

NORTHROP GRUMMAN



TQ1738

College of Business Integrated Core Project

Central Michigan University

**Daira Gaffke, Nick Howes, Michael Keller,
Brandon Malinowski, & Micah Ward**

Appendix A

Northrop Grumman Supply Chain Analysis

Step 1: Growth Strategy and Supply Chain Mission

Company's growth strategy and financial goals:

Our growth strategy for Northrop Grumman is to service the United States and in the future Foreign Militaries with wearable technology to track vitals, store health information, and track the military member with readers on vehicular communication systems. By providing a combination of RFID, RAM, and GPS technology, we aim to manage battlefield fatigue, casualties, and decrease friendly fire. We also hope to decrease response time and increase knowledgeable care. Our goal is to add value for the owners of Northrop Grumman.

Situation analysis:

Strengths <ul style="list-style-type: none">• Strong Financial Stability/Performance and market position• Brand Awareness• Innovative Technology/Cyber Solutions and infrastructure• Owns a large portion of the defense/aerospace market	Weaknesses <ul style="list-style-type: none">• Over dependent on US (85%)• Over dependent on single customer• Environmental reputation
Opportunities <ul style="list-style-type: none">• Purchasing power to buy out smaller competition• Growing need in safety oriented products• Global customers• This technology is becoming more advanced and is readily available• Production growth in RFID and related technology market	Threats <ul style="list-style-type: none">• Unstable US economy• Decreasing military spending• Sales highly contingent with military contracts/spending• Growing competition• People's perceptions of GPS and RFID technology and privacy

Company's operations and supply mission:

We aim to compete internationally in the defense sector by providing superior technology and products to domestic and worldwide markets at a competitive price.

Step 2: Critical Success Factors

1. Competitive in the foreign market
2. Technological leadership
3. Efficient supply chain
4. Effective costs and pricing
5. Reliable/quality products
6. Integration with complementary products
7. Effective marketing/skilled marketing team
8. Monitor emerging technologies

Step 3: Effectiveness

Critical Success Factor	Grade	Explanation
Competitive in the foreign market	C	85% of their sales come from the U.S. government
Technological leadership	A	They are constantly developing new products and technology, and they are constantly forming new contracts with the U.S. military to provide new technologies
Efficient supply chain	A	A leader in providing logistics services; they utilize top leadership (Vice President for Corporate Supply Chain) to manage their entire supply chain
Effective costs and pricing	A	Their profit margin is higher than other competitors and industry standards
Reliable/quality products	A	Have highly reliable products; worked through problems that they had in the 1980s and 1990s
Integration with complementary products	A	The technology they utilize and provide aligns with the products they're providing
Effective marketing/skilled marketing team	B	They're able to maintain relations with current buyers, especially the U.S. government, but they don't have strong relations with other customers
Monitor emerging technologies	A	They're getting involved in new projects involving developing new technologies. In order to get involved in these, they must be aware of new trends.

Critical Success Factor	Helping Forces	Blocking Forces
Competitive in the foreign market	Looking toward marketing our product more in foreign markets in upcoming years	Reluctance of foreign markets to work with the United States for defense
Technological leadership	Developing new technologies to out beat competition	Other companies getting patents on new technology
Efficient supply chain	Utilizing skilled leaders within the company	Inability to utilize cost-effective supply chain resources
Effective costs and pricing	Teaming up with cost-effective suppliers	High quality often means high prices; necessity for research and development for new products
Reliable/quality products	Procuring high quality materials	Unreliable suppliers
Integration with complementary products	We are integrating our new technology with products our customers already utilize	Not being compatible with products that potential customers currently use from our competitors
Effective marketing/skilled marketing team	Being able to focus on past success when trying to gain bids from government; highlight how our product can benefit them	There's not much room to utilize marketing creativity; have to compete against same marketing strategy as other competitors
Monitor emerging technologies	Have teams devoted to research	Restrictions of monitoring other companies' actions

Step 4:

What we must do extremely well statements

Plan	Build relationships with foreign markets; monitor competitors; stay ahead of emerging technologies; consider both current and future products when developing new products and technology; focus on the product's ability to increase efficiency and safety in the field; focus on researching technology
Source	Research most cost-effective supply chain strategies; be in communication with our suppliers; research and locate the best supplier for raw materials
Make	Use processes like Lean Six Sigma to minimize costs and waste within production; research best processes for manufacturing
Deliver	Communicate with logistics team; communicate with shipping firms
Return	Offer post-sale customer support; offer warranty

