



CENTER FOR BUSINESS ETHICS
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CENTER FOR BUSINESS ETHICS

RAYTHEON LECTURESHIP IN BUSINESS ETHICS

November 4, 2010

ETHICS AS A BUSINESS STRATEGY

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BENTLEY UNIVERSITY is a leader in business education. Centered on teaching and research in business and related professions, Bentley blends the breadth and technological strength of a university with the core values and student focus of a close-knit campus. Our undergraduate curriculum combines business study with a strong foundation in the arts and sciences. The McCallum Graduate School emphasizes the impact of technology on business practice, in offerings that include MBA and Master of Science programs, PhD programs in accountancy and in business, and custom executive education programs. Located minutes from Boston in Waltham, Massachusetts, the school enrolls approximately 4,000 full-time undergraduate, 250 adult part-time undergraduate, 1,400 graduate, and 30 doctoral students. Bentley is accredited by the New England Association of Schools and Colleges; AACSB International – The Association to Advance Collegiate Schools of Business; and the European Quality Improvement System (EQUIS), which benchmarks quality in management and business education.

The Center for Business Ethics at Bentley University, founded in 1976, is a nonprofit educational and consulting organization whose vision is a world in which all businesses contribute positively to society through their ethically sound and responsible operations. The center's mission is to provide leadership in the creation of organizational cultures that align effective business performance with ethical business conduct. It endeavors to do so by the application of expertise, research, education and a collaborative approach to disseminating best practices. With a vast network of practitioners and scholars and an extensive multimedia library, the center offers an international forum for benchmarking and research in business ethics.

Through educational programming such as the Raytheon Lectureship in Business Ethics, the center helps corporations and other organizations to strengthen their ethical culture.



Ethics as a business strategy? This is an idea that has aroused many lively debates in which self-proclaimed “realists” pass off the idea of “doing well by doing good” as no more than window-dressing. This is a serious debate that can’t be settled with a quick turn of phrase. At stake is not only the legitimacy of business ethics, but business itself. The cynics who deny the reality of responsible business typically claim that either business is fundamentally immoral, or that,

in the pursuit of profits, businesses ought not to preoccupy themselves with matters of ethics and social responsibility.

I’m pleased to say that Andrew N. Liveris of The Dow Chemical Company is no such cynic. He recognizes that being ethical does not always lead to immediate profits — the company that withholds bribes and loses a deal is a case in point. Moreover, he also accepts the business ethics perspective that corporations are social entities that depend on and are responsible to a network of stakeholders. A company which, for example, returns a hefty dividend to shareholders while polluting adjacent waterways sacrifices the interest of one stakeholder over another.

The challenge of business ethics is to advance business while respecting the interests a company’s various stakeholders, including shareholders, workers, and members of the communities in which a company operates. Chemical companies are an important test of this idea. Modern society can’t live without chemicals. The question is, can chemical companies respond to market needs without harming the ecosystem on which all life depends? Mr. Liveris addresses this question head on. His response: “We came to see these new global challenges as opportunities for Dow... [where] the world’s most pressing challenges intersect with our ability to make a difference and make a profit.”

Hearing Andrew speak, I am once again reminded of how grateful I am to the Raytheon Company for sponsoring this series as it provides us with an opportunity to put business ethics theory to the test with real-world businesses. This is a world in which chemical companies have a vitally important role. Mr. Liveris argues persuasively that Dow is able to flourish while pursuing a strategy that supports the moral requirement of society.

After attending this talk, I am even more optimistic about the business ethics movement. After reading this monograph, I think you will be too.

W. Michael Hoffman, PhD

*Executive Director, Center for Business Ethics
and Hieken Professor of Business and Professional Ethics
Bentley University*

THE RAYTHEON LECTURE IN BUSINESS ETHICS AT BENTLEY UNIVERSITY is made possible through the generous support of the Raytheon Company. Raytheon is a technology and innovation leader specializing in defense, homeland security and other government markets throughout the world. With a history of innovation spanning 89 years, Raytheon provides state-of-the-art electronics, mission systems integration and other capabilities in the areas of sensing; effects; and command, control, communications and intelligence systems, as well as a broad range of mission support services. The company reported sales of \$25 billion in 2010 and employs 72,000 people worldwide. It has built a reputation for adhering to the highest ethical standards in the industry. The lectureship series aims to illuminate and promote ethical values and conduct in business, highlighting best practices in corporations throughout the United States.

Learn more about Raytheon online at www.raytheon.com.



