



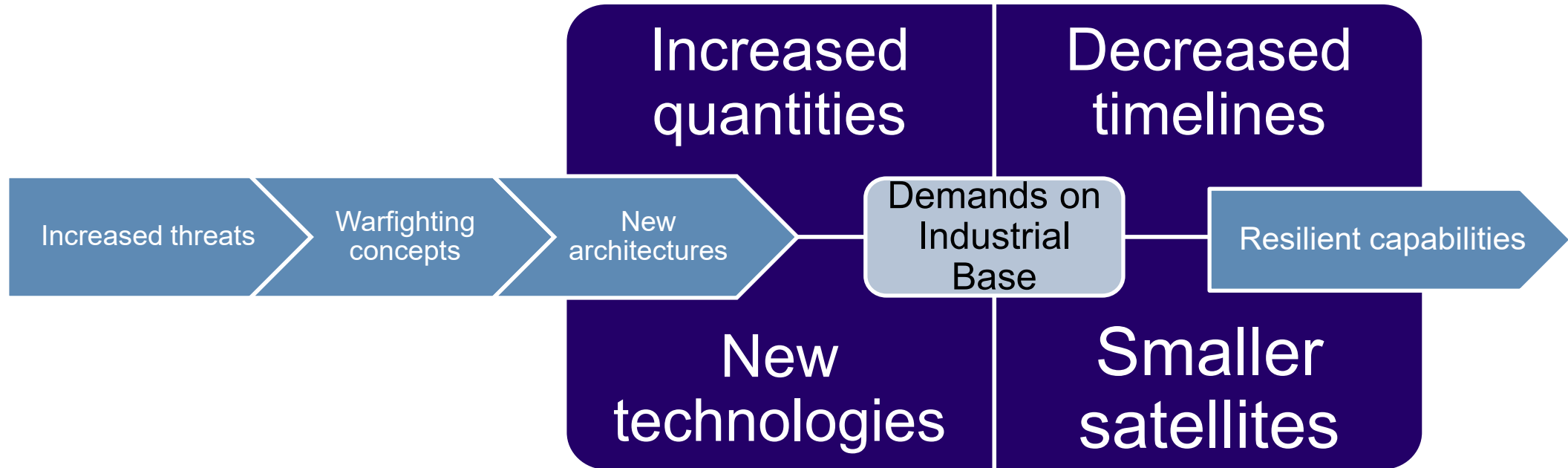
# ***Balancing Operational Utility and Repeatability for Defense Space Systems***

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Symposium and Innovation Summit***

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# Drivers Behind the Shift in Defense Space Architecture

*LLCs are critical to meeting threats and delivering capabilities*



Acronyms:

LLC – large LEO Constellations

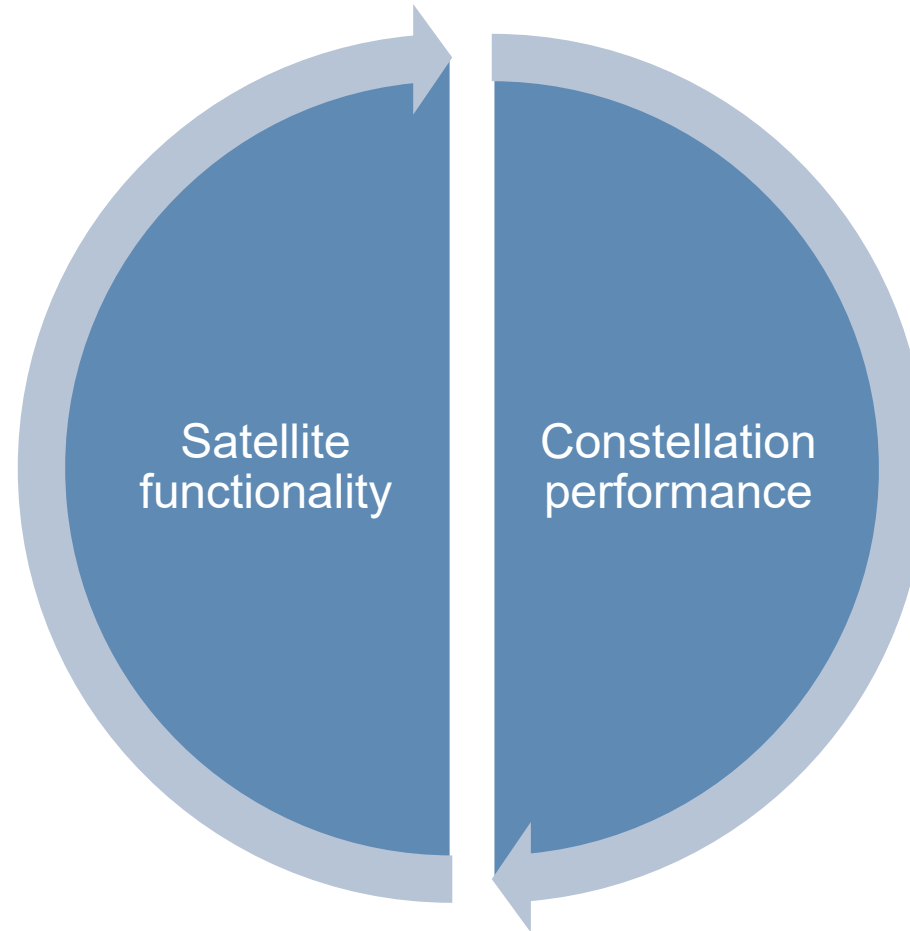
LEO – low Earth orbit

**Current acquisition programs and plans represent a long-term commitment to a new space architecture**

# Demonstrating Operational Utility

Requires striking balance between unit- and system-level functionality

- Up-front acquisition decisions—satellite quantities and vendor competition—have a significant impact
- Managing constellation performance becomes more complex as the number of individual vendors increases

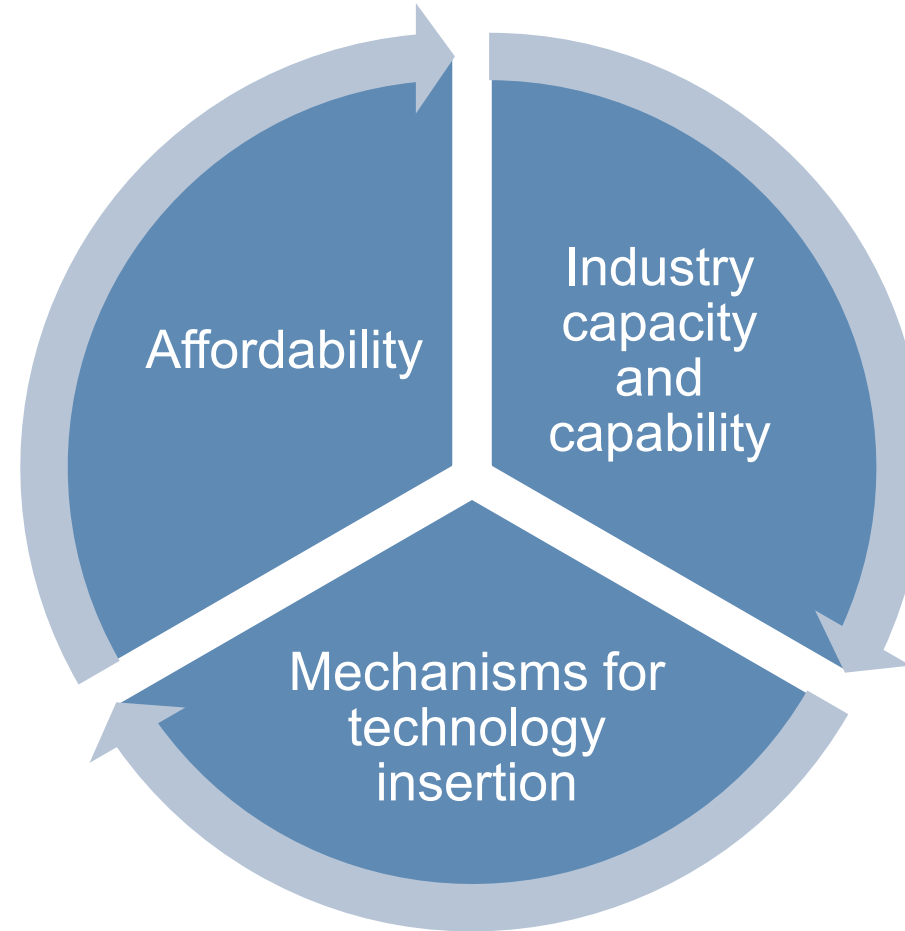


**LLC approach makes effective prototyping at-scale essential but increases prototyping challenges**

# Demonstrating Repeatability

Acquisition success must be measured over time

- Controlling cost
- Ensuring vendors are willing to pursue and able to execute contracts
- Providing opportunities for upgrades

