

The University Group, Inc.

General Motors Corporation

The University Group, Inc.

Prepared For:

Jay C. Wilber  
UAW-GM Center for Human Resources &  
Quality Network

Current Global Competitive Issues Facing  
General Motors and the UAW  
An Exploration

Prepared By:

Sheila R. Ronis, Ph.D.  
President  
The University Group, Inc.  
Rochester Hills, Michigan 48309

May 31, 2005

# The University Group, Inc.

## Background:

There are many global competitive issues that are of interest to General Motors and its UAW partners surrounding the erosion of the U.S. industrial base. In preparation for the National 2007 Negotiations, The University Group explores many issues surrounding the erosion of the base that have a direct impact on the UAW and GM. For example, these include risks associated with the dependence on China that is currently increasing within the U.S. industrial base for the U.S. auto companies and the U.S. Department of Defense. In fact, there are serious national security implications of this dependence for both U.S. industry and defense. This effort explores a variety of such issues and develops a strategy to overcome dependencies and mitigate the risks associated with that dependence. Cooperative activities between the U.S. auto industry and government entities are also explored.

## Introduction:

In the United States, competition from abroad is fierce, frequently unfair to U.S. manufacturers and the world has un-level playing fields. U.S. companies frequently compete with country-owned and/or subsidized operations. Non-U.S. manufacturers are able to benefit from low-cost labor and lax environmental constraints. China, now the world's leader in many production capability areas has a growth rate so large that they are affecting world scrap, steel and oil prices, etc. The Chinese have publicly stated that they intend to become the manufacturing center of the world.

The General Motors supply chains, as well as those of Ford and the U.S. Department of Defense, each have unique sets of problems. Increasingly, it is difficult to find any U.S. manufacturer who can reduce its dependencies and the risks associated with those dependencies on a potentially hostile China.

Foreign sourcing has significant implications for U.S. industry, as well as national security. Metallurgical integrity and structural safety can be compromised. Dimensional consistency can also be an issue. Working with multiple languages can increase the communication problems that can work against a company. Shipping can be disrupted with strikes or terrorist attacks. Tooling ownership, location and lead times can also affect delivery

# The University Group, Inc.

schedules. Attracting, educating and the training of new workers continue to be issues within the United States. And, production technologies need to be invested in.

What follows is a grand strategy to create a United States coalition of industry, government and union partners to reduce risks associated with doing business in a global environment. Also investigated, is the mitigation of the risks involved with having China hold American companies hostage. It also explores what could happen if China makes increased price demands, once U.S. companies are dependent upon them or the United States goes to war with China at some future date. Issues of terrorist threats against supply chains are also explored.

## **Economic Security: An Issue of National Security**

Every company in the Fortune 500 has a strategic management process of one sort or another. They all develop their global objectives and strategies. They all develop sophisticated scanning processes to understand the political, economic, sociological and technological variables that have an impact on them. They all work with their various stakeholders. But, global U.S. companies look at government in our country as a nuisance -- where policies can be diametrically opposed and the company must sort out the "mess" or take responsibility for getting the federal agencies to come together to deal with the problem.

The federal government does not manage the country or its industrial base as a "system." U.S. government agencies are fiefdoms that rarely compare notes to see how their collective policies might affect a company or an industry. Congress usually creates legislation that interferes with market forces and rarely takes into consideration holistic situations. Most decisions are made without regard to other decisions, nor are second, third and fourth order effects of decisions taken into consideration. Interagency cooperation is an essential element of what needs to change in the future. In addition, other forms of cooperation between the U.S. government and industry are necessary.

# The University Group, Inc.

The U.S. industrial base is not healthy.

Cooperation between government and industry is essential because there are elements of the U.S. industrial base that are disintegrating, and are putting the national security of the United States at risk, both in a military and economic sense. Unless we look at the industrial base as a system, we do not even see the problem or the possible implications. As a country, we need to ask whether or not a U.S. “owned” industrial base matters, and we must explore this issue. There are risks associated with industrial dependence on countries such as China that are potentially hostile to the United States and its companies.

U.S. corporations increasingly act as large social systems with a global focus. But, if we were to ask the CEOs of the Fortune 500 to describe the issues that are on their minds on any given day, “national security” or the disintegration of the U.S. industrial base would *not* be among them. Global corporations owe allegiance to their stockholders and their customers.

Most Western companies do not understand the global economic war they are in. They are unaware of the potential disruption to their business and other risks to their company’s long term future. Doing business in some countries, including China can be riskier than many CEO’s may realize.

This situation has not changed since the end of the Cold War -- not even since 9/11. In the post Cold War environment, economic security is national security. The role of the global corporation may erode U.S. economic stability as well as military capability. A new vision of national security is needed that includes cooperation between government and industry and that examines what the required relationships are that keep our military capability ready while permitting U.S. manufacturing companies to compete in a world of globalization. This includes an extensive understanding of special “knowledge or know-how, process capabilities or technologies” that should remain core competencies within manufacturing concerns. This knowledge needs to remain in the control of the corporation. If it is outsourced or offshored, especially to China, a nation that has shown little willingness to honor patents and has a propensity to steal intellectual property, then the ability of a company to compete successfully is impaired.