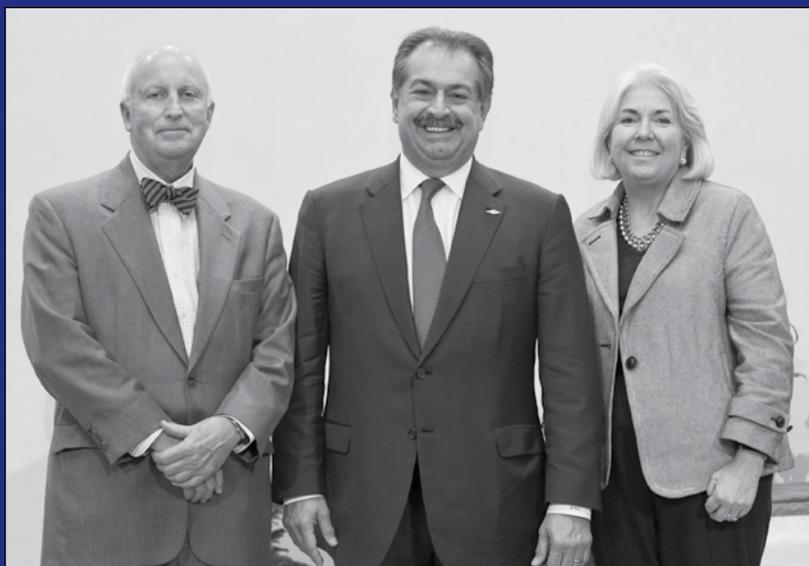
Ethics in business is about so much more than just following rules. Fundamentally, it is a matter of creating the right culture in our organizations, so that people have the ability and support to make decisions that are not only effective, but consistent with the values and principles we hold dear. Raytheon has worked very hard in establishing an ethical business culture that is accepted by our employees and woven into the fabric of the ways in which we work. Our continued growth and profitability depend on it.

Raytheon has supported the Center for Business Ethics at Bentley University for many years, and our sponsorship of its Lectureship in Business Ethics is an important commitment for the company. We recognize the enormous value of the leadership given by the center for more than three decades, to promote ethical business practices and cultures in the United States and around the world. And ethical leadership — illuminating and inspiring conduct that is instinctively ethical — is what the Raytheon Lectureship in Business Ethics is about. I'm proud that Raytheon can play a part in bringing to the Bentley campus highly respected leaders of companies that have a manifest and deep-rooted commitment to doing business in the right way. Their insights contribute much to an important discourse on how the business community can and should achieve ethical excellence.

William H. Swanson
Chairman and Chief Executive Officer
Raytheon Corporation

THE DOW CHEMICAL COMPANY is a global specialty chemical, advanced materials, agrosiences and plastics company based in Midland, Michigan. The company delivers a broad range of technology-based products and solutions to customers in approximately 160 countries and in high-growth sectors such as electronics, water, energy, coatings and agriculture. In 2010, Dow had annual sales of \$53.7 billion and employed approximately 50,000 people worldwide. The company's more than 5,000 products are manufactured at 188 sites in 35 countries across the globe.

More information about Dow can be found at www.dow.com.



(From left) W. Michael Hoffman, founding executive director of the Center for Business Ethics and Hieken Professor of Business and Professional Ethics at Bentley; Andrew N. Liveris, chairman and CEO, The Dow Chemical Company; and Patricia Ellis, vice president of business ethics and compliance at the Raytheon Company.



Andrew N. Liveris is president, chairman and chief executive officer of The Dow Chemical Company. Liveris' 34-year Dow career has spanned manufacturing, engineering, sales, marketing, and business and general management. He has spent the bulk of his career in Asia, where he was general manager for the company's operations in Thailand, and later president of all Asia-Pacific operations. He began his Dow career in 1976 in Australia.

Liveris was born in Darwin, Australia and attended the University of Queensland in Brisbane, graduating with a bachelor's degree (first-class honors) in Chemical Engineering. He was awarded an honorary doctorate in science by his alma mater as well as being named *Alumnus of the Year* for 2005.

Liveris serves on the board of directors of IBM and Citigroup. He is president of the International Council of Chemical Associations, vice chairman of the Business Council, a member of the executive committee of the Business Roundtable, a member of the President's Export Council, the US-India CEO Forum, the Peterson Institute for International Economics, the American Australian Association, and is a trustee of Tufts University.

Ethics as a Business Strategy

THE RAYTHEON LECTURESHIP IN BUSINESS ETHICS
AT BENTLEY UNIVERSITY

November 4, 2010

ANDREW N. LIVERIS

Chairman and CEO, The Dow Chemical Company

It is a pleasure to be here with you, and an honor to be asked to give Dow's perspective on business ethics.

Business executives aren't often asked for their views on ethics these days — unless it is by a congressional subcommittee.

This is a far friendlier forum than that, I am glad to say. I want to start by thanking Raytheon and my friend Bill Swanson for sponsoring this lectureship. These discussions, as you know, are vital to the health of the corporate community. Thank you for supporting them.

I am extremely impressed by what this university and this center have done to put ethics in the spotlight throughout the business community. Your work here at the Center for Business Ethics is a constant reminder that all of our institutions — including those in the business world — must be built on a culture of trust.

At Dow, we share that belief. Dow's values are at the core of ethical behavior, and they drive The Dow Chemical Company from the bottom to the very top. The way we treat each other. The way we treat customers and suppliers. The way we treat our investors and our communities.

Now I do not expect you to take that on faith. Intentions are of course important, but we in business — as in any other walk of life — must be judged by our actions.

