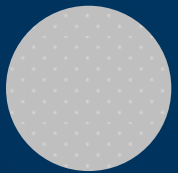


Identifying discrepancies in registrations within the supply chain - a study from the cod fisheries in Norway

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Discrepancies in the food supply chain

MIDDLEMAN
How seafood's "dark web" obscures fraud, fish laundering, and slavery on the high seas

ensis FISHERIES PVT. LTD.
New Oceana study shows seafood fraud widespread
By Cliff White
Published on September 8, 2016

from the ocean conservation advocacy group Oceana

Fishy business: tackling seafood fraud

Bait and Switch: The Fraud Crisis in the Seafood Industry
Consumers are overpaying and the government is losing out on tariffs—now federal agencies are cracking down.

The Economist World politics Business
Food crime
A la cartel
Organised gangs have a growing appetite
Mar 15th 2014 | From the print edition

DecisionAg
Food fraud: High roller of the crime scene
ALEX SAMPSON, The Weekly Times
May 28, 2017 4:00pm

TIME Health
Fish Fraud Is Absolutely Rampant: New Report
Alexandra Sifferlin
Sep 07, 2016
For more, visit [TIME Health](#).

There's something fishy happening in the seafood industry. According to a **new report** from the ocean conservation advocacy group Oceana, one in five of over 25,000 samples of seafood tested globally was **mislabelled**. That means people may purchase and consume seafood and fish that's not what they think it is.

The group looked at 200 studies from 55 countries for their report, which was

ST HENRI SHIRAZ 1888 VINTAGE

Double act: Australia's biggest wine company, Treasury Wine Estates, isn't immune to counterfeit attacks, with its coveted brands a target for copycat labels.

