



Paula Dowell, PhD, AVP, Integrated Planning, HNTB, 15 June 2022



Jolene Hayes, AICP, Fehr & Peers, 15 June 2022



Caroline Mays, Texas DOT, 15 June 2022

Reimagining Freight

Marine Transportation First Impressions

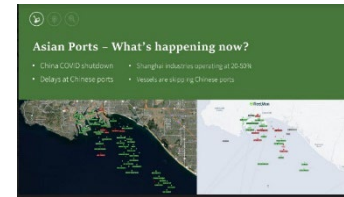
TRB Executive Committee Meeting
June 15, 2022

Martha Grabowski, Chair, TRB Marine Board

Reimagining Freight – Marine Transportation First Impressions

• Interconnectivity, Interfaces

- China, EU, US Ports, Asia, Africa
- Air-Surface-Undersea-Space maritime interfaces
- Gaps: Authorities, Governance, Physical & Digital Assets, Visibility, Predictability



• Life Cycle Digital Trade Dynamics

- Trade → E-Commerce → Digitization → Crypto → NFTs → Multiverse

• Technology – Autonomy, Human Element, DEI

• Venture Capital – Entrepreneurship, Pace of Innovation

• Macro Issues

• Geopolitics, Social Unrest

• Cybersecurity, Decarbonization

• Generational Educational, Workforce, Labor

- COVID-19, Direct-to-Work/Apprenticeships



Period	Balance			Exports			Imports			
	Total	Goods	Services	Total	Goods	Services	Total	Goods	Services	
2020										
Jan. - Dec.	-63,089	-913,885	250,856	2,358,051	1,432,218	726,433	2,812,640	2,346,103	466,537	
Jan. - Apr.	-381,951	-272,099	80,148	754,747	495,053	259,694	936,698	787,352	149,346	
2021										
Jan. - Dec.	-845,047	-1,090,296	345,248	2,556,638	1,763,364	793,273	3,401,685	2,851,660	550,025	
Jan. - Apr.	-262,915	-352,796	89,841	805,972	554,322	251,650	1,068,627	907,078	161,809	
2022										
Jan. - Apr.	-370,846	-449,384	79,137	957,263	663,528	293,735	1,328,110	1,113,512	214,598	



Potential Challenges of Emerging Freight Technologies				
Licensing	Regulation	Certification	Insurance	Equity
Data sharing	Workforce displacement	Security	Uncertainty	Cost
Continuity between manufacturers	Fall-safe systems / backups	Data generation and storage	The urban environment	Changing people's perceptions