

7 Vincent Barabba: Understanding the Enterprise as a System

Vincent Barabba, retired General Manager of General Motors Corporate Strategy and Knowledge Development, was also responsible for overseeing GM's New Business Development Network.

Barabba has been a part of an extensive, long-term effort to infuse a systems thinking approach into how problems are perceived and dealt with at General Motors. He sees that not embracing this approach has been the cause of endemic problems in organizations, and that recognizing the systems phenomena permits us to reconceptualize the complex, significant and unprecedented issues we face in ways that can be successfully dealt with. Barabba draws upon the work of Peter Drucker, Russell Ackoff, C. West Churchman, and W. Edwards Deming to frame his systems view.

The contribution that Barabba makes is that he has come to understand the role of knowledge in an organization from that system's perspective. Knowledge of the system and how it operates is even more critical than knowledge of the particular parts of the system. In developing this view, Barabba offers a balance between the whole and its parts that is still very nascent in knowledge management and intellectual capital thus far. In a related way, Barabba sees the values of knowledge in its use rather than valuing the collection of knowledge, *per se*.

Prior to coming to GM he held positions at Eastman Kodak and Xerox and twice served as Director of the U. S. Bureau of the Census, and is the only person to be appointed to that position by Presidents from different political parties. He served as president of the American Statistical Association, U.S. representative to the Population Commission of the United Nations and chaired the National Research Council Panel to review the statistical program of the National

Center for Education Statistics. He has served on the Board of Trustees for the American Institutes for Research and the National Opinion Research Center. He is the author of *Meeting of the Minds* (1995, Harvard Business School Press), and co-author of *Hearing the Voice of the Market* (1991, Harvard Business School Press) and *The 1980 Census: Policy Making Amid Turbulence* (1983 Lexington Books).

Conversation

Market-based adaptive enterprise

JC: What are the characteristics of a market-based adaptive enterprise and how is General Motors moving to achieve the vision of a market-based adaptive enterprise?

VB: A market-based adaptive enterprise is an organization that understands its purpose in the broader system within which it functions. It continually challenges the assumptions that underlie that role and adapts or changes that role, as conditions in the environment require.

This approach requires intensive internal education of our workforce – helping them see more clearly the overall role GM plays in the marketplace and in society. During our recent Global Leadership Conference, our CEO, Rick Wagoner, led a dialogue with over 3500 executives based on the Root Learning Maps process. This process involves developing a visual representation of 1) the environment in which we are working; and 2) how our developing strategy positions us to be a leader.

A market-based adaptive enterprise must also effectively use technical, business and market intelligence. This is accomplished by designing intelligence systems based on what we need to know in our decision-making processes.

The use of market or customer intelligence has been at the heart of significant discussions at General Motors going back to the early 1930s. The basic question hasn't changed: "Is the market capable of articulating what it really wants, or must the enterprise bring forward things that it knows it can do that the market is not capable of articulating?" The problem has been, both in the past and to some degree today, that people address the issue as if the answer must go one way or the other. We call this the "tyranny of or." The question is framed in such a way as to

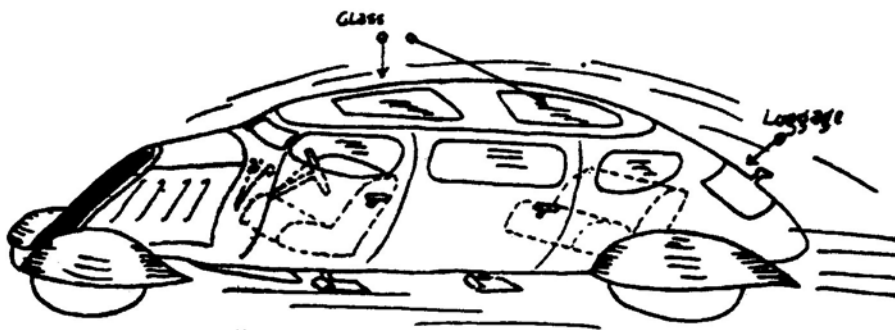
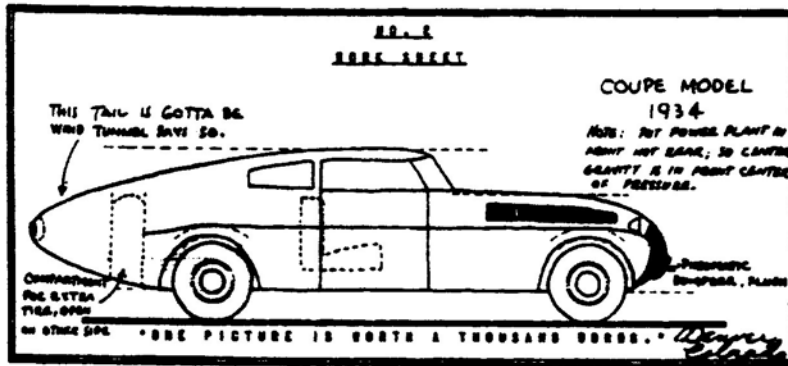
suggest that you must either rely on consumer input *or* move forward with company-initiated innovation. In truth, it is possible to effectively do one *and* the other. Conducted properly the opportunity provided by the “and” approach has resulted in greater benefits for GM and its customers.

The perspective that says customers cannot tell us what to do has, at times, led us to believe that we must get ahead of customer preferences and then convince them that we know what they really want. There is, as some might expect, evidence that supports that perspective.

There is, however, also evidence that demonstrates that customers are more than capable of telling us what they want.

In fact, as early as the 1930s, Buck Weaver, GM’s first director of consumer research, set about finding out what customers really wanted. I have a chart in my office that shows all the features GM added to vehicles, as well as things that were changed or improved, based on customer feedback. These were features like air conditioning, automatic transmissions, longer bumpers, rubber pads on pedals, and a greater emphasis on safety. In the years from 1932 to 1937, Weaver identified 170 such improvements, all in the name of serving the customer in ways in which the customer wanted to be served.

