



# **Open Systems Architecture License Rights: A New Era for the Public-Private Marketplace**

**15 May 2014**

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# Disclaimer

- This talk is about the relationship of Intellectual Property, Cost Control and prosperity of the Defense Industrial Base
- Specifically – we look at the:
  - The Creation of Intellectual Property (IP)
  - Venture Capital needed to bring the IP to Market
  - Different treatment of IP in the Commercial and Defense Sectors
  - Commercial and Government outcomes
- This presentation is, in part, a discussion of Intellectual Property Law
  - a large and complex field
  - We are business strategists – not IP Attorneys
- The opinions expressed herein represent those of the speakers and not that of the U.S. Government

# Our Free Market economy is built on Intellectual Property

“[The patent system]...secures to the inventor, for a limited time, the exclusive use of his invention; and thereby adds the **fuel of interest to the fire of genius** in the discovery and production of new and useful things.”

- Abraham Lincoln , February 11, 1859

“Our single greatest asset is the innovation and the ingenuity and creativity of the American people...”

But it's only a competitive advantage if our companies know that someone else can't just steal that idea and duplicate it with cheaper inputs and labor.

- Remarks President Barack Obama at the Export-Import Bank's Annual Conference, March 11, 2010

# Converting IP to Prosperity

- Entrepreneurs need Venture Capital to bring their products to market
  - Internally funded
  - Third party investors
- VC is acquired in the commercial market through the
  - sale of equity
  - provision of a royalty
- **In the commercial market – an entrepreneur's survival depends on control of IP**
- Introduction of a third party venture capitalist introduces risk that an entrepreneur's ownership or control of his or her IP will be diluted or lost



# The Dangerous Waters of DoD Venture Capital

- DoD is the **monopsonistic** (single buyer) purchaser of billions of dollars of unique products each year – a massive venture capitalist!
  - The DoD monopsony frequently turns the entrepreneur into a **monopoly**
    - Monopoly control is central issue
      - Cost control and responsiveness
    - Control of IP (via license rights)
- Struggle between the need
  - **to fuel the fire** vs. **control costs** and **maintain 'good behavior'**
- We will examine this struggle today!

# Welcome to the Shark Tank

Shark Tank is a TV show aired on the ABC® network

We'll look at six model transactions:

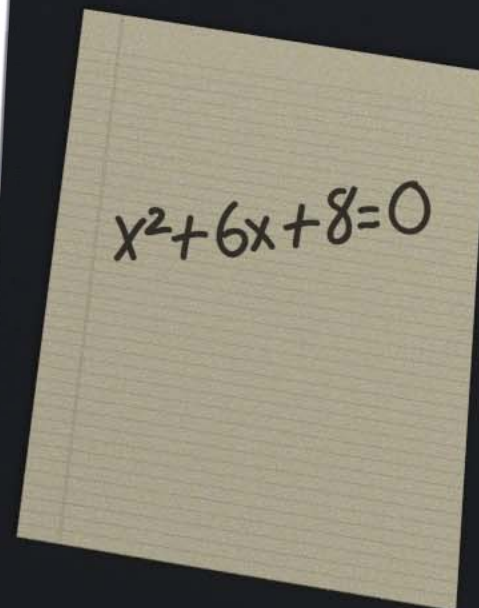
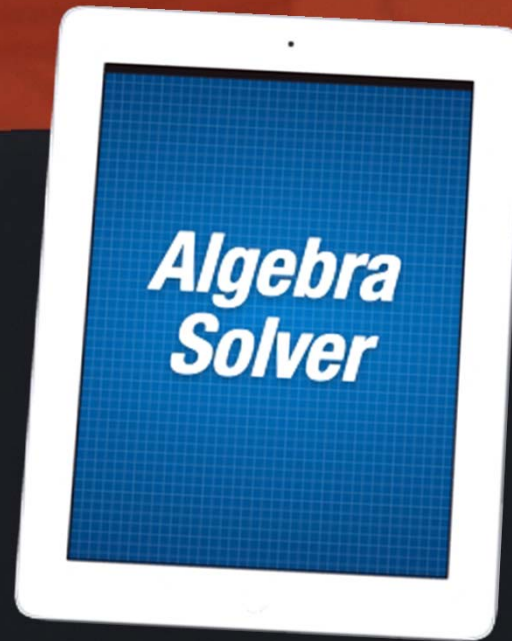
1. Standard Commercial Product
2. Commercial Product Variant for Federal Customer
3. Legacy DoD Product
4. "Awkward" Transition [not shown in this presentation]
5. Products acquired within the Small Business Innovative Research (SBIR)
6. Open Systems Architecture Business Model