# The University Group, Inc.

The national security and military implications of losing both intellectual property as well as jobs in the economy are not obvious to many. What does the economy have to do with national security? The people of the United States equate national security with military readiness, homeland defense and generally protecting American interests at home and abroad. They are only partly right.

National security includes the strength of a nation's infrastructure, the foundation upon which the continuous growth of a society depends. This includes its strong societal and moral codes, the rule of law, stable government and political institutions. Also included are a nation's schools and educational programs to ensure a knowledgeable citizenry and life-long learning – all the things Americans take for granted. Infrastructure also includes power plants, roads, sewers, ports, banks, telecommunications, housing, hospitals, health-care and environmental sustainability.

National security also requires a healthy market based economy, with a strong industrial base of globally competitive industries that continuously improve their quality and productivity, and produce jobs as well as power the nation's war machines and military capabilities that require unique knowledge. Intellectual property and industry's competitive advantages are also an integral part of a nation's security.

As diverse as they are, all of these are elements of national security.

Economic security is a major element of national security. If using the broadest definition of national security, then there can be no question of the need to include the economic viability of a nation.

***Without capital, there is no business, without business, there are no profits, without profits there are no jobs. Without jobs, there are no taxes and there is no industrial or military capability.***

The viability of a nation's industrial infrastructure, which provides jobs for the people of a nation, which creates and distributes wealth, and which leverages profits, is essential. Without jobs, people and the quality of their lives deteriorate to a point where unemployment leads to the disintegration of the society and community, at large. It also leads to strife on many different levels. This is not only true in the third world. This occurs in

# The University Group, Inc.

America, too. No community, local or global can sustain indefinitely whole populations of “haves” and “have nots.”

There is no question that a part of the infrastructure of a nation must include a sound economy. It was the relative deterioration of the Japanese economy that led that nation into World War II. Poverty can lead to political instability.

Prosperity must begin at home. The United States industrial base, however, is at risk. America cannot sustain the kind of growth that it has enjoyed for the last several decades if we continue to permit a steady erosion of the industrial base of the nation. Increasingly, a number of U.S. companies in specific industries find it impossible to compete in world markets. But, in addition to the economic risks, the nation is falling behind in staying one to two generations ahead of the rest of the world in military capabilities.

***The national industrial base provides more than jobs. It maintains knowledge in the heads of people that can create industrial and war machines. Losing capabilities that cannot easily be replaced through offshoring high technology and core competencies puts the security of the nation at risk.***

Globalization and the intense pressure applied by Wall Street to U.S. companies encourages cost cutting at all costs and that frequently works in the short term but often creates losses in the long term. The “better, faster, cheaper” mentality sometimes sacrifices the long term by forcing a company to offshore work to low wage countries in the near term. These decisions can come back to haunt a company at a later date. This is especially the case when the work acquired is of inferior quality, or the accessibility of an essential item can be put in jeopardy. The national security implications of this are profound, not only because such decisions can put a company in jeopardy in the long term, but because of the loss of jobs for Americans ***and, in some cases, the inability of the nation to maintain a robust economy.***

Imagine a scenario where the United States is at war with China and critical electronic components for GM’s plants are being sent from Japan to support the just in time delivery supply lines. What would happen if the shipments are torpedoed by U.S. enemies? How long would GM be able to support its plants now that it is so dependent on foreign sources for so many of its

# The University Group, Inc.

supplies? As a company, GM does not have control over shipping. It is in the hands of foreigners. ***Enemies of the United States can easily disrupt the U.S. economy and GM plants all over the world just by sinking the ships that feed the plants.*** GM is more and more vulnerable because of its dependence on foreign parts and services.

Global purchasing organizations in industry and the military are not sufficiently looking at the risks of potential disruption of supply lines for a variety of scenarios. Buying something made in Thailand because it is less expensive does not automatically make it the correct purchasing decision. Thailand can sometimes be very politically unstable. Not being able to get something essential because of political instability is just as bad as having something attacked by an enemy. Political risks are not always calculated by purchasing organizations. They tend to be rewarded for getting essentials less expensively, and nothing else.

Just look at the results of the brief Longshoremen's strike a few years ago on the West Coast of the country and how much money that brief disruption cost the nation. It was billions of dollars a day. How much did it cost GM?

## **Consequences of the Erosion of the Industrial Base**

The sovereignty and security of the United States and the protection of its citizens and property around the world remain the bedrock of U.S. national security. The execution of U.S. national security strategy is conducted in a highly volatile global environment characterized by quantum changes in technology, unprecedented economic and political interdependencies, broadened opportunities to foster democratic principles, and allegiances, and alliances frequently founded on interests other than traditional nationalism.

Understanding the complex systems nature of national security and why the economy is a part of the equation is crucial. The world is a very small place and world peace may depend upon our ability to understand and articulate these issues. ***There are many scenarios that could put the United States at risk economically and militarily if our industrial base erodes much more. GM is playing a large role in this regard.***

Most critical for the economy, both government and industry are failing to cooperate as completely as they could in crucial areas to advance national

# The University Group, Inc.

security, such as leveraging the national laboratories, and providing the environment to encourage increased research and development on many fronts. Industry doesn't really understand government's bureaucracy. They are frustrated by government's lack of appreciation of the powerful role that Wall Street plays in the life of industry. With industry moving so rapidly and irretrievably into global markets and agreements -- which ought to be a great boost for the economy and therefore national security -- government has grown uneasy, sensing a steady loss of control. And industry, for its part, frequently turns a deaf ear to government's right to regulate.