In my book, *Meeting of the Minds*, I describe some of this research from the 1930s, in which customers fairly well articulated the needs for a minivan, and had ideas for things such as sunroofs and pneumatic bumpers. These were all things that were not on the market until many years later.



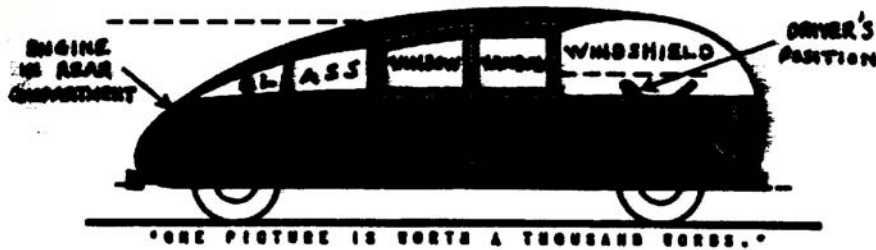
Source: General Motors Corp., "Streamlining from the Customer Viewpoint," *The Proving Ground of Public Opinion*, December 1, 1932. Reprinted by permission.

Figures 7.1A and 7.B Customer Ideas for Car Features from the 1930's

For possibly the first time in automotive history, Weaver recognized the importance of looking beyond what the company's engineers were already working on. Rather than simply relying on existing market conditions, he used market research to gain insight into what might occur. In this way, GM's engineers could be better prepared to respond, if and when the possible changes came to be.

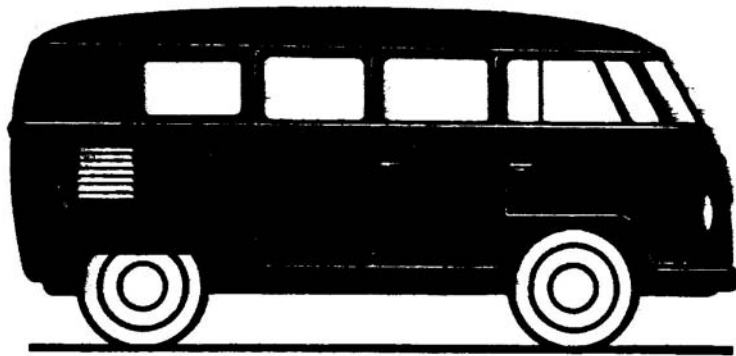
One of Weaver's techniques for helping people imagine future vehicles is particularly interesting. He would provide a simple worksheet, and ask individuals to sketch suggestions for

design changes. He was generally looking for ideas to enhance or change current design, but what he got often went far beyond that.



Source: General Motors Corp., "Streamlining from the Customer Viewpoint," *The Proving Ground of Public Opinion*, December 1, 1932. Reprinted by permission.

Figure 2-3. Volkswagen Transporter



Figures 7.2A and 7.2B

Customer Ideas from the 1930's for Minivans

My favorite is the first drawing we've found of the concept of the minivan, from back in 1932. There's no reason to believe that the person who drew this was telling us "Design this car". More likely, he was describing needs. First, better vision (see how the driver's position is far forward?) Second, a rear engine, because in those days, the engine produced a great deal of

heat and odor. And finally, “French doors”, which would improve entry and access.

So this is one approach – asking customers what they want. It is equally important to remember that many available concepts and technologies are not easy to understand. Technology is moving at such a rate that we must take some risk and ask, “What is the underlying need out there? Can we offer solutions that are not yet clear in the customer's mind? Solutions that – if customers were aware of them – would allow us to provide better products and services?” For example, we know that customers care about privacy, individual choice and saving time and energy. If you ask them how well these needs are being addressed, they would say, “not very”. These customers are not directly asking for mobile communications, but mobile communications, when properly administered, could address those needs for privacy, individual choice, and saving time and money – needs that are not easily articulated by customers.

This balance between customer requests and company offerings is why we call this the market-*based* adaptive enterprise. We use the term “based”, rather than “driven” or “focused”, because it is not one or the other. Rather, we are interested in a combination of what the market asks for directly and what we are capable of delivering.

We are seeking decisions “based” on what the market is talking about. We could, for example, have a situation where there is something the market wants, but we are not capable of delivering it. It is also possible that we have a better solution in our mind and, therefore, we are going to take the risk that our solution, even though it may meet with some resistance, will eventually win out over more easily accepted ideas.

The term “adaptive” is equally important. It reflects the realization that things are moving so fast today that we can no longer operate as we did in the old days, when we said, “Let's go find out what the market wants. Let's look at that closely. Let's find out what we can deliver, and

then deliver it. And then, customers will come.” By the time you have gone through that process, something else has happened.

Instead, you need a product development processes that can respond quickly to changing conditions. We must learn how to adapt to change a lot faster than we have in the past.

Moving from Control to Access

JC: How are you moving at General Motors to achieve that vision? Do you need to define enterprise as well to understand that?

VB: That is the other part of this dilemma. We recently joined, as a founding member, the “Internet Home Alliance”. You might say, “What is GM doing in an Internet Home Alliance?” And, we could respond with, “There's a garage in most homes, isn't there?” But that is not the reason. Think about customer needs, such as time and energy, and then say to yourself, “When I'm in my vehicle, wouldn't I like to know what's going on in my home?” If the alarm goes off in my home, then I want to know about it just as soon as my neighbors do, no matter where I am. When I hit the remote garage door opener to get into my garage, I should also be able to disengage my alarm system, turn on the lights, and perhaps even adjust the heat or cooling system in my home.

From a safety and security point of view, the protocols and the capability of our mobile communications services are truly outstanding. But we also must address the question of why the customer has two security systems - one to work on the house and the other to work on the car. A customer would say, “I want one if possible, and if the one you provide is better than the combination of the two, that tells me that you really are listening to me and providing products

and services that are in my best interest”.