# SHARK TANK ROUND 1: The Commercial Entrepreneur and the Sharks

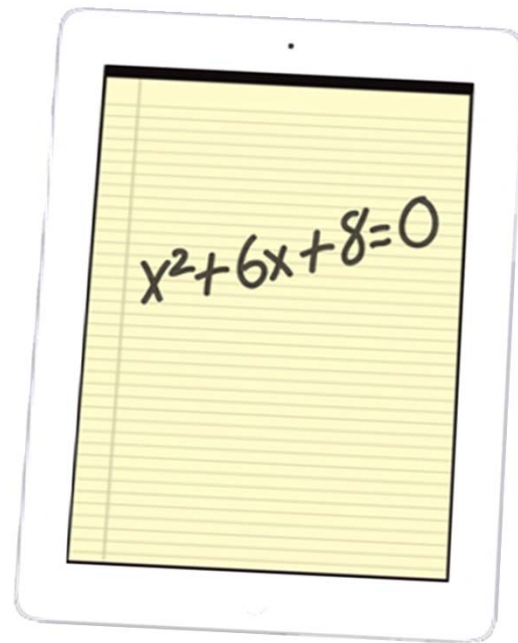
- Welcome to Shark Tank Round 1
  - Round 1 is the 'Free Market'
    - Many sellers and many buyers
- THE ALGEBRA SOLVER
  - A commercial software application that solves algebra equations
  - Integrated into a smart phone, laptop or tablet – with an integrated camera



# The Algebra Solver

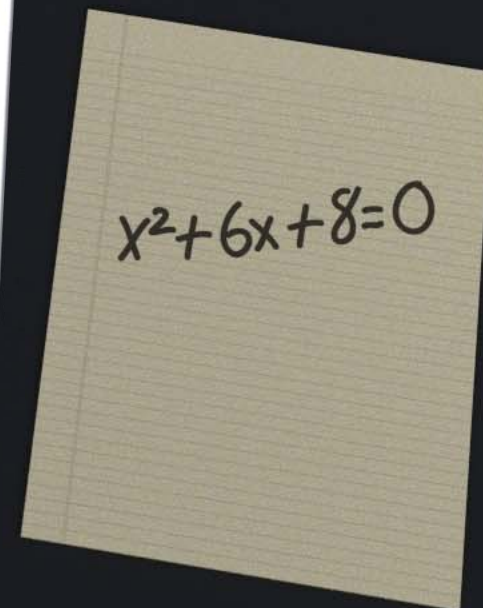
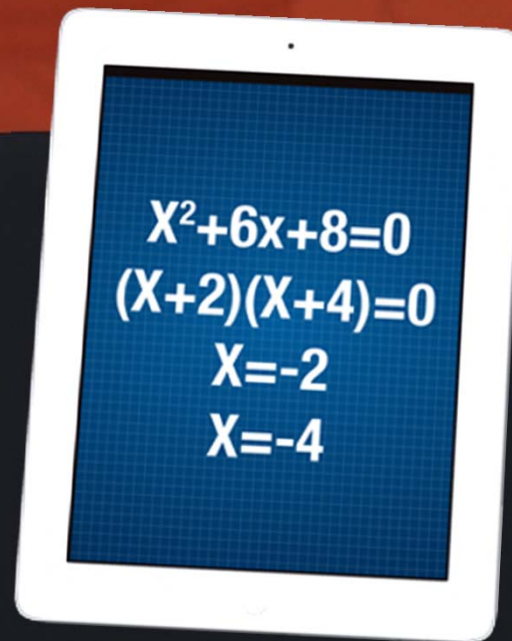






