

# AI and Logistics

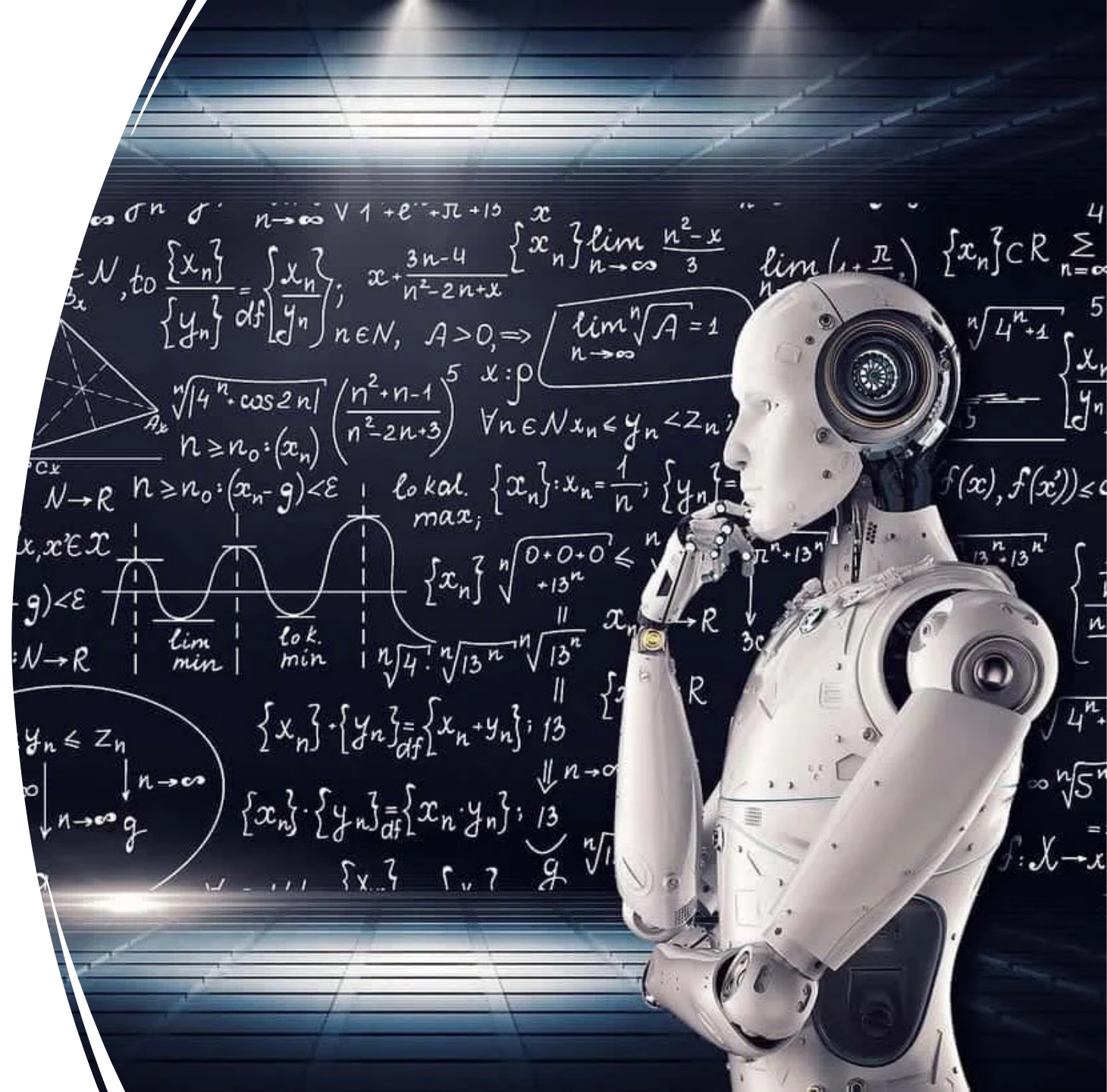
Harrison Schramm

16 Aug 2021

# Agenda

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- Introduction
- AI and Great Power Competition
- AI and Supply Chains
- Supply Chains and Great Power Competition
- Worked Example
- Insights
- Final thoughts
- Fin