From that perspective, our management has had to rethink the boundaries of the General Motors enterprise. We now know that, as an enterprise, we are going to find ourselves in alliance with companies that (1) we never would have thought we would be in alliance with, and (2) we might have competed with. If we can get the companies in related industries to agree on standards and protocols, the industry itself gets bigger and – although we might not increase our share – we open ourselves to new products and services that allow us to better serve the customer overall.

In many cases, we find it easier to create alliances with companies than to buy them. For example, we have excellent alliances with Suzuki, Isuzu, Fiat, and Fuji Heavy Industries (fundamentally the Subaru brand). We have observed that when others attempt buy vehicle companies, it sometimes creates far more turmoil and conflict than if alliances were developed instead. Our goal is to gain access to and share the creative talent of these companies. Do we need to own them to do that? Not necessarily. Most of the people involved in those organizations feel strongly about the companies that they helped create. Our position has been, “You don't have to have to sell us the entire firm, but we'd like to create an alliance with you. We think that what we bring and what you bring creates something more than the sum of our two parts.” When we do that, we find ourselves extending our capabilities.

JC: Do you mean that you are moving from control to access?

VB: The word “control” is a troublesome term in the world of systems thinking. In reality, in today's fast paced world, the best you can hope for is the opportunity to influence others –

primarily through leadership.

We have learned to be a lot more flexible and adaptive in our willingness to do business with potential partners and alliances. We make sure that we understand both what we want to do and what the market has been able to articulate that it wants. Sometimes this leads us to uncover an unarticulated need which, when fulfilled will provide significant competitive advantage. We need to continually remind ourselves that we are dealing with a moving target. Anybody who says they have precisely defined future customer requirements is either in a very simple business or is about to be out of that business.

JC: How does the market-based adaptive system put knowledge to work in an organization, and what is the role of GM's leadership in this?

VB: In this model, the role of GM leadership is everything. For a knowledge system to work effectively, we need to ensure that GM employees have access to what GM knows and how to get access to what GM doesn't know to allow them to do their job more efficiently and effectively.

GM leadership must create an environment where people share what they know and what they have learned with others. At the same time, people are continually (and actively) seeking that knowledge which they need to help them do their work more effectively. For this to happen, leaders must promote the right sort of environment by asking "What did you learn from others before starting this project?" and "How has what you have learned impacted others in the company?"

One of the difficulties I have with some of the practitioners in the knowledge

management consulting practice is their belief that we need to lock in on a set of specifications regarding what we need to know. My experience has been that locking in on specifications is a major limiting factor. At GM, we tend to find that the ideas we started out with are improved dramatically the closer we get to implementing them. Although the principles underlying our strategy have held from when we started out in 1991, we are doing things quite differently in 2001. The more we try to set specifications and then hard-wire systems around what we specify, the less capable we are going to be to adapt to changing conditions.

Leadership's role, in my mind, is to understand the principles of systemic thinking. That means constantly looking at the system in which somebody's specific decisions operate, and continually asking the question, "Am I asking people to be more efficient in what they are doing and, perhaps, optimizing at their unit level at the expense of improving the effectiveness of the total system?" Our management is really coming to grips with that, but it is hard work. We are such a large enterprise, and our footprint is not only very global, but it also reaches quite extensively into people's everyday lives. Although we are best known for the vehicles we make, we are also a very large financial institution. We place mortgages and insurance, buy and sell houses and are one of the largest commercial lenders around. Because of that pervasive contact with different markets and different kinds of customers, we need to understand how the parts of our enterprise interact and how to use that interaction to provide the greatest value to our customers.

I would say the kind of emerging knowledge that is becoming most valuable to the enterprise is learning to understand GM as a system, more so than any specific piece of knowledge about any one of our activities. That does not mean that the latter is unimportant. While it is absolutely necessary, specific knowledge is insufficient on its own.

JC: How do you diffuse that knowledge across the organization?

VB: We fundamentally attempt to describe the enterprise from the customer and societal perspective. We have to look at how people spend their time and how they allocate resources in their daily lives. Then we say to ourselves, “Where does the GM enterprise interact with those consumer activities?” In developing that understanding we came to realize that we are capable of affecting approximately twenty to forty percent of some customers’ disposable income. We deal with people’s mortgages and the value of their homes. We also deal with their vehicle and its transportation costs, and now we are starting to affect a good deal of people’s communications costs related to information and entertainment. When we step back to look at all of that, we find ourselves saying, “That’s quite a bit different than I expected.”

How do all these parts interact? Looking at the specific parts, we could have said, “We’re going to optimize the car-making business. We’re going to make sure that we get as much profit out of that as we can.” But, as we came to understand the customer’s deeper requirements and needs, we realized that our greatest asset is the number of customers we have. We saw that if we increased our services to each customer in these other areas, first, that would be more beneficial to the customers, and second, we could grow our business more. We have started to understand that we should figure out not only how to get more people in our vehicles, but how to generate more revenue per customer as subscribers of our services.

A Systemic Approach

JC: This sounds like you’ve greatly expanded your definition of the enterprise. But if it has no real boundaries, what constitutes the enterprise, and what is beyond it?

VB: To address that issue, we need a deeper understanding of systemic thinking – an approach that takes more of its cues from the realm of synthesis and systems thinking, and is not limited to the realm of analysis and management. As Russ Ackoff explains it:

- A system is any entity, conceptual or physical, that consists of interdependent parts.
- A system is a whole that cannot be divided into independent parts.
- The performance of the whole cannot be taken to be the sum of the performances of its parts, and
- Success is the product of the interactions of the parts.

To be successful in today's world, you need to know a lot more than just what your customers express in terms of their articulated needs. You also need to understand their unarticulated needs and ensure that your employees – or members of any organization – have access to what the organization knows that will allow them to do their job in meeting these articulated and unarticulated needs more effectively. In addition, the communities around us have to know enough about our goals and practices to consider us an enterprise worth supporting.