The relationship between industry and the government -- especially between the long-range planners on both sides -- now suffers from a growing lack of understanding. There is ignorance on both sides due to poor communication and lack of true "partnership." If this ignorance continues, the country could lose its leadership role in the world. The U.S. could be outpaced by European or Asian consortia in which military and government in general, work closely with industry for the long term. Thus, in effect, the United States will decline in whatever this new post Cold War, post 9/11 period will be called in decades hence, unless the country leaders learn to cooperate with one another.

And no one today is predicting it. Ironically, the nation that made possible the end of the Cold War, that by its willingness to stand as the countervailing power against the Soviet Union for forty years, made possible the great economic booms in Asia, the rise of democracies in Europe and Latin America, and even, indirectly, eased the path for the emergence of China, that nation could decline by allowing itself to deteriorate from within while much of the world enjoys the fruits of a victory earned largely by the United States. General Motors could decline as well.

There needs to be increased communication between government and industry. Communication is at the core of understanding. And understanding is at the core of world leadership and national security.

Since World War II, U.S. companies have been doing business in a relatively stable, bi-polar world. With the end of the Cold War, and the rising uncertainties of a world at war with terrorists and other global "thugs," the U.S. corporation may be able to play a new role in furthering U.S.



# The University Group, Inc.

political interests around the world. But, as a nation, we need to be globally competitive and cannot permit the continued erosion of the industrial base through neglect and indifference. This has national security implications on many levels and military readiness implications, as well.

Although GM has had “international” strategies for generations, it is just graduating from its international or multinational strategy to its first, true “global” strategy ever. The new world order enables corporations to view the world as a “system” to be optimized to enable profits on a global basis. Unfortunately, even though there is one global economy, there is not one global political, cultural, or military system; but many. Corporations, today, need to relate to multiple governments and multiple markets simultaneously, and they need to develop global processes to work on a global basis.

Although the potential for the kind of mass destruction prevalent in the Cold War is no longer present, there is a new, less predictable danger; a kind of instability that *companies, not just countries*, need to be prepared for. There are many kinds of “war” against corporations and countries. It may be difficult to guard against some of these “little wars,” for these are not considered “war” in the traditional sense.

Asymmetric threats are aimed at companies, just as terrorists threaten in asymmetric ways. The threats are more subtle, but, they are as real as any other threats to this nation. They are threatening to GM, as well.

For example, what do we call an act of terrorism when an executive is kidnapped and held for ransom in a foreign country? Is this single act of terrorism an act of “economic war” when the executive’s knowledge gives his company a competitive advantage on a global basis, and thus helps his country’s economy to be stronger? If the executive is killed, is this an act of war? Is that the difference between real war and economic war? In a real war people’s lives are at risk. In an economic war, a nation’s economy and their citizen’s livelihoods and way of life are at risk? ***Either way, national and economic security is at risk.***

History shows that when nations’ economies are at risk of failure, the way Japan’s and Germany’s were before World War II, their penchant for going to war is high. Economic wars can lead to the economic chaos that frequently leads to real wars. They can be very dangerous.

# The University Group, Inc.

In a globally competitive economy, how do national economies compete? Is there such a thing as economic warfare? When does natural competition end and economic war begin? Who is the enemy in an economic war? A company? A country? How can the U.S. defend itself against economic war, if there is such a thing? What are the military and national security consequences of an economic war?

Let's take an example to explore. What happens when a company takes the intellectual property of a supplier and shares it with every one of that supplier's competitors around the world to get a better price? What about a senior executive who leaves the employ of a U.S. company to go to a foreign rival and takes with him corporate secrets? Is corporate theft on a global basis an act of industrial espionage or could it be considered an act of war?

Whether or not his techniques regarding global purchasing policy were considered legal, J. Ignacio Lopez left GM and took corporate secrets with him to Volkswagen in Germany. Some might say his acts were not only industrial espionage, but treason. Is such an act against a U.S. corporation, which hurts its ability to compete, an act against the Government of the United States? Or the People of the United States? Do we, in the U.S. understand the ramifications of the global economy and its relationship to countries' economies and their ability to compete? This is at the core of what national security is in a Post Cold War world because economic security is national security. Without economic security, there can be no national security in an economic or military sense. So isn't an attack aimed at the economic security of the country, in a sense an act of war?

Threats to national security are defined according to the context of the age. If the Lopez case had occurred during the World Wars in the early part of the last century, the man would have been charged with treason. But, with a global economy, and no major wars that are dividing the world, Lopez is charged with industrial espionage. If the U.S. is fighting in an economic war with its military allies, what does this mean for Lopez or anyone else? But, the idea that the U.S. is in an economic war is very foreign to most Americans, including most American businesses -- whether or not they are global. And, the disintegration of the industrial base, along with its military and national security implications, is a consequence of many of these "wars."

# The University Group, Inc.

## **Economic Warfare and National Security**

What is an economic war? What would happen if the industrial base of the United States continues to disintegrate? Many U.S. industries have seen for decades that some foreign country's policies can have a profoundly negative effect on the ability of any country to export or sell their products and services competitively. This can lead to the loss of whole industries in a country. In the United States, for example, many consumer electronics products such as TV's and VCR's have been lost to the Japanese. What would be the implications of having a German or Japanese car company buy General Motors? Would it matter if GM was owned by Toyota or Volkswagen?