	Competitive in foreign markets	Technological leader	Efficient supply chain	Effective costs and pricing	Reliable/quality products	Integration with complementary products	Effective marketing/skilled team	Monitor emerging technologies	Count	Quality
ACTIONABLE AGENDA										
Build relationships with foreign markets									2	C
Monitor competitors									4	A
Stay ahead of emerging technologies									3	A
Consider both current and future products when developing new products and technology									1	E
Focus on the product's ability to increase efficiency and safety in the field									2	E
Focus on researching technology									4	A
Research most cost-effective supply chains strategies									2	A
Be in communication with our suppliers									2	A
Research and locate the best supplier for raw materials									3	A
Use processes like Lean Six Sigma to minimize costs and waste within production									3	A
Research best practices for manufacturing									3	A
Communicate with logistics team									1	A
Communicate with shipping firms									1	A
Offer post-sale customer support									3	A
Offer warranty									2	C

Step 5: Performance Indicators

Effectiveness Indicators

Dependability: Northrop Grumman's products must work in time-sensitive and high-pressure situations, especially our product when it is used during combat.

Accuracy: The TQ1738 must provide reliable, accurate information about personnel location, health, and vitals.

Durability: Worn on the wrist, the TQ1738 is expected to withstand combat environments and weather elements.

Efficiency Indicators

Process set up cycle: The TQ1738 will be assembled outside of Northrop Grumman at another location to fully utilize processes already in place for manufacturing.

Maintenance Rate: Research and development will be in constant contact with user to provide semi-annual updates for the TQ1738.

Use of Our Own Technology: Utilize in house operations to program the TQ1738 and develop the technology to our standards and recommendation.

Adaptability Indicators

Technology: Use of new software and proper application of technology to continually find creative ways to increase effectiveness in the procurement and production of the TQ1738.

Quality Assurance: Northrop Grumman will continue to work closely with our customers to adjust and develop the TQ1738 to suit their needs. Accomplished by conducting audits, developing corrective action, and tracking findings to closure.

Software: Service packs and software updates will be issued to allow the TQ1738 to continually perform at its peak.

Data Tracking: Northrop Grumman will diligently track and survey all data related to the product's life cycle. We will apply gathered data to make decisions or reinforce preexisting methods.

Logistics: Our innovative logistics solutions enable effectiveness and global mission readiness – while remaining cost-effective and affordable. From modernization and sustainment we offer a full-spectrum of support to meet any mission requirement. Behind every product and service you'll find a team of experts with front-line experience, prepared to provide support wherever the mission goes.

Step 6: Supply Chain Action Plan

Vulnerabilities	Causes	Preventive Actions	Contingency Plans
Supply of Parts	Natural disasters	Forecast our sales ahead of time so we can plan to have our supply in advance	Have plans in place of other places that we could get our supplies in case of an emergency.
Government Contract	We're unable to deliver on our promises we made in the contract	Assure the quality of our products are set to standards of contract	Evaluate our performance to see where we need to adjust to deliver on our promise
Technological Issues	Insufficient funding and/or execution in research and development	Thoroughly research and test compatibility in advance and offer software updates	Offer customer support in the case of an issue
Bidding Process	Inability to effectively market our product in the bidding process	Focus on the need and design of product	Move to foreign alliance markets
Implementation	Unwillingness of military leaders to adopt and utilize this product	Effectively positioning the product as a valuable asset to the military	Listen to their feedback and adjust or market our product accordingly

Step 7: Conclusion and Recommendation

After analysis of Northrop Grumman's supply chain, we affirm that Northrop Grumman is a leading supplier for defense and technological systems. With an effective supply chain, Northrop Grumman's operations surpass the capabilities of its competitors. This reflects the company's strategy of outsourcing to produce products with lower costs and faster processes. Monitoring emerging technologies with a skilled team allows for constant progression within the supply chain. While Northrop Grumman's supply chain is complicated due to its integration of technology and hardware, they have mastered each step to efficiently compile a finished product.