Leadership of the enterprise must create an environment where people share with one other what they need to know about customers and communities. Those leaders must also promote the right sort of environment by asking “what did you learn from others before starting this project?” and “how has what you have learned impacted others in the organization?” Leadership needs to be constantly looking at the system in which specific decisions operate. They need to be continually asking, “Am I asking people to be work more efficiently at their unit level at the expense of helping the entire system become more effective?” They must also find time to make sure the community is sufficiently informed of our behavior to garner their support.

That is a very important consideration. Because any enterprise is a system first and foremost. Optimizing at the wrong level can sometimes hinder the effectiveness of the overall system. Various independent parts of the organization, which often operate as silos, must communicate with one another for the enterprise to thrive. In this context, it becomes clear that the role of the manager of the system is to manage the interaction of the parts and not to manage the parts taken separately – in other words, to consider the extended enterprise.



Figure 7.3 The Extended Enterprise as a System

As we become more systemic in our thinking, we must consider the larger system beyond the enterprise itself, where the stakeholders of the enterprise are all those individuals or entities that can affect or be affected by the decisions of the enterprise. This includes:

The customer, which includes both consumers and individuals in the distribution system that accept product from the enterprise.

- The community, which is made up of consumers in a societal context, the governments interests that attempt to represent them, the special interest groups who carry strong views on specific issues and the competition for customer and community attention and resources, and
- The enterprise, which (in addition to itself) includes everything that delivers the products and services to the customer and community: employees, suppliers, investors, and so forth.

As a system of interacting parts, the stakeholders in the extended enterprise must deal simultaneously with each other's interests, seeking synergy from their relationships. If the total value of that relationship is greater than the sum of stakeholders' individual contributions, the relationship will flourish. If its value is equal to or less than the sum of the individual contributions, the relationship will and should fail.

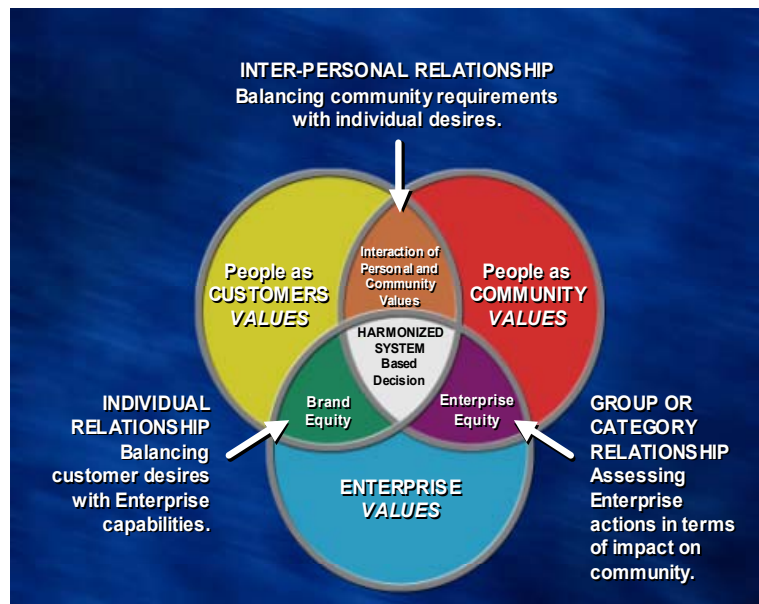


Figure 7.4 A System of Interacting Interests

Of course, within the three groups some dissonance is to be expected. Customers, the community, and the enterprise itself have different voices, and they often conflict. But in their interaction is where we find the greatest opportunity. In Figure X, if customers are yellow and the enterprise is blue, it is in the green area – the interaction – where we build brand equity.

An enterprise making laundry detergent, for example, might find that customers want a “whiter than white” wash which the enterprise knows it can provide by using phosphate-based detergents, while the community – which includes customers, government regulators, and interested organizations – wants “cleaner than clean” public waters which are compromised by the introduction of phosphates. Meanwhile, the enterprise – the shareholders and the employees – want to produce a customer-satisfying and profitable product that is compatible with its sense of environmental responsibility. Needless to say, there are plenty of opportunities for agreement and conflict between these different groups.

JC: Is that the kind of conversation that is taking place at the headquarters level, at the business unit level, and down throughout the field?

VB: This is what leadership is all about. I mentioned earlier that we held a management conference last year for 3,500 executives. This a conference attended by the people who are responsible for not only managing but leading the enterprise. We spent the first part of the conference discussing how the market in which we operate is changing. We also addressed who the players are who can either be affected by us or can affect us. And we talked about what we can bring to this complex environment, as well as our opportunities for growth.

A systemic understanding of the whole issue surfaced in that discussion. Our CEO then outlined the business plan, explaining that we have to extend our relationship with each of our

customers. That is how we are going to grow the enterprise. We then asked each of the executives at each of the 350 tables to discuss how they could implement this concept within their unit.

The issue here is finding ways to manage each of the parts so they interact with each other to create an outcome that is greater than the sum of each of the parts.

JC: What is the difference between a systemic approach to learning and adaptation and the conventional approach to managing the use of knowledge?

VB: A systemic approach requires that you first understand the nature of the whole enterprise – its purpose, its character and its interaction with in the larger environment, including the marketplace and society.

By first understanding GM's purpose in this larger context, we set the frame for thinking about the major work processes that can help accomplish that purpose. The purpose and processes then provide the framework for thinking about how to organize what we know in a taxonomy that reinforces our understanding of the whole. We have all been trained to break a problem into its most essential parts. We try to understand each of the parts because we think that will make it easier to understand the larger problem.

In the industrial age, where the simple machine metaphor dominated, that was a good model for learning how to fix things. But that model is not adequate for today's problems. The operating world in which we operate is better characterized as more of a molecular structure where everything interacts and changes based on the environment in which it is framed. In this view, as soon as we break something apart, we lose some of the value. Instead, we need to

emphasize the interaction of the parts. Admittedly, that is a heck of a lot easier to say than it is to do.

