

Integrated Radar, Optical Surveillance and Sighting System (IROS)

Technology Commercialization

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Approved for public release; distribution unlimited



Project-Characteristics

Background

	Fall 2008	Spring 2008	Fall 2009	Future
Students	2	2	1	≥ 2
Business Mentor	0	0	0	1
Academic Advisor	1	1	0	1
Technologies	1	1	6 related	1
Horizontal Analysis	X	X	X	X
Vertical Analyses	2	2	2	1-2
CRANE meetings	0	0	2	3
Teleconferences	2	Weekly	Weekly / Bi-weekly	Bi-weekly
Marketing Pamphlet	1 created	1 used	1 created	1 created
Interviews	Phone / Email	Phone / Email	Email / Survey	Phone / Email / Survey
EurekaRanch			Attempted	X



Project-Deliverables / Success

Background

	Fall 2008	Spring 2008	Fall 2009	Future
Commercialization Package	X	X	X	X
Presentation		0	X	X
Initial Meeting		0	X	X
Final Meeting		0	X	X
Horizontal Analysis	X	X	X	X
Vertical Analyses	2	2	2	1-2
Contacts	0	X	0	X
Marketing Pamphlet	1 created	1 used	1 created	1 created
NSWC Success Rating	0%			
Student Success Rating	25%	75%	40%	



Minimum Resource Requirements

Background

- 2 quarter time students
- Inventors with weekly time allocation and buy-in
- Horizontal and Vertical Analyses
- Bi-weekly interactions



IROS³ as Implemented

Background



- Non-lethal and Lethal Response
- Manual and Semi-Automated Response
- Scalable and Adaptable



Understanding IROS³

Commercialization

- What are the unique capabilities of this system?
 - Control multiple devices from one console
 - Semi-automated response
 - Lethal Response
 - Scalable and Adaptable
- What allows IROS to accomplish this?
 - Payload Control software (6,873,886)
 - PnP Modular Mission Payloads (6,665,594)
 - Digital I/O board (NC 99,767)
 - Safety Circuit Interface Card (NC 99,289)



Commercializing IROS³

Commercialization

- What are the unique capabilities that can be commercialized?
 - Control multiple devices from one console
 - Semi-automated response
 - ~~Lethal Response~~ ←
 - Scalable and Adaptable

 - What allows IROS to accomplish this?
 - Payload Control software (6,873,886)
 - PnP Modular Mission Payloads (6,665,594)
 - Digital I/O board (NC 99,767)
 - Safety Circuit Interface Card (NC 99,289)
- This still has commercial applications!



IROS³ Value Statements

Commercialization

1. This system allows multiple external devices to be networked to and controlled via the operator consoles.
2. This system can also replace the many different and unique human interface devices with a singular and standardized system.
3. The design of the system allows for the aggregation of data from multiple sources and presentation of the aggregated data to the user for response.



Horizontal Analysis

Commercialization

What are the characteristics of markets that might be interested in these values?

- High dollar value assets
- Large or complex protection area
- Exposed to higher than standard risk
- Significant impact

▶ Sounds like “critical infrastructure”



Horizontal Analysis

Commercialization

What is “Critical Infrastructure?”

Excerpt from Presidential Decision Directive-63 (PDD-63)

Critical infrastructures are those **physical** and cyber-based systems essential to the minimum operations of the economy and government. They include, but are not limited to, telecommunications, energy, banking and finance, **transportation, water systems** and emergency services, both **governmental** and **private**. Many of the nation's critical infrastructures have historically been **physically and logically separate systems** that had little interdependence. As a result of advances in information technology and the necessity of **improved efficiency**, however, these infrastructures have become increasingly automated and interlinked. These same advances have created new vulnerabilities to equipment failure, human error, weather and other natural causes, and **physical and cyber attacks**. Addressing these vulnerabilities will necessarily **require flexible, evolutionary approaches that span both the public and private sectors, and protect both domestic and international security**.



Value Alignment

Commercialization

- This system allows multiple external devices to be networked to and controlled via the operator consoles.
*require flexible, evolutionary approaches
physically and logically separate*
- This system can also replace the many different and unique human interface devices with a singular and standardized system.
*require flexible, evolutionary approaches
improved efficiency*
- The design of the system allows for the aggregation of data from multiple sources and presentation of the aggregated data to the user for response.
*require flexible, evolutionary approaches
physically and logically separate
improved efficiency*



Other History

Commercialization

- Presidential Decision Directive PDD-63
- Homeland Security Presidential Directive HSPD-7
- European Programme for Critical Infrastructure Protection (EPCIP)



Funding Available

Commercialization

- Infrastructure Protection Activities (IPA) grant program
\$844M
Ports, transportation, major disasters and other emergency situational responses
- Port Security Grant Program (PSGP)
\$388.6M
Protection against improvised explosive devices, disaster response and other
- Transit Security Grant Program (TSGP)
\$350.1M
- Freight Rail Security Grant Program(FRSGP)
\$4.9M
- Intercity Passenger Rail Program (IPRP)
\$25.0M
- Intercity Bus Security Program (IBSP)
\$11.2M
- Buffer Zone Protection Program (BZPP)
\$48.2M
“Financial institutions, nuclear and electric power plants, stadiums, dams”, etc.
- Trucking Security Grant Program (TSGP)
\$15.5M



Horizontal Analysis

Commercialization

Market Categories that represent Critical Infrastructure:

1. Information Technology
2. Telecommunications
3. Chemical
4. Transportation
5. Homeland Security
6. Postal and Shipping
7. Banking & Finance
8. Utilities
9. Federal & Municipal Services
10. Agriculture & Food
11. National Monuments & Icons