Highlights:

1. Northrop Grumman is a consistently innovative company, with a focus on introducing new technologies.
2. Northrop Grumman has a large focus on research and development, which is necessary for our growth strategy.
3. Our growth strategy utilizes technology that is already compatible with existing technology in the military.
4. Northrop Grumman has a great availability of financial information and has the capital necessary to fund our growth strategy.

Lowlights:

1. Northrop Grumman does not release information on their supply chain, as such information related to defense must be kept private.
2. Developing a marketing strategy is difficult, as any adoption or purchase of this product would come through the bidding process.
3. It is difficult to find information about internal processes and offer ways to improve efficiency.

Recommendations:

If the TQ1738 is successful, Northrop Grumman should expand its promotion of the product. We plan to introduce the product to the United States military. However, if successful, Northrop Grumman should also expand this to foreign markets in the future. Additionally, Northrop Grumman should continue improving the TQ1738. Technology is constantly evolving, and if this product remains stagnant in the years to come, growth will quickly taper off. Northrop Grumman should also continue to monitor similar technology from competitors to ensure it can stay ahead of the competition in all aspects of the company, including supply chain and innovation.

Northrop Grumman

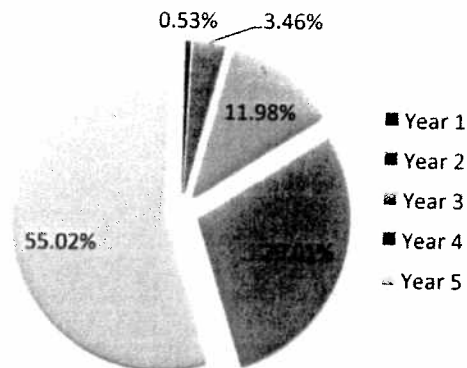
Our team has decided to accept the growth strategy proposal for TQ1738 as all our analyses of the project has determined that Northrop Grumman would stand to make a profit by investing in this strategy. By creating such a product focused on the military's most valuable asset, human capital, Northrop Grumman can further cultivate its relationship with our largest client.

TQ1738 (ARES)

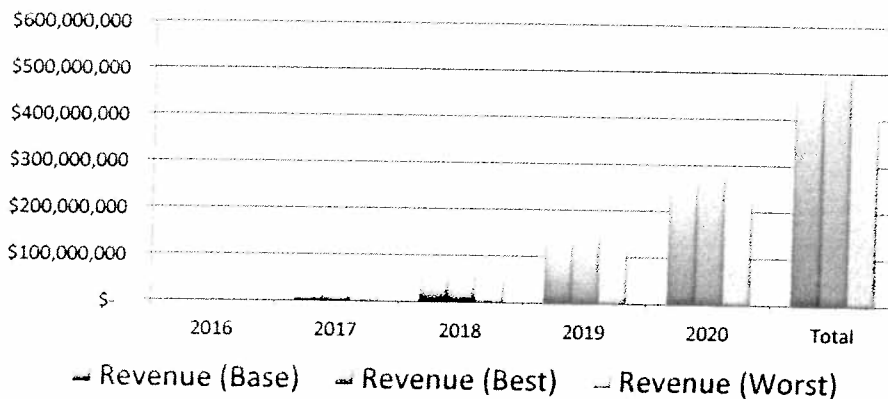


Implementation Schedule

TQ1738 will be implemented following trends of similar wearable devices within the consumer market. With the application of spiral development, this allows the DoD to use the device and communicate any desired changes in a cost effective manner. TQ1738's implementation schedule also mirrors the beginning stages of newly introduced technology's overall life cycle.



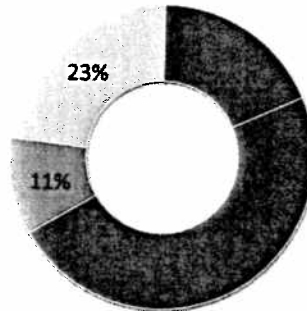
Sales Forecast



Critical Success Factors

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Market Segmentation



■ Navy ■ Army ■ Marines ■ Air Force

MARKETING MIX



01 Product



A wearable device designed to manage military personnel in combat and non-combat environments.

02 Price



Our value proposition is related to customer value, technological leadership security, and quality products.

03 Place



We will follow the implementation schedule outlined in our report. This allows for continuous development in assuring customer satisfaction.

04 Promotion



We aim to have an effective bidding proposal and elite brand recognition to ensure acceptance of the government contract.

NORTHROP GRUMMAN