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A merger of equals...

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Introduction

In 1993, the United States made plans to cut defense spending by 75% as a direct consequence of shifts in the world political environment. With the Soviet Union's fall and an enormous deficit, the US government decided it no longer made strategic sense to continue current levels of defense outlay. At a state dinner, which later become known as "The Last Supper", Secretary of Defense William Perry announced to representatives from major defense manufacturers that "We [the US] expect defense companies to go out of business. We will stand by and let that happen." Industry reaction to the announcement varied substantially among companies, but few survived the restructuring as successfully as Lockheed and Martin Marietta, who merged into Lockheed Martin. What made this merger unique was that it was a merger of two equals, which not only enabled the companies to survive within a rapidly shrinking and fiercely competitive industry, but also gave them key advantages in their quest for market leadership.

Hypothesis

The Lockheed-Martin merger did create shareholder value (see Appendix 9) through a combination of a reduction in costs and an increased ability to differentiate. This merging of resources and technical expertise led to an increased utilization of synergies, (such as economies of scale and a leveraging of expertise to gain competitive advantages). Based on this information and given the industry pressures on defense contractors, the merger was a rational strategy. While Lockheed-Martin effectively executed the merger and realized many synergies, there are some things they could have done better and will need to be aware of in the future.

Industry Analysis

The defense industry saw a 50% decline in demand between 1990 and 1995, translating to a 75% decline in demand, specifically in purchasing. There was also a net reduction of $80 billion annually in the defense budget. As the House Majority Leader said:

> "Given the size of the market and the technologically defined economies of scale in an industry, the market will determine the optimal number of firms and the optimal size".

State of Industry Under the Porter's Five Forces Framework (See Appendix 3)

Threat of Entry: Cyclical demand and government reform in defense spending clearly favors massive players who have the technical expertise to meet the demands of large, complex contracts at low cost through realization of scale. This was a large barrier to entry, not just for new entrants, but also for smaller contractors who lacked economies of scale and resources to make successful bids for contracts involving procurement and maintenance of different platforms purchased by the military. To survive, smaller players within the industry had to consolidate and reduce costs, diversify, or exit the industry.

Rivalry among firms in the industry: The defense industry is characterized by "boom" and "bust" cycles in demand, which drives and shapes the players' strategies. Three factors drive this cyclical demand: inertia of existing defense programs, threat, and affordability. At the time of the merger these three factors had combined to create a triple shock for the industry: a downturn in the cycle, disappearance of the threat (the Soviet Union), and lack of resources (enormous deficits in government spending). As a consequence, rivalry among firms within the industry became very intense.

Buyer Power: The industry was unique in that there was only one significant buyer, the US Government, for a majority of its products. International arms sales were highly regulated and the volume of exports, as a fraction of the industry output, was very small. In addition, the government's new procurement system resulted in contractors having to pay for large portions of the upfront cost associated with prototype development. The government's shift to a fixed price scheme further required contractors to absorb any costs over quoted prices, which was particularly harsh given the high variance in cost forecasting. The government reduced its direct supplier base by 85% (cutting 7600 suppliers), and shifted to a policy of handing large contracts to a few "full service" suppliers. In other words the 'buyer' was all-powerful, and was steering the industry towards consolidation.

Supplier Power: Due to the merchant-buyer / merchant-supplier relationship, where low cost and high quality were fundamental in winning contracts, companies often outsourced key components, including personnel, to the lowest bidder with the highest quality (if they were able to provide a superior product than could be produced in-house). Due to the number of suppliers, and since these merchant buyer-supplier relationships were mutual, there was no significant supplier power.

Threat of Substitutes: The defense industry has long been split between makers of "platforms" (airframes, missiles and warships), and suppliers of "black boxes" (electronic components that turn platforms into weapon systems). With cuts in defense budgets, the Pentagon decided to upgrade most of its existing "platforms" with more advanced "black boxes", or weapon systems, as opposed to procuring new platforms (with advanced systems). As a result, "platform" manufacturers were affected more than "black box" producers were. In the future, however, the survival of black box suppliers will be tightly linked to a few key platform producers.

Strategic Alternatives

Given the state of the industry at the time, three strategic alternatives were available to the players in the defense industry: consolidating to survive in a declining marketplace; divesting selectively to assume leadership positions in a few niche products; diversifying into related commercial products; or simply exiting the industry. In the past, diversification into related non-defense businesses (such as vehicles, electronics and aircraft) worked, but is now prone to problems due to: a lack of both marketing sophistication and rapid product development skills, inefficient and bureaucratic organizations and the fact that such highly focused expertise makes technology difficult to transfer. The majority of the industry's companies had variable cash flows and was loaded with debt. They also had insufficient management skills that made diversification into the commercial markets by acquisition impractical. The global defense market had been shrinking and was too small to make up for reductions in the US market. Thus, a rational strategy for industry players (see Appendix 2) was to consolidate through mergers and acquisitions, or exit the industry. (See appendix 1)

Profiles of Lockheed and Martin Marietta

Martin Marietta was very strong in defense contracting, focusing on electronics and missiles. The company had standard policies and procedures for conducting business as well as standard financial reporting and accounting throughout all of its business units. They were diverse and had a centralized organizational structure. The year before the merger in 1994, Martin Marietta made $450 million on sales of $9.4 billion.

Lockheed was also strong in defense contracting, focusing on military aircraft. Their structure, accounting systems and procedures were also similar to those of Martin Marietta. The year before the merger, Lockheed made $422 million on sales of $13.1 billion. (See Appendix D)

The Merger and Its Rationale

> "...changing an organization to reflect an external reality …the penalty for not changing to reflect external reality is painful"

Though Lockheed and Martin Marietta were ranked #2 and #3 respectively in the US defense industry, they had very little overlap in their product lines. The two companies were expected to be more competitive operating as one corporation due to synergies in manufacturing (scale), purchasing, R&D, access to international markets and distribution (scope), and procurement of government contracts (See appendices 2, 6 and 14). Both companies had been targets of hostile takeovers before (Lockheed was put into play as the result of a proxy offer from a wealthy investor in Texas, and Bendix Corporation had made a hostile takeover bid for Martin Marietta) and though there were no such imminent threats, the merger would preempt similar future threats, in addition to ideally positioning the company for global long run leadership.

On August 29th 1994, Lockheed and Martin Marietta officially declared their intent to merge. Their businesses were integrated through an exchange of stock valued at more than $10 billion (not adding any debt to the new company), effectively creating the Lockheed Martin Corporation in March 1995.

Implementation (See Appendix 15)

Lockheed and Martin Marietta approached the merger and implementation from a unique perspective. Both companies had been subject to hostile takeovers, and neither company was the aggressor in this merger. Both knew what it felt like to be the target of a takeover attempt and each resolved to treat consolidation as a combination of professional organizations; a "merger of equals".

Before the merger, Norman Augustine (Martin Marietta's CEO) and Daniel Tellep (Lockheed's CEO) were friends and peers with tremendous mutual appreciation. Their relationship helped them set a tone of respect and fairness, which, combined with decisive leadership and a willingness to compromise, were important factors in the successful integration of both companies. According to Jim Tierney, VP of Communications for LM Electronics sector

> "…it is absolutely true that there was zero percent conflict between Tellep and Augustine. They had known each other a long time. They were professional acquaintances and friends and both realized (that) by bringing their companies together they could preserve them as a single entity. It meant a lot to them to preserve their heritages." (See Tierney interview, Appendix 16).

The CEOs agreed to close Lockheed's headquarters and combine it with Martin Marietta's headquarters on the East Coast. As a gesture of fairness all personnel were moved out of Martin Marietta's headquarters, the building was completely remodeled and upon completion, personnel from both companies moved in together as a new company. This let everyone start on an equal footing. The concept of fairness was a particularly important part of management and policy formation. A task force combined from both companies assessed all policies and procedures, utilizing the idea of " best of the best", in an attempt to create a fair new set of policies. As part of this approach a 50/50 mix was utilized in determining management staffing from both companies. Even the two leaders compromised around jobs, with Tellep serving as the initial chairman and Augustine as president. To realize savings it was also necessary to consolidate functions and there were some layoffs, though both Augustine and Tellep believed that the number would have been much higher had the companies remained separate. In addition, those laid off were treated well and given considerable severance packages.

Culture

The cultures at both companies were similar; dominated by engineers with conservative ethos. There was a slight difference in outlook between East coast and West coast attitudes, which mainly manifested in different dress styles. The West Coast, Lockheed people were also characterized as being both more patient and laid back than their East coast Marietta counterparts. There was some initial discontent when different profit margins across sectors meant pay could not be completely equalized, however increases in stock values compensated for lower pay and mitigated problems of discontent. Furthermore, the culture at the new LM reflected a strong emphasis on ethics. Both Tellep and Augustine had ethics as one of their top priorities and industry pressures required a high standard of ethical behavior. After the merger, they created an Ethics office, a code of ethics and compulsory ethical training courses (see Appendix 4). Overall, a unified culture was very important for Lockheed-Martin, particularly due to its decentralized structure and because the high tech end of their business depended on groups of diverse people working on project teams. Motivating these people, with job-cuts in the air, required a lot of sensitivity, and a “sense of belonging” had to be cultivated.

Augustine and Tellep tried to develop a sense of unity by defining a common culture based on ethics and engineering. They introduced a code of business conduct (see Appendix 4 and 5) by creating a set of core values drawn from both companies, as a means of providing a common basis for behavior. These values include: **ethical conduct**; **mission success** (which basically meant that success of their customer’s mission was the driving force for all business activities); **striving for technological strength and leadership; financial strength and profitability; committing to fair treatment of employees**; **being fast and decisive** and lastly, **being competitive.** This was achieved in four ways: 1) Cutting costs through affecting economies of scale, 2) Leveraging diverse technological skill across the company, 3) Market access, and 4) Value creation by adopting the “best practices” from both the companies. (See Appendix 4)

Organizational Structure

Prior to the merger both Lockheed and Martin Marietta were characterized by fairly decentralized organizational structures. The organization of the new LM remained decentralized, motivated by the logistical difficulty of managing 70 companies in a centralized model. After the merger, LM organized their operating companies into five sectors: Aeronautics, Electronics, Energy & Environment, Information & Services and Space & Strategic Missiles. This sector division allowed for coordination around functions, with the top management of each section reporting centrally to corporate headquarters in Bethesda (see appendix 11). Within this environment, corporate strategy was formulated and easily disseminated to section managers. The sectors and operating units in turn were autonomous, with decision-making and operational autonomy pushed down to the most appropriate level and also across projects. In fact, there were specific mechanisms in place to coordinate across all such levels. These mechanisms included the centralization of certain functions such as communications and information systems, as well as having four of the five sectors located at corporate headquarters. As one senior executive said (see Appendix 16):

> "…Although they have locations all over the country, senior management for each sector is here, so if they want to talk all they do is walk down the hall. Also they have the executive council: senior staff people meet to discuss businesses and their pursuits together. They see each other regularly, then it goes down through the sectors to the individual companies. Policy is driven down to the different companies."