Ethics, after all, are not supposed to be abstract principles. They are supposed to be doctrines for the way we behave, the way we work, the way we conduct ourselves in life as well as business.

Today, in that spirit, I want to give you a sense of how we at Dow have embedded ethical behavior — the adherence to Dow's values — into our everyday business strategy.

I want to begin with a brief overview of our values and our vision. Every company has those, of course. You can see them pasted on bulletin boards in nearly every break room.

What I want to illustrate for you today is how we have taken those documents down off the wall and integrated them into our business strategy and our everyday work. I want to show you how we have brought them to life and infused them with the power of what we call the "Human Element."

For me, this is the most interesting aspect of ethics — and perhaps the most unexpected for the people who know The Dow Chemical Company the least.

At Dow, we have entered into what I consider to be the third phase of business ethics. Each phase has been important. But our evolution into this third phase has transformed our company most profoundly. And this new approach, if broadly applied, has the potential to truly transform the way the world does business.

Let me explain.

The Great Awakening

The first phase of business ethics is what I consider to be the Great Awakening, that period that began in the 1970s as businesses, corporations, governments — and even the medical and legal fields — felt increasing pressure from the public to reform.

I think U.S. Attorney General William Saxbe captured the mood in 1974 when he spoke out against what he described as the "seamy" side of business.

Saxbe said that there was, and I am quoting, "the feeling among too many in the business community that any means are acceptable to achieving profits and that the crime is not in the doing but in the getting caught." Keep in mind that Saxbe was a pro-business Republican.

That kind of broad and angry sentiment was a great wake-up call for the business community. It led to the first national conference on business ethics — and the founding a few years later of this wonderful institution at Bentley. Importantly, it also led companies en masse to reassess their internal processes and codes of conduct.

Dow's Code of Business Conduct developed out of this period. It remains an extremely important framework of accountability for everyone in the organization. Those guidelines — along with our core values of integrity, respect for people, and protecting the planet — dictate not only how we treat one another but also how we conduct business around the world.

I am optimistic that most corporations have codes similar to ours, and have disseminated them throughout their workforce and backed them up with internal governance mechanisms.

Dow has very senior people who run our Office of Ethics and Compliance, for example. As a global company, our ethics committees interact with employees around the world. These committees not only run our feedback systems — like our EthicsLine — but they work together to oversee our training programs, communicate Dow's values, and conduct independent investigations, free from corporate influence.

That is a hallmark of the Great Awakening, when businesses began writing down — for ourselves and the outside world — that “this is how we will behave” and “this is how you should hold us accountable.” It was an important first step for the business community in general, and helped create more transparency and more awareness throughout every sector of society.

Did it bring about a golden age of corporate ethical behavior? No.

Saying you believe in ethical behavior and actually acting ethically are two different things.

You only have to look back at the past decade — at the accounting scandals, the deception, the criminal convictions, the eroded trust — to know that the business community still has a long way to go.

But what's most important is this: Making a clear commitment to better business practices was a good — and necessary — first step. So yes, we are making progress.

Triple Bottom Line

Still, that first step, as I have suggested, was incomplete.

That is because it failed to account for the fact that corporations exist in a broader community and that we are granted — by law and by society — certain rights and privileges. And when you have rights and privileges, you also have obligations. Those obligations extend beyond the financial to all of those who have a stake in our business.

Once the business world accepted that broader notion into its culture, we moved into the second phase of business ethics. Starting in the late 1980s, we began thinking in terms of the “triple bottom line” — of the economic, environmental and social impact of our actions.

We began talking not only of shareholders, but of stakeholders — a much wider category.

Remember that by the 1980s, the world was shrinking — corporations were growing — and their influence was expanding so massively that in some respects, it exceeded that of governments.

Here is a remarkable fact that explains why companies like mine felt a real need to get this part right. Depending on how you count, there are about 195 countries in the world today. The bottom 100 of those last year had a combined GDP of about \$900 billion.

Now here is the remarkable part: That number is smaller than the combined revenues of the three largest companies in the world — Wal-Mart, ExxonMobil and Royal Dutch Shell.

I think the first President Bush put into words what those of us promoting free enterprise were coming to grips with in the 1980s and 1990s, as our influence on people's lives grew so dramatically.

Standing on the floor of the New York Stock Exchange, President Bush reminded us that, "In the long run, there is no capitalism without conscience. There is no wealth without character." To which I would simply add: There are no privileges without obligations.

The implications were clear: if we operated without a conscience — if we failed the character test — if we failed to look beyond the economics of our enterprise, we would compromise our license to operate.

"License to operate" was a particularly strong idea in the chemical industry, which I represent. In the late 1980s, our industry came together and began promoting the concept of "Responsible Care," a global initiative that encourages chemical companies — and I am quoting — to "work together to continuously improve their health, safety and environmental performance, and to communicate with stakeholders about their products and processes."