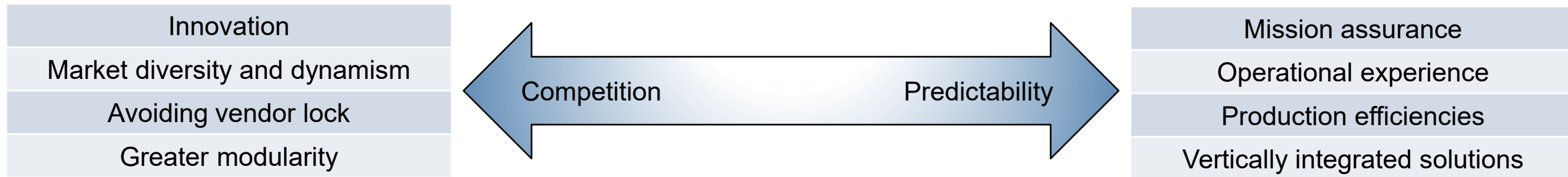


**Emphasizing repeatability helps ensure operational continuity**



# Another lens: Competition and Predictability

Goals may pull program officials in different directions



The relative importance of these goals may vary with changes in strategy, urgency, or operational needs



# Effective Scaling through High-Volume Production

LLCs enable satellite manufacturers to leverage lessons from other sectors

- Low-volume production (LVP) of satellites—often 1-20 units—utilizes customized, labor-intensive manufacturing techniques often performed by specialized personnel.
- High-volume production (HVP) of satellites—50-100 units or more—borrow principles from the automobile, commercial airplane, and consumer electronics industries to rapidly and efficiently manufacture satellites by relying more on processes than personnel to achieve quality and consistency.

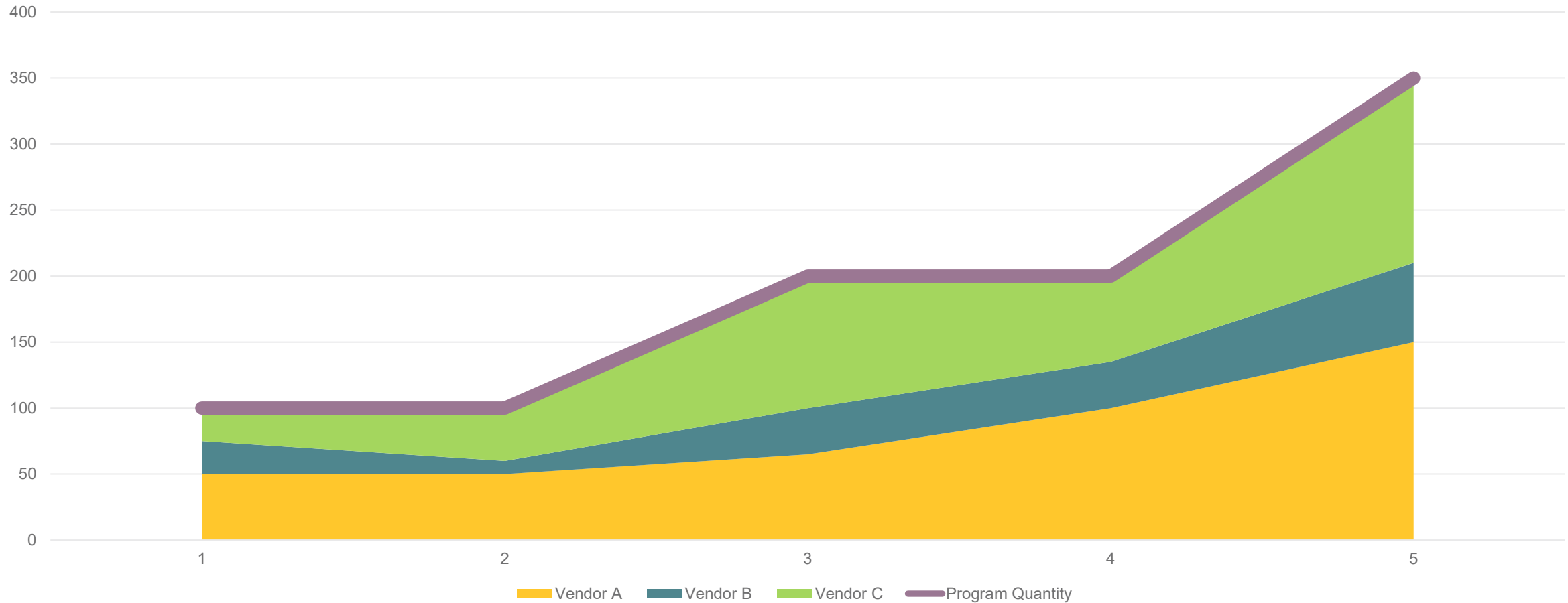
**Companies that reach and sustain high-volume production will have a significant advantage over competitors**