LM is working towards greater centralization in areas such as financial and accounting practices. Their goal in many areas is to have a consistency of processes and practices across decentralized units. According to a company spokesperson, who was asked about decentralization:

> "In process, they're instituting common processes for decentralized application to operate semi-autonomously with standardized systems. The process is common for different applications" (see Lee Whitney interview, Appendix 16).

Overall LM wants a high degree of consistency of overarching systems and processes across different applications to prevent inconsistencies, misreporting or misunderstanding across decentralized units.

Another unique feature of LM's organizational structure was their deployment of the project-based virtual organization concept, which organizes and dedicates resources for a project around a goal rather than geography or divisions. Such projects involve leveraging of intellectual talent throughout the company, overcoming all geographical and structural boundaries across locations and business units, through the use of the Internet and video conferencing:

> "Previously one company tried to do everything. Now you get experts without requiring them to move, drawing on resources throughout LM and the industry. They can channel resources and organize geographically dispersed resources and capital in a much smarter way."

This flexibility gives the company a competitive advantage in providing quality work at competitive cost, generally making the company boundary-less and ultimately more competitive.

Information Systems (IS): Before the merger, Lockheed had 21 companies, each with its own IS budget, staff and director. Martin Marietta on the other hand, had restructured its IS functions into a centralized unit based in Orlando, Florida. After the merger, the combined company decided to utilize Martin Marietta's facilities, consolidating the IS organization at the Orlando center. This consolidation of information and telecommunication functions resulted in savings worth hundreds of millions of dollars relative to reduced travel expenses, reduced office space, and reduced system maintenance expenses.

Research and Development: As part of the consolidation plan, all R&D programs were consolidated into one of eight "Centers of Excellence" (see Appendix). This consolidation automatically eliminated all overlapping programs.

Value creation and Synergies

Value is created in a merger when the profitability of the aggregate is greater than individual profitabilities (see Appendix 8). In the LM merger they were able to create value in excess of $2.8 billion through realization of synergies in several areas including economies of scale in purchasing (see

Interviews, Appendix 16); consolidation of excess capacity; leveraging best practices, people and technology; cross-selling and marketing (See appendix 13). They were also able to leverage their expertise and experience to expand into more commercial markets. These synergies were apparent across all five sectors. According to a VP in the aeronautics sector, specific synergies realized in the merger include:

> “ business systems, technical synergies, …information systems in terms of those kinds of computer driven systems that manage information and data. Tremendous synergy in the design and engineering of advanced electronics. We have tremendous synergy and capability in system integration…We have synergy in technology that’s applicable to space and we’ve got the launch vehicles to put them into space and the heritage of both companies has contributed markedly to that and to ability as systems integrators.” (See appendix for more synergy examples).

Evaluation of the Restructuring

Clearly the merger has resulted in competitive advantages, but it is necessary to consider both the sustainability of advantages, as well as possible disadvantages that it caused. The merger was the largest in defense history allowing LM to realize economies of scale and reduce its cost structure. The estimated minimum efficient scale was dramatically raised such that 50% of existing suppliers were unable to compete and ultimately merged or exited altogether. This change in structure is sustainable due to the absence of growth in demand and the low cost constraints put on the industry by the government. (See Appendix 7)

Lockheed and Martin Marietta were two of the top five defense contractors at the time, but with very little overlap in their product lines. The complementary nature of their strategic interests, product lines and corporate cultures gave the new company competencies in a wider range of areas. Though no single competency was superior taken individually, the combination of all factors did give them a sustainable competitive advantage. This is evidenced by the fact that they entered and won bids as a combined company, which they could not have won as individual companies[1].

The exceptional relationship between Tellep and Augustine and their experience in acquiring and integrating companies, gave Lockheed and Martin Marietta a distinct edge; so much so that they were able to acquire Loral within one year of the merger. This is important within an industry where survival depends on a company's ability to reduce cost through consolidation. Another major driving force behind the success and uniqueness of the merger was the atmosphere of cooperation. This set the tone for a "give-and-take" attitude from the very beginning. Outstanding communication was also key (demonstrated by the fact that the two CEO's did not hesitate to meet over 30,000 employees face to face in 62 meetings, all within just a few weeks of the merger announcement). Leadership resulting in such an outstanding cooperative environment is rare and could not have been easily imitated. Moreover, the strategy to build a unifying culture based on an ethical code of conduct was another mechanism previously uncommon in the industry. The costly management gesture to move all personnel out of the old Marietta headquarters only to have personnel from both companies move back in together is symbolic of the culture and tone of fairness enacted by the new LM.

Areas of concern - What we would have addressed differently

There are some areas of concern relative to LM's merger implementation and the post merger strategy. Although increased size due to the merger has many advantages, the full benefits of size can be realized only through good horizontal strategies. The advantage, however, did not rely simply on the virtual organization concept so much as the company's ability to coordinate projects drawing on resources across divisions. The use of outcome control, where compensation and bonuses were directly tied to

[1] Example: C-17 Core Integrated Processor contract, and the $941 million contract from NASA to work on a single

sector and operating unit performance could have inhibited the coordination across units necessary in the various virtual organizations. This could become a serious problem, especially for a firm undergoing multiple mergers. Even though they had other integrating mechanisms, the success of the merged company appears to have depended heavily on the personal charisma of the two CEOs. They did not put together any formal framework to deal with post-merger integration issues. In this merger, they had the benefit of significant cultural overlaps, which is not likely to be the case in future acquisitions. They could have used this as an opportunity to develop a formal mechanism to integrate new acquisitions, similar to the "Manufacturing Services Group" that Cooper Industries developed. Similarly, it should have been one of their goals to build a succession framework well beyond just their own personalities.

Conclusion

Given the industry conditions, Lockheed and Martin Marietta selected a rational strategy – to reduce their cost structure and improve their technical resources – through mergers and acquisitions. The merger between the two companies was successful, creating shareholder value by realizing multiple synergies between the companies, which may never have been realized if it was not for unique leadership and similar cultures between the original two companies.

APPENDIX 1

Strategies Adopted by Competitors

Strategy	Firms that Followed the Strategy
Diversify into commercial ventures	***Raytheon*** Raytheon was already a highly diversified company. Acquired the Corporate Jet Business of British Aerospace, to complement its own line of small aircraft. Raytheon was also very active in the engineering and construction business for the petrochemical sector. It acquired two construction engineering companies, and set up an office and a hydrocarbons management team in Houston, the hub of petrochemicals manufacturing in the US. ***McDonnell Douglas*** The commercial airliner business was growing at an annual rate of 4% to 6%, while the aerospace business was flat. Douglas had three product lines in the commercial airline sector, and was committing resources to improve its performance in that sector. Specifically, MD was focusing on marketing its line of commercial aircraft internationally. ***Boeing*** More than 80% of Boeing's revenues came from its commercial aircraft business. Boeing's strategy in the wake of the downsizing was to beef up its commercial aircraft operations: it went for a total restructuring of the company's accounting system and an overhaul of its performance measurement systems. It also brought into its defense divisions its commercial culture that emphasized keeping costs down and meeting deadlines.
Consolidate, to be a leader in a declining market.	***Loral*** Loral was in the "black box" business (defense electronics), which was still a growing industry. It was rich in cash, and it had been following an aggressive growth-by-acquisition strategy. It had acquired the Unisys Defense Systems operations, outbidding Raytheon and Hughes Aircraft Co. This acquisition gave them an entry into Canada, where Unisys had a strong presence. Unisys also had a strong 'Air Traffic Control' segment which positioned Loral to become a much larger player worldwide. ***Hughes Electronics*** Hughes Electronics had the largest share of the US missile market and was following a strategy of expanding further through complementary acquisitions. In September '94, it bought the missile business of General Dynamics. After rationalizing the two missile businesses, the plants were operating at 85% capacity, compared to the 35% capacity utilization before the consolidation. ***Northrop Grumman*** Northrop Grumman, like Lockheed, followed a strategy of "bigger is better". They were in direct competition with Lockheed in the area of Joint Primary Aircraft Training System (JPATS), training plane for the Navy and the Air Force. Originally, Northrop, Grumman, Lockheed and Vought made competing bids for the JPATS, but now not only had Northrop and Grumman merged, but were also in the process of acquiring Vought.
Divest all but Core Products ("Shrink Smart")	***General Dynamics*** General Dynamics adopted a strategy of "smart downsizing", in 1991. After selling all its non-core businesses, including its tactical-aircraft division (to Lockheed), it was left with just three product lines: armored tanks, nuclear submarines and space launch vehicles. It expected to become the sole player in these three segments in the future.
Exit the Industry	***Ford, General Electric, General Motors, IBM, Unisys, Westinghouse*** These firms, which had minor interests in different segments of the defense industry, decided to sell off their interests to bigger players, to concentrate on their core businesses.

APPENDIX 2

Defense Contractors and their Product Segments Before the Merger

	Aircraft	Satellites	Missiles	Defense Electronics	Communica-tions	Maintenance & Refurbishing	Professiona l Services
Lockheed	x	x	x			x	x
Martin Marietta		x	x	x	x		
McDonnell Douglas	x	x	x		x		
Hughes Electronics			x	x	x		
Northrop Grumman	x			x			
Loral Corp.			x	x	x	x	
Boeing	x		x	x	x		
Raytheon			x	x	x		

Major Segments of the Defense Industry & Its Contenders

- **Jet Fighters:**
- Plagued by overcapacity. Major players were Northrop Grumman, McDonnell Douglas, Lockheed, Boeing and Rockwell.
- **Information Services:**
- Lockheed, McDonnell Douglas, Martin Marietta, TRW. Bright prospects, not all defense contractors have the right skills.
- **Aircraft Refurbishing:**
- Lockheed, Northrop Grumman, Boeing, Rockwell. Steadily growing and profitable market for servicing, maintaining and retrofitting planes for commercial airlines. Slump in orders for new planes had resulted in a boom for the refurbishing business.
- **Military Satellites:**
- Rockwell, GE/RCA, Lockheed, and TRW competed in this segment.
- **Electronics and Space:**
- Martin Marietta, Raytheon, McDonnell Douglas, Hughes, Loral and Rockwell compete in one or both of these segments.
- **Strategic Missiles:**
- Boeing, Lockheed, Martin Marietta, and McDonnell Douglas compete in this segment. This segment also suffered from overcapacity.