At the same time, our companies became more actively involved in the communities where we operate: Promoting volunteerism, for example, and recycling programs, and diversity initiatives. Our efforts to improve our social performance were especially strong in education, where we began reaching out to classrooms and chemistry labs in real, tangible ways. We donated equipment, donated people, donated money — a lot of money — and dedicated our expertise to improve education in science, technology, engineering, and math.

In 1996, Dow formalized our intentions in these areas and gathered them under one umbrella called the 2005 Environmental, Health and Safety (EH&S) Goals.

This was a set of groundbreaking, aggressive, and transparent goals to improve our performance across a wide range of health and safety initiatives. The goals spanned 10 years and called for quantum changes in our EH&S performance.

Embracing the triple bottom line allowed us to make an even greater difference on a global scale. That was especially clear when it comes to the environment and, in particular, energy and climate change.

The chemical industry is among the world's largest users of fossil fuels. In fact, Dow's global operations use the energy equivalent of 850,000 barrels of oil every day for energy and feedstocks. So it was important to us — and important to the environment and the world — that we find a way to reduce that demand.

Now, this was not a cheap endeavor. We have invested well over \$1 billion to reduce our energy intensity and our emissions over the past several years.

The payback? Since 1990, Dow has reduced our energy intensity by 38 percent and since we announced our first goal to reduce our intensity by 20 percent in 1994, we have saved 1,700 trillion BTUs of energy — and prevented 86 million metric tons of carbon dioxide from entering our atmosphere. This energy savings is equivalent to all the residential electricity needs of California for 20 months.

During that same time, we reduced our absolute greenhouse gas emissions by 22 percent — well beyond targets set at Kyoto — and we have driven more than \$9 billion in savings and efficiency straight to our bottom line.

So it was good for the environment, good for Dow's economics and good for our fellow citizens. A triple win for the triple bottom line.

And that is just one of many great success stories that became possible when we expanded our concept of ethics beyond codes, guidelines and simple compliance.

Still, the triple bottom line — as it is practiced most commonly today — has one great limitation.

Most corporations treat their triple-bottom-line programs as an add-on, a necessary — but separate — piece of their business.

Foundations give out money. The Environmental, Health and Safety teams work to improve community and employee well-being. Public affairs teams make sure there is a dialogue with communities and there is a strong effort to be a good neighbor.

All of these are good and worthy actions. And I would not minimize the positive impact they have had on the business world and its many stakeholders, just as I would not discount the importance of the Great Awakening. Both phases were important stepping stones to where we are today.

But Dow realized several years ago that, given the company we aspired to be, there was more we could do. There was more we had to do.

If we wanted to continue growing our company, while being true to our values, we realized we would have to actually integrate the triple bottom line sense of ethics to our business strategy. We would have to, in other words, make the Human Element a central part of our day-to-day business activities.

That's the next phase. As I said earlier, it is not only the most exciting phase, but I am convinced it will be — by far — the most transformative.

The Great Integration

Already in the six years since I became CEO and started us down this path, Dow has merged vision and values in a way that has transformed our business strategy.

Some of you may have read about the changes we have made in our structure and business strategy to seize the opportunities of this new century.

Much less well known is what I call our “Great Integration” — how we have infused the values of sustainability and corporate responsibility into the DNA of the “New Dow.”

Let me explain, beginning with a brief description of Dow's transformation.

When we examined the business environment several years ago, we saw what we call “mega-trends” emerging. These are game-changing global societal shifts that will shape the way we live, work and play during the next several decades. They are redefining the critically important market segments of health and nutrition, energy, consumer behavior, and transportation and infrastructure.

Consider this: The world's population is expected to grow from about 6.6 billion today to more than 8 billion over the next 25 years. The impact from this growth is astounding. The implications it has for our environment — for our food supplies, for our ability to find affordable housing and clean water — are immense.

Around the world, every year, 1.5 million people die because of water-related illnesses. Every day, some 16,000 children die from hunger-related causes.

The fact is that as the world gets smaller — and humankind's problems become more complex and challenging — the stakes are raised for all of us.

We came to see these new global challenges as opportunities for Dow. In a real sense, they represent a vast sweet spot — here the world's most pressing challenges intersect with our ability to make a difference and make a profit.

Over the past six years, we have literally rebuilt, reshaped and refocused our portfolio of businesses to meet these challenges. Those changes are well-documented and you can track them in the business press and in news stories.

What is less well known — and much less understood — are the cultural changes that have taken place in that time, most especially what I call the “Great Integration” of the triple bottom line sense of ethics into our business strategy.

Remember the 2005 Environmental, Health and Safety Goals I mentioned earlier?

Once we made progress on those, we immediately took on more ambitious challenges to get us to this next level of integration. We call these our 2015

Sustainability Goals. They represent our intent to not only continue improving our EH&S performance, but to step up with even more far-ranging, more integrated, more collaborative and more innovative goals. At the core of that integrated strategy is our approach to sustainability.

For example, we know that global energy use is expected to rise 70 percent by 2050. Energy consumption is expected to grow by 14 percent in the U.S. alone and we anticipate the vast majority of that demand to be met with fossil fuels.

