that we in management cannot do it alone. Furthermore, we cannot hope to be successful without the support of sound public policies. These external factors have been working against productivity improvement efforts in many key ways.

You might see it as trying to climb a mountain with a heavy backpack and going against the wind . . . or, for the Buckeye fans in the room, like trying to make a touchdown with defensive ends grabbing your ankles and a 200-pound tackle on your shoulders.

We need government to put the wind at our backs, run interference, and take some of the load from the shoulders of the private sector.

For our efforts to be effective, the public sector must provide a stable, predictable environment that will allow business to take risks and invest in research and development for long-term gains.

Let me name a few of these important measures government must take:

First, increase funds for basic research and development.

Second, promote capital formation by removing disincentives to savings. To raise our low rate of savings, Americans must be encouraged to save—not consume—thus providing more money for investment.

The productivity—conscious Japanese save more than 20 percent of their disposable income, while we in the U.S. save only about 5 percent. This is a tremendous loss of fuel for productivity.

Third, reduce unnecessary and costly regulations. Government regulations have raised the costs of business by diverting potential investment capital to non-productive uses. Experts agree that the impact of regulation on the productivity growth rate is clearly negative. Studies have found that 10 to 15 percent of the productivity slowdown in the 1970s resulted from an increase in government regulations.

My point is, public policies must take into account productivity consequences. Together, government and business can play a very decisive role in productivity improvement and make our country the number 1 competitor now and in the future.

Before I conclude, let me talk a moment about the very special role you—educators and students—must play. Since I have a captive audience, I can't resist the temptation.

Let me share a dismal statistic I heard recently at an international management conference in Washington. Three out of four Americans get up each morning without the feeling that they must do their best. Now, that kind of attitude didn't develop overnight . . . it started in the early years.

From kindergarten to graduate school, there must be an emphasis on doing one's best. At IBM, we have a productivity slogan: "Do it right the first time." That attitude must be instilled early, long before people enter the workplace. If young people do not get in the habit of striving for excellence, do not take pride in what they produce—whether it be a crayon drawing or a complex math equation—it's going to be awfully tough for them to learn on the job.

And it makes management's job that much tougher, as well. So I urge you to join in this effort, this imperative facing our society.

I want to close with an optimistic statement—my personal conviction in a few words: "We can make it." I believe that's an appropriate message, if we work together to meet the competitive challenge and put all our energy and ideas into solving the productivity problem.

Those of you from the business community, I know, struggle with the productivity issue on a daily basis. Your contribution is crucial to our nation's success in this effort. Success, too, will depend greatly on those of you educating tomorrow's businesspeople.

And as I look around the room, it is very encouraging to see so many students. Your presence here today is cause for optimism. The fact that you're interested in this issue and aware of its importance to our society is a great sign for the future of industry.

Thank you.

■

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