APPENDIX 3

PORTERS 5 FORCES ANALYSIS

Supplier

- Large number of direct suppliers to the Government (9000 in 1990 reduced by 85% in 1995). In general, suppliers have little power.
- If the suppliers can effectively lobby key public officials they can increase there power relative to the government as a whole. Political clout is further increased if the supplier has a Large employee base that certain legislatures want to protect.
- Suppliers compete on cost and quality

Barriers to entry

- *Economies of scale* play a significant role in reducing cost within the industry.
- The minimum efficient scale is large relative to the demand for all platforms purchased by the government-- so much so that only a few players will be able to exist within each segment.
- *Enormous learning curve*- A key driver in the Defense and Aerospace industry is Research and Development. The technology and skills required to build platforms and “black boxes” take engineers many years to develop. For example: the specifications for welding the hull of a nuclear submarine are stringent and require a great deal of craftsmanship unique to the “product”. The knowledge is not codefiable and must be transferred via a long apprenticeship.
- *Large exit costs* - the technology often times is not transferable to commercial markets, or if they are, the defense contractors are not able to capture the value.

Buyer

- Tremendous power--single buyer. The Government controls access to international markets and thus limits the ability of suppliers to seek new markets. However, it is there best interest of the government to keep the suppliers profitable and relatively strong. The Government also has a dramatic impact on the structure of the industry.
- The government must obtain consensus to make major purchase decisions and develop budgets. They are also susceptible to buyers lobbying efforts.

Substitutes

- Few - contracts are exclusive and as platforms are developed and introduced they are used for 10-30 years.

Competitors

- At the time of the merger there were a number of competitors across the segments.
- Competitors tended to focus on developing platforms or black boxes.
- At the time of the merger were larger than Lockheed of Martin Marietta

Government policy-

- Changed from “cost plus” to “fixed pricing” thus requiring the contractors to assume any cost overruns on projects.
- Changed the procurement policy requiring the contractors to assume more of the risk.

Important issues

- Tremendous excess capacity with utilization rates ranging from 16% to 66%.
- Most players had bureaucratic inefficient structures.
- Significant decline in demand

Results

⇒ Several players are divesting and exiting the industry or are consolidating to reduce capacity and realize economies of scale.

APPENDIX 4

The credo or value system

- **Ethical Conduct:** Both companies had traditionally emphasized ethical conduct in their day to day business. At the time of the merger, both agreed that ethical conduct is not only the right way to go, but that it also made very good business sense.
- **Mission Success:** This was a value that came from Martin Marietta. Basically, this meant that the success of their customer's mission was the driving force for all business activities.
- **Strive for Technological Strength and Leadership:** A conscious effort to apply this to all their pursuits.
- **Financial Strength and Profitability:** This served to remind everyone of the company's commitment to the shareholders of the company.
- **Be Competitive:** This was achieved in four ways: 1.) **cutting costs** through affecting economies of scale (consolidating purchases and plant consolidation, to increase capacity utilization); 2.) **leveraging diverse technological skill** across the company (adding value through technology, and thus gaining competitive advantage; 3.) **market access and positioning** (leveraging the brand name or market presence of one product to sell a new product); 4.) value creation by **adopting the "best practices"** from both the companies.
- **Commitment to fair treatment employees:** Providing employees with competitive salaries and benefits, encouraging diversity, and keeping everyone in the company informed
- **Be fast and decisive:** Making changes in a decisive fashion, as fast as possible.

Code of Business Conduct

- Lockheed Martin aims to "set the standard" for ethical business conduct. We will achieve this through six virtues: Honesty, Integrity, Respect, Trust, Responsibility, and Citizenship.
- ***Honesty:*** to be truthful in all our endeavors; to be honest and forthright with one another and with our customers, communities, suppliers, and shareholders.
    - ***Integrity:*** to say what we mean, to deliver what we promise, and to stand for what is right.
- ***Respect:*** to treat one another with dignity and fairness, appreciating the diversity of our workforce and the uniqueness of each employee.
    - ***Trust:*** to build confidence through teamwork and open, candid communication.
- ***Responsibility:*** to speak up - without fear of retribution - and report concerns in the work place, including violations of laws, regulations and company policies, and seek clarification and guidance whenever there is doubt.
- ***Citizenship:*** to obey all the laws of the United States and the other countries in which we do business and to do our part to make the communities in which we live better

⇒ ***The Goal: An Ethical Work Environment***

APPENDIX 5

Code of Ethics

- Treat in an Ethical Manner Those to Whom Lockheed Martin Has an Obligation:
- ***For our employees*** we are committed to honesty, just management, and fairness, providing a safe and healthy environment, and respecting the dignity due everyone.
    - ***For our customers*** we are committed to produce reliable products and services, delivered on time, at a fair price.
- ***For the communities*** in which we live and work we are committed to acting as concerned and responsible neighbors, reflecting all aspects of good citizenship.
- ***For our shareholders*** we are committed to pursuing sound growth and earnings objectives and to exercising prudence in the use of our assets and resources.
- ***For our suppliers*** we are committed to fair competition and the sense of responsibility required of a good customer.

Why Ethics are important in the Defense Industry

During the 80's the defense industry as a whole became notorious for its inefficiency and high costs. It was found that part of this was due to fraud going on in the defense companies at the operational level. Three types of fraud were detected upon investigation:

Misbilling	50% of frauds detected
Misuse of Company property	20%
Product Quality and Supplier-Relations (accepting gifts from suppliers, etc.)	30%

It was very difficult and expensive to police the huge workforce to catch such frauds, and in 1986, the Aerospace Industries Association decided that the best way to counter this was to put together a code of conduct for all employees. Every defense company is mandated by the Aerospace Industries Association (AIA) to have an Ethics program - this is not an option. The main objective of Ethics training in all these companies is two-fold:

- educate employees on what the company considered proper conduct through cases and games (Martin Marietta had a game called 'Gray Matters'.)
- to impress upon employees that 'Whistleblowing' is the right thing to do if you find any wrongdoing among your colleagues. The rationale: if someone commits a fraud of any kind, the persons most likely to know about it are his immediate colleagues, his subordinates, or his immediate superiors. Most of the time, they felt uncomfortable about reporting these wrong-doings. The Ethics classes taught the employees that reporting such occurrences was always the right thing to do. 'Ethics' officers were appointed, and their full-time job was to stand by and wait for such complaint calls.

This program was found to be quite effective, going by the number of calls received by the Ethics committees.

APPENDIX 6

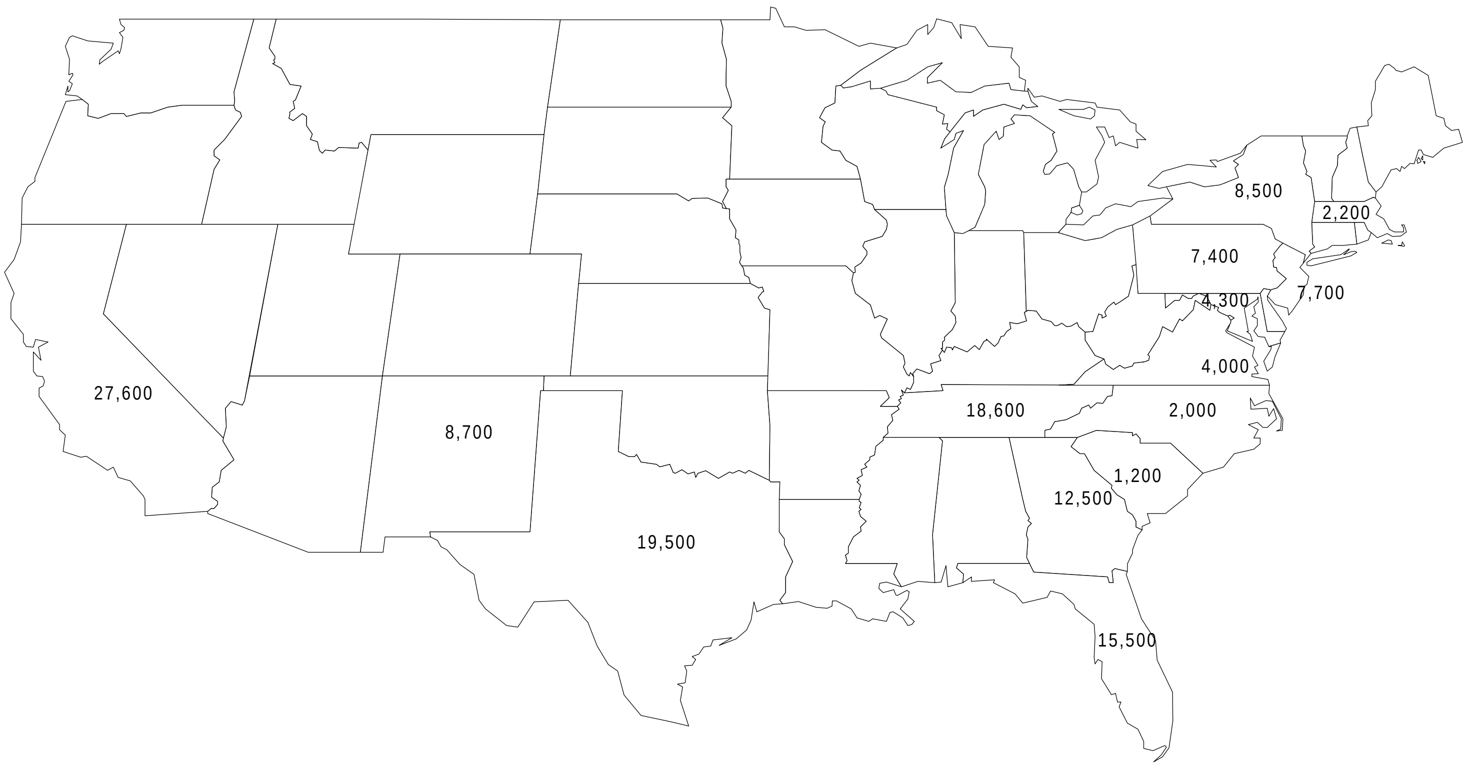
Complementary Product Lines

Product Category	Lockheed: Areas of Strength	Martin Marietta: Areas of Strength
Strategic Missile Systems	Trident II nuclear missile and Theater High Altitude Area Defense missile.	Tactical missile systems like Hellfire, and strategic missiles in the Patriot program.
Information and Technology Services	Space shuttle launch preparation.	No presence
Defense Electronics	Mission planning and advanced cockpits for aircraft.	Navigation and targeting systems like LANTIRN (Low Altitude Navigation and Targeting Infrared system for Night) for F-15 and F-16.
Satellites Combined revenue: 6.7 B	Ranked #1 before the merger. Product line covered the following range of payloads: • Lockheed Launch Vehicle for Low Earth Orbit 2,300-9,000 lb. • Atlas family vehicles for Geostationary Transfer Orbit 4,950-7,700 lb. • Atlas family vehicles for Low Earth Orbit 12,300-18,500 lb. • Russian Proton (marketed by Lockheed Martin) 12,100-44,100 lb.	Ranked #2 before the merger. • Titan Series heavy lift boosters for Geostationary Transfer Orbit 10,000-11,000 lb. • Tital Series heavy lift boosters for Low Earth Orbit 32,000-39,000 lb.
Federal Facility Environmental Management (Combined contract value: 4.7 B)	Contracts in Department of Energy (DOE) - Idaho National Engineering Labs.	Considered an 'old guard' DOE contractor. Held contracts at Oak Ridge National Labs.