At the same time there is growing recognition that we need to slow, stop and ultimately reverse the growth of greenhouse gases that come from the burning of those same fossil fuels. How is Dow responding?

First, we looked internally and recommitted ourselves to making our plants and operations even more efficient and we are continuing to make great progress.

Second, we began searching for real solutions that will help mitigate this crisis for the rest of the world. So today, we are not only developing alternative feedstocks for our facilities, we have also embarked on a huge effort to develop and promote new energy efficiency solutions for customers. Everything from new forms of insulation to new solar shingles for residential homes. Dow has, for the first time in history, made solar power affordable to the masses. It is a fantastic story.

In the transportation field, we are responding to the need for more efficiency and alternative solutions in a variety of ways. We are building a new facility to manufacture 1.2 billion watt-hours of large-format affordable lithium-ion batteries — enough to power 60,000 fully electric or hybrid electric vehicles annually. And we have developed a new filter that reduces particulate emissions from diesel engines by up to 99 percent. Other products from Dow make vehicles lighter, safer and more efficient than at any time during history.

Those are just a few examples of how the triple bottom line integration is driving our energy strategy.

But it goes beyond energy. Those same people who will be demanding more and cleaner energy will also need affordable housing. They will need clean water and access to affordable, nutritious food. These are the basics of human existence — and yet providing these basics remains one of mankind's greatest hurdles.

For a science company, they also represent a vast opportunity to do good. Again, just a couple of examples.

In the health and agriculture area, we have developed innovative new corn seeds that are not only more drought tolerant but also boast new levels of performance for weed and pesticide controls. At the same time, we have developed new Omega-9 canola oils that have zero trans fat and the lowest saturated fats among cooking oils. Over the past three years, they have replaced nearly 500 million pounds of so-called “bad” fats — or trans fats — in North America.

In water, we have developed reverse osmosis filters that today affordably treat billions of gallons of water every day in some of the least hospitable environments on earth.

As I hope you can see, our entire business strategy is now guided by triple bottom line thinking. From the businesses we choose to be in, to the products we develop and market, and to the R&D investments we make — all are integrated with an eye toward solving the mankind's largest challenges.

In this third phase of our commitment to business ethics, we also realized that if we wanted to be part of the community — more than a neighbor and more than an employer — we needed a new approach to things like philanthropy and community engagement.

Instead of protecting our license to operate, in other words, we are now working to create sustainable conditions for our communities — and for us — to be successful.

The days of checkbook philanthropy, for instance, are gone. Today, we are leveraging our corporate citizenship contributions by aligning them to our

business strategy, too. We make contributions where we can gain economies of scale and foster innovations that can sustain change.

In practice, that means we are forming many more — and many more innovative — public-private partnerships than ever before.

One great example is what we're doing with a group called WaterHealth International.

Dow is a world leader in developing and providing water solutions across nearly all markets. From filtration to purification and separation technologies, we have unmatched expertise and an unrivaled commitment to use that expertise to solve the world's water crisis.

So one of our projects is providing WaterHealth International with a \$30 million loan guarantee and a great deal of functional capability to help finance 2,000 turnkey systems that will eventually supply clean water to more than 10 million people in rural India.

In the old model, we might have provided them with a check and said, "Go do good work." Today, we're working with them, hand-in-hand, to make sure their business model is sustainable and scalable.

This hands-on approach means that this one project has the potential to impact millions of the poorest people on earth. We are working with the local NGO and the village government to ensure ownership of these water systems passes to the villages in such a way that they are economically sustainable.

That kind of effort would not have been possible in a non-integrated model.

Another quick example, again in the water field: Dow supports something I hope you have heard of called the Live Earth Run for Water. One of the participating cities was Marlborough, Massachusetts, just a few miles west of where we are today.

By partnering with Live Earth, Dow was able to bring a tremendous amount of focus to the fact that one in eight people around the globe lack access to clean water. At the end of the day, Live Earth was the largest awareness, education and fundraising water initiative in history.

This project is the result of a commitment I made at the Clinton Global Initiative in 2009 to use Dow's resources and our expertise to push for real solutions to this crisis. And it is another example of how infusing our concern for our fellow human kind can make a tremendous difference.

The Great Integration, the third phase of business ethics, ensures that each initiative is supported at a level that could not be achieved before. In other words, it is not only the right thing to do, but it is also the economically right thing to do inside and outside the company. We have found that where there is an opportunity to make a sustainable difference, there is also an opportunity to make money.

That is what President Bush meant by "capitalism with a conscience." That is how Dow is innovating — across our entire company — to develop solutions essential to human progress by providing sustainable solutions to our customers and our fellow man.

At the end of the day, I hope we are practicing the belief that Henry Ford — another Michigan entrepreneur — described more than a half a century ago: that "a business that makes nothing but money is a poor kind of business."

Do not get me wrong: Profit is important. It gives us the opportunity to sustain our business, reward our shareholders, support our other stakeholders and reinvest for new solutions and new innovations. But the modern-day corporation cannot exist solely for the intent of maximizing profits.