The systemic approach requires that we learn how to do things that will still employ an analytic approach, but understand the analytic approach in the context of synthesis - of bringing things together and observing how we can get more out of their interaction than just through understanding the parts by themselves. Given that most of us have been trained, and rewarded, to focus on the analysis of the parts, this is very hard stuff to learn. It takes a strong commitment on the part of management to communicate the importance of doing both analysis and synthesis – rather than one at the expense of the other.

JC: How is GM leadership indicating that they are grasping this?

VB: We saw it in the interactive exercise at the Global Executive Conference I described. We laid out, in almost a game format, some 350 tables of 10 executives each, with a senior executive trained in this discussion processes and had them think through how all these things interacted. We said, “Here is one way in which you could look at GM as a system of interacting parts” and then had everyone work through what that meant. Our CEO then said, "I wanted you to see what the executive team has been going through in thinking about this strategy. Let me now outline the business case for you." He then went up to a whiteboard with a big camera on it, and sketched out a business design that showed the interaction of the main elements of GM. That has an incredible impact on an enterprise that is used to having parts not only stand alone, but sometimes even compete with each other.

We built in enough time in the design of this exercise to pilot the use of these drawings in

different parts of the world before the meeting. In that way we found what it would take to make sure they would be interpreted globally as they were intended, rather than missing some nuance from a cultural, a language or a metaphor perspective. The feedback during these dry runs enriched the actual outcome greatly.

JC: How are you challenging the “success-breeds-failure” syndrome of General Motors, a company that has been the standard setter in its field?

VB: This issue is at the core of Peter Drucker’s great dictum that the greatest problem you can give to your enemy is forty years of success. But we have not had forty years of success. In fact, as we go back and look at what we thought was success, back in the 1950s and 1960s, it really was the beginning of the decline of this enterprise that was perceived as the hallmark of corporate activity. There are very few people in our enterprise today who would say we have been successful. I think we recognize that we have done things that were not in the best interest of the institution as an enterprise, and that we are in the process of recovering from that.

Your question is important, and it should also be addressed to companies like Cisco and Amazon.com who are, at least until recently, being seen as successful enterprises.

Acting as one company

JC: You think then that GM has unlearned a lot of the premises that it was operating on and are ready to learn freshly?

VB: In the old days, people in the Chevrolet division were rewarded by how many transactions the division completed. Even if those transactions resulted in a sale taken from

Pontiac, they were treated the same way as if they were taken from a sale of a Ford. We have had to undo all that, to undo a reward system that did not consider contributions to the interaction of the parts of the enterprise.

One of the four prime cultural initiatives that our CEO established is that we will Act As One Company. That is a big change from the past. Since he has been driving this message home, we see far less of the internal warfare that we had in the past.

JC: What role have you played in that?

VB: GM made a decision a while back that those who will implement the strategy will also develop it. That means my job, as the general manager of corporate strategy, is to create a process that assists the management of the enterprise in creating the strategy that they will implement. Our group surfaces new ideas, speculates how they interact with the enterprise, and creates dialogues by our management around new ways of thinking about them. In addition to that, we have a group whose job it is – when ideas are developed and need to be implemented – to provide the decision and analytic tool sets and resources to help these ideas get started. The group is made up of bright, young people who aspire to be consultants but do not necessarily like the working environment and lifestyle of consulting. In our setting, they finish the projects they start and do not travel extensively.

Listening, Learning, and Leading

JC: You talk about “listening, learning, and leading” as operating principles. What do you mean by that?

VB: This relates back to being market-based. Some people say, "You have to listen before you start". Other people support the "ready-fire-aim" approach, or "fire-ready-aim," which means: put a shot out there, see if you are close to the mark, then adjust. Others take the position that you have to learn before you make any decision.

We have found that all three elements are important, but it does not matter where you start. What is important is to do all three things. If you ignore any of them, you do so at your own risk.

JC: Whom do you involve in the "listen, learn, lead" process and how do you see them working to become at one with that?

VB: We try to involve everyone. One thing that is very good about the new technology is that it makes it a lot easier to engage people. We used to rely on product clinics, but we always had the problem of having to bring product concepts out to customers to gauge their reaction. Engineers and designers did not necessarily have time to go on these trips, but they were the ones who most needed the information provided in the clinics. When they stayed back, they were limited by the market research community's ability to translate what customers said into terms that were meaningful to the engineers and designers. Now when we now run a product clinic, we feed the video right back to the technical center in real-time. Engineers and designers observe the clinic while it is going on without having to make the trip, and can ask questions based on what they see and hear directly.

This makes it easier for people to be engaged in the "listening" part, which is where they actually get to sense how customers are reacting to some of their ideas. The "learn" part says that

if you listen, then decide to implement a new idea, write down the decision, clearly stating that this is the decision that was made and why. This statement would include a description of the particular things you expect to occur by a specific date. Our learning and adaptation process (adapted from Russell Ackoff's learning and adaptation model) requires that, at that certain date, you go back and compare the actual results to the expected results.

In the past, people did that, but with the intention of determining whether somebody was a good performer or not. They were not necessarily interested in learning from the decision. That "report card" approach is less prevalent today. Not that delivering on a promise is not important. What is more important is that we learn from the decision. So, we do not simply ask what was the decision you made; We ask why you made it. We do not ask whether you missed; we ask why the plan missed.

In reflecting on that "why", we may find out that this really was a good decision, but that something unexpected occurred, or the person who made the decision and those who were supposed to implement it did not share the same expectations. We then go back and try to understand why things either happened or did not happen, and build what we find out into a knowledge base of learning.