Porter's 5 Force Overview

Commercialization



Horizontal Analysis - Industries *Commercialization*

Porter's Analysis Results



Cloverleaf Model Overview

Commercialization



Technology Readiness Assessment

Commercialization

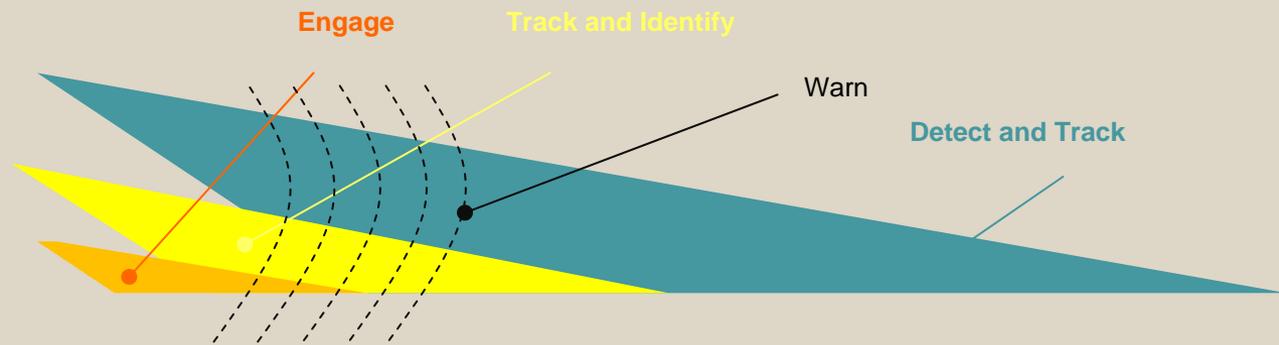
Cloverleaf Analysis Results – if we have any by the presentation date



Overview

Business Idea

Surveillance, Control and Response System



Differentiation Strategy

Business Strategy

Strategy Characteristics

- Low volume and high margins
- Closest to where IROS is today

Markets

- Transportation
- Utilities

Competition

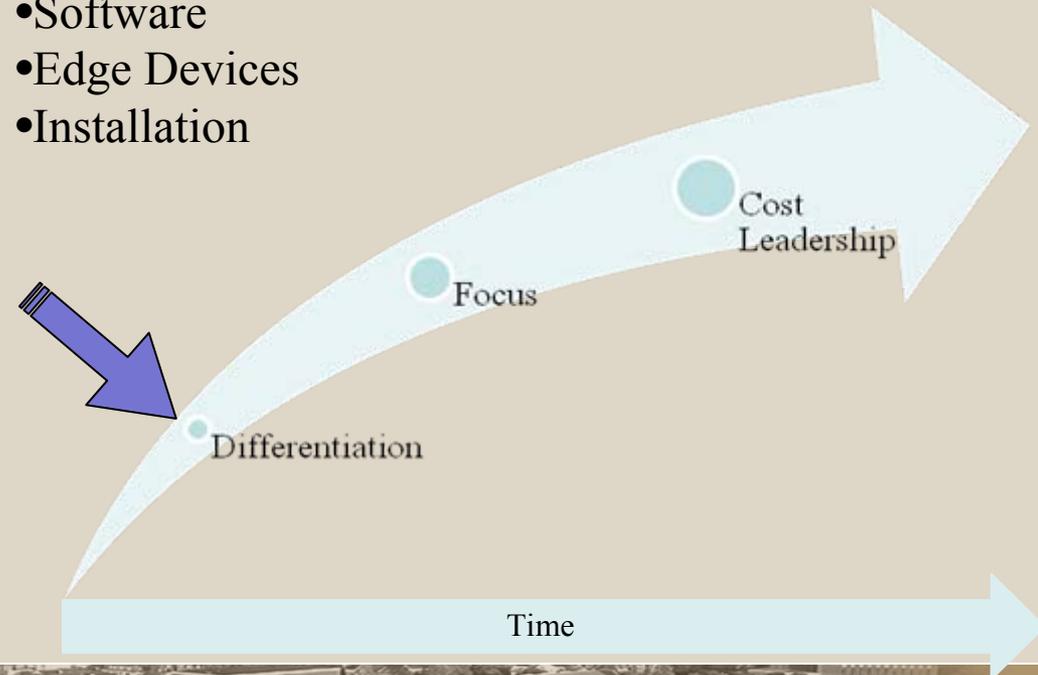
- Ultra Electronics Maritime Systems

Unique

- Non-Lethal and Lethal Engagements

Product - \$500K to \$2M

- Console
- Digital I/O Board
- Safety Circuit Interface Card
- Software
- Edge Devices
- Installation



Focus Strategy

Business Strategy

Strategy Characteristics

- Medium volume and margins
- More compact

Markets

- Homeland Security
- Postal and Shipping
- Utilities

Competition

- General Electric, Honeywell

Unique

- Adaptable and Scalable
- Non-Lethal and Lethal Engagements

Product - \$100K to \$500K

- Computer System
- Digital I/O Board
- Safety Circuit Interface Card
- Software
- Installation



Cost Leadership Strategy

Business Strategy

Strategy Characteristics

- High volume and Low Margins
- Lightweight System

Product - \$10K to \$75K

- Laptop
- Software

Markets

- Banking and Finance
- Information Systems
- Municipal Services

Competition

- Lots

Unique

- Adaptable and Scalable
- Non-Lethal Engagements



Marketing Pamphlet

Marketing Strategy



Scrap Slides