Modern-day corporations need a modern-day lens. And if you embrace the view — as we do at Dow — that we are part of the world and therefore have an ethical obligation to help humankind move forward — then business, any business, can be so much richer and more rewarding.

I like to think of the first phase of business ethics as an awakening of business to the idea that sustaining business on the planet meant protecting them from within the enterprise, where our values defined our culture but external audiences were ignored.

The second phase — the triple bottom line — introduced sustainability as a concept and created parallel programs where business was a partner — but not a driver — to sustaining life on the planet. Here, profit and planet co-existed.

The third phase introduced the integration of the idea of sustainability with the concept of sustainable life on the planet to create sustainable growth, where business has now become the driver and the enabler to protecting life on the planet.

That's why, at Dow, we have introduced “protecting our planet” as a value.

Before I take your questions, let me close with a special message to the young people in the audience. I understand how tempting it is for every generation to think that older generations are out of touch and perhaps even misguided. It is too easy to read the news headlines and conclude that business has no interest in ethics. And there is increasingly — among younger people — a feeling that “common decency” is neither common nor decent.

My message to you is this: Do not give in to that view. Do not succumb to that cynicism.

Push against it. Take your values, your morals, your ethical beliefs, your ideals, and insist that companies live by them. And do not do it from the sidelines. Sign up. Join in. Get involved.

If you do, you will find — as I have — that even the largest corporations are collections of individuals, and that every individual, from the shop floor to the board room, can make a difference.

The key is to remember that there is only one planet Earth — that we are all on it together — and that the solutions to our problems will only come when we work together — collaboratively — toward mutual goals — and with our imaginations unleashed.

At Dow, we call that the power of the Human Element — the 119th element on the periodic table but the one that makes the difference. You.

Thank you.

Below are highlights of Andrew Liveris's question-and-answer session with the Bentley University students, faculty, staff and guests.

Question: I work for a company in Pakistan that has been a customer of Dow's for the last 25 years. About two years ago, your company left Pakistan, possibly due to political instability. I feel that your loyal customers were left sort of neglected and pushed away. Dow had something like 70 percent of the market 25 years ago and today it no longer has a presence. From an ethical standpoint, do you think it was the right decision to leave such a large market and loyal customers?

ANDREW LIVERIS: Thank you for the question. Your question is about political risk and how we at Dow look at enterprise risk. We use a very robust system that grades the likelihood and impact of negative events. If a country has a high likelihood or high impact of negative events, we have to put safeguards in place. When you operate in 170 countries like we do you're working on that all the time. We've had incidences around the world where we've lost our assets, and we've lost people due to terrorism. We've got to protect our enterprise, and more importantly our people. At the end of the day, that's what leads to decisions to exit markets. We don't exit customers, we exit markets. We try to continue to supply those customers through other channels. Unfortunately Pakistan is at the intersection of some of the greatest issues with which humankind is fighting in this age. With the risk of losing business, we have had to put safeguards in place to protect ourselves and our people.

Question: I am wondering if your company engages in social responsibility more for profit or more for the community?

ANDREW LIVERIS: Absolutely for the community. We try to have social responsibility integrated into the whole company. We think of ourselves as having 150 hometowns, and those hometowns employ a lot of people. More importantly though, is that for every one job there is inside of Dow, there are five jobs outside of Dow that are dependent on us. In our home community of Midland, Michigan, there are roughly 10,000 people that we employ in that area alone. Nearly everyone in the town (of 40,000 people) is part of our social fabric. We believe that the quality of life in that town should be as high a level as anywhere else in the world. And when we go to an emerging nation, we bring that same high standard of living with us. We do not compromise. Some people suggest that this makes us uncompetitive because of added costs, but we see it as an investment. Eventually that country develops high standards that its citizens demand when we have already been operating with those high standards. Everyone else has to catch up. I think that if you have that lens to see things you will not regret it; you won't even see these as social programs. It is integrated into who you are as a company.

Question: My question is regarding the solar panel shingles with that you discussed. Are there any potential government support or incentives that you can lobby for that would give citizens an initiative to purchase those shingles? Is there a way to develop a partnership with the government that's both profitable for you and helps to bring renewable energy to the nation?

ANDREW LIVERIS: At the risk of testing people's political bent in this room, I will give the president and his administration incredible credit for being responsive to your question. Fundamentally the solar shingle project would not exist without the stimulus that the government put in place around alternative energy. We had the idea but in order to get to the investment stage, the government had to be our partner.

To your second point, which seems like the heart of your question, there are ways to get subsidies to homeowners for such programs. We were part of a group of companies that discussed how to do something similar to what was done in Germany, which is to have feed-in tariffs — in essence, a subsidy that encourages homeowners to look how to reduce costs due to the high feed-in tariff. These subsidies reduce the tariff when alternative energy sources are used. The subsidy is provided directly to the homeowner, not back to the utility company, which helps to incentivize the homeowner to actually make the conversion. Weatherization is another program we'd like people to do. The average American home built in the last ten years has a four-foot hole in it due to shoddy building practices.