The introduction of the Chevrolet Camaro offers an excellent example. We designed the product launch, in part, around the movie Days of Thunder with Tom Cruise, where he was driving in a NASCAR vehicle, a Chevy Camaro. We set up a massive promotional campaign tied to the movie's opening date, which was when we expected the vehicle to debut. Because of production problems, the vehicle came out after the movie opened and after all the promotional money had been spent. We had great expectations, and generated great anticipation among the people for whom this vehicle was developed. Everything was there except the product. If we just

went back and looked at the results, we could have said, “That promotion did not work very well.” As it turns out, it had nothing to do with the promotion. It was the fact that the product did not show up on time. That is the “learn” part.

The “lead” was the decision to say, “I’m going to tie the promotion of this vehicle to something that we think will be attractive to the market for whom the vehicle was developed”.

Listen, learn, lead are not necessarily sequential. It is just that all three have to be there -- interacting with one another.

Idealized Design

JC: How do you use thinking in terms of idealized design and looking at strategic issues backwards to help create a knowledge-based organization?

VB: Idealized design and strategy are ways to formulate what we want or need to be. This is part of the imperative, from a systems perspective, to understand our role in the larger system. That then provides an organizing framework for what we currently know and where we need to learn and adapt.

Russ Ackoff has had great influence on us in this area. We draw extensively on his ideas in our work. Ackoff takes the position that the question is not “What do you think you could do?” but rather “If you could do anything you wanted, what would you do today?” Once you have articulated that, then you find that most of the barriers that you thought would prohibit you from doing that are more easily overcome. This relates to creating a knowledge-based organization in that you are not going to start with just the base of knowledge that you currently have. The idealized design approach drives you to find out what it is you need to know to move

beyond your current point of view.

It is not: “Let's get all the facts together and then analyze the facts and then decide what we can do”. Rather, start with: “This what I want to do. If I could do whatever I wanted to, this is what I would do. Instead of asking, ”Now, why can't I?” We have learned to ask, “What is the closest approximation that we can have now? This kind of question focuses on possibilities rather than obstacles.

Although this is not how things are thought about universally at GM, it is the process that we are infusing into the organization. We saw it in action when we were trying to figure out how to install the On-Star Mobile Communication System on new vehicles. If you know anything about the automotive vehicle development process, even when you are the best in the world at it, it still takes a long time. One of the things that drives this is an intensive validation process we go through to ensure the safety of our vehicles and meet regulatory requirements. Since that was the case, we first said we would install On-Star at the dealership as an after-sale item. We knew that this would, unfortunately, drive the price up dramatically, but we didn't see any other option. And, the higher the price, the less likely the demand, so therefore the less likely this new product was going to be sold in large volumes. As a result, we kept asking “Why not install it at the factory and drive the price down?”

The counter argument was: “Not everybody will want it. Why install OnStar on cars for which it won't be used?”

But then we asked, ”What are we trying to accomplish?” Our answer was that we were trying to get each of our customers to *have* this capability. We could then get a revenue stream from the vehicle for as long as it is on the road, not just at the time of transaction. In discussing the issue with the engineers who believed, based on past practices, they could not do this, we

positioned the argument as, “If we can't do this, we are never going to get that revenue stream and, therefore, we're going to be locked into the margins that we get at the time of transaction forever”. Nobody liked that.

We then asked them, “If we could do whatever you wanted today, how would we install this on the vehicle?” They said, “You do this, this and this.” And, we said, “Well, why can't we do that?” And they responded, “Because you'd have to skip over some steps”. When we asked, “What steps would be skipped?” we discovered that they were applying the rules of hardware development to the application of software development. Since the changes needed to factory install OnStar primarily centered around software development and application, the engineers were able to develop a faster validation process, as long as we did not mess with the airbag, the brakes and the emission system, which have rigorous safety and emission requirements.

Over time, they sat down and realized that the amount and type of revenue that would be generated by making OnStar a factory-installed product was worth the extra effort and was best for the enterprise overall. .

The message was that everyone involved benefits if the enterprise benefits. As a result, the reward structure has been redesigned to reflect this larger institutional reality. If we are going to act as one company, they said, “We have to figure out a way to do this”. And, they figured out a way of doing it without compromising any safety or emission regulations.

We install OnStar at the factory on a large proportion of our cars. While everybody else is scrambling and trying to figure out a strategy for mobile communications, we have signed up over 2 million subscribers and have become the standard bearer for this type of service.

Part of this involved changing the bonuses for executives, so that they are now based on

how well the company does. There are rewards within that, but if the company does not meet its objectives, the amount to be shared based on individual performance is reduced.

The Knowledge Network

JC: How does the Knowledge Network operate at General Motors? What is its purpose and what do you consider the biggest challenge that it faces?

VB: The Knowledge Network is not so much an organization as it is an idea. An idea that reflects a commitment to creating an environment (be it the organizational behavior, individual practices, work processes and information systems) that ensures all GM employees have access to what the company knows that will help them do their jobs more effectively. I see two big challenges: 1) How to instill a responsibility within all people to think about who else in the company could benefit from understanding what they have learned and proactively sharing that learning. And 2) How to accelerate our commitment to doing work in a similar fashion across all regions and thereby increase our capability to rapidly learn and change across the globe.

In many ways the concept is still in start-up mode. We have demonstration projects that are working reasonably well, but it is not universally applied across the board yet. This is because the enterprise itself is going through tremendous change. We only have so much time, so much money and so much capability. Further, at GM, we really have to prove the merit of what we are talking about before it is universally accepted. If we try to do it across the enterprise without that acceptance, it is unlikely to be successfully adopted. Our strategy has been to find places where the principles would apply and then to grow from those experiences.

JC: What is the Knowledge Network?

VB: The Knowledge Network is more of a virtual organization that is made up of people with similar interests, which disseminates information tied to eventual decisions. You could not find it on the organization chart. It is based on a commitment to making what the company knows accessible to GM employees. This should help them do their jobs more effectively.

JC: How do people become involved in it?

VB: Again, listen, learn and lead comes into play. People become involved by setting up means to inquire (seek out, listen and learn) before starting new initiatives. They also are finding ways to lead, or communicate to others what they are doing in the likelihood it can help them do their jobs more effectively. We communicate the things we are working on through day-to-day contact. Given that our currently allocated resources are fully being used, we have to figure out ways in which we can extend ourselves into the center of the organizations.