After the merger, Lockheed Martin were ranked #1 in 'Tactical Aircraft', 'Launch Services' and 'Space Technology'. They also had a complete range of satellites, both military and commercial.
The only overlap between the two companies was in the area of strategic missiles, and this was consolidated during post-merger rationalization.

APPENDIX 7

Political Advantage from the Merger



House and Senate Armed Services Committees and the House Appropriations Defense subcommittee were three of the four panels that approve programs in the defense budget. These committees were made up of legislators from various states, and as the above exhibit shows, the Lockheed Martin merger gave the combined company more political clout than what either of the two companies initially had prior to the merger.

APPENDIX 8

Merger of two equals…

(first time two defense companies had 'merged' instead of one being acquired by another)

Lockheed Corp.:
Profit $422 m.
Sales $13.1 bn.
Order book worth $28.9 bn.

Martin Marietta Corp.:
Profit - $450 m.
Revenue - $9.4 bn.
Order book worth $16.7 bn.

Lockheed Martin:
(Annual sales of approx. $23 bn., employs 170,000 people)
•Synergies & Value Created:
•Consolidating factories: $2.5 bn./yr.
•New & Follow business - $7 bn.
•Corporate consolidation - $500,00 million
•New savings - $6 bn. over first 5 yrs.; $1.8 bn. every yr. thereafter
•R&D - $1 bn.
•Duplication in procurement process - $1.5 bn.
•International presence with 42 offices from Lockheed (leveraging Marietta products internationally)

Synergies From the Merger

Source of Synergy	**Remarks**
Access to International Markets	In 1988, only 5% of Martin Marietta's sales came from abroad, while it was 18% for the combined Lockheed Martin company in July 1995.
Capacity Utilization	2.5 Billion saved by consolidating factories to improve capacity utilization.
Economic Clout	If they had not merged, neither Martin Marietta nor Lockheed would have bid for the C-17 core integrated processor. But as a combined company, they were a strong candidate, and they won the bid. As a combined company, they also won the bid to build a 'Single Stage to Orbit (SSTO)' re-usable launch vehicle. This was for NASA, and was valued at $941 million.
R & D	The R&D budget for Lockheed Martin was 1 Billion in 1996. If Lockheed and Martin Marietta had not merged, each company would have individually spent 1 Billion. After the merger, Lockheed was able to utilize Martin Marietta's share of the R&D facilities at GE's advanced research labs at Schenectady.
Marketing Credibility	Lockheed Martin would sell Navigation Systems used on F-16 fighter planes to other manufacturers of F-16s, and would also use it internally for the F-16s it manufactured. This would enhance the credibility of this product in the market.
Savings from Restructuring	Annual savings of $2.6 B through restructuring: Reduction in work force : 100,000 Plant space closed out : 16 million square feet.

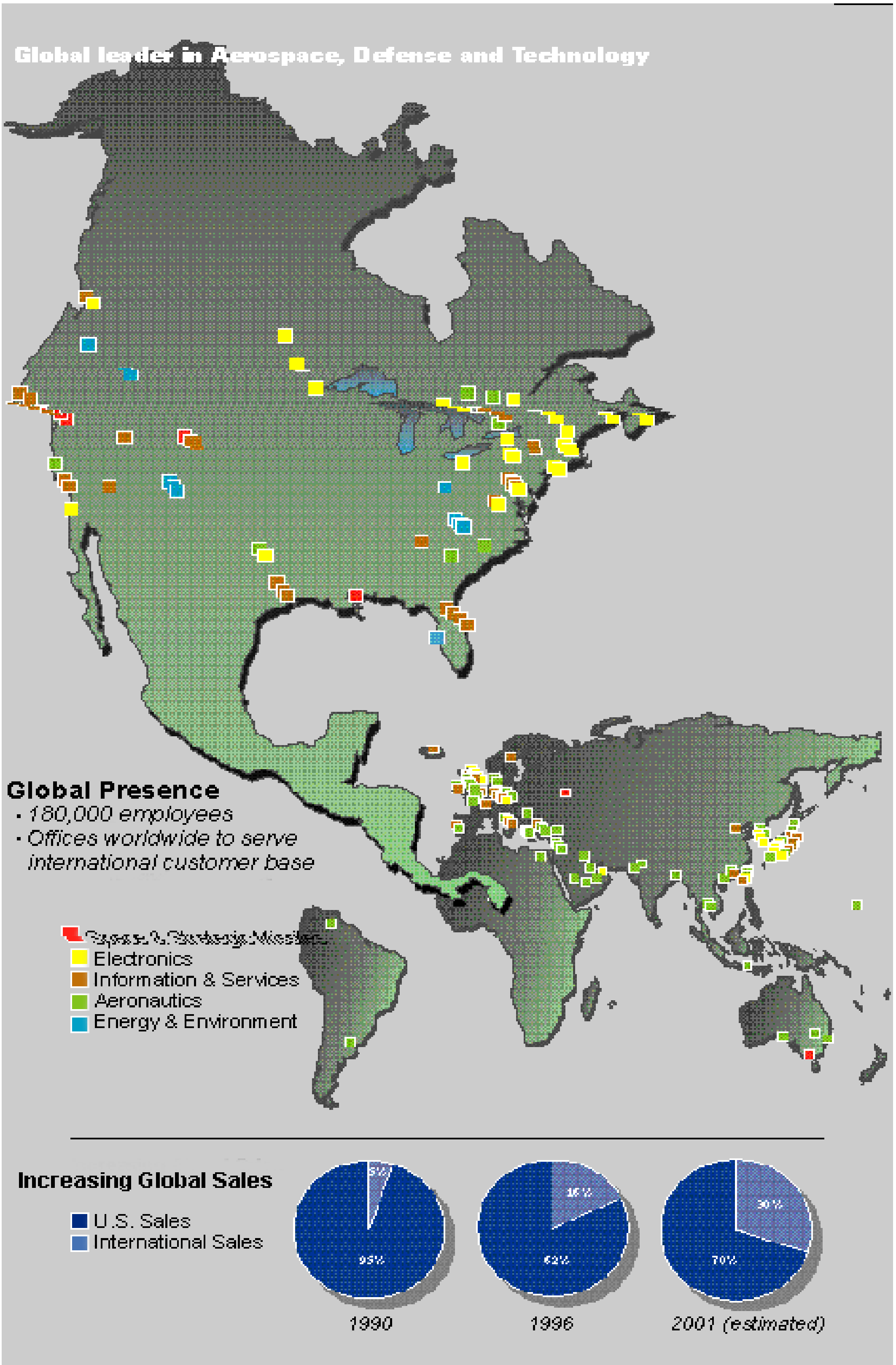
APPENDIX 9

The combined company in numbers…

*Pro Forma Financial Data *(In millions except percentages and per share data)*	*1996	*1995	*1994
*Earnings from operations	*$2,588	*$1,972	*$1,779
*Operating profit (earnings before interest and taxes)	*2,675	*2,067	*1,811
*Earnings before income taxes and cumulative effect of change in accounting	*1,975	*1,779	*1,507
*Net earnings	*$1,205	*$1,118	*$955
*Earnings per common share, assuming full dilution	*$5.40	*$5.01	*$4.37
*Operating margin on sales	*10.0%	*9.0%	*7.9%
*Return on equity	*18%	*17%	*17%

