



Center for Commercialization of Advanced Technology

Partnering for Successful
Technology Transfer

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Outline

- Definitions
- Invention to Innovation
 - ▶ Transitioning technologies
 - ▶ Challenges
- CCAT
 - ▶ What it is
 - ▶ What it does
- CCAT Success Stories



What is CCAT?

CCAT is a joint enterprise of Cal State San Diego and Cal State San Bernardino that uses a national partnership of universities, industry, and government to identify and accelerate commercialization of emerging technologies critical to national defense and homeland security



Center for Commercialization of Advanced Technology



Definitions

Invention

...an object, patent, process, or technique which displays an element of novelty.

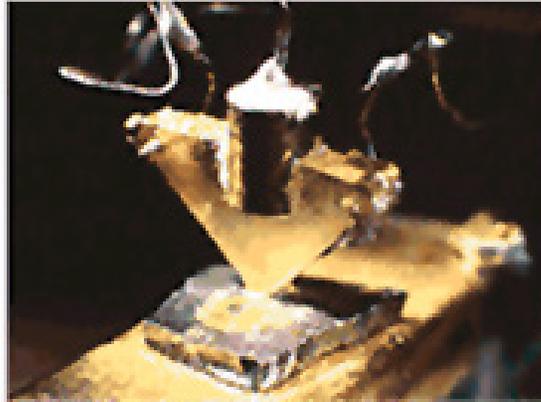
Innovation

...change that creates a new dimension of performance *Peter Drucker (Hesselbein, 2002)*



Invention

Transistor





Innovation

Cell Phone





Problem #1

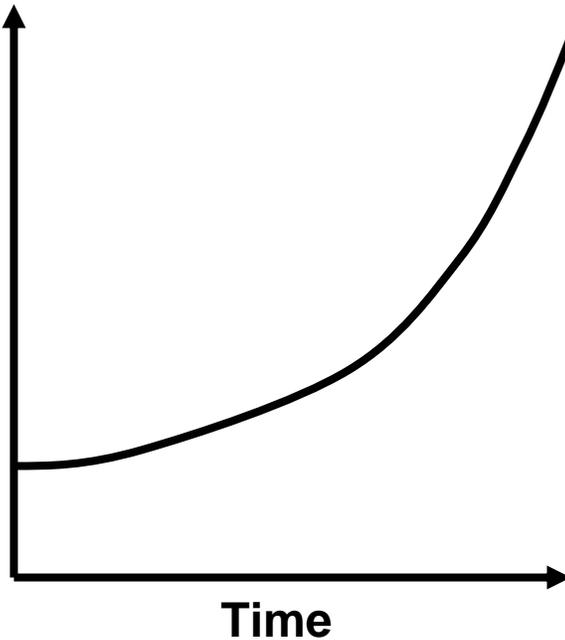
If you don't know where you're going, chances are you will end up somewhere else. *Yogi Berra*



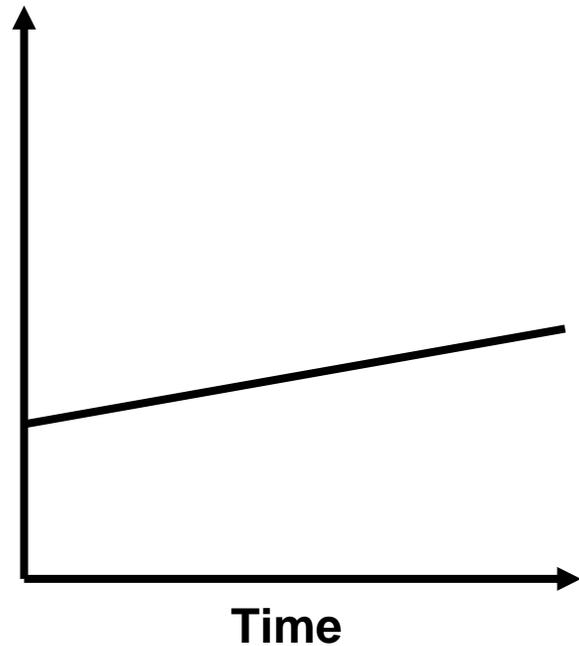
Invention Outpaces Innovative Product Deployment

John Collins, President, TIAX

Inventions



Innovative Products



No matter the quality or quantity of inventions, industry cannot efficiently convert them to deployable innovative products



