


# Cost Drivers of Human Systems Integration

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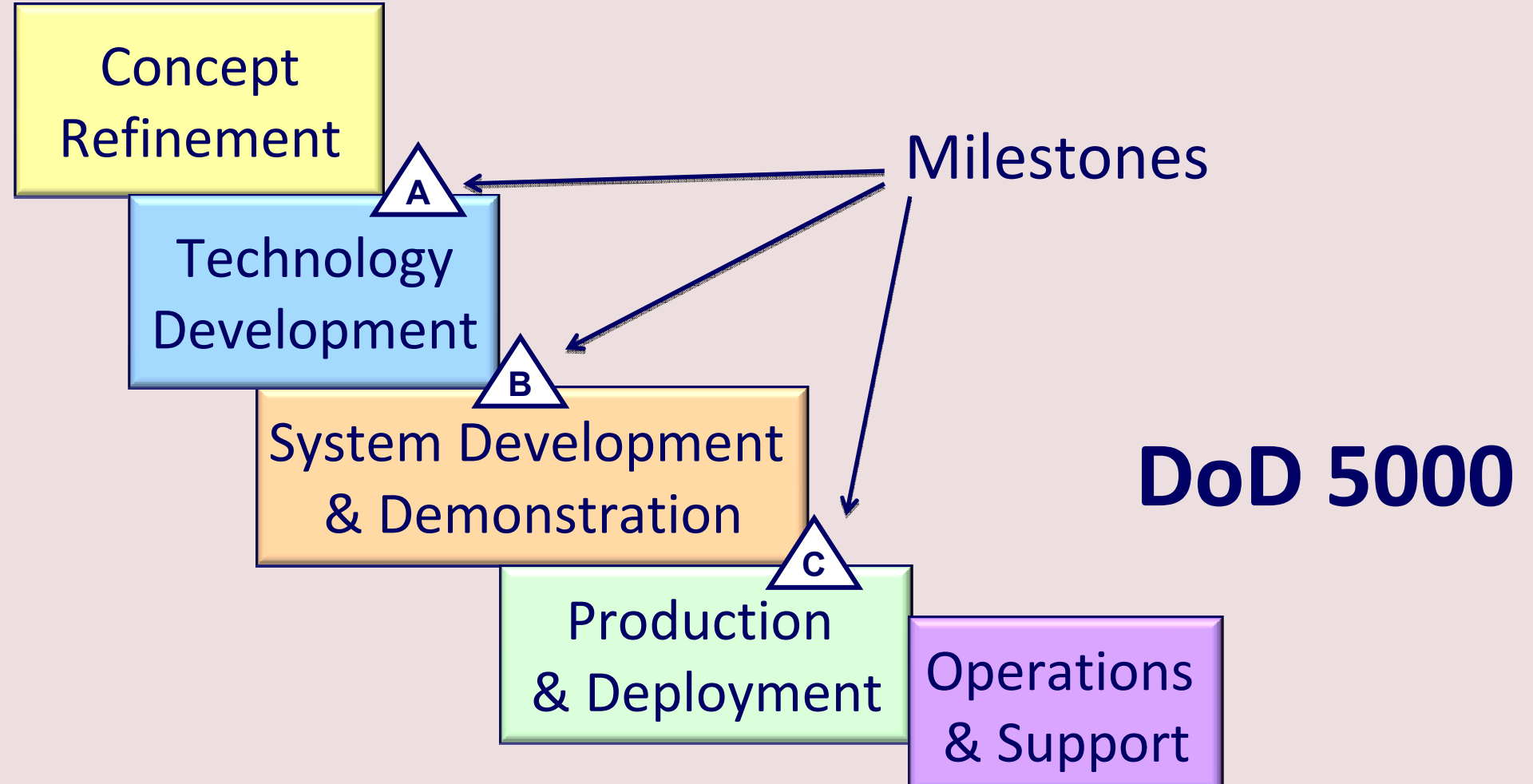


**Biography**  
Kevin received a B.S. in Electrical Engineering from the U.S. Naval Academy in May, 2008. He commissioned as a 2ndLt. in the U.S. Marine Corps. He has worked at the National Institute of Standards and Technology (NIST) and at Johns Hopkins Applied Physics Lab (JHUAPL). His current research interests include cost estimation and human-systems integration.