# Introduction



Professionally Accredited  
Statistician

Retired CDR, US Navy

- Logistics Helicopters
- Operations Research

Principal Research Scientist,  
Group W

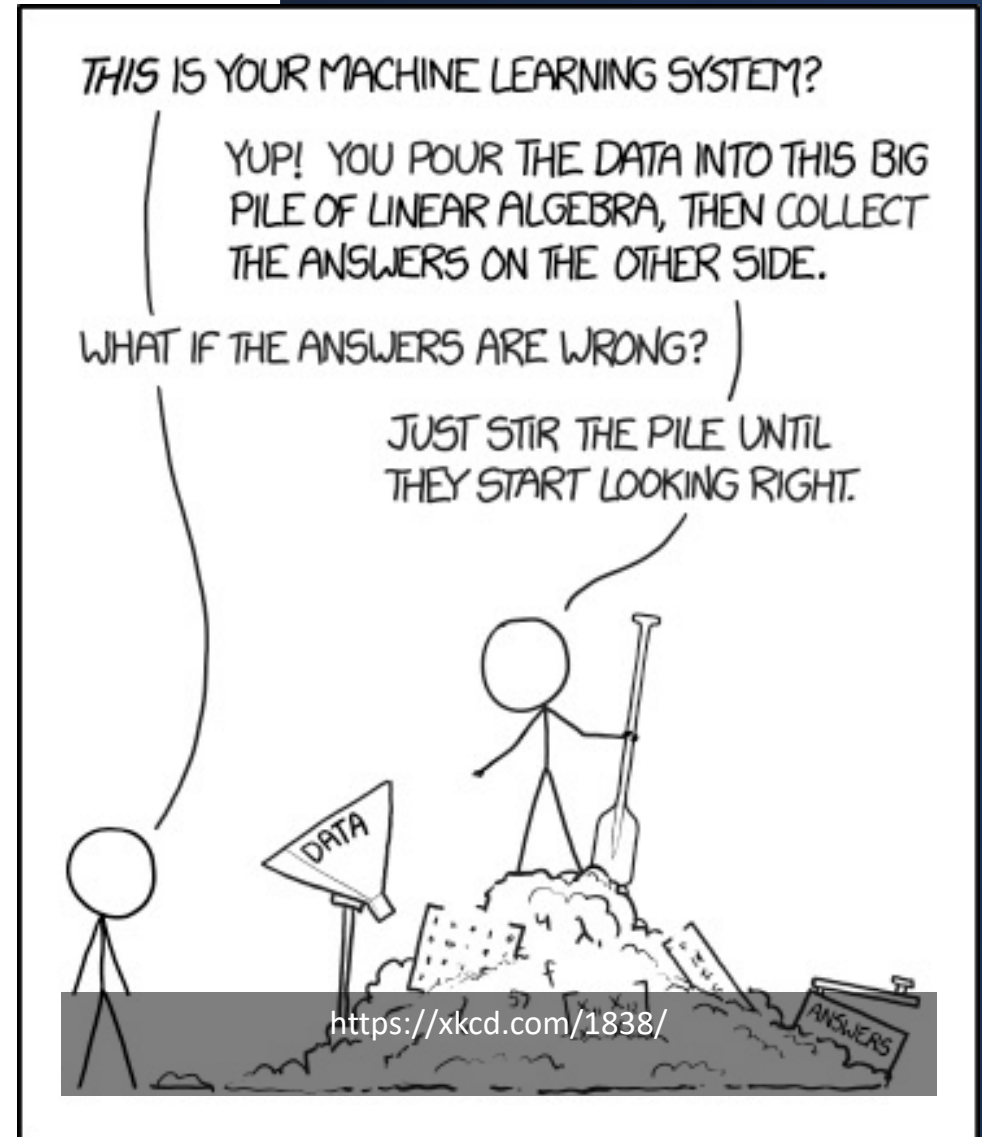
Intermittent Faculty, NPS

President, INFORMS Analytics  
Society

*I'll be speaking from a synthesis  
of these points of view during  
this presentation*

# But First – What are AI and ML?

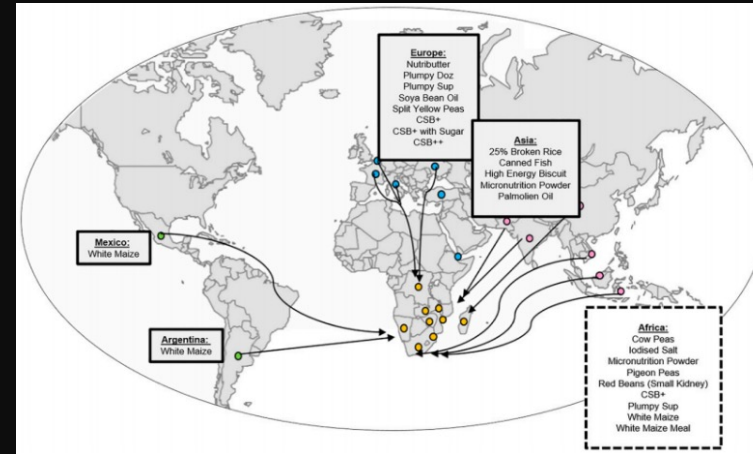
- No universally accepted definition
  - Narrow vs. General
- For our purposes:
  - Large Scale Inference
  - Computationally Intensive
  - Solves problems that previously were considered the domain of humans
- What we consider AI today may not be AI tomorrow
  - Aegis Cruiser?
  - Automatic Phone Switchboard
- How will this impact the future of logistics?