Weatherization of these homes would have a major payback. Our vision at Dow is to create homes that are not only using alternative energy but are actually net energy exporters. We have already built one of these homes and have plans to build another half-dozen around the country: we call them our net zero energy home. For an average family of four, through subsidization and weatherization initiatives, payback on the investments can be seen in as little as four or five years. After that, they may be actually exporting energy back to the grid. Can you imagine if every home in America was doing that, what kind of load that would take off our reliance on fossil fuels? I am a big proponent of President Obama's alternative energy programs, and we at Dow have been working with [the government] in that partnership model to make it accessible for homeowners.

Question: I am very curious about how your company produces more than 500 new products through R&D each year. How do you come up with these products? Do they come from the outside or do your own engineers come up with the ideas? I imagine you have a lot of criteria about which products make it through the process.

ANDREW LIVERIS: To answer the first part of your question, we use both internal and external resources. Like a lot of good R&D companies today, whether it be IBM or Proctor and Gamble, we use what is called “open innovation.” This involves using the Internet and other communication tools to run “innovation forums” which include ideas from our R&D labs as well as from universities, direct and indirect relationships, and contest ideas. In total per year, we spend around \$1.6 billion on R&D, and of that around \$120 million to \$130 million is devoted to pure creativity.

We inject a lot of creativity into our R&D. We hire eccentric scientists who just like being creative and try to solve big problems. We also run very specific, very methodical processes for testing and commercializing a new product. Our scientists, however, have one of the most important parts. We have a permanent “for hire” sign at Dow for scientists and technologists, because the most important aspect of competing in the world today is not finance or natural resources, but human talent. We have to have the best people.

Question: You mentioned that you had around 14 ethics committees in place. You said that they were internal but that they work independently. How does that work?

ANDREW LIVERIS: Yes, we have 14 regional committees and they are almost always headed by our regional president of that area. The way in which these committees work independently is generally regarding [how they respond to] alleged ethics violations. For instance, if an ethics hotline complaint comes in and it reaches a certain point where an independent view is needed, each committee has the authority to hire an external person to work on the issue. We do have a central person who coordinates the groups and makes sure that they all have the training and resources that they need. The training is essential, especially when operating an ethics office across many countries. Different cultures view ethics differently, and the temptation to do wrong is constant. We make it clear that everyone must abide by our code of conduct or they cannot work at Dow. Each regional ethics committee has the ability to make decisions about how to handle their specific issues, and therefore they are usually able to handle issues without having to involve corporate [headquarters], because they have consistent standards across the groups.

Question: Do you think it's actually feasible that Americans will be able to afford these new homes that you are building (net zero impact homes) and that they may begin to be all over the world?

ANDREW LIVERIS: Absolutely, we're very excited by it. I give the leader of this business a hard time all the time because she is so conservative with her numbers. That is pretty standard though, to be conservative with CEOs so you do not over-promise and under-deliver. The addressable market she has defined is a \$5 billion market by 2015, which includes \$1 billion in revenues for Dow. Roofs alone are a \$300 billion market in this country. Homeowners are driven largely by regulation

and building codes. If building codes mandating alternative energy sources get put in place, the addressable market is much larger than \$5 billion. At Dow, we call it "solar for the masses" and I believe it really truly is a game changer.

Question: Do you ever worry that you're going to lose your job to someone that's less ethical and more profit driven?

ANDREW LIVERIS: What a great question. I am sure you are all aware of the rising tide of compliance across industries. In essence, we are all moving to a higher plane. I've mentioned Dow's view on this — we work through great innovation around sustainability to do the right thing which makes us money as a result. However, we as a society are certainly aware that wrong things happen and cause train wrecks. I believe that regulation is improving and partnership driven regulation in particular, and that is a good thing. There's only one thing worse than no regulation, that's bad regulation. I also believe that directors on boards are becoming more finely tuned to the issues of ethics and compliance. Just a few years ago, we had a board member and senior officer of the company conducting negotiations to sell the company without informing the board or the CEO, and we took immediate action. We followed our code of conduct which stated that we gather evidence, discuss the issue with them, and if they cannot explain their actions — which they could not — they were dismissed immediately. This was a very high up person in our company, a director and an officer of the company. No one is exempt from ethics issues. So to answer your question, am I worried that someone who is less ethical and more profit-driven is going to take my job? No, I think the chance of that is very minimal. Everyone is on board with ethics and it is integrated into all levels of our company.

Question: In your earlier comments, you alluded to global competitiveness when you said that you always have the “for hire” sign out for technology people. I’m curious to hear your take on the state of American competitiveness from the standpoint of an educational deficit, and generally on the competitiveness of American society.

ANDREW LIVERIS: Well first let me say that American undergraduates and graduates in the science field are still very competitive. Thanks to all of the academics who have stayed involved in this, our university system has stayed in the top quartile. On the other hand, this is decreasing steadily. This is not necessarily happening because we are doing anything wrong, but instead because the rest of the world is catching up at an accelerated pace. Unfortunately that means that we have a lot more global competitors. We are starting to see that very vividly with China. The quality of the top graduates in China is very high. Part of this is because they are learning from our graduates; in a way we are sharing our educational best practices. Our country needs to step up to the challenge on this front.