When a country's government deliberately encourages its industry and governmental officials to harm another country's economy or its industry through industrial and other policies, then an economic war is being waged. Sometimes, this encouragement is very subtle, and so it can be tough to prove. It can be buried in complex industrial policies, tariffs and legislation. Nevertheless, over time, its effects can be devastating. This is especially difficult when the country is a military ally, as is so frequently the case in the United States.

The United States has historically been afraid to formulate an industrial policy. Somehow, industrial policy is equated with "picking winners and losers," and this will interfere with the free market, which is the only force that should exist. But, of course, the U.S. has an industrial policy. It is the sum total of all the U.S. laws, regulations, and policies that influence how the economy of the nation and its industry function on a global basis. Other countries are far more sophisticated about enabling their industries to be winners. Other nations have learned, in an honest sense, that cooperation between business and government can at the very least counter the potential effects of other nations' economic war-like and harmful industrial policies. How to do that is another issue.

## **Government-Industry Cooperation**

***The single most effective way to honestly and effectively help U.S. industry and support the industrial base is to cooperate with them to enable their***

# The University Group, Inc.

*growth, health, and ability to provide jobs for the economy and capability for its customers and the military. Permitting the industrial base to erode is harmful and dangerous on many levels.*

Can American industry and government learn to cooperate? Beyond the work of professional or industry associations, how often does a traditional American company cooperate with any of its stakeholders, let alone the government? In many industries, companies are learning that joint ventures and “strategic partnerships” are the key to survival in an increasingly complex world. They are learning to develop long-term relationships with their suppliers, and their other various constituents. How should government policy enable these cooperative efforts?

For too many years, large corporations in the United States were under the threat of anti-trust laws if they tried to cooperate in any way. IBM, General Motors Corporation and AT&T are examples of companies that have been targets of the U.S. Department of Justice and their antitrust efforts.

Both General Motors and IBM have managed to escape the “break up” phenomenon. In addition to antitrust activity, the U.S. government continues to take on ever more regulation of industry in one form or another. Although deregulation of some industries has become popular, such as energy and telecommunications, overall, there remains a huge amount of regulatory constraints on industry where sometimes cooperation is what is needed.

For example, in the U.S. automobile industry, the Corporate Average Fuel Economy (CAFE) standards have had a negative effect on the way the industry views government. CAFE targets, alone, are responsible for adversarial relationships in many arenas.

But, during the 1980’s, U.S. industrial competitiveness was becoming a major issue for the first time. IBM and General Motors, giants of a previous age, were fighting to survive in global markets. The big corporate structures that had worked well in a time of stability were bureaucracies too cumbersome to adapt to the vast changes in world markets.

On June 8, 1992, Chrysler, Ford and General Motors announced a consortium to provide pre-competitive cooperative research to improve the

# The University Group, Inc.

“common good” for the consumer in the areas of safety, the environment, technology development or to help make the industry more globally competitive. Pre-competitive means there is no marketplace advantage for one company to develop technology alone. The umbrella organization is called USCAR, the United States Council for Automotive Research. The project grew out of informal discussions that had been taking place by the Big Three’s technical vice presidents.

It was only permissible because Congress passed legislation in 1984 that encouraged all forms of lawful joint research. By a consent decree in 1969, the Big Three had agreed not to share research and development under the mandate of Federal anti-trust laws. The decree grew out of a 1968 lawsuit charging the Motor Vehicle Manufacturers Association with conspiracy to delay emissions controls. Fortunately, the decree expired in 1987.

But, because of the adversarial relationships that had developed over many years between the government and industry, it literally took an act of Congress to enable cooperation.

That, is a symptom of what is wrong. USCAR is the exception, not the rule. ***The U.S. industrial infrastructure is shared by the U.S. military.*** One of the industries that is disintegrating creating many potential nightmares for U.S. national security is the machine tool industry that literally is essential to manufacture anything metal. Most machine tools are now imported from abroad. Imagine a scenario where our allies do not agree with our war position, and, yet, we are dependent upon them to manufacture our weapon systems. Is this wise? Unfortunately, it is very plausible. Worse yet, what if we become dependent on China and one day, we need to fight them?

***Remember, the national industrial base provides more than jobs. It maintains knowledge in the heads of people that can create war machines when necessary.***

Economic security is national security in its broadest sense. Government and industry in the U.S. are failing to consolidate the gains that should have been theirs following victory in the Cold War because they are not cooperating, and, in fact, continue to have an adversarial relationship. The division between government and industry is largely one of misunderstanding, and, yet, bridging that gap is crucial to the economic and

# The University Group, Inc.

national security of the United States in addition to its military readiness.

Understanding the “systems” nature of national security is at the very heart of why it is crucial for government and industry to work together to maintain the leadership position of the United States in the 21<sup>st</sup> century. In a system, every element is interconnected with every other element and all elements are interdependent. For that reason, systems are only as strong as their weakest links.

In the United States, however, the links between government and industry are weak. Government and industry have been adversaries for so many generations that they do not know each other well enough to even recognize each other’s strengths and weaknesses. They are failing to capitalize on what could be a powerful and inexpensive force multiplier.