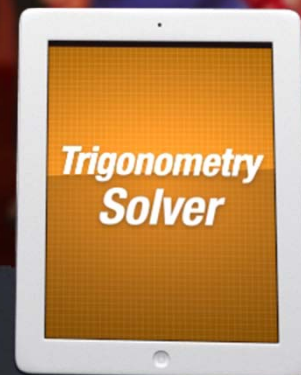
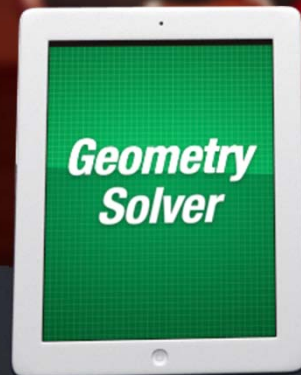
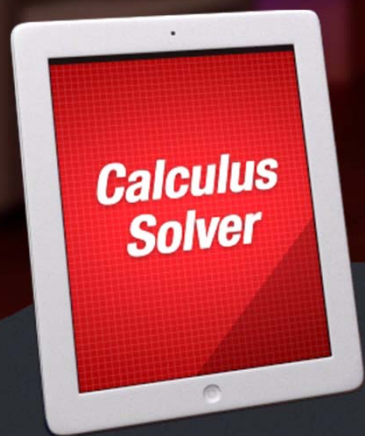
$$x^2 + 6x + 8 = 0$$

# The Algebra Solver



# Derivative Products

- The entrepreneur plans to build a variety of derivative products from the Algebra Solver



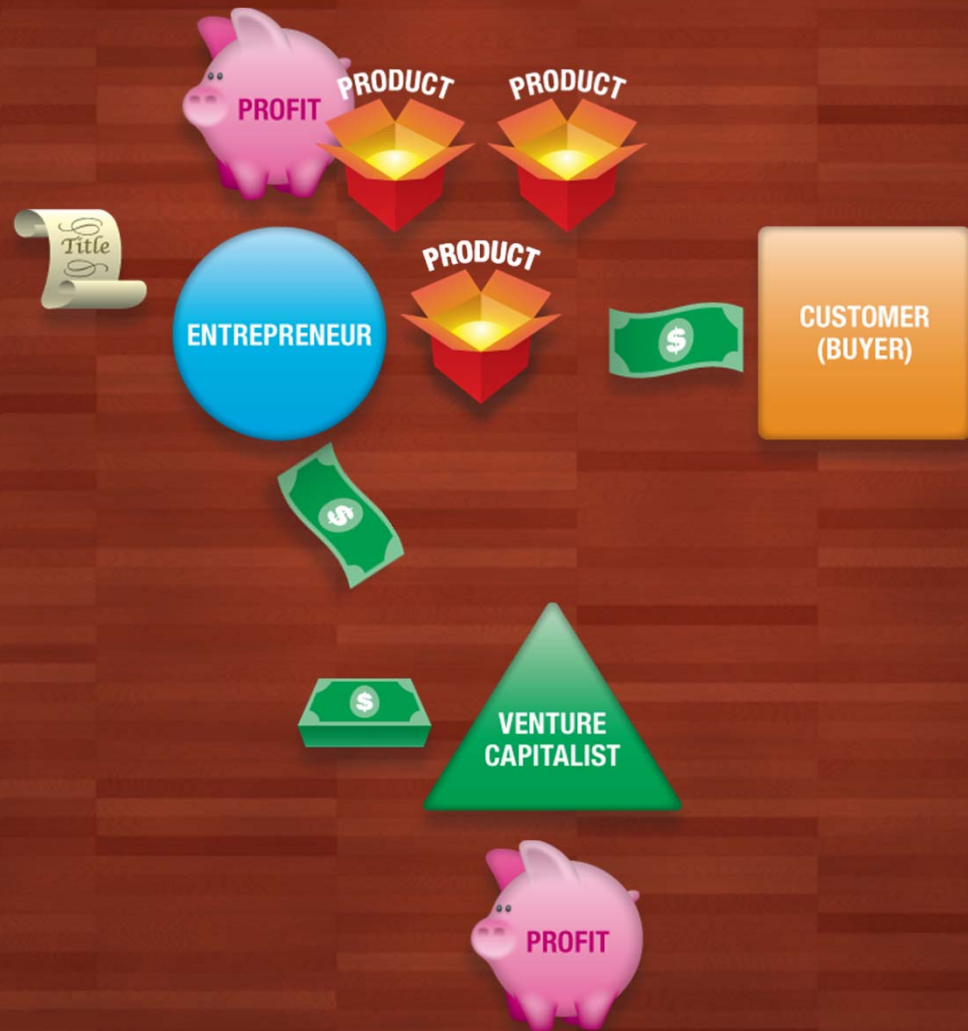
# The Commercial Entrepreneur and the Sharks