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## Scope

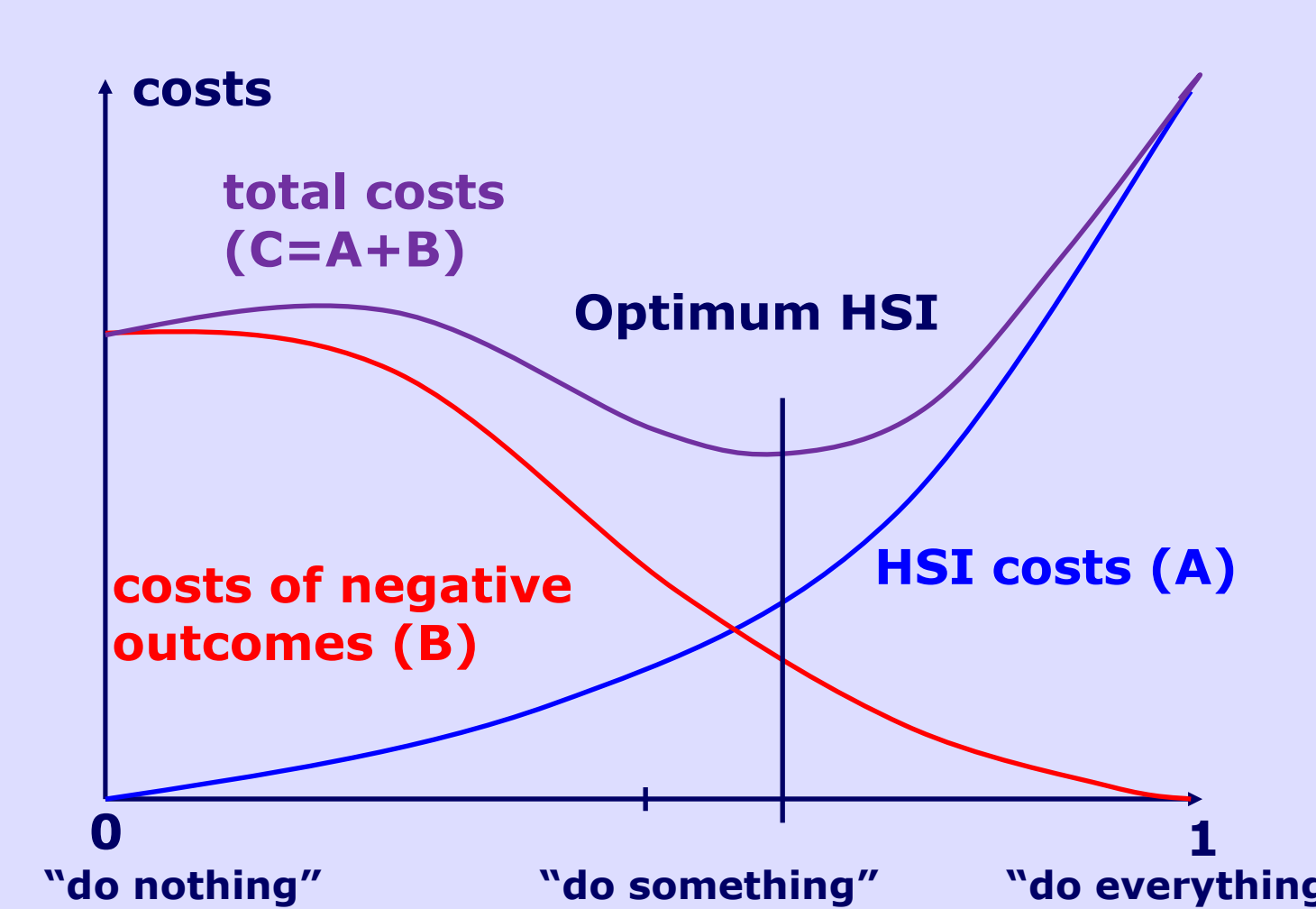
- DoD Interest in HSI
- Critical during all Phases of a Program
- Research Sponsored by Air Force Human Systems Integration Office



**DoD 5000**


## Problem

- Negative impacts of **not enough/too much** HSI:
  - (1) **Unsafe/unusable systems**
  - (2) **Poor use of human resources**
- > Result: **High Costs**
- Needed: model to estimate costs in both HSI domains



## Validation

- Case Study, Pratt & Whitney F119
- Engine, Air Force F-22 Raptor
- Successfully incorporated HSI into development



## Research Questions

- (1) How did P&W determine how much effort to use on HSI?
- (2) What planning mechanisms were used to allocate resources to HSI?
- (3) How did HSI fit into the larger Systems Engineering picture?

## HSI Domains

Development	Operations
- manpower	- human factors engineering
- personnel	- system safety
- training	- personnel survivability
	- health hazards