APPENDIX 10

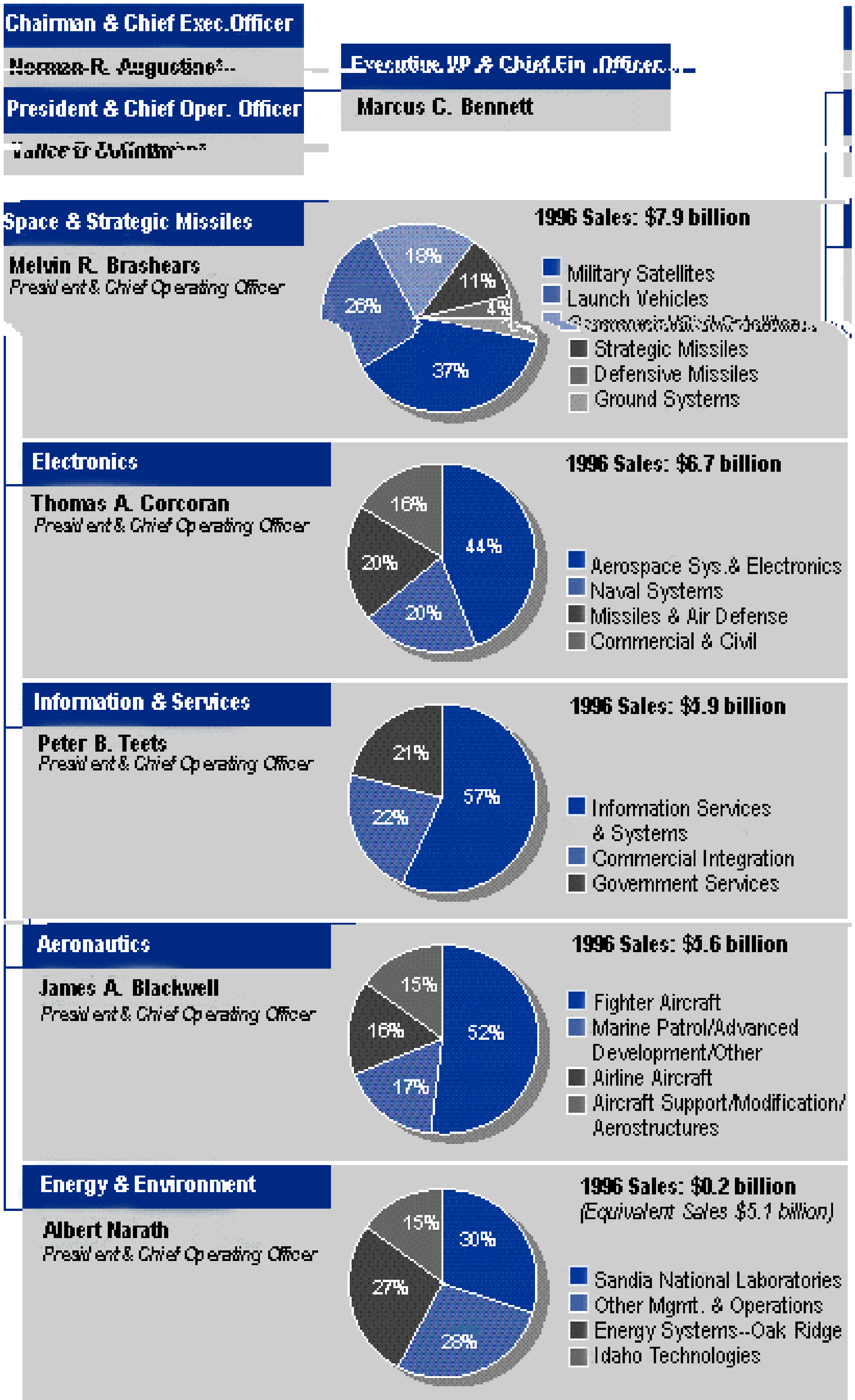
Global Sales



ORG CHART 2

APPENDIX 11 continued…

Organization Chart & Business Sector Description



APPENDIX 12

Products & Services

Acoustic Test Facility (RV Paganelli)
Advanced Sensors Consortium
Application Specific Integrated Circuit/Multi-Chip Module Center of Excellence
AstrolinkTM Broadband Satellite System
Astronautics Product Fact Sheets
AWACS Extended Sentry Program
C-54 Flight Test Aircraft Flying Laboratory
C-130 Video Animated Systems Trainer
Chemical Management Information Services
CMS-2 Retargeter (CMS-2 to C++ Translator)
Commercial Systems Integration Services
CYPRIS Encryption Processor
Defense Message System
DFAS Financial Integrated Systems Services (DFISS)
Domestic Business Development Trade Show Kit Application Form
EagleSpeedTM Information Center
Ecological Risk Analysis Tools and Applications
Electroceramics Development & Production Services
F-22
FORMTEK Products and Services
Global Combat Support System - Air Force (GCSS-AF) Program
GSA Schedule
HAZWRAP, The Hazardous Waste Remedial Actions Program
Helium Tanks for the A2100 Satellite
Hybrid Propulsion Demonstration Program
Information Security (INFOSEC)
JetClean Circuit Board Cleaning System
LANTIRN
Manassas Telecommuting Center
Military Message Handling System
MinotaurTM Family of Information Security Products
NIH Image World
Oak Ridge Centers for Manufacturing Technology
OR&SS Antenna Development & Test Site
PMTool: Program Management Solutions
PowerPC Real-Time Symmetric MultiProcessor (RTSMP)
PrePass
RASSP Program
ReEngineer
Satellite Control System 21 TM
Solar and Astrophysics Laboratory
Space Shuttle External Tank
Space Shuttle Super Lightweight Tank
Space Time Adaptive Processor Scalable Radar
STELLAR TDM from FORMTEK
Sustaining Base Information Services (SBIS) ID/IQ Program
TransLinkTM
VentureStarTM
Workmanship Standards

APPENDIX 13

VALUE CHAIN

Value Chain	Lock Heed	Martin Marietta	Value	Y	N
Research and Development	Involved in the development of technology that was transferable to MM segments	Had acquired GE defense and several cutting edge labs-shared with LH	Consolidate centers, and eliminate duplicate development of technologies such as ‘microminiaturization’ and stealth technology value = 1billion annually	X	
Purchasing	Common suppliers with MM	Common suppliers with LH	Leverage size and realize savings	X	
Manufacturing And Corporate overhead	Several production facilities – similar to MM	Had large excess capacity in many segments	Could consolidate and significantly reduce the number of employees and building space Value=2.6 Billion	X	
Sales and Distribution (procurement)	Lock heed had an extensive international sales network	Systems “black boxes” that could be used on LH platforms	Increased market credibility: (1) cross sell products (2) MM could have access to new international markets C-17 bid: neither could have bid individually, but together they won the bid. Value = sales increased 7 billion more than projected	X	

APPENDIX 14

Augustine's Principles of Reengineering

(from: "Reengineering 101", a speech given by Augustine)

- Recognize that change is needed
- Have a strategy
- Move with speed
- Focus on efficiency
- Challenge every assumption
- Measure results
- Communicate, communicate, communicate
- Reengineer management
- Keep your eye on the ball
- Focus on the customer (process should be Transparent to customer)
- Sometimes be arbitrary
- Culture is characteristic … not an excuse
- Involve everyone in seeking improvements … no one is seeking excuses

APPENDIX 15

APPENDIX 16

**Interview with Jim Tierney Vice President of Communications for Lockheed Martin Electronics sector, Tuesday November 25, 1997, 10:00 - 12:07 .
for Martin Marietta**

Driving forces behind the merger and backgrounds of the two companies:
What was merger like? Since the merger there have been other acquisitions, for example, a piece of Loral has been acquired.
The merger went very smoothly given the size the of the two organizations. Each company was established in aerospace and defense, they were each large companies in the industry in their own right. Martin Marietta was very strong in defense electronics and missiles, also they had businesses on the periphery, such as a large materials business which supplied building materials for construction. For example, they were the 2nd largest supplier of crushed stone to the building industry for bridges and roads. This was spun off, but Martin Marietta materials owns lots of quarries at strategic points across the country. It was a very diverse company.

Was it centralized?
It was centralized in a number of ways from a policy and procedure standpoint. There was a set of corporate policies and procedures on how to conduct business, derived at the corporate level and which flowed down to the business organizations. Some examples of centralization: financial reporting requirements were centralized, as was accounting. The only place this was a little varied was for example in the materials business or others, which were largely commercial business and didn't deal strictly with government. There were also differences in business activities with US DOE (Department of Energy). MM provided management services to DOE across country, they operated certain labs and energy facilities, LM does now, probably there are some differences with financials. The bulk of business activities for Martin Marietta was defense work which was standardized and fairly centralized. The two companies were fairly similar. Lockheed was pretty similar, fairly centralized, their fundamental business was military aircraft. They were getting away from commercial aircraft. They were doing business for the defense department and government, their financial and accounting methodologies were similar. The cultures of the 2 companies were similar largely as a function of the fact that both were focused on the defense industry.

Overarching values:
There was a certain set of values and principles that both companies had articulated. At the onset of the merger there were 8-10 values articulated. The one at the top was ethical conduct. The company said it would conduct and operate business on the highest ethical plane with customers, suppliers, the public and shareholders. It makes good business sense to operate that way, not only is it the right thing to do but it makes good business sense because you can lose government contracts if you don't operate ethically.
The number two value or principle was a term known within Martin Marietta as mission success which means: performing for our customers, a commitment on the part of the company to achieve superior performance and provide our customers with the quality they have a right to expect. L-M gears their business activities to achieve mission success.

Were these 8-10 values like a credo?
This was like a credo, with the 8 overarching principles intended to guide the actions of the people in the company on how to do business. It made sense because these were the types of things managers and management find in both cultures.
The third value is that they want to strive for technological strength and leadership. They want to bring this to all pursuits.
The fourth value is financial strength and profitability. There is an obligation to share holder to perform and grow the company. They are committed to remaining financially strong and profitable to meet obligations to the shareholders and customers. The share holders have invested and are entitled to make money. They expect a return on their investment and are entitled to one. The company is obligated to perform successfully and grow the company to meet that expectation.

Value Creation:
The fifth value is to be as competitive as we can in market in which we compete. There are three ways to do this: pay strict attention to cost which is a driver in their markets, customers want highest quality products at lowest possible cost. The ability to provide this gives them a sustainable competitive advantage. They can do it better than the competition because of their size. For example, they can utilize economies of scale in purchasing of supplies and materials. By consolidating and buying in bulk from best suppliers can leverage to reduce cost. Another way is through plant consolidation to reduce capacity and generate savings. When you have a merger will have excess capacity which is expensive. A corporation of this size can consolidate operations and move them from one place to another to get rid of excess capacity. For example, if you take two plants which are 60% full and put them together at one site this enables them to lower costs and be more efficient in what they do.

A third way they add value is with their technology. This is a large company on the leading edge of technology and into a range of diverse things: submarine, radar, aircraft and computer information systems. What they're able to do with that diversity of technology is to spread it across the corporation. For example, if they have one business unit involved in an activity where they need the best microprocessor and they don't have it they can go somewhere else and find it. They can leverage technology extensively across the company.

Another way they create value is through market access and positioning. Let's say their aircraft business has traditionally done work with a European country where they have been able to market aircraft for a number of years. They have a foothold and familiarity with the market. If another part of the company wants to do business in this country they can piggyback with their airplane business. They can say we've done business with you for a number of years, we understand how you do business etc. This is another way of leveraging capability.

Another thing they can leverage due to size and diversity of company is people. If they have someone in one part really good at systems integration, can take talent and move it to another company with a challenge in that area. This does 2 things: Helps address the challenge and provide systems integration. This also gives talent an opportunity to grow professionally. They want to provide growth opportunities. One of their key assets is their people, whom they will move around to meet business needs and provide growth opportunities.