The most recent reasons for this misunderstanding have their roots in cultural differences that began during the Vietnam War period. Unfortunately for the nation, this has continued into the post Cold War period because the two sides are approaching the new world order along separate paths. In addition, for most of the last century, the two sides have viewed each other with suspicion and distrust. To survive in the 21<sup>st</sup> century, the United States will need to learn the true meaning of national security, and its concomitant requirements for cooperation between government, industry, the military and others.

All parties have a great deal to learn from the others though none of them have made a serious effort to do so. The irony of all this is that the U.S., in the absence, now, of a major global threat, could fritter away a significant portion of its strength by a self inflicted wound. There is a brighter prospect however, and that lies in the possibility of a government and industry cooperative partnership that builds upon the strengths of both, and finds ways to augment weaknesses to enable a secure future for the country and its military.

Using systems thinking, the nation will benefit from seeing how powerful and productive common sense cooperation could be for 21<sup>st</sup> century America to reduce and stop the erosion of the U.S. industrial base. Indeed, without such cooperation, the United States will have difficulty retaining its global leadership position, or its ability to sustain national security strategies and

# The University Group, Inc.

military capabilities and readiness. General Motors and the U.S. Army can begin this cooperative process.

## The Grand Strategy:

The metalcasting industry is composed of foundries producing gray iron, ductile and malleable iron, aluminum, carbon and low-alloy steel, corrosion and heat resistant steel, brass alloys, magnesium, titanium, and many other metals. In the U.S., capacity is in decline. Sites have declined from 6,150 in 1955 to 2,480 in 2004. The main drivers behind this reduction are the move to vehicles with higher content and power that can still meet CAFÉ standards, vehicle and component imports, and off-shore outsourcing of casting business. Plant closings continue at about a 5% per year rate. Utilization is moderately up. Low volume commercial capability is in decline and it has become difficult to source low volume service parts.

GM, as well as Ford and DaimlerChrysler, undoubtedly have unique sets of problems. Increasingly, these organizations are eliminating their in-house casting operations and relying on their Purchasing Departments to provide casting sources for component needs. OEM purchasing departments have one mantra, “reduce costs.” Unfortunately, that is taken to mean component cost, and not system cost. Suppliers to the Big Three have some unique problems, as well. The volumes of parts required by the Big three require huge capital investment. Supplier cost increases in engineering, aided by the loss of OEM talent, cannot be added into the part. The result is frequently read about in the recall articles journalists love to write. More insidious, and less noticeable, are the myriad of engineering changes made to remake an ill-designed casting. But, the really big cost shows in the warranty column and few are privy to these numbers.

As previously stated, “In the United States, competition from abroad is fierce, frequently unfair and has un-level playing fields. U.S. privately held companies frequently compete with country-owned operations. Non-U.S. manufacturers are able to benefit from low-cost labor and lax environmental, ergonomic, and safety constraints.” For example, many foundries in India feature manual pouring of iron at 2500<sup>0</sup> F, where the laborers wear no shoes, let alone protective gear, and their ladles feature no hoists. Even in the U.S., the playing fields are uneven; GM’s safety record for workers is eight to ten times better than those of the very Japanese transplants who are gobbling up

# The University Group, Inc.

their market share. Is this something GM is rewarded for? In a word, “No.” The same can be said for ergonomics. Cumulative trauma and other repetitive injury syndrome cases are just beginning to emerge from the U.S. transplant factories. Yet, over ten years ago, GM and the UAW cooperated in an effort that studied every job in their foundries for ergonomic integrity, and corrected those that were deemed to have a need. Not only are we pursuing policies that build cost savings on the backs of foreign workers, we are pursuing those same policies in the U.S.

China, now the world’s leader in casting production totals over 16 million metric tons and is not concerned about their employee’s safety or the environment. China’s growth rate is so large that they are affecting world scrap prices, steel prices, etc. U.S. foundries are struggling to pay for these resources, as they have to compete with China on price, not on safety or the environment. Yet it is the World’s environment that is being affected; shouldn’t China be made to operate on the same level U.S. foundries are? The Chinese have publicly stated that they intend to become the casting and manufacturing center of the world. They have over 12,000 foundries and continue to grow.

Environmental, safety and ergonomic pressures will not abate in the U.S., nor will any citizen of the U.S. support reduction in their levels of control. It can, however, be argued that some sort of reason be brought into the mix. Some parts of the law and some of the judgments make no sense, and are the result of political waffling. For example, the U.S. Army’s Casting Emission Reduction Program CERP facility was built to develop foundry production materials that are kinder to the environment. In order to test materials, a baseline set of data are required. Yet, CERP cannot get a U.S. foundry to let CERP come in and measure emissions. Why? Because the EPA requires that any emissions testing done on a U.S. foundry be shared with the EPA. If any element of the emission control specifications is found out of order, the company can be fined. CERP has to go to the GM Foundry in Mexico to run these tests.

Another example of the lack of cooperation between the U.S. Government and U.S. industry is when the AFS Cupola Committee wanted to test for emissions in the use of old rubber tires as a fuel. These tires are an eyesore in many a dump site in the U.S., yet no foundry would even run a test on them for fear of running up against the EPA. This sort of issue needs to be



# The University Group, Inc.

cleared up, and a better, strategic, relationship has to be developed. It is hard to imagine that the U.S. can remain a superpower when its economy is driven by citizens employed only by the low wage service sector.