- Entrepreneur: “I’m looking for an investment today of \$200K for a 25% equity stake in my company.”
- Shark: “Do you have a patent?”
- Entrepreneur: “Yes – a utility patent.”
- Shark: “Good – because that makes it worthy of investment – as I feel comfortable that no one can quickly build a knock-off and squeeze us out of the market.”
- Shark: “What were your sales, margins, and profit?”
- Entrepreneur: My earnings last quarter were \$100K.
- Shark: “Why do you value your company at 8 multiple of earnings?”
- Entrepreneur: 8 times earnings seems reasonable given the massive market for the “Algebra Solver” in the derivative market.
- Shark: “Ok – I’m interested!”



# Market Operation

- Free Market Transaction
  - Three party commercial
  - Advantaged provider with patent (monopoly)
    - VC >>> that of the entrepreneur
    - VC doesn't infringe IP

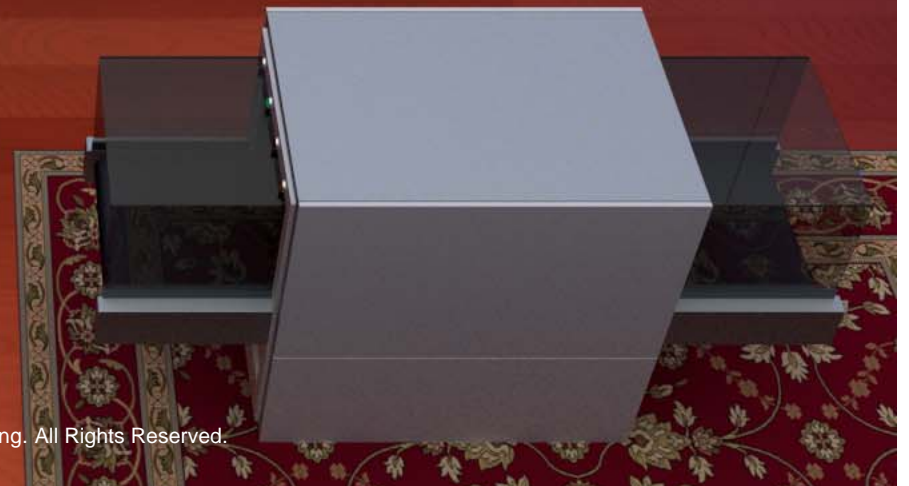


# Shark Tank Round 2: The Commercial Variant for the Federal Customer

- Welcome to Shark Tank Round 2
  - A Federal transaction in the Free Market
  - Many sellers and buyers of core technology
- “Automated Gun Detection System”
  - Built on X-ray line of products described in 17 different patents
  - Entrepreneur is an advantaged provider with IP ownership and control

# The Commercial Variant for the Federal Customer

- IP is the basis of the company
  - Can't accept VC from the government
    - Government Purpose Rights (GPR) License on subsystem dilutes control of IP
  - Seeks VC from the Sharks
- Entrepreneur: "I seek \$750K to field the augmented unit. I offer a royalty per unit sold... DHS has issued a NIST standard for a system with these capabilities and issued an RFI indicating their plan to procure units.
- Sharks: Deal!



# Market Operation

- Free Market Transaction
  - Three party commercial
  - Advantaged provider with patent (monopoly)
    - VC can't infringe IP
- Gov't: Market and Requirement
- The Gov't lacks detailed control of product design/performance and delivery schedule





# Shark Tank Round 3: Legacy DoD

- Welcome to Shark Tank Round 3
  - Monopsony/Monopoly
- Commercial Sharks leave the set; Navy Sharks enter
  - Acquisition Program Manager (APM)
    - VC has intimate product control
- Navy sharks **want** to provide very large VC
  - Massive unique monolithic system
- Sharks “please bring me a product that meets my requirements”
  - One or two entrepreneurs capable of executing



# Shark Tank Round 3: Legacy DoD

- Sharks –
  - interview entrepreneurs
  - massive contract awarded - with many years of orders – and profit
  - a very broad **license** to the product (defined in DFARS 252.227)
  - Diminishes entrepreneur's control IP – protect public investment
  - ***“We are the monopsony – and you will be our monopoly”***
- Minimize **Fuel the Fire** – in favor of **Monopoly Control**