One example of how this is working is in what we are learning in the vehicle development process. The people who have worked on that project – which has included creating the basis for providing background on decisions that have been made and how well they have turned out – are sharing that knowledge with people who are working on different projects. The operating groups have begun saying that this was very beneficial and that they want to do more of it.

JC: Who is involved with the Knowledge Network?

VB: Everybody, both internally and externally. As we move from the “make and sell” model

to the “sense and respond” model, we realized it absolutely requires the engagement of the supplier community, as well.

JC: How do you connect all the individual networks and activities that exist in the enterprise?

VB: At this point it is all done through people. There is some discussion going on of an architecture - which would be a very thin client that would go out to these deeper silos of knowledge throughout the enterprise and be able to pull that information together.

We spent some time looking at Cisco. We explored how they communicate and how the Web is fundamentally how they do business and extend to their suppliers and customers. Cisco is probably the exemplary enterprise that actually uses knowledge in the everyday operations of the enterprise. What is particularly striking with Cisco is that everything is available. They actually publish on their Web site the bugs that are in their software so that their customers are aware of them. They have found that some of the customers have created solutions to for these bugs, which they are more than willing to share. The customers are saying, “You folks are really honest. Not too many people are willing to admit that they make a mistake. You not only are willing to admit it, but you show us where it is.”

When we visited there, the head of Cisco’s HR program said, “We have found that some of our competitors’ systems engineers were getting into the site to find out what these problems were so they could use them in selling against us. Some of our people thought we were paying too heavy a price and should stop this, but we felt it was the right thing to do.”

Here is what I understand that Cisco did: They knew when a customer was on. If you were not a customer and you were getting into the site, looking at these pages that had the bugs

listed, a banner would pop up and say, "Hi, welcome to Cisco. Would you like to come to work for us?"

The HR director said, "When you think about it, wouldn't you want to hire people who were sensitive enough to hear about something and then smart enough to try to do something about it?" They are so web-related that they fundamentally recruit on the Web, as well.

Leveraging Knowledge Across the Organization

JC: Is the same approach to leveraging knowledge used across all the different GM organizations and divisions?

VB: No. We have gone to places that are receptive to the notion of change. Our strategy is to go where you can get something done and then let the word pass from there. We believe in using word-of-mouth as our marketing mechanism. At GM, if you want to spread an idea, demonstrate how good it is. Once people hear about something that actually works, they are more likely to ask for it.

JC: Did you augment the word of mouth? Do you have materials that are available or a website that people go to where you have things like "discoveries of the week" or a "things that really work for us" type of thing?

VB: Word of mouth is mostly spread going to particular venues inside the company and talking about it. We have the beginning of Web pages that people can come to, and they are having an initial positive effect.

JC: How do you know where these opportunities are or how do people know to get in touch with you to assist them?

VB: We have brought together a diverse group of people who have worked in various parts of the company. People have been talking about spider web networks and similar approaches. The people we have selected have maintained their ties with the parts of the company they originated from. We use the concept of “weak ties”, where there are groups of people inside of groups who are connected to the group, but who also have ties to other groups. It is those ties to other groups that effect the dissemination of information. Our people really are well tied into other areas. Also, after some time, many of the people in our group go back to their areas (or sometimes to new areas) with a better understanding of the enterprise and the new tools that are now available. When they run into an issue, they know how to address it and where to come for additional help if they need it.

I see new technology coming along that is going to address this interconnectivity need. A lot of it is going to be based on Internet and Web technology, and we are getting much better at that inside the enterprise. When I look at what Cisco has done, then I know it can be done.

Dialogue Decision Process

JC: What processes does GM use to make sure it is using the knowledge network for desired affect?

VB: One of these processes is called the dialogue decision process. The principles of that process are: (1) Make sure you have agreement on what the problem is, and make sure that those

who will have to allocate resources agree that you have correctly identified the problem, (2) Make sure you have identified alternative ways of addressing the problem, (3) Each alternative must receive a fair hearing and analysis, and (4) Try to find a solution that comes out of this analysis that is better than any one of the alternatives that has been analyzed.

We do not always call this process the dialogue decision process. Many units have developed their own version, but they go through many of the same steps. It works better because it is their process and not ordered by someone on the corporate staffs. That was an important thing for us to learn.

We've also found that, depending on the problem, you do not have to go through all the steps. I'm glad to say that if you walked into a meeting today and somebody came up with a wild idea as an alternative, rather than getting thrown out or challenged as being too wild, someone would say, "That really sounds like a test well alternative. You ought to sink that and see if there's anything that that we could learn." At that point we know that the principle got across, not the specific tools.

The shift is how people are thinking about these things, and how they are relating to innovation. That is more important than if they follow the steps of a particular tool, which is why I run into problems with people who say, "I have the tool that is going to solve your problem."

JC: How do you make the learnings from the "learning and adaptation support system" available to anyone in the organization who needs them?

VB: Not everybody in the organization gets equal access to everything. The basic principle is "need to know". But, that is a lot easier to say than it is to determine. Getting the right level of

understanding about this issue at the beginning is a requirement if we want people to be open and honest with us. This is where a cultural divide takes place. Some people say, “We cannot make this information available to anybody who wants to see it, because we cannot afford to let this sensitive information fall into the wrong hands”. The price we sometimes pay for that position is that people tend to be less open. If you don’t trust me, why should I trust you?

We have others who are willing to let information be shared in order to gain the advantage of getting into richer discussion. Right now we are at the stage of working within units, such as the vehicle development process unit so the people their team and other vehicle development team get access to all the information, but that information is not broadly shared throughout the entire enterprise.

We tend to operate on much more of a need-to-know basis. And we do it most of the time for the right reasons. We sometimes do it because we’re hung up on the impression that “people are going to judge me on the outcome of the decision that was made” rather than a thorough analysis of why the decision turned out the way that it did.