# Notional Example: LLC Fielding and Vendor Competition

Vendors can incrementally increase production to match anticipated demand



Contract Quantity by Vendor

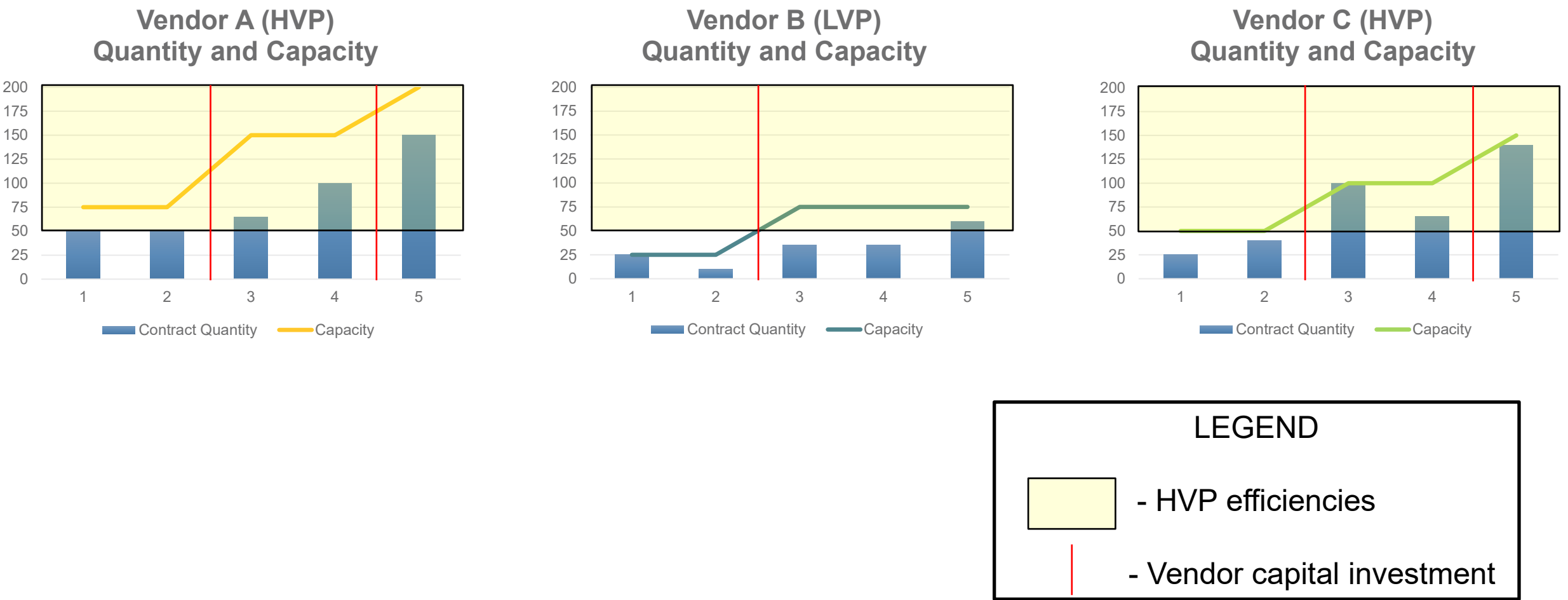


**Steady increase in demand quantities supports industrial base investments**



# Notional Example: Vendor Competition and Business Cases

Competition requires that companies weigh investments against expectation



Even at LLC scale, competition and production efficiencies will run into constraints



# Strategies for Achieving Balance and Building Resilience



- Create tiers of competition for potential vendors
- Connect low-volume producers with scaling opportunities
- Invest in diversity across tiers

**Employing a mix of strategies will help promote industrial base resilience and dynamism**



***Thank You***