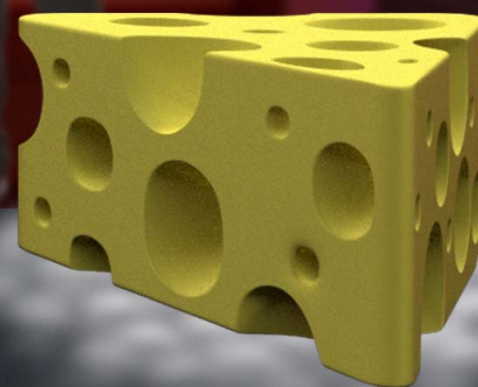
# Shark Tank Round 3: Legacy DoD

- Entrepreneur
  - “Here’s a technical and management approach.”
  - “Here’s a winning NRE and Production Price.”
  - “I will provide the requested IP license rights.”
- Sharks
  - “Deal!!”



## Not so fast...

- Entrepreneur loves orders and profit
  - But wants a **sustainable business!!**
- Entrepreneur interweaves DoD-VC funded components with
  - Independent Research and Development (IRAD)
  - Small Business Innovation Research (SBIR) products
  - Internal Trade Secrets
  - Customized commercial components
- Delivers a **Software Tapestry**
  - Disclosed only to the extent required in the contract (not too much...)
- Entrepreneur enhances IP position – attempt to limit competition



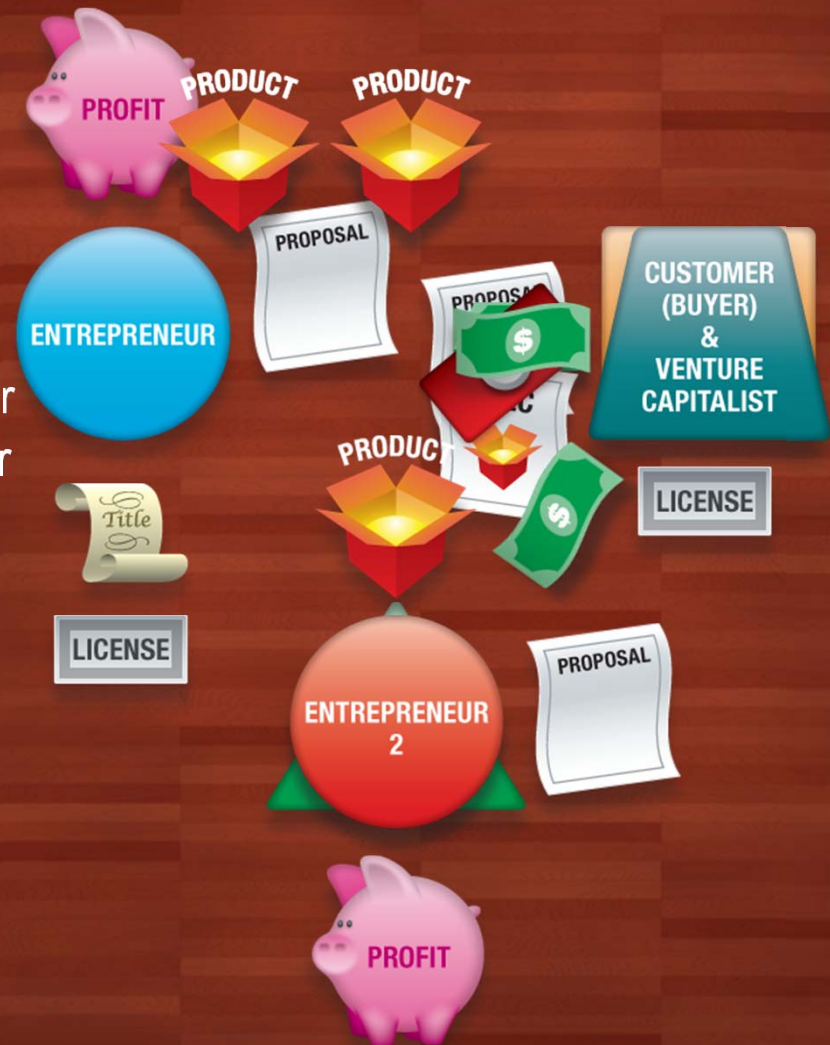
## We Will Compete This...