I believe that some of this is due to a lack of a shared national goal. During World War II, there was a great spurt of American innovation around the war. Not long ago, during the space race, we had huge amounts of innovation around computing, the Internet, NASA, and others. When governments make a decision like that it creates the space for American manufacturers to innovate. We haven’t had a national goal in a while so we have experienced less innovation. We at Dow believe that alternative energy should be one of the national goals for the next 50 years and that we need to work in a private-public partnership to achieve it. We want to be a leader in alternative energy. We want to invent new technologies and ways of using existing knowledge to solve these problems. To do that, there must be deliberate policies coming out of Washington to work with the private sector. We at Dow have put together an advanced manufacturing plan and will be launching it in the next month or so. We have been working closely with lawmakers in Washington. This is important because 70 percent of all non-government R&D is

in the manufacturing sector. The U.S. economy has just 11 percent manufacturing. We are operating subscale. The financial industry meltdown just gave us a lesson in how we cannot survive as an economy on just services. We saw this as well in the U.K. when they lost their manufacturing sector. Manufacturers do the research, the invention, and the innovations. With these innovations, you can partner with the education system to improve the quality. We at Dow are actively investing in STEM (Science, Technology, Engineering, and Mathematics) education, and not just at the university level, but at the K-12 level. Eighty percent of all chemistry teachers in this country do not have a chemistry degree — those students are being taught by people who don’t know the subject. We aim to change that.

Question: In the wake of the financial downturn, we have seen multiple companies experience the kind of ethical lapses that result in their going under or having their reputations permanently tarnished. How has Dow managed to keep profitable while staying true to its ethical code of conduct?

ANDREW LIVERIS: Fifty-two thousand women and men of high quality and high talent. I do not mean to be glib and I do not mean to be trite, but that is the answer. If you have a value system that integrates into the very fabric and very DNA of the organization, you can take on any crisis. I’m an optimist. I believe that if you back us up against the wall, it is the quality of your people that will keep you on your feet. At Dow, we just took action and mobilized 52,000 women and men. For those of you who don’t know, we are also in the middle of our greatest acquisition ever, so this has certainly not been an easy time. However, most of the time doing the right thing isn’t easy. We had our best safety record in our entire history last year in the middle of this crisis. We never went cash-flow negative and our ethics violations were down to a minimum. So it is possible to stay ethical during times of crisis, but it is only possible with human talent.

Question: You have worked hard with Washington, and you have recognized the need for collaboration with politicians in order to enact the laws that you need to help the environment and make things sustainable. Does Dow itself support individual candidates, political parties, or organizations that can now legally donate money anonymously? For example, are you a member of the U.S Chamber of Commerce?

ANDREW LIVERIS: Well, first I will say that we are definitely a member of the U.S. Chamber of Commerce, as we are a part of many institutions. At Dow, we have a committee of the board that has regular reviews on where Dow is at and how policies are affecting us. It is not party- or candidate-driven, but rather it is policy-driven. The right thing is not just how to make more money for Dow shareholders, but the right thing for our whole agenda. My dream for Dow is that when we make these partnerships it isn't driven by a party platform but instead by the right person who will make the right policies. You might be surprised at how many good politicians there are in this country. We work with many fine politicians from both sides who actually get it. It is about what is right for the country, as we at Dow believe we are a citizen of this country and are proud of that. Our directors and board members are all different shades, stripes, and political views but we work together to do what is right for everyone, which is one of the reasons I have stayed at the company for 35 years, because we have people making sure we always do the right thing.

Question: You are the CEO of Dow, and you are also on the board of IBM and Citigroup. I wonder if you could tell the students and the guests what you see as the responsibility of board members toward overseeing, ensuring, and developing an ethical culture of a corporation.

ANDREW LIVERIS: These are two great companies: IBM and Citigroup. A board member isn't a manager, just to make that very clear. A good board member doesn't manage the company and doesn't seek to, but a good board member is always vigilant to understand where the cracks are in what a company does. What a company does falls into three buckets that matter: strategy, risk, and people. Risk is right at the heart of your question. Risk is understood in terms of various frameworks, including law, but often law is inadequate. So therefore you have to create your own frameworks. That is what you look for as a board member. Is this company creating its own framework? Has it evolved over its many years of existence? Has it evolved its frameworks so that it is always forward looking, rather than reactive to the bad event that just happened? Is it fixing itself on the run, or has it anticipated where to go because society is heading there? Good board members are often asked questions like that. I often call it not just "looking around one corner but trying to look around two." This is not easy to do, but if you are a board member you have to go there with a perspective that is broad because they are paying you to represent their enterprise.

That is what people like me try to do, because I am an operator. I operate the company and get down into the DNA of one company, and then bring out from that DNA how other companies may or may not operate. So it is a good check and balance. I think you need to have diversity on the board to function right. Often boards fail because they do not put diversity in the board.

Thank you.

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