They provide value through best practices, for example, if one of their business units does billing very well or handles inventory particularly well or one of them knows how to do government audits very well, they will try to take that and share it throughout the corporation. To create value they try to leverage best practices, the skills and talents of the people, market access and ways to go to market, and ability to reduce costs - these are ways they create value. In the electronics sector we call this making the whole greater than the sum of the parts. In other words, by leveraging capabilities across businesses we feel we can make the whole business better than any could be by itself. Examples: L-M control systems, in Binghampton, New York, which does flight and engine controls for aircraft. They were pursuing business with government around on-board mission computer systems for the B1B aircraft business. The electronic sector were strong in avionics but didn't have key strength they thought they'd need but another business, Sanders did so they did a joint effort and won contract. If either had done it separately wouldn't have won it, but by putting both together they became much stronger than were individually. This is an example of the way in which they leverage capabilities.

Dollar amounts of savings they've gotten through consolidation:
Through the consolidations are saving across whole company, about 2.8 billion dollars. Revenues are about 27 billion. In the electronics sector, we've done consolidations over past several years. From Martin Marietta side, they bought GE Aerospace, LM merged and they did more consolidation with Loral and now with Northrup Grummun, as a result of consolidations, probably generating more than 700 million a year in cost reduction. That consolidation involved eliminating almost 9 million square feet of excess capacity where closed or consolidated plants. In the electronics sector they've saved almost 300 million of that 700 by consolidating purchasing and procurement.

First-hand experience of the merger:
It's been remarkable to watch the growth of corporation for a person coming from one side or the other. When they merged, each was a 6-7 billion dollar business. (Together about 12). The corporation has grown immensely, 1996 revenues were 27 billion and anticipate with Northrup Grummun going to 37 billion. They grow by winning new business and acquisitions. Augustine's strategy was right, in my view, truly visionary in terms of what he saw coming in the defense market place compared to other people. In the early 90's he looked at the way the market place was changing, heading toward a 60% decline in defense spending with a huge emphasis on low cost. He began to see tremendous decline in employment, about 2 and a half million employed, recognized that consolidation was coming and there wouldn't be room in the defense industry for all the companies. From a strategic standpoint he looked at 4 options for defense contractors:

Option 1) They could diversify, start making different things, but the only problem is that defense contractors have never been very successful in areas where they didn't have technological expertise. They have never been good in the commercial arena. As Norm Augustine likes to say: "their record of conversion was unblemished by success". There were cost structures in defense business that didn't lend itself to commercial business, with all the military standards, etc. getting low costs were impossible, ex. $600 hammers, all those huge specifications contributed to industry's inability to get low costs. This is one factor that made defense contractors, unsuccessful in diversifying. The other problem is that they do very complex systems which are long cycle in their development. The cycle can be anywhere from 5-10 years long. Can't live in commercial market doing that. In commercial business, speed is necessary to win. It's a different way of doing business. This is another reason why not successful at large scale conversion or diversification though they're becoming much more able to be commercially competitive.

Option 2) Evaporation, in other words will wait 'til the storm blows over and sooner or later I hope the market will come back. Some companies tried to do that and they are not with us anymore. Can't stand still, have to grow and win new business or shrink and go out of business.

Option 3) Liquidation - sell off parts of company, just focus on a couple of areas and share holders will make money but won't have much company left.

Option 4) Consolidation, need to look around market place and find best partners for Martin Marietta and get stronger. Mr. Augustine wanted to buy a good business with compatible cultures and wanted fit. He wanted some synergies but wanted one which did other things as well. He wanted to avoid overlap and duplication. For example: When bought GE Airspace it was good because MM was strong in some things like tactical missiles and surface to air missiles and missiles fired from helicopters, where GE was strong in airborne radars. He began to put together businesses which were complementary as opposed to overlapping. He began to put together companies which could provide whole systems for aircraft. He was able to put together visions of systems of systems. He was very smart and understood the defense business and just an incredible person. He decided consolidation was the best option. He wanted to put together a company which could grow even though the market was declining. He built the business through acquisition but gave it the capability to go out and win new business. He believed the company and the country and the defense industry were better served by a market place populated by fewer but stronger companies. He felt the US military would be better off, with each company more focused. Clearly would have to be fewer, because would have to consolidate or would remain weak and if remained weak would hurt their ability to lower costs. One of things he talks about is going to a dinner with the secretary of defense …

Good working relationship between Tellep and Augustine:
I believe it's absolutely true that there was 0 conflict between Tellep and Augustine. They had known each other for a long time. They were professional acquaintances and friends and both realized by bringing their companies together they could preserve them as a single entity. It meant a lot to them to preserve their heritages. They were both very in tune to how downsizings were taking a terrible toll of people in the industry. They knew that by putting their companies together they would be forced to lay off fewer people. It was absolutely important to them not to lay off people unnecessarily. It hurts to do it, try to avoid it if you can. Try to minimize the damage.

Dan Tellep is also another terrific guy. He walked through this building 6 months after the merger and he knew everyone by first name. In the merger both Augustine and Tellep made compromises. Dan Tellep agreed to close the operation on the West coast and move it, Norm agreed to give the chairman job to Dan while he was president. They made a number of compromises. They made sure that when it came to the ranks of upper management, there was 50/50 division of staff from each company. They had quality people to choose from both sides, so there wasn't a drawback to that at all. Everyone was highly qualified. One of the things that has been consistent in this company has been that when people were let go they have tried to provide them with a soft landing. This just doesn't extend to senior management people, this is everyone in the corporation. In terms of providing some assistance, that applies to everyone. This culture is from top down and makes sense, not only is this because they're nice, it's the right way to do business. Over a million people have lost their jobs in the defense industry over the last decade. It's true of competitors also. I think that they do the same thing in terms of trying to take care of their people.

Speed of acquisitions:
Did they go too fast, in terms of acquisitions? I think in retrospect that people would tell you nobody moved fast enough. If you're going to make a major change do it as fast as possible so you can get back to business, also better for employees because gets them through the turmoil as fast as possible.

However, some areas where you have to go slowly include doing some research because when acquiring a business you need to get it for the right price. Also there is a government review process that keeps you from moving too hastily.

Synergies:
Specific synergies: business systems, technical synergies, tremendous strength in information systems in terms of those kinds of computer driven systems that manage information and data. Tremendous synergy in the design and engineering of advanced electronics. We have tremendously synergy and capability in system integration. That's one of our great strengths as a system integrator. We have synergy in technology that's applicable to space and we've got the launch vehicles to put them into space and the heritage of both companies has contributed markedly to that and to ability as systems integrators.

What was actual merger like?
It was announced I think in September of 1994 and prior to that discussions had been going on for 5-6 mos. starting at corporate level with Dan and Norm.
Was it a nervous time? I'd been through this as someone whose company had been acquired. I started at RCA. I had been through the merger acquisition before so I wasn't nervous but I think other people were because of possible lay-offs. People laid off from LM merger:
It was only way they could achieve the cost savings they needed to derive to make this kind of thing pay off. But also did other things to generate cost savings, not eager to lay people off. When two companies came together, probably about 120,000 people. Probably not even 10,000 impacted.

Overarching principles continued:
The sixth value was a commitment to fair treatment of the people who work for the company. This includes: competitive pay and benefits and employment benefits, to communicate in timely fashion as to what's happening in the business, encouraging diversity to make sure they build a diverse group of people because this brings different strengths and that people have an opportunity to grow.

The seventh value is that want to be decisive in the way they operate this business: if have to make changes make them quickly and get them behind you. Also want to be decisive in terms of the market place. When pick targets want to be aggressive.

Do you feel competition is the same?
Yes, the competitors are aggressive and move quickly. Speed is what's going to win in this market place. This is key element in commercial marketplace and these marketplaces are converging. We want to be faster in all aspects of our business. We see the government encouraging more commercial practices and COTS performance because the customer can get things quicker and cheaper. It's kind of incumbent on defense companies to learn from commercial market place with lower costs and high quality and quick to market aspect. Some things will stay same such as night visions systems for aircraft pilots or night vision goggles for the soldier in the battlefield. On the other side of fence is simulations. The defense industry has traditionally led the development of that technology for military training. But look at things like the motion picture industry with Jurassic park and incredible special effects, they're leading the way. So what you're finding is while in the defense industry we've used this for training, simulating pilot's flight, commercial industry is ahead in simulations. Commercial technology which is good enough for the military to apply. More commercially developed technology finding way into defense industry . Have to figure out how and develop these strategies and techniques. Need to change ways do other things. By utilizing commercial standards in accounting

methods can lower costs for them and customer. By using commercial design and production practices can also lower costs. Examples: flight controls for military aircraft, went to design approaches used in commercial industry at lower cost. Self-inspection is another example, saves time and labor costs and can get the same quality because make sure building quality from the beginning.

Centralization:
Lockheed-Martin is organized into 5 sectors.
4 of those 5 sectors are head-quartered at corporate headquarters. Although they have locations all over the country, senior management for each sector is here, so if they want to talk all they do is walk down the hall. Also they have the executive council: senior staff people meet to discuss businesses and their pursuits together. They see each other regularly, then it goes down through the sectors to the individual companies and there's a president who runs each company. Policy is driven down to the different companies.

How did they equalize compensation and benefits across companies?
Set up a task force composed of human resources etc. from both sides and looked at best ways to create comprehensive compensation and benefits package that would be competitive with best in the industry and from cost standpoint was competitive. They needed to strike a balance between what's competitive and what they can afford. Looked at both plans and began selecting best from each and also looked at benefits across the industry.

What would you have done differently?
I would have moved a little faster in terms of once merger was pulled together getting through the consolidation piece, squaring away the organizational and consolidation issues, the other thing I would try to do better is be better at communicating developments internally to employees quicker and more effectively than we did. Although we're pretty good, you can always try to be better.
"I think we did a pretty good job but I think we can always do better."

Summary:
Implementation issues: the merger went smoothly due to the congenial management of Tellep and Augustine as well as a similarity of cultures and values in the two companies. Both Tellep and Augustine understood the need for the merger, due to industry pressures.

The merger and acquisition process did not go too fast, if anything it needs to move more quickly. Speed is a driving force in this industry along with high quality and low price, especially since there is movement towards merger of defense and commercial market practices.

The merger created value through generating savings due to economies of scale in purchasing and consolidation; through sharing technology; through leveraging market access and marketing; through cross-selling; through leveraging and sharing expertise of their people; through taking advantage of synergies in: business systems and technical synergies. In summary, to create value they try to leverage best practices, the skills and talents of the people, market access and ways to go to market, and ability to reduce costs - these are ways they create value.

Interview with James Fetig, Head of Communications, Lockheed Martin, 12/2/1997, 8:50 a.m.