Getting from Wheat to Flour

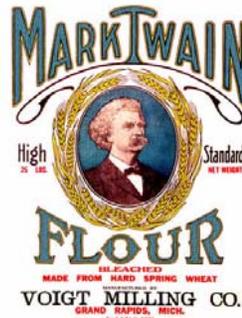
*Raw
Material*



**Growing
Processes**



*Deployed
Product*



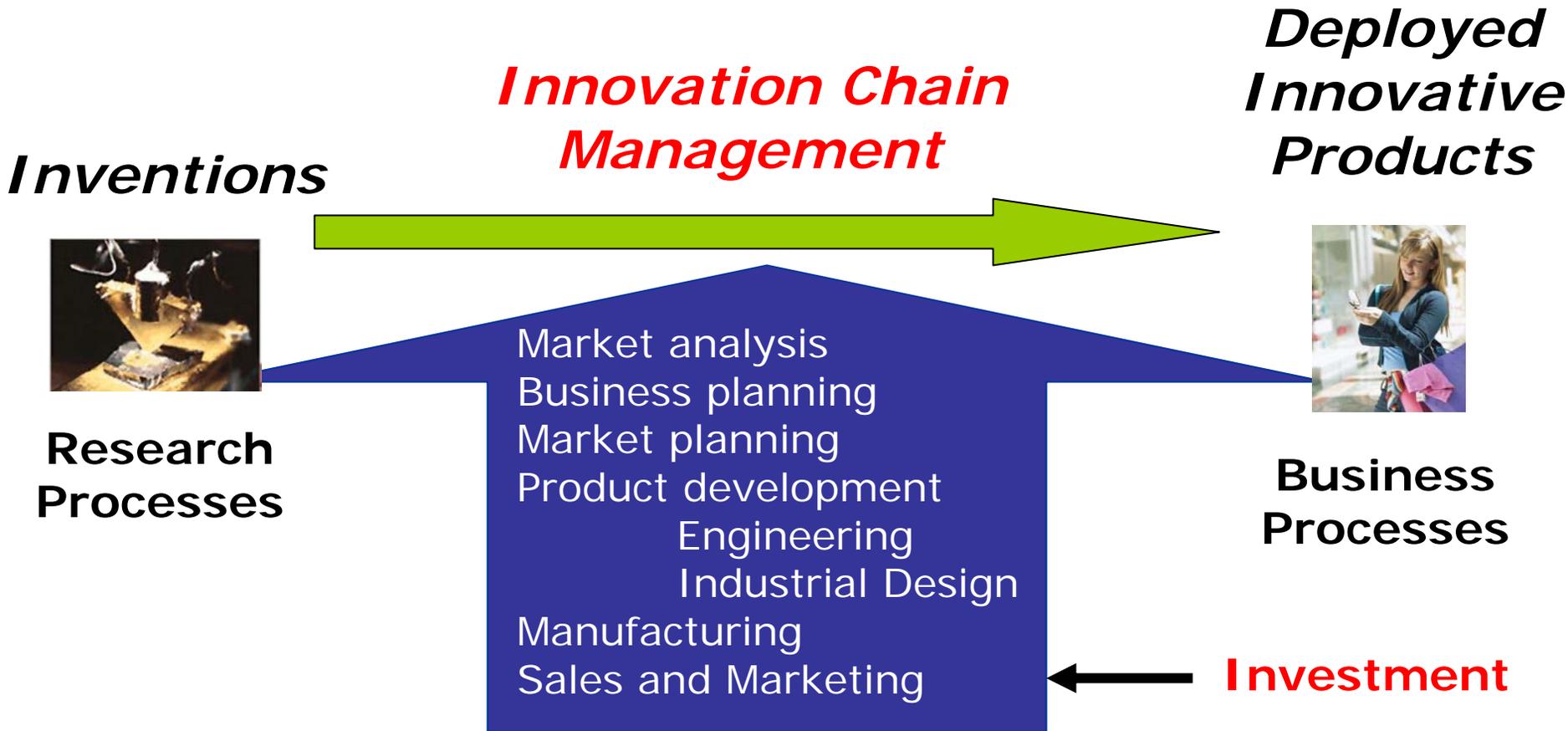
**Transformative
Processes**



**Business
Processes**

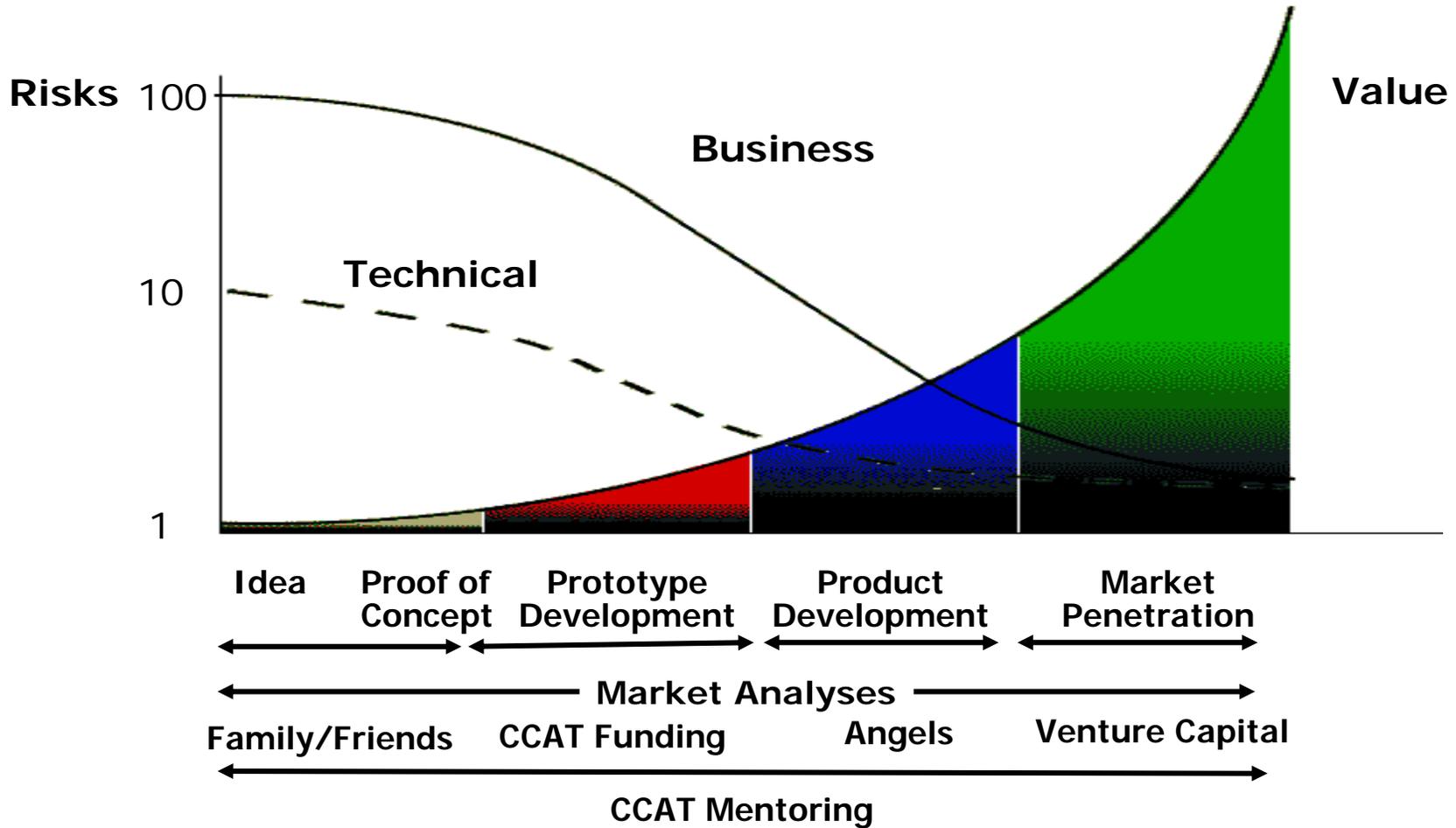


Getting from Invention to Innovation





Risks, Value and CCAT





Technology Sources

- University technology transfer
- Local government investment
- SBIR/STTR
- Corporate spin-outs/spin-ins
- Corporate sponsored R&D
- Corporate in-licensing



Problems #2 & #3

- Transformative processes cost \$
- Inventors are not CEOs



Purpose of CCAT

CCAT is a DoD/ONR sponsored program designed to:

- Provide zero stage funding
- Launch commercialization of emerging technologies critical to national defense and homeland security
- Support education missions of SDSU and CSUSB
- Promote economic development in California's Inland Empire (CSUSB)



What CCAT Does

- Matches DoD and DHS needs to technologies
- Brings technical and business services and resources together
- Provides the funds
- Orchestrates the processes
- Mentors companies