# Logistics, Supply Chains and AI/ML

- More data -> Different decisions
  - Why not 'better'?
- Future will blend what we know with what we predict
  - Anticipated needs
  - Anticipated disruptions
- All of these are contain implicit expressions of Risk



# Logistics, Supply Chains, and Great Power Competition

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- COVID has changed our thinking on Supply Chains.
- Prior to the current era, **efficiency** has been the key metric
  - Easy to measure
  - Easy to explain
- Post COVID, **resilience** will be the key
- How to measure that?



# AI/ML and Great Power Competition

- What's 'allowable' considers widely depending on national culture, history, and temperament
- United States – longstanding legal barriers to certain use cases
- Other nations *not so much*
- The US Remains committed to the Ethical use of AI





*As authoritarian states field new AI enabled military systems, we are concerned that they will not be constrained by the same rigorous testing and ethical code that guide the U.S. military.*

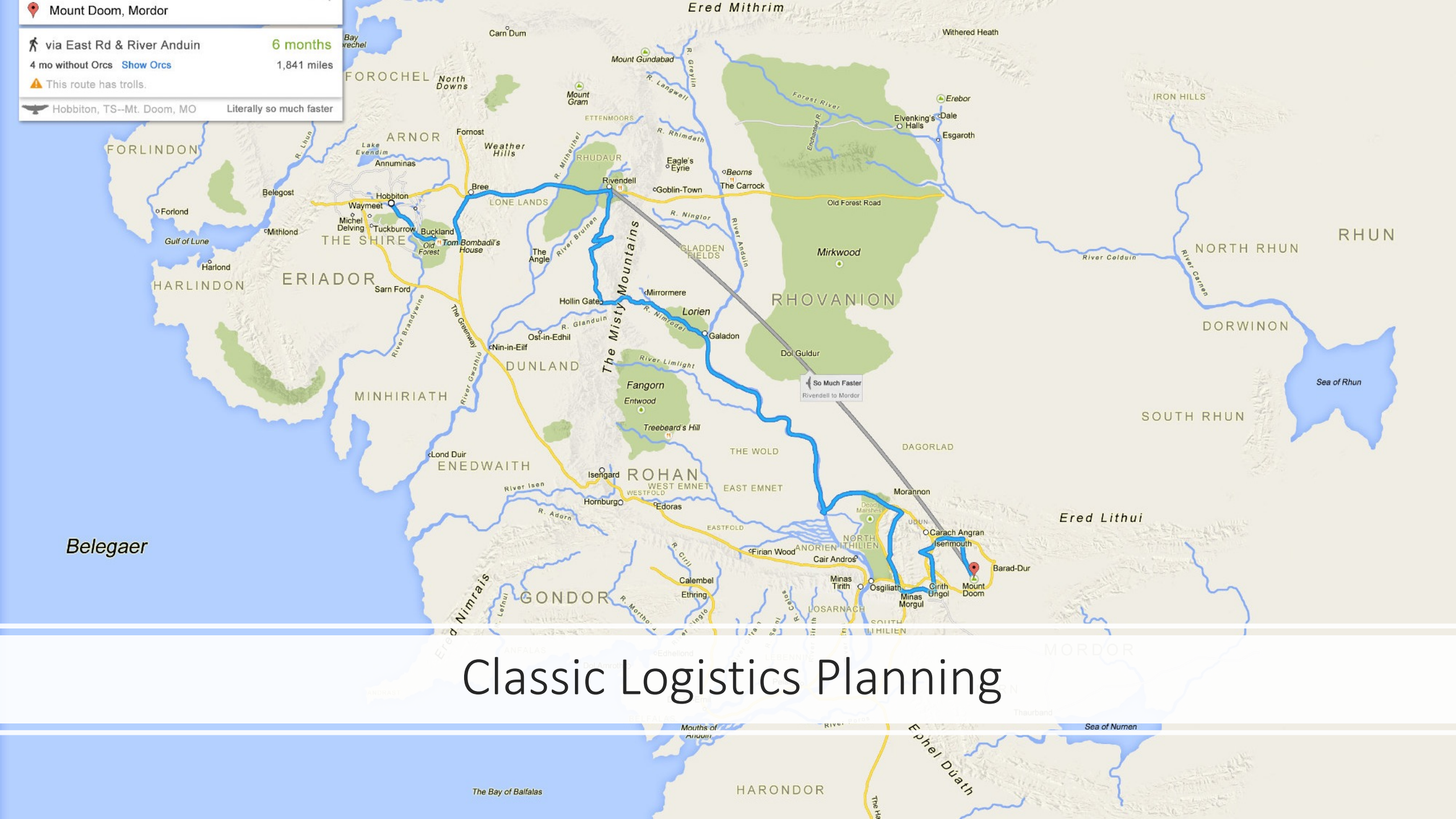
NATIONAL  
SECURITY  
COMMISSION  
ON ARTIFICIAL  
INTELLIGENCE



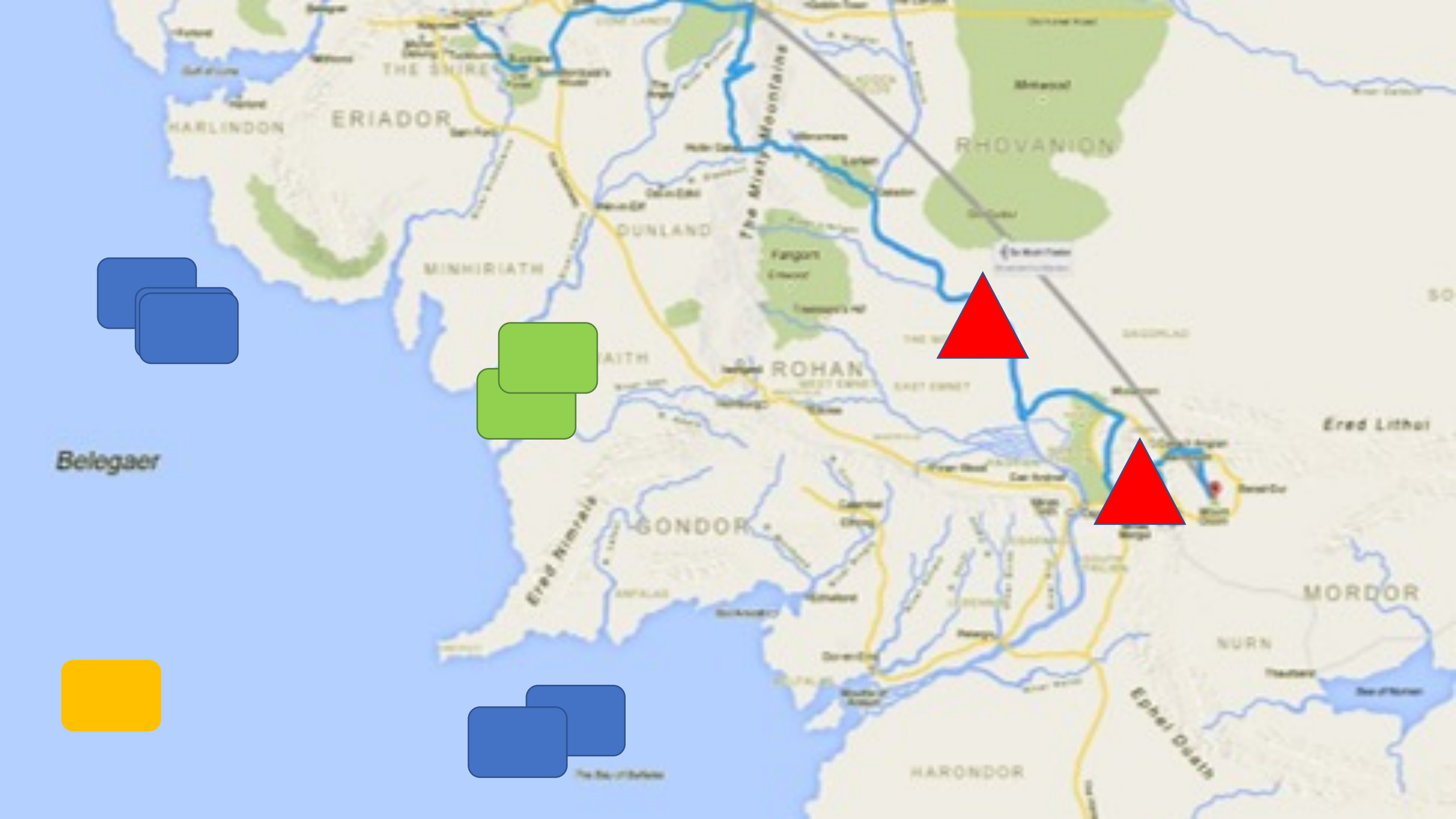




 **Mount Doom, Mordor**  
 via East Rd & River Anduin **6 months**  
 4 mo without Orcs [Show Orcs](#) 1,841 miles  
 This route has trolls.  
 Hobbiton, TS--Mt. Doom, MO Literally so much faster