According to the American Foundry Society (AFS), 90% of all manufactured goods contain one or more metalcastings. U.S. casting shipments in 2004 are forecasted to total a little over 14 million metric tons. Cast metal products are found in virtually every sector of the economy, including, transportation, aerospace, defense, energy production, mining, construction, maritime, fluid power, instrumentation and myriads of household products. The U.S. has around 2480 foundries and that number is shrinking. They employ about 220,000 people. 80% of U.S. foundries employ fewer than 100 people. Although U.S. production is projected to increase slightly, demand continues to increase a great deal, prompting imports from abroad, especially China.

Attracting, educating and training new workers continue to be issues within the United States. Casting know-how is disappearing along with the foundries that supported it. Yet, to remain viable, new lightweight cast parts production technologies need to be invested in. What are the implications of developing a Big Three Joint effort, with union partners, to create a “Foundry Company” in the United States that services their needs? This would not be a production company, but would be a company that would develop castings released from the Big Three to existing U.S. foundries, or foundries to be built in the U.S. This group of facilities, built, and/or supported with government funding, would also house casting expertise that would aid in the design of castings for end use, thus enabling these foundries and their customers to reduce the costs mentioned above.

For this effort to work, there have to be U.S. foundries in production using the technologies that provide the best and latest of casting characteristics; high mechanical properties, dimensional stability, and product integrity. As an example, for aluminum cylinder blocks, these characteristics are best provided by the Precision Sand Process (PSP). The Big Three has only one foundry employing this technology, GM’s SMC Plant in Saginaw, MI; there are no other major PSP foundries operating in the U.S. Ford had one in Cleveland, and closed it after only three years of production; they also had one in Windsor, Canada, and gave that to NemaK (Mexican foundry organization in which Ford has a minor interest). Chrysler has always

# The University Group, Inc.

outsourced their PSP business.

There are only two PSP foundries sourcing business into the U.S., both are in Mexico. It appears that these foundries are cooperating in a cartel-like manner. These companies can have little interest in improving existing technologies; why spend the money when there is only a limited sourcing selection? Yet there are those in the business who market technology improvements for PSP. Where will they be forced to go to market their wares? There is a good chance these people can build a flourishing PSP industry in China. Not having a U.S. PSP source increases the risks to the U.S. companies involved in China (or Mexico, or Italy, etc.) of being on the wrong end of increased price demands, or being victim of withheld production. Once the U.S. end-user companies are dependent upon them, risks soar. Risks associated with terrorist threats against supply chains abroad would also be reduced if strategic casting production were maintained in the U.S. Strategic partnerships with existing foundries, such as the U.S. Army's CERP program, and pooling potential funding sources can be instrumental in keeping a vibrant U.S. foundry industry.

This could be a part of a grand strategy to create a United States coalition of industry, government and union partners to create a "Foundry Company" in the United States. How will U.S. industry, including GM, mitigate the risks involved with having China hold American companies hostage? How will U.S. companies reduce the risks involved when China makes increased price demands once the companies are dependent upon them?

## A Steel Issue

The U.S. used to have a huge iron-ore-reduction steel industry. This industry, called "integrated" in that it incorporates all facets of steel making, is so capital intensive that there are virtually no new mills of this type being built in the world. As an example of the cost involved, Hyundai is currently looking at building a new integrated steel mill in Korea; their investment would be \$6 billion. It costs in the neighborhood of \$250 million just to reline a blast furnace.

Steel is almost 100% reusable; it can be remelted and reformed endless times. For this reason, the integrated steel mill industry in the U.S. has been largely replaced by the mini-mill industry. These mills, which can be built

# The University Group, Inc.

at a fraction of the cost of an integrated mill, buy steel scrap and melt it in electric arc furnaces. To be sure, this industry has its own technological and operational challenges, but, it is safe to say that mini-mills are here to stay.

The steel scrap market is a very volatile place to do business; there are many parameters that can drive prices up and down, and short term costs will fluctuate from month to month based on variables such as supplier and end-user inventory levels. However, the steel scrap market has been dramatically trending up. Steel mills and casting houses in countries such as China, Turkey, and, increasingly, India have a voracious appetite for steel scrap, and don't have the manufacturing base to supply it.

China, of course, is the world's largest producer of raw steel; they have 2700 steel mills. China artificially pegs its currency to the U.S. dollar, which is currently showing weak against the currencies of other industrialized nations. The question presents itself, in a manufacturing sense, what are China's motives? Are they aiming at being a large exporter of raw steel, most likely not? Are they aiming at being a world force in high-value manufactured steel goods? More likely. If so, many of those goods will be headed to the U.S. This should be of great concern to our manufacturers here, and to the U.S. steel industry and GM, a major user. As U.S. manufacturers of steel products disappear under a wave of cheap Chinese goods, what happens to the scrap steel market here in the United States?

China enjoys a labor advantage of as much as \$100 a ton for steel production. While other structural costs are probably on a par with those in Western countries, the artificial pegging of their currency, combined with the labor advantage, will prove itself insurmountable. The mini-mill industry in the U.S. is currently relatively healthy, having been able to pass the increased scrap costs on to their customers; these customers may be at their limit as far as accepting increases. Consolidation in the mini-mill industry has been brisk, with the more able companies buying up bankrupt and less viable mills. Eventually there will probably be five or six major steel companies in the U.S. These companies are already building facilities in China. The number of outsourced jobs and capabilities is, as yet, unknown.