- The Sharks run a follow-on competition – for Massive Monolithic System
  - Tapestry of IP disclosed to another entrepreneur
  - Second entrepreneur not burdened with **Expensive IP Creators** – WINS!
- The monopsony replaces the monopoly – with another
  - People that created the original IP lost or discouraged
- New entrepreneur begins to perform
  - IP tapestry requires many 'do-overs'
  - Additional VC
    - Need to invest in new IP Creators
    - Need to invest in new facilities



# Market Operation

- Two Party Transaction
  - Monopsony/Monopoly
- Entrepreneur builds Tapestry
- Gov't runs competition – undeterred
- Second source defeats original manufacturer
  - License agreement displaces entrepreneur
- Gov't invests VC to stand up new source
- **This is the world most of us live in!**



# Shark Tank Round 5: The SBIR Transaction

- Welcome to Shark Tank Round 5
  - DoD buying small components – as if in an Open System Architecture
    - Product might be one of a set of severable modules
  - Monopsony/Free-Market
    - One buyer – many sellers
    - **Different behavior by monopsony**
- Navy Team remains on the set – but splits into two groups
  - Acquisition Program Manager (APM)
    - Intimate control of product development
  - SBIR Program Manager – these are the Sharks now!
    - VC small business partner

# Shark Tank Round 5: The SBIR Transaction

- Sharks:
  - Small module within an OSA
  - Small business survives on IP
  - Not concerned that you will become a monopoly
    - Can replace your component with small amount of VC
  - Need to **fuel the fire of genius**
    - Offer to you SBIR Data Rights for your product
      - Use your product within the Government,
      - Won't share it with your competitors
      - 5 Years from completion of effort
    - Please bring me an innovative solution
- Entrepreneur:
  - “Here is a innovative solution – within your budget and time constraint.
  - I look forward to working with you – and growing my small business!”





# Does SBIR IP Exclusivity Never End?

- Patents have expiration dates – from filing date
- SBIR data rights last for 5 years after the program **ends**
  - Loose definition causes angst
- Open Systems Architecture License Rights mirrors patent structure
  - From the 'filing' – contract award



# Small Business Innovative Research (SBIR) Model

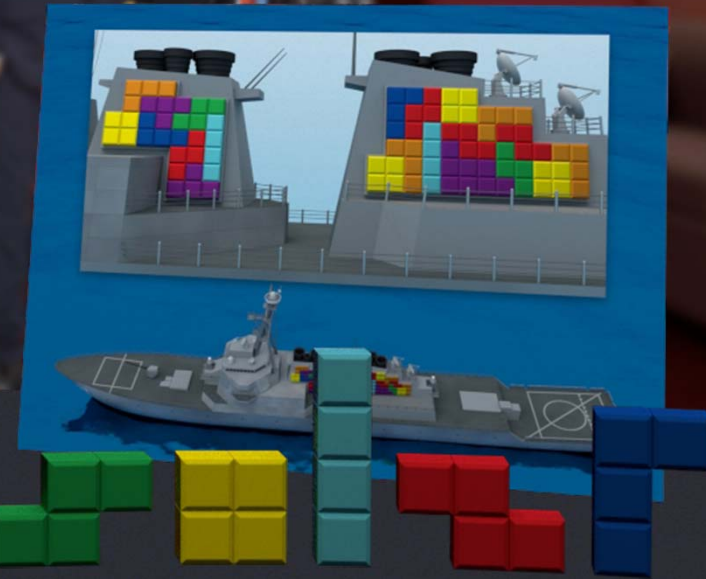
- Three Party Transaction
  - VC - SBIR PM
  - Customer – Navy Program Office
- Pieces small enough that their replacement VC is small; cost of IP transition exceeds alternatives from elsewhere



# SHARK TANK Round 6

## The Open Systems Architecture Business Model

- Welcome to the 6th and final round of Shark Tank
- Navy Team remains on the set
  - Acquisition Program Manager (APM) – The Shark
    - Acts as VC - SBIR PM, and
    - Customer – Navy Program Office
  - VC is acquiring a **set of modules**
  - Many participants means less chance of monopoly
    - Behave like SBIR PM