CCAT Organization

Cal State SB

San Diego State

CCAT Funding
From DoD
through ONR

SPAWAR Systems
Center – San Diego

CSUSB Foundation, Office of
Technology Transfer and
Commercialization

SDSU Foundation

CCAT San Bernardino

CCAT San Diego

Active Capital

SDSU EMC

CSUSB Inland Empire
Center for Entrepreneurship

UCSD Jacobs School of
Engineering

CSUSB Integrated Technology
Transfer Network

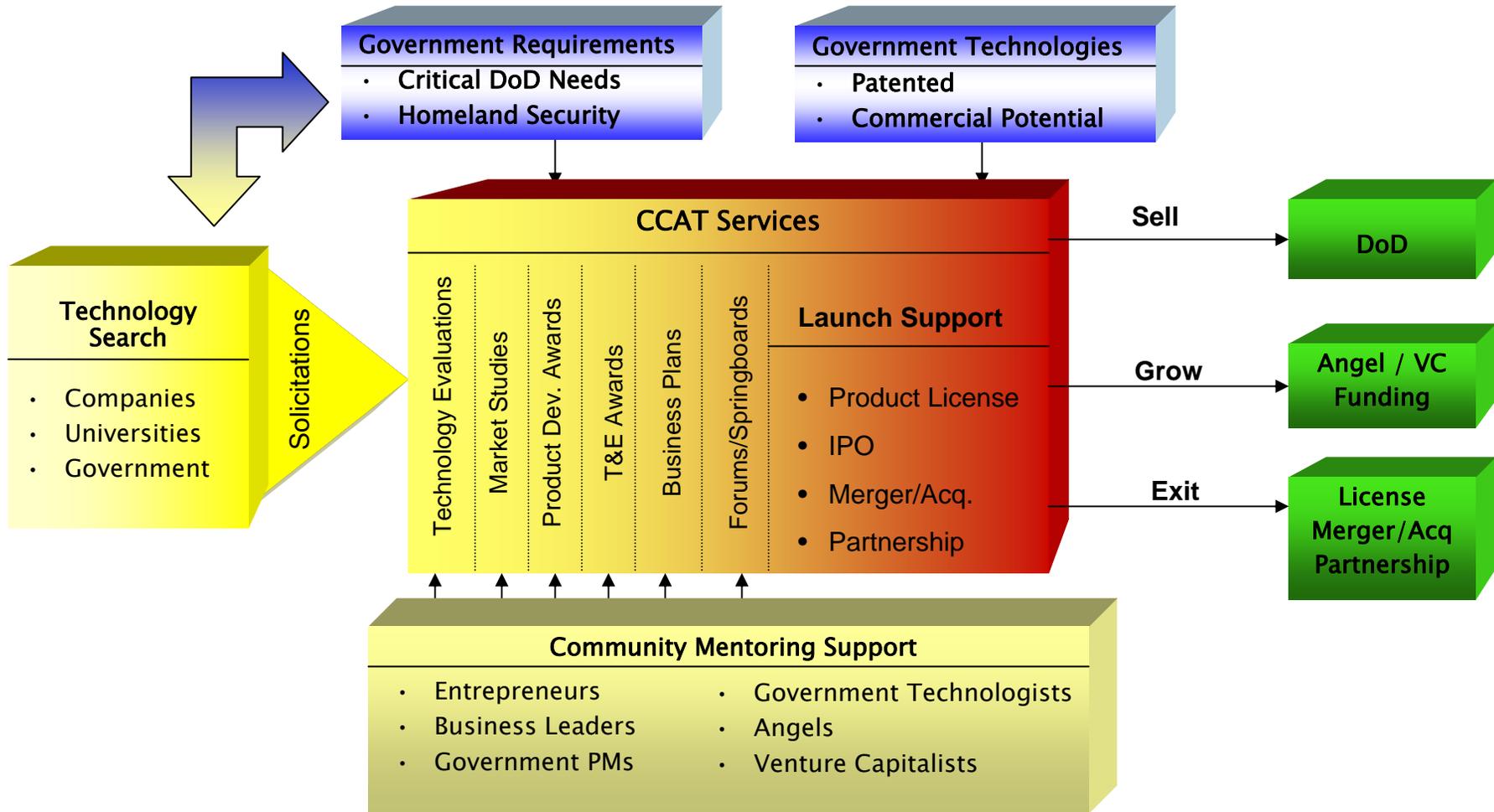
Lockheed Martin

UCSD Connect

 Partners



The CCAT Process





Get to Product Fast

- Phase 1: Solicitation/Award 90 to 120 days**
- Phase 2: Commercialization Plan 60 days**
- Phase 3: Product/Business Development/T&E
9 – 12 months**
- Phase 4: Graduation** (*intros to: investors;
licensees; acquirers, key government
programs & program managers*)