The U.S. International Trade Commission (ITC), in a 4 to 2 vote last April, decided to maintain anti-dumping and countervailing duties against hot-

# The University Group, Inc.

rolled steel products from Russia, Brazil and Japan for another five years. While free-market advocates found this decision to be reprehensible, the majority opinion found that overcapacity in the steel-making industry, which is characterized by very high overhead costs, provides conditions ripe for dumping. The ITC determined this would be injurious to U.S. industry.

Sun Tzu, the ancient and oft-quoted Chinese strategic thinker, said, “Every battle is won or lost before it is ever fought.” The U.S. is the world’s only superpower....now. Is China’s strategy to challenge the U.S. and become a superpower, not by military means, but economic means? The last country to challenge the U.S. in its role as a superpower was Russia. That struggle was guided by a planned strategy on the part of the U.S. to thwart the spread of communism. This struggle was marked by covert actions and military confrontations, and took 50 years.

Any military move by China against any of the industrialized nations would bring cooperation amongst those nations against China. But an economic war, fought slowly, with China continually and aggressively pressing its competitive advantage against the U.S. could be advanced without sensitizing the others in the G7. Does the U.S. have a plan to fight this kind of war; does it have the patience? If China were to have a strategy to weaken the U.S. by conducting an economic war, essential industries such as the casting and steel-making industries would be a good place to start.

## **GM Saginaw Malleable Iron Sustainment Concept**

In the last UAW contract negotiations, Saginaw Malleable Iron (SMI) was one of two plants that were proposed for closing. The plant was told that the closing date was to be in 2007 and GM was planning to move the production either to their Defiance, Ohio foundry or outsource the castings.

Outsourcing was the preferred avenue, and, indeed, many parts have been outsourced, some to the U.S., some to Korea, and some to India. However, some castings proved to be too difficult for other foundries to make. It may seem unlikely, but for some reason or another, chosen supplier plants could not duplicate the quality coming from the SMI Plant. It remains to be seen if Defiance can make them. Original cost estimates for this transfer of work to Defiance, Ohio had been \$30 Million, but detailed studies done recently

# The University Group, Inc.

have placed this cost closer to \$60 to \$80 Million. This is a cost GM does not need to take on, especially in these times.

What makes this plant workload difficult to outsource is that it consists nearly completely of malleable iron castings (there is one part of vacuum-cast gray iron) and most outside production facilities have eliminated the production of that metal and replaced it with ductile iron. GM has continued to support the use of malleable iron in its car and truck designs because of its structural properties. GM can not easily redesign or requalify these existing castings in other metals. Powertrain designs could incorporate different casting materials, although, in some cases not without additional machining costs, but not fast enough to avoid major relocation costs for the existing malleable iron castings.

It has been estimated that the SMI Plant has the capacity to produce 50% of the world's present usage of malleable iron castings. Presently, the plant is operating at 25% of its maximum capability because of production slow downs at GM and the conversion of some malleable iron castings to other metals, for example, connecting rod conversion to ductile iron. There are 350 UAW jobs at SMI and about 40 salaried positions. The average age of the workforce is 58 years old and 85% of the employees can retire today.

UAW Local 455 President, Dennis Fiting, has met with GM CEO Rick Wagner and UAW Vice President Richard Shoemaker with the concept of an employee buyout of the plant. Investor purchase of the plant may be looked at, as well. However, in the past, the UAW has resisted the purchase of the plant. But, the employee buyout concept was not rejected by either GM or the UAW.

Technikon, LLC, which has worked with SMI on the U.S. Army's Casting Emission Reduction Program (CERP), was asked by Mr. Fiting to team with the UAW/SMI employees to determine whether or not the concept was feasible. The goal of the Army's CERP program, operated by Technikon, is the sustainment of the Foundry Industry in the United States. As a result, Technikon has the resources and knowledge to determine the viability of the plan, thus securing both local UAW jobs and saving GM dollars.

To be successful, GM needs to guarantee the existing workload for some reasonable period of time and the UAW needs to agree to a lower wage and

# The University Group, Inc.

benefit package. Both of these issues are being reviewed with the appropriate decision makers. Present operating costs for the plant will need to be reviewed to determine breakeven parameters. Local incentives for retaining jobs in the Saginaw area are being investigated and the Governor of Michigan has been contacted by the union for help.

Through the years the people of the SMI Plant have shown themselves to be not only good workers, but have shown themselves to be versatile, as well. The SMI Plant houses a gray iron, thin-wall, vacuum casting process that, as a production unit, is one of a kind. This process was developed in a joint venture facility called MCT, a venture between GM and Hitchiner Mfg. The process has a great capability to make the sort of castings that are required today, lightweight and dimensionally accurate. GM has never pursued the increased use of this facility, as the intent has been for years to close the SMI Plant. Yet there is a part in production there that GM has not been able to find another supplier to provide. Many have tried and failed. This process could be a provider of future casting sales for SMI.