# SHARK TANK Round 6

## The Open Systems Architecture Business Model

### Sharks:

- Executing OSA Business Model
  - Infrastructure acquired separately from modules
  - Technology Blueprint provides for integrate/ federated set of modules
    - more than three, but less than a dozen
    - Small modules can be replaced with small VC
  - Allowing small monopolies – as the risk of this is low!
- Fuel the Fire dominates Monopoly-Control



# SHARK TANK Round 6

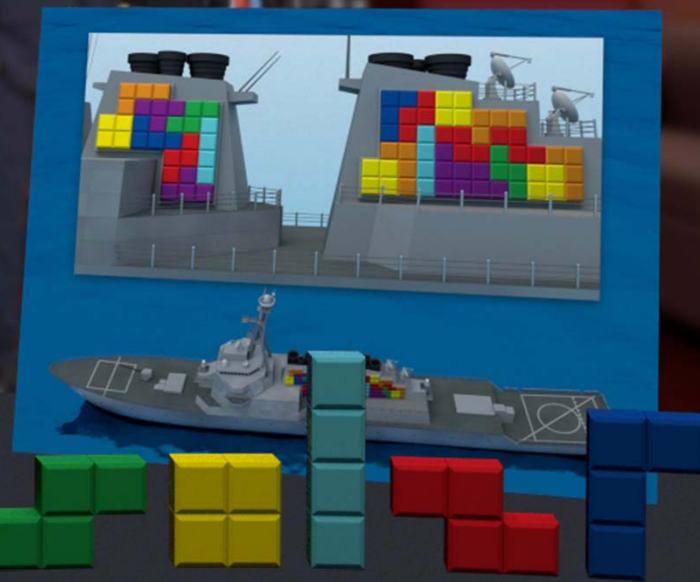
## The Open Systems Architecture Business Model

- OSA analogous to Apple® and Android® open environment, or the Ford Sync.
  - system architectures distinct from small applications acquired
- We have established this type of system architecture across each of its mission areas, with initial success in
  - USW Combat Systems, CANES, FACE, Surface Combat Systems, Unmanned Aircraft Systems Ground Control Segment (UCS), and others.



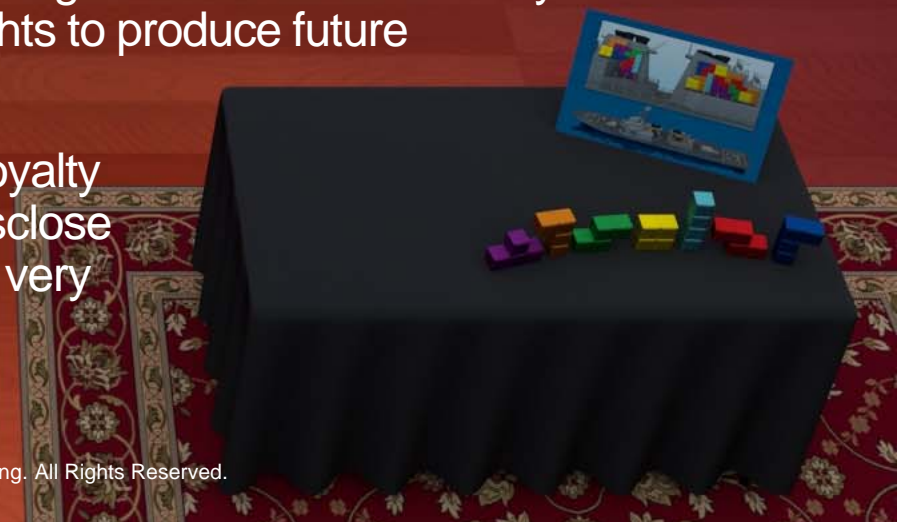
# Toward a New Future

- Using OSA, DoD can allow the entrepreneur to have limited IP exclusivity
  - Mirrors SBIR Data Rights
- “Open Systems Architecture License Right” (OSALR).
  - Government accepts limited, rather than unlimited or GPR
  - Entrepreneur accepts responsibility for contributing to an open architecture.
- In this way a new win-win arrangement is established in the public-private marketplace