We read a commentary that there was a disparity of pay and benefits across the units and this lead to some dissatisfaction, particularly on the Lockheed's side. According to an article there was greater compensation paid by Martin Marietta to those who had to take a cut in position. Was this the case?

This was a merger of equals. In the case of a buyout then often the one getting bought has problems and gets nailed to the wall, in this case they tried to equalize a lot of things. But it was difficult because the companies were very different. Lockheed was not as generous as Martin Marietta had been. Lockheed was more open, free wheeling, more of a West coast company and they paid less. Martin Marietta was more East coast, where the pay was higher and they paid more, because that's how tended to be, what was done, the good people were kept.

In terms of pensions etc. agreement was made not to co-mingle funds for 5 years to allow people's planning to continue.

What they did on 401k's, they split the difference, Lockheed's dropped, Martin Marietta's came up. Heritage is of 17 companies. Loral for example, didn't offer much at all, it would be prohibitively expensive to equalize all. The business units have same levels of benefits as they had before. It's not democratically equal, benefits basically remained the same, depending on margins, over time will become more monolithic and they will merge as many as possible to do that. If someone's hired now will depend on what sector they're hired in to and the margins in that area.

Were there hard feelings?

Probably hard feelings if came from a company with lower plans.

It's all being equalized in corporate headquarters but in operating units it's different.

Look at it a different way, if one of the less generous companies had been the acquirer everybody would have been worse off. Here, nobody got worse and some people actually improved their positions.

Over time the situation improves, and they're being fair with the 401k. Corporate headquarters has both, retirement benefit plan remains intact and 401k is same, Post merger benefits package, which ultimately everyone has, is equalized.

There was a grandfather package that if you were within 5 years of retirement, nothing changes, but otherwise everyone got the new corporate formula.

They had different systems. M had point system, L had something else. However, even if there were changes in benefits, stock options doubled.

At the time of the merger trading at approximately 50 now at 100, company performance made up the difference,

How did they decide on the divisions into sectors? Was there a predominance of one company in any sector or were they divided 50/50?

When decided on sectors, looked at best of best, nobody was in the majority, divided up into sectors based on expertise and fit, tried to balance the distribution so there would be equal numbers. When go sit around a table, no one saying that's how we used to do it, because there's no majority there.

Interview with Ron Meder, VP of Communications in the Information & Services Sector: November 19, 1997 1:00 p.m.

One of the reasons the merger was so successful was because of the emphasis placed on communication. Both CEO's went out of their way to communicate to employees. They announced the merger well in advance in August even though the deal wasn't closed till March. They explained the merger, they explained that the Lockheed headquarters would be closed with opportunities offered in Md. One of purposes of the merger was because defense budget was reduced, all these companies had been downsizing and shrinking, last supper, - industry would have to consolidate. Given that backdrop, both Lockheed and Martin Marietta decided they would rather select their own partner than have hostile takeover. Both were at head of pack in acquisitions, both were leading this consolidation on defense. The CEO's knew the consolidation would continue. Tellep called and put the idea on the table for discussion. It appeared to be a natural fit, both knew each other long time, the culture was similar, both Tellep and Augustine were alike in their approach. There were some differences in culture in that Lockheed, from the West coast more laid back, Martin Marietta was more formal in terms of dress code.

When they announced the transaction in August, since they would be closing Lockheed headquarters, they announced that the new staff would be made up with half from each because it's not a takeover, it's a merger of equals. It really was like that. Also, went beyond that, instead of leaving everything the way it was and having people move into the Martin Marietta building, they redid the entire building so everyone came in new. Mr. Meder was on Lockheed side and felt that Sr. Management from both companies bent over backwards to be fair and equitable - this came from the top, both leaders were fair and equitable. When the deal was closed both Tellep and Augustine got on a plane and talked to employees all over the country. There was a lot of communication, personal from top CEO's, also did global teleconference a lot of communication coming out even before the merger was concluded. Did outstanding job of communication.

Organization:

Consolidation of management helped to save money.

The top executives selected the top functional people and they selected their staff. One rule they had was that it had to be 50/50 from the two companies. For those who didn't, there was generous severance. Selections made early enough only ones affected were at corporate headquarters of each company, they consolidated to save money. For senior management instead of 300 + 300= 600 employees, they aimed for 450 and did it with a 50/50 split from each company. They did it by being fair to both sides and were perceived to be fair. Not a situation with a winner and loser.

Merger philosophy:

One of philosophies for their all mergers was to have "best of the best: policy. Didn't want to just adopt either company's policies, wanted to form the best of the best, in terms of each. For example in Communications, Lockheed had a company- wide morning news summary, M didn't do that, but senior management from both sides liked the Lockheed approach better so it was adopted for the new company. They rewrote policies and procedures from scratch. All were written from scratch and put on Internet. The decision-makers were senior executives. There was task force comprised of both sides looking at policies.

Centralization:

Both Lockheed and Martin Marietta were pretty decentralized and continue to be.

There is coordination across the different companies. Currently, after Loral they have 58 operating companies. It would be impossible for all to report to 1 CEO, therefore they formed 5 sectors and the president of each sector reports to the CEO. The Information and Services sector has 22 companies and the president is responsible for the financial information and reports in to the CEO.
In communications the corporation has a central function through which the culture is communicated, for example through a monthly magazine, videotape program.

Some other centralized systems include: have centralized charitable contributions and information systems. Prior to the merger each company had a different system. At Lockheed the information systems were decentralized - each had own system. At Martin Marietta the system was consolidated into a central organization. When LM got together, did it Martin's way, using a centralized info system based in Orlando. This system is called the enterprises information system and has 4500 employees. This system is responsible for all information and tele-communications systems. This is a virtual organization which keeps people from the centralized unit all over the country, allowing for greater geographic flexibility, can get someone wherever needed. This centralization performs several important functions, the organization is held together through the information systems and also, being centralized they are able to act as one big buyer and thus save a lot of money through economies of scale. Examples of savings: all the travel was consolidated, consolidated office space, savings in merging e-mail. Purchasing was centralized, All of these combine to generate savings of 100's of millions of dollars, in info systems alone.

The centralization was implemented smoothly through cooperation, because of senior management's attitude of: let's pull together. They wouldn't hear about petty gripes from either side. The centralization is an ongoing process. 1 year after the merger they acquired Loral and the whole process continued. The same with Northrup. For example, they had 20-30 e-mail systems, now doing 1 system. They have 180,00 people and the merger happened only 2 years ago. Ron Meder says: "It went better than you could have hoped."

Summary:
Reason why the merger was so successful: pressure from industry, emphasis on communication, idea that both sides from top down wanted to be fair and equitable, this was not a takeover, it's a merger of equals.

They consolidated senior management to save money, using a 50/50 policy. They utilize a best of the best philosophy in policy and procedure formation.

Although the company is decentralized into 5 sectors, they have a centralized culture which is conveyed through different means such as communication. Information systems is a good example of how they have been able to take advantage of economies of scale and save money through centralization.

Interview with Lee Whitney, VP of Communications, Aeronautics Sector Lockheed Martin Corporation, December 2, 1997, 10:00 am. (lee.j.whitney@lmco.com)

What were the driving forces behind the merger, apart from the cuts?
A whole history of that, HBR spells out the reasons, goes back to the last supper, it became very clear, draw distinction to set the stage, the whole context was that the most recent peak of the defense budget was 1985, the budget has come down, and the assumption is that the whole budget is used to buy stuff, and this is not true, the impact much deeper, 5 sections, research and development, milpurs (military personnel), construction, O&M, procurement, actually impact on purchasing much bigger, the 2 parts that concern the industry are procurement and research and development. So impact is greater than just 50%, the procurement account, since 1985 has plummeted by approximately 75% in real terms R&D=-25%. The effect on industry is huge, equates to contracting the entire domestic market place by 75%. So the economic factors were really the big factor. This was the impetus that led to mergers and divestitures.

Was it a desire to be leaders or just to survive?
Probably a combination of need to survive and be number 1. Moved to the point where at the prime contract level will have proceeded to have consolidated the industry into three prime contracting companies. First impetus was to survive. It was going to take some economies of scale and critical mass to do that. Now the impetus is changing and the impetus behind such mergers is a little different, companies are pursuing combinations of one sort or another to position themselves to compete more effectively in global markets. They are recognizing need to change from a company which does business internationally to going global where they have operations around the world. In the aircraft modification and maintenance for example they have a huge section in Argentina. They step into this in several ways. When sold F-16's to Turkey established a plant there, another in Korea which soon will be producing F-16's; Japan, joint ventures with F-2 using F-16's as a base. Also a venture established with Alinea of Italy with the C130J, which is evolution of C130 Hercules, trying to create a complementary aircraft C27J and the airframe basis was the G222 being built by Alinea. Will jointly share in success, So they're going global, becoming a much more global business in terms of how source parts, look for best value.

Security problems?
Need to receive security clearance from the government. For instance, we would retain certain technologies that would give us a certain competitive advantage. Although with the joint strike fighter program first time with foreign investment.

Don't have sustainable competitive advantage:
…from in-house capabilities because that's not how they operate. Have a competitive advantage but not because of that, they have all this ability in house but they discount that because they do not believe in becoming vertically integrated because: we believe that when you have a buyer's market with limited budget, the "three" things they're most concerned about are affordability, affordability, affordability at the primary contract level can't be on airplane just because part of LM, use best value criterion. Don't go for lowest bid, go for best value. Sometimes it's somebody in LM and sometimes not. Also sell in industry, can't do that if vertically integrated, need to be able to say that there is no competitive advantage just because part of the family.

Example: parts of LM produce for F18, F15 produced by Boeing which compete directly with F16 produced by LM. Have to earn way onto airplanes, but to compete have to operate according to merchant buyer, merchant supplier concept.
So don't vertically integrate, because of complex relationships in industry. Can't be competitive other than buying best system at best contract not because of insider advantage, due to industry balance. Have to offer best product at lowest cost, best value. If they don't will eventually wind up with higher costs which won't get contracts. Have to pick best value so they get contracts. Don't vertically integrate at all, although accused of it, not how they do business. Have thrown LM teams off projects. adhere stringently to merchant buyer merchant supplier, which means: at the prime contracting level it's fair and open.