There are many stories of GM being hurt because of supplier failures. One of the most recent is the failure of the ION Group in Australia. This group was to provide aluminum cylinder heads, oil pans, intake manifolds, and PSP cylinder blocks for GM's Holden subsidiary in Australia. Holden had just completed a new engine plant for the HFV6 engine, when ION closed shop. GM is now scrambling to find another source for these parts. A new GM engine plant in Flint, MI will also build the HFV6, and requires castings. ION developed the part in Cleveland, OH, staying close to the customer (GM) for the development period, even though the engine was to be built in Australia. SMI would be a good place to produce these parts, if a business case proved it viable. Aluminum is the wave of the future, and there are other PSP parts that could come to a competitive plant.

Is it feasible for a U.S. foundry to compete with a Chinese foundry? There are many costs inherent to foreign production that are not found in a traditional cost analysis or business case, yet these costs are real. Some of them were mentioned earlier in the paper. Shipping castings is a heavy cost and poses real potential for production interruption. How many times will your engineers have to travel to China to achieve production ready status? Is the U.S. Government willing to help in non-traditional ways that will even the parameters under which the U.S. foundries have to operate? U.S.

# The University Group, Inc.

foundries have to compete; they have to get cost out. But, they can go only so far in cost-cutting before the bleeding is injurious and Wall Street is howling. It is important to understand, if you are not making it or growing it, you are not creating wealth. If the U.S. is to remain a superpower, it has to be wealthy.

GM is under significant pressure by the media and shareholders to downsize and cut costs. The success of this proposal would be a unique positive story that would meet the goals of GM and the UAW to reduce cost and retain jobs. It would also send a message to China. The U.S. has no intention of abandoning 100% of any one of its capabilities to them.

The entire nation will benefit.

## References:

*An Assessment of the U.S. Marine Transportation System: A Report to Congress*, Department of Transportation Publication, Washington, D.C., 1999.

*Critical Technology Assessment of Biotechnology in U.S. Industry*, Office of Strategic Industries and Economic Security Study, U.S. Department of Commerce, Washington, D.C., 2002.

DMSMS, 2003, [www.dmsms2003.utcd Dayton.com/](http://www.dmsms2003.utcd Dayton.com/).

*Federal Resource Access Partnership: Industry Needs Assessment Survey 2001-2002*, Office of Strategic Industries and Economic Security, U.S. Department of Commerce Publication, Washington, D.C., 2002.

*2001 Industrial Sector Assessment of Watercraft*, TACOM Acquisition Process Management Study, U.S. Army, Detroit, 2002.

*Industry Attitudes On Collaborating With DoD in R&D: A National Security Survey of Select Business Sectors*, Office of Strategic Industries and Economic Security, Department of Commerce, 2001.

*Land Combat Systems*, Industrial College of the Armed Forces Study, National Defense University, Washington, D.C., 2002.

# The University Group, Inc.

Lawrence, Robert Z., *Can America Compete?* The Brookings Institution, Washington, D.C., 1984.

*Manufacturing Empowerment Zone Needs Assessment Survey for the Long Beach and Greater Long Beach Area: Designed to Link Business Needs With Surplus Equipment from the Long Beach Naval Shipyard*, Office of Strategic Industries and Economic Security, U.S. Department of Commerce Publication, Washington, D.C., 1998.

*Manufacturing News*, [www.MANUFACTURINGNEWS.COM](http://www.MANUFACTURINGNEWS.COM) Thursday, January 2, 2003

*Offsets in Defense Trade: Fifth Annual Report to Congress*, Office of Strategic Industries and Economic Security, U.S. Department of Commerce, Washington, D.C., 2001.

*National Assessment of the Impact of Welding on U.S. Economic Productivity*, Office of Strategic Industries & Economic Security, U.S. Department of Commerce, Washington, D.C., 2001.

*National Security Assessment of the Cartridge & Propellant Actuated Device Industry: A Report for the U.S. Department of the Navy*, Office of Strategic Industries and Economic Security Study, U.S. Department of Commerce, Washington, D.C., 1995.

*National Security Assessment of the High Performance Explosives and Explosive Components Industries: A Report for the U.S. Department of the Navy*, Office of Strategic Industries and Economic Security, U.S. Department of Commerce, Washington, D.C., 2001.

*National Security Assessment of the U.S. Maritime Industry: Shipbuilders' Supplier Base*, U.S. Department of Commerce and The Naval Surface Warfare Center, Carderock Division, Publication, Washington, D.C., 2002.

Nivola, Pietro S., *Regulating Unfair Trade*, The Brookings Institution, Washington, D.C., 1993.



# The University Group, Inc.

*Shipbuilding*, Industrial College of the Armed Forces Study, National Defense University, Washington, D.C., 2002.

*Strategic Supply*, Industrial College of the Armed Forces Study, National Defense University, Washington, D.C., 2002.

*Technology and Industrial Base Sector Studies, January 1995 to Present*, North American Technology and Industrial Base Organization (NATIBO) Publication, Alexandria, VA, 1998.

Tonelson, Alan, *The Race to The Bottom: Why a Worldwide Worker Surplus and Uncontrolled Free Trade are Sinking American Living Standards*, Westview Press, Cambridge, 2002.

Tyson, Laura D'Andrea, *Who's Bashing Whom? Trade Conflict in High-Technology Industries*, Institute for International Economics, Washington, D.C., 1992.