Services

CCAT Services Support Business Development

Market Studies
Feasibility/Analysis/Validation

Business/Marketing Plan
Development

Product Development Grants
(\$75K max)

Demonstration/T&E Grants
(\$100K Max)

Business Mentors and
Entrepreneur Training

Angel and VC Investor
Networks

IP Licensing, CRADAs,
and Partnerships

DoD Acquisition Managers
and Programs



The CCAT Added Value

- ◆ A trusted network of providers
- ◆ A large network of advisers and mentors
- ◆ University participation
- ◆ Links to capital and licensees
- ◆ Coordination
- ◆ Long-term commitment to clients



Scope of Portfolio

Aerospace/Missile Defense	Linguistics/Translation
Biomedical	Port, Border, Transportation Security
Biometrics	Power Supplies
CBRNE Detection and Protection	Robotics
Container Security	Simulation and Training
Environmental Mitigation/Protection	Surveillance
Heads Up Displays	Vaccines, Therapeutics, Diagnostics
Information Sharing/Analysis	
Wireless Communications	



CCAT Scorecard Since 2001

Clients	Market Studies	Product Development Awards
132	132	145



Measures of Client Success

- Sales
- New company formation
- Venture/angel capital investment
- Other forms of equity growth
- Licensing agreement
- Other additional funding

CCAT Success Rate = 52%



Lumidigm

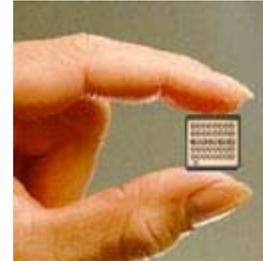
Company Spin-out

Problem

Conventional fingerprinting lacks the sensitivity, specificity, and ease of operation to be used for security purposes

Skin artifacts such as scarring, dryness, perspiration, etc. defy comparative analyses

Solution



- Spun-out of InLight Solutions
- Uses multi-spectral imaging
- Images blood vessels beneath skin surface

Impacts

- \$8.1 million in venture investment
- Discussions with seaports and airports
- Trials and evaluations by US State Dept. and TSA
- Interest by a major international entertainment corporation
- Selected by Unisys Center of Excellence for Secure Border Initiative



Omega Sensors

Federal Lab Spinout

Problem

Accelerometers currently applied in environments requiring high levels of accuracy are very expensive (>\$10k). Examples: navigation systems in airplanes and helicopters; vibrational studies; guided missiles; etc.

Solution



- MEMS based
- Uses Fabry-Perot interferometry
- Measure displacements as small as 10 femtometers

Impacts

- 0.5% of the cost of current systems
- Strategic partnership with Dytran Instruments
- Developing gyroscopes, pressure and temperature sensor, and magnetometers
- Crada with SPAWAR Systems Center - SD



Harbor Offshore

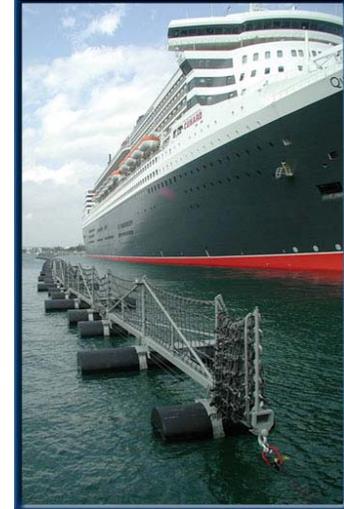
Federal Lab Spinout

Problem

US Navy vessels and commercial vessels have continued to be highly vulnerable to attacks like the one on the USS Cole. Keeping small vessels away is very difficult.

Solution

- Port Security Barrier System
- Simple, easily deployable barrier system
- Last line of defense



Impacts

- Sales to seaports worldwide



XDD

License from Federal Lab

Problem

Air sparging of contaminated soils and groundwater involves injecting air at a fixed depth to strip contaminants from the groundwater by turning hydrocarbons into vapor.

The method is difficult to use at varying depths requiring new wells to be drilled

Solution

XDD developed a device that can be raised and lowered within a sparging well without air flowing up into the well interior.



Impacts

- Successfully tested at superfund site
- XDD clients include several Fortune 500 manufacturing companies
- XDD serves a number of federal entities including the U.S. Army Corps of Engineers and other agencies of the Department of Defense.



Summary

CCAT has demonstrated the value of using excellence in business and technology to effectively and efficiently transform inventions into innovations vital to national security