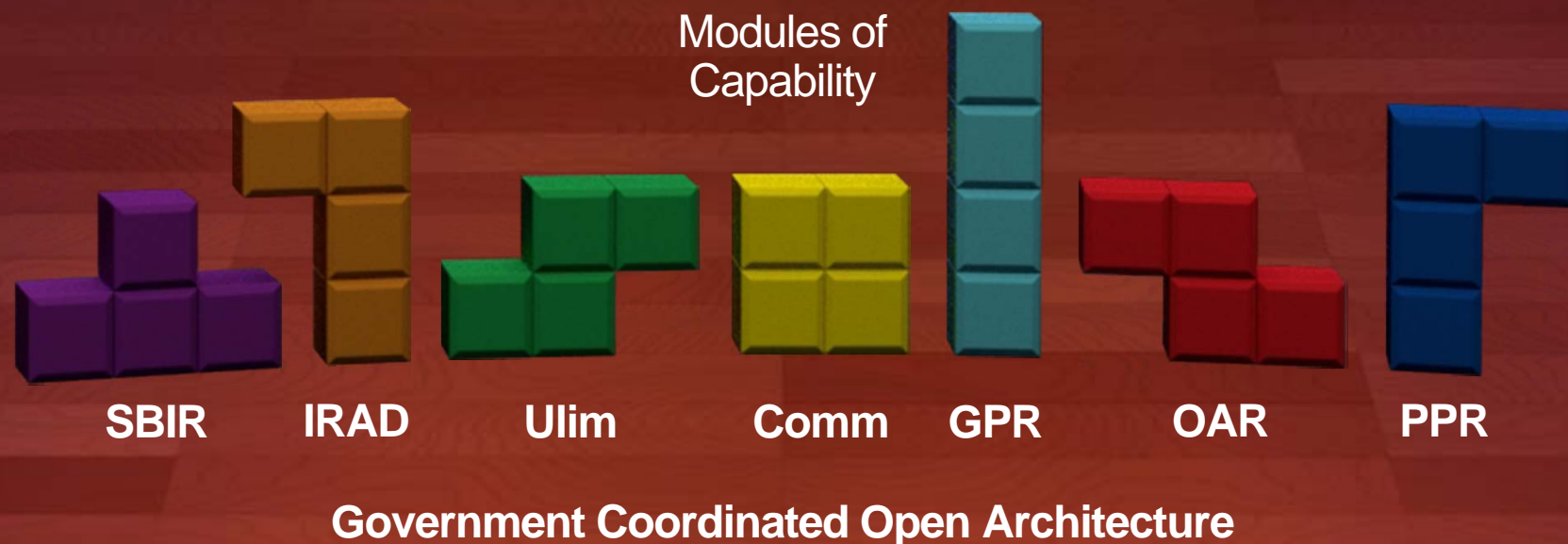
# Open System Architecture License Rights

- The Government may not release or disclose OSALR data to any person, other than its support services contractors, except as expressly permitted by the Vendor
- The Government may use OSALR data for government purposes only
- The Government cannot disclose the data outside the Government for a specified period of time subsequent to program completion
  - 10 years from initial contract award
- The OSALR firm retains: “rights to data generated by the concern in the performance of an OSALR award”
- The Government will not use anything other than the external characteristics of the module (information associated with segregating it from the rest of the system or reintegrating a replacement) with OSALR rights to produce future technical procurement specifications
- The Government receives a nonexclusive, royalty free license in technical data, but may not disclose them during the protection period, except for very limited purposes



# Open Architecture Acquisition - Results

- An ecosystem where the Government acquires a system that is comprised of severable modules
  - risk prudently replaced with independently derived solutions.
- A broad mix of IP licenses is supported and innovation from a variety of sources is rapidly and affordably integrated and delivered





# Open Architecture Acquisition Approach

- Free Market OSA Variant
  - Three Party Transaction
- Technology Blueprint provides for small low-VC replaceable modules
- Fuel the Fire >>> Monopoly Control
- OSALR Data Rights mirror SBIR Data Rights



# Conclusion

- DoD is a monopsony (single buyer)
  - procures monolithic systems
  - produces large monopolies
    - License Rights used to control monopoly
- OSA Business Model replaces monolith procurements
  - Pursue federated modular approach
  - Open Systems Architecture License Right (OSALR)
    - mirrors SBIR license arrangement
    - Expires 10 years from Award
- “Fuel the fire of genius” to build next generation DoD capability