Do have sustainable competitive advantage from:
…a concept called virtual company. Overcome limitations of geography and organizational charts to organize around a project. This lets them get the contracts. The virtual company: Aeronautics started this. They initiated the application of that concept. You decide that you will organize by the goal of your project and attitude rather than geography. This is coordinated through telephones and computers, with a locus of program management which for aeronautics is assigned to Skunk Works. The attitude is important. Previously 1 company tried to do everything. Now get experts without requiring them to move, drawing on resources throughout LM, the industry. They can channel resources and organize geographically dispersed resources and capital in a much smarter way. They can mobilize the intellectual capability they have. They view it as a way to become a boundary-less company. Also sustainable competitive advantage because developing common systems, and ways they operate the business, that's continuing to evolve. Been through 1 a year for last three years. It's not going too fast. Have documented steady state savings of 2.6 billion dollars per year that wouldn't otherwise have, had it not been for the combinations, this 2.6 permanently taken out of cost structures, this is independently audited by the government.

Example: X33 and competition to win that program organized a virtual company needed specialized vehicles produced in low numbers, this good fit with Skunk Works this is their forte but they don't have experience with space launch bit, others in company did have this expertise in launch and specifications of customer, so drew on expertise across company, also use industry partners. Example, Rocketdyne division of a company was able to supply them with linear aerospike propulsion concepts, they were a merchant supplier, not only to their own parent corporation Rockwell, but also to the competitors.

Merger lets you utilize this virtual company to generate savings and efficiencies. Through internal consolidation able to find overlaps and duplications, consolidate. Example. Two launch vehicles, Titan (Lockheed) and Atlas, one produced by each company in 2 locations, build them both in Denver. Economies of scale achieved through this consolidation. They have closed over 20 facilities across the company totaling more than 16 million square feet. Have also spun off companies Examples: 10, into an organization called L3 communications, done in partnership with Lehmann Bros. Lockheed and Frank Lanza. More recently transferred assets of Aerostructures in Middle River Ando Access Graphics in Colorado transferred both of those plus share of Loral space and communications plus cash to GE in return for preferred tock. Swapped the assets.
Also have a sustainable competitive advantage, through the merchant buyer merchant supplier concept lets them gain efficiencies. They gain advantage at the airframe prime contract level is that when it comes to design they have all this expertise, have design capability that they can roll into competitive

posture. means, when look at efficiencies come from the fact that they've been smart about how they've managed their business and the competitive advantage comes market to market.

What was the merger like? Were the companies centralized before or de-centralized? Is Lockheed Martin a centralized or de-centralized company?
Customers have encouraged this, i.e. defense department
Both were centralized and decentralized
Now leans more toward the decentralized because it would be hard to manage 70 companies in a centralized model. There has been a great deal of autonomy given to different sectors and operating units. Coordinated across the different units at the operating level as well as at the program level. This is a matrix, with decision-making and operational autonomy down to the most appropriate level and also across projects. The analogy is that from Chicago, Illinois, US. Can be defined many different ways without inconsistencies. Draw a circle in the middle with project, venn diagrams and spokes and indicate how the different resources focused around this. The virtual company, extended out into the supplier base. Virtual company enables you to pay very close attention to their customer.

Not 1 centralized financial and accounting system. They're doing this right now. In process, they're instituting common processes for de-centralized application. Operating autonomously at the operating level with standardized systems. The process is common for different applications. Want high degree of consistency with overarching systems and beliefs but the actual applications are different. No inconsistencies or misreporting or misunderstanding as you go up the line.

How did they realize economies of scale in: purchasing; distribution, R&D, marketing? Any specific examples of how the merger created value and utilized synergies?
Tremendous example: Looked at their buying. Rather than have 4 different organizations, aeronautics do consolidated buying at the aeronautics materials management center in Fort Worth. They do all the buying and realize economies of scale, they order in bulk and get a deal. Have generate 340 million dollars in measured savings over the last 3 years compared to the old way. The government is so enthusiastic they're thinking of naming them as industry best practice. They're trying to do this throughout Lockheed Martin.

What should they do differently?
Benefits packages are amongst the best you would find in any industry anywhere.
Industry analysts are saying very good because of stock. Lockheed Martin is a textbook case in terms of how to carry out a merger.
If look at the win rate in terms of contracts very high. Mission success is way they measure themselves internally. No room for error, due to the type of business they're in. Each thing has got to work perfectly or you lose the mission. Extended that concept throughout all entities LM, everyone has a mission they're supposed to perform and there are certain criteria to measure that. They take this very seriously, they're in the mid to high 90's in accomplishing what they describe as mission success events.
Look at win rates, mission success and stock price, this would say they haven't moved too fast. Have been very successful in melding cultures due to leadership of company. both Dan Tellep and Norm Augustine were highly respected people as well as business leaders. They were highly regarded and their management styles reflected that. Because of their expertise, styles and character they were able to form this company from the top down. The standards they had instituted about how you treat people were very important. They lived their values. "If there were a hall of fame for aviation executives these guys would both have been in it." Both are regarded not only as leaders but also for the strength

of their characters. They use Dilbert to teach their ethics. They have a whole ethics awareness program taught by Dilbert. A fondness for humor is part of their culture. Use Dilbert to engage people through the effective application of humor. Take people through scenarios with humor. Yet the seriousness of the subject is not lost through humor. It's a way to open a gate into people's heart's and minds. Have done it with a touch of panache.

People generally work very well together. They're very good at what they do and they enjoy it. The leadership sets a very good example. They're very astute business people but they're also good people. They feel they need to set a good example. They set very challenging business goals. Not unrealistic. They're also simply very good people. That makes it a pleasure to do business with.

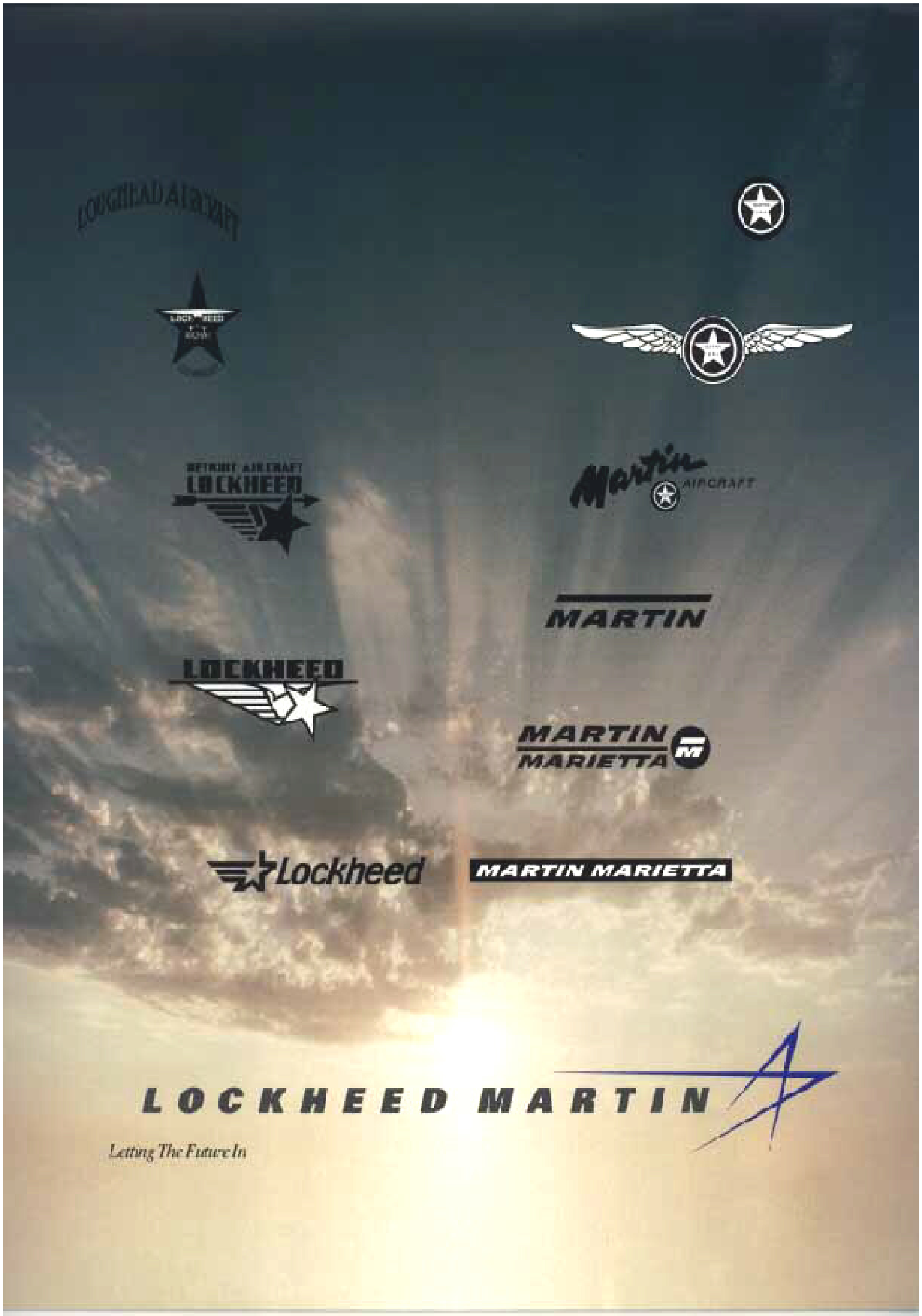
Facts are stubborn things. Can talk about what the procurement budget has been. Can trace the drop and can really show what has happened to what constitutes the domestic market place for the product. Do diagram with X33 program. Skunk Works in the center because they have management responsibility drawing on N
Cooperative agreement. NASA, right in the center
other elements within Lockheed Martin

called Ron Lindeke 805 572 4153: He could send an organizational framework for X33, which is an experimental vehicle which will validate the technical and economic assumptions etc. which will lead to construction of venture star launch vehicles, the operational concept is kind of like a shuttle, purpose of venture star to dramatically reduce the cost, about the economics and the business of the market place of space launch. The economics related to the technologies. Think can dramatically reduce the costs of putting payloads into low earth orbit. Tie ins, Fed-Ex or Southwest Airlines. When reduce cost, when understand the economics, able to build a business.
Their competition, with venture star has potential to revolutionize the world of space launch because if can reduce the cost could make it easier.

They're going to continue to build as a corporation on aerospace and defense and want to grow stronger in the global market, but using that strong foundation want to branch off into civil and commercial markets to use their technology in new ways. Example: air traffic management and harbor traffic management. They have information systems that are able to do that. Will grow commercially and globally. Have no intention of going into commercial airlines. Will build parts. Market has rationalized into Boeing and Airbus. If Northrop Grumman goes through will be supplying 45% of parts for 747's.

APPENDIX 17

<u>A merger of equals… The combining of two companies with a lot of history</u>



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