# Classic Logistics Planning



Belegaer

HARLINDON

ERIADOR

MINHIRIATH

DUNLAND

ROHAN

GONDOR

RHOVANION

MORDOR

HARONDOR

Ered Lithai

Ered Nimrais

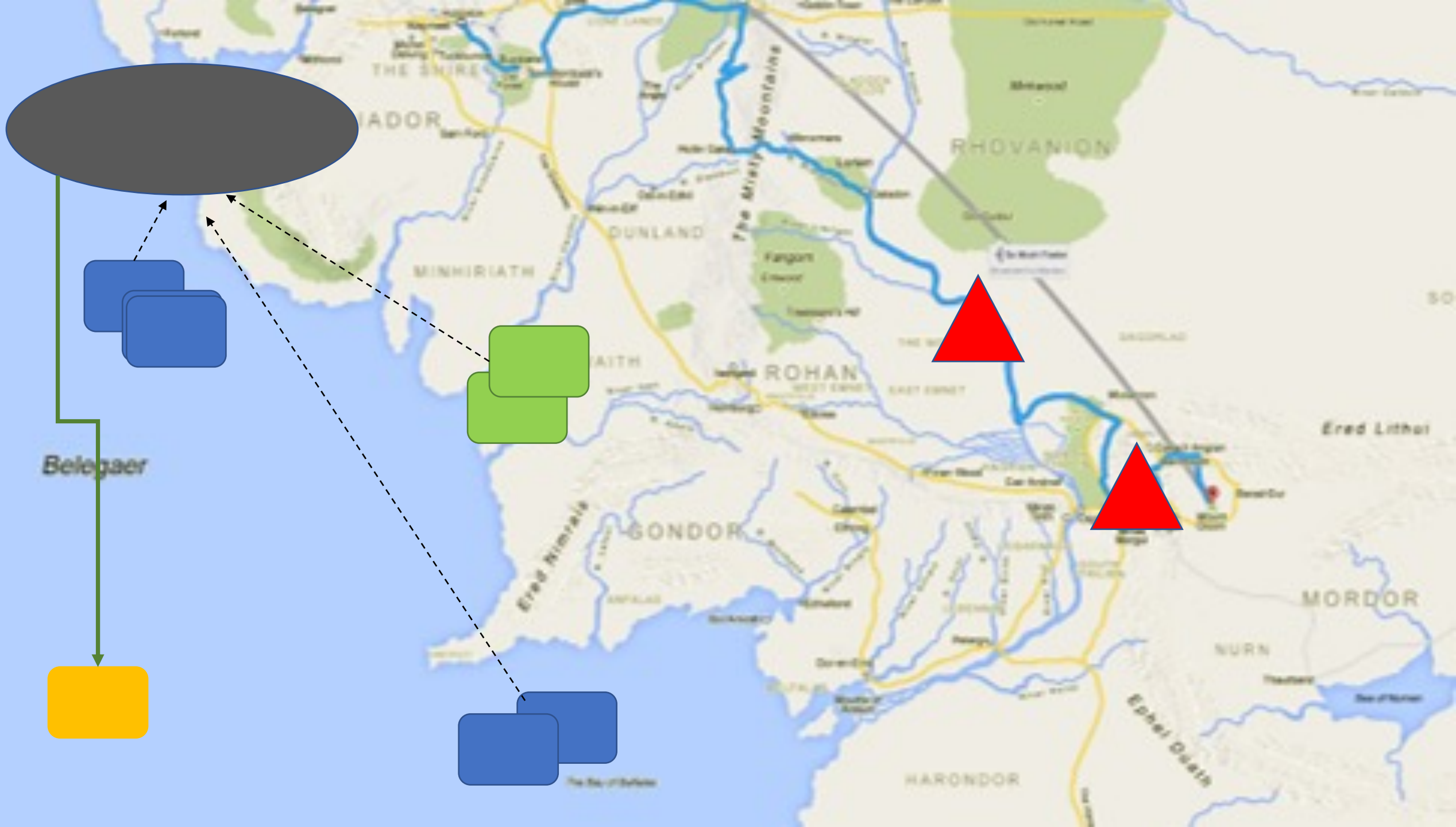
Ephel Duath

The Misty Mountains

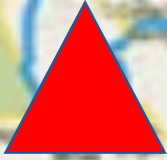
Sea of Nurnen

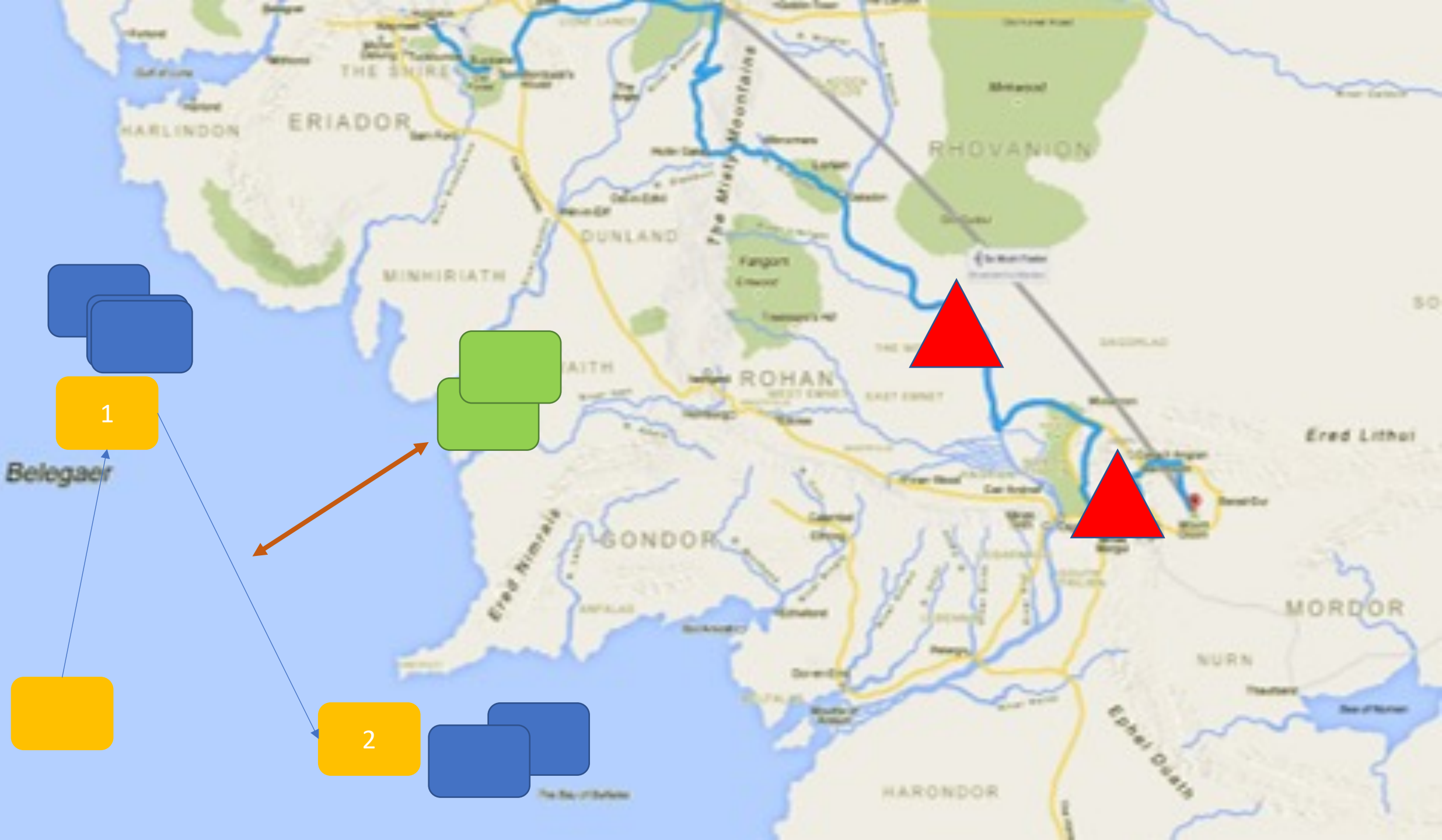
The Bay of Belfalas





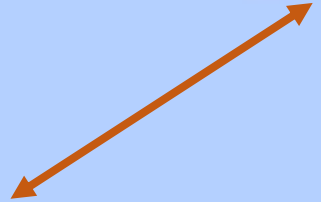
Belegaer





1

Belegaer



2





# Supply Chain Planning in an era of risk

The previous plan looks like the ones we're familiar with:

Everybody gets serviced

Prioritization is based on need

Risk to supply force is assessed to be minimal

It is *efficient*, in the sense that the minimum resources were expended to achieve the result of resupplying the force.

Depended on centralized control

Implicitly assumes maritime (and air) supremacy

*So what's wrong with it?*

# Risk as a dimension of Logistics Planning

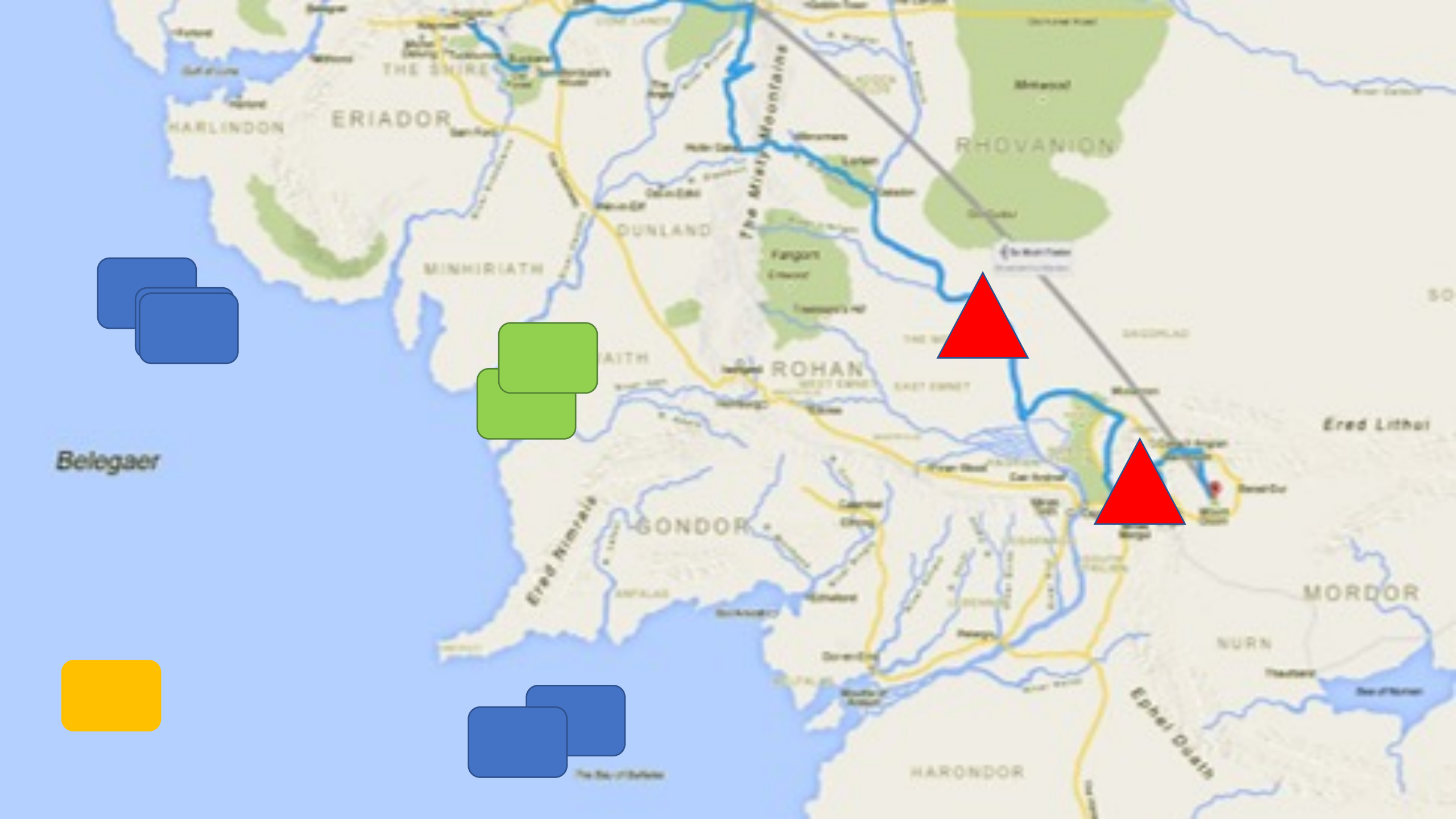
Future Scenario features include:

- No longer having unconstrained communications
- No longer having sanctuary of the seas
- No longer able to fully service all customers
  - Decision to service or not is a *risk decision*

**If your future scenario doesn't include cases where units are intentionally sacrificed by the logistics establishment, your scenarios aren't hard enough**







Belegaer



Belegaer

ERIADOR

MINHIRIATH

DUNLAND

The Misty Mountains

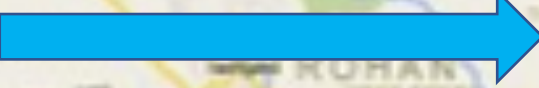
RHOVANION

ROHAN

GONDOR

MORDOR

HARONDOR







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RHOVANION

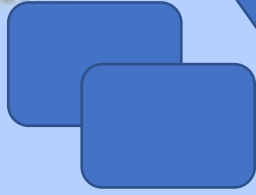
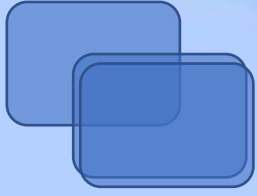
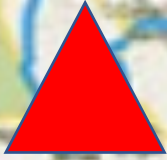
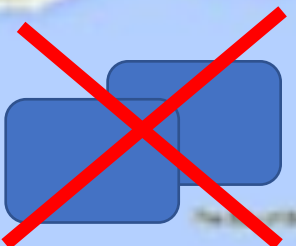
ROHAN

GONDOR

MORDOR

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# What are future supply algorithms really deciding?

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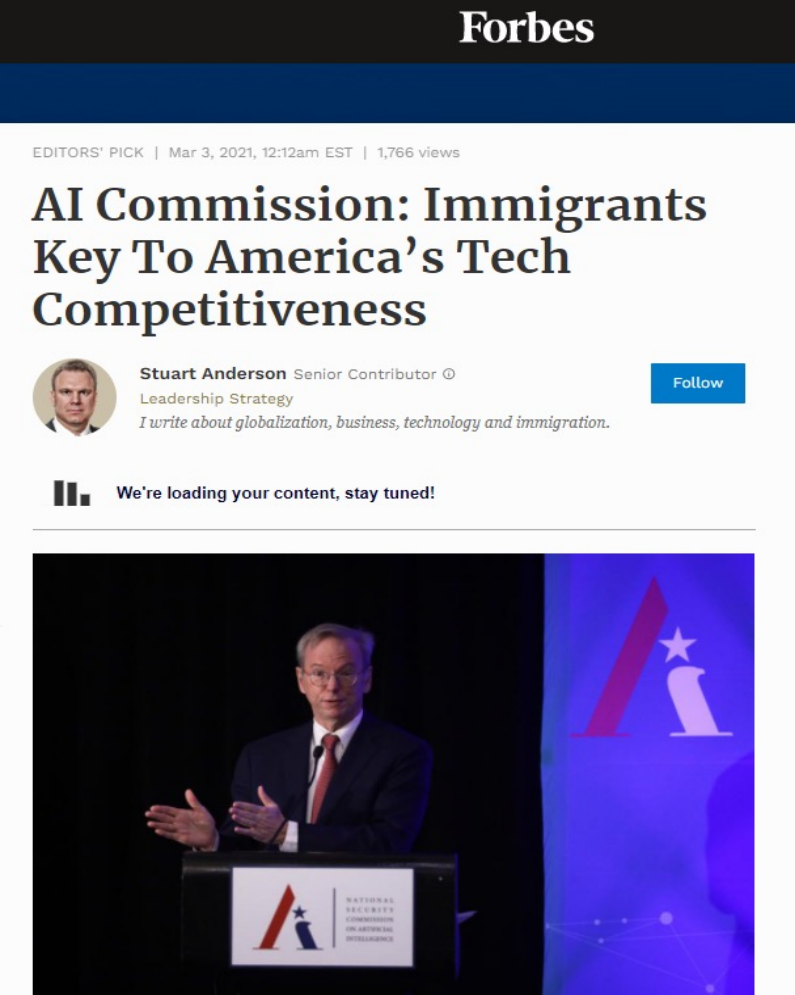
- Independently second-guessing combat requirements
- Deciding what is feasible / successful to supply
  - And what isn't
- Deciding who gets what ammunition
- Ultimately, it's deciding who lives and who dies.





# Final thoughts – Advanced Computing State of play

- Tension between Natural Intelligence and Machine intelligence.
- Societal implications
  - Ethics
  - Law
  - Policy
- Education and Immigration
- Talent Distribution




The image shows a screenshot of a Forbes article. At the top, the Forbes logo is displayed in white on a black background. Below it, a dark blue horizontal bar contains the text "EDITORS' PICK | Mar 3, 2021, 12:12am EST | 1,766 views" in white. The main headline of the article is "AI Commission: Immigrants Key To America's Tech Competitiveness" in a large, bold, black font. Below the headline is a circular profile picture of Stuart Anderson, followed by his name "Stuart Anderson" and his title "Senior Contributor @ Leadership Strategy". A blue "Follow" button is positioned to the right of his name. Below this information is a line of text: "I write about globalization, business, technology and immigration." A loading indicator consisting of three vertical bars is shown to the left of the text "We're loading your content, stay tuned!". At the bottom of the screenshot is a photograph of Stuart Anderson speaking at a podium. The podium features the logo of the National Security Commission on Emerging Technology, which includes a stylized red and blue 'A' with a white star. The background of the photo is dark with a blue light effect.


Forbes

EDITORS' PICK | Mar 3, 2021, 12:12am EST | 1,766 views

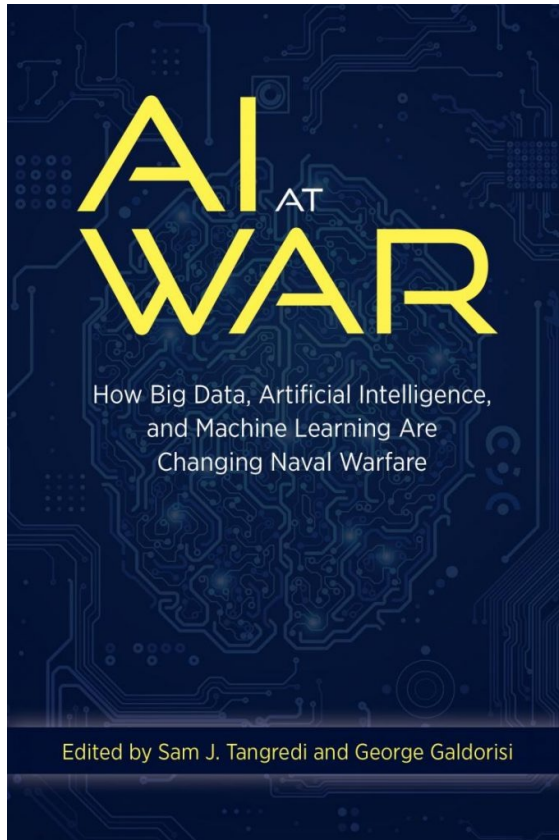
## AI Commission: Immigrants Key To America's Tech Competitiveness

 **Stuart Anderson** Senior Contributor @ Leadership Strategy  
*I write about globalization, business, technology and immigration.* [Follow](#)

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# Further Reading



**WAR ON ROCKS** National security.  
For insiders. By insiders.

EDUCATING THE FORCE ABOUT SIGN IN BECOME A MEMBER

**NATIONAL SECURITY**

## CAN WARFIGHTERS REMAIN THE MASTERS OF AI?

HARRISON SCHRAMM AND JEFF KLINE  
SPECIAL SERIES - AI AND NATIONAL SECURITY

FEBRUARY 6, 2020





Fin