The Measurement Quandary

JC: How do you know you are succeeding in your knowledge efforts? Have you developed any sense of measures or indicators that help you and your colleagues navigate and improve your performance?

VB: One perspective that has really impressed me is in the work of C. West Churchman, who was one of Russell Ackoff’s colleagues. Churchman said, “The value of knowledge is in its use, not its collection. It is how the user reacts to the collection that really matters.” My concern is the

potential unintended consequences of attempting to determine the extent to which intellectual capital contributed to the outcome.

Here is an illustration of what concerns me. Suppose that I go to you and say, "Jay, you're a decision maker, I have some really great tools and information, which are ways of helping you make better decisions, like helping you to listen, learn and lead." And you say, "Vince, that's really good, let's do it." You then go through the process we propose putting all your energy and resources into the effort. You like the process, and you see very positive outcomes based on the decisions you have made. A year or two later I come back and say, "Jay, I've been really thinking about this and I would say that 33 percent of the value that you've generated is directly related to the input that I have made to your decision process, and I would like to take some credit for the successful programs you have developed."

My guess is that you would first say, "Vince, how did you come up with 33 percent? And, by the way, how do you sort this stuff out? I believe the activity was successful because of how I implemented this so-called intellectual capital that you claim you created. Isn't that more important than what you've provided?" I think at that point I would say, "Jay, I'm sorry I raised this issue. I don't want to ruin my relationship with you by trying to create a metric that allows me to get credit for contributing to what you've done."

I believe that the support we, as a knowledge and decision support organization, cannot be accurately assessed by looking at any particular project by itself. We need to look at the contribution to the larger system within which many of the decisions we supported were made. When GM's leadership can see that the number of times we have repeated the same mistake is significantly reduced, then we are making headway. When we see that GM is able to adapt more quickly to changing environmental conditions, then we are making headway. When we are

proactively experimenting and learning new things that take us into a leadership role in the marketplace, then we are making headway.

JC: How do you work through your quandary there?

VB: If one of the reasons we need to “measure” intellectual capital is to demonstrate to management the value of my group’s contribution, I would go to my customers in the operating groups and I would say, "The President of North American Operations is questioning my budget. He thinks we're spending more money than we should. Would you go and explain to him how valuable you see our support so that he understands that some of the success that you have been generating is based on the work that we've done."

My belief is that all that most of our internal customers would say, "Yes, I'd be happy to do that on your behalf". If the value of information is that it is used, then I always trade off ensuring its use rather than trying to demonstrate its value.

Although I do not deny the need to gauge the value, I question the value of trying to actually put a precise metric around it. Frankly, I do not know how to do develop the metric to the point where I have comfort that first, it is reflecting what actually happened and second, it does not spoil the relationship with the people who we support in making decisions.

Some, of course, have purposed putting a valuation of intellectual capital in the annual report – and they have figured out ways of creating such a metric. I am not sure there is a way of portraying the value of intellectual assets as being worth “this much”, and then attempting to book that amount. Are we capable of creating such a metric? With sufficient time and resources, I’m sure we could create a number. My problem is that I do not know how to make it “real”.

Would you say that Cisco's stock value is a function of its relationships with its customers, or is it a function of its estimated intellectual capital? If we ever asked John Chambers what he would rate as Cisco's intellectual capital, my guess is he would say, "It's the company. It's how we operate. It's how we think." He would be able to sort out the inputs from the outputs very well and probably be able to tell us how Cisco operates to create intellectual capital. He would tell us how they take advantage of what they know, which is really where the value comes into being. And, I'm sure he would say the manner in which they do business is no less valuable in a depressed stock market than it is when the market is very high.

In the scheme of things, given all the other things that need to be done, I would focus on how we get knowledge used rather than how we measure its contribution. The true value of knowledge (read intellectual capital) is in its use -- not its collection.

Success in Shifting to "Sense and Respond"

JC: How is GM transitioning from the "make and sell" to the "sense and respond" paradigm?

VB: A good example of our moving to sense and respond is that we have created an "order to delivery mechanism". That is, we are going to change the proportion of vehicles sold, to the point where a higher percentage of our vehicles will be ordered by customers rather than bought off the lot. As we do that, we must start thinking about what our service capacities are and how we provide those services, based on customer preferences. Customers will not have to buy the whole thing. They can buy that portion of the services they want. This is also where an Internet presence will be very significant. All of this is part of our moving towards the sense and respond model.

JC: On a 1 to 10 scale, if you put General Motors say 10 years ago, 1990, and General Motors in the year 2000, how much of a shift has occurred?

VB: Given that we almost went into bankruptcy 10 years ago, we can easily say we were a 1. Today, we are well on the other side of 5. That is a very solid achievement. More importantly, everything that we have accomplished up till now has provided us greater understanding and positioned us to be great – again!

Key Learning Points

- A “market-based adaptive enterprise” combines what the market asks for directly with what the business is capable of delivering.
- Understand the enterprise as a system. Look at the different parts of the enterprise to see where they interface with customers and interact among themselves. That is where the opportunities are.
- Undo rewards and other systems that no longer contribute to the best outcome of the enterprise system.
- Corporate strategy’s job is to forge a process to assist management in creating a strategy they will implement. This means surfacing new ideas, speculating how they will interact with the enterprise, involving management in a dialogue on them, as well as providing decision and analytic tools and resources to help in implementation.

- Listening, learning, leading means listening before starting an action, clearly stating and revisiting decisions to learn their value over time, and leading by actively linking actions to those choices.
- Forging a Knowledge Network creates an environment where all stakeholders have access to what they need to do their jobs effectively.
- Start the knowledge initiative in places that are receptive to the notion of change.
- The value of knowledge is in its use, not in its collection.
- The measure that matters is the extent we proactively experimenting and learn new things that take us into a leadership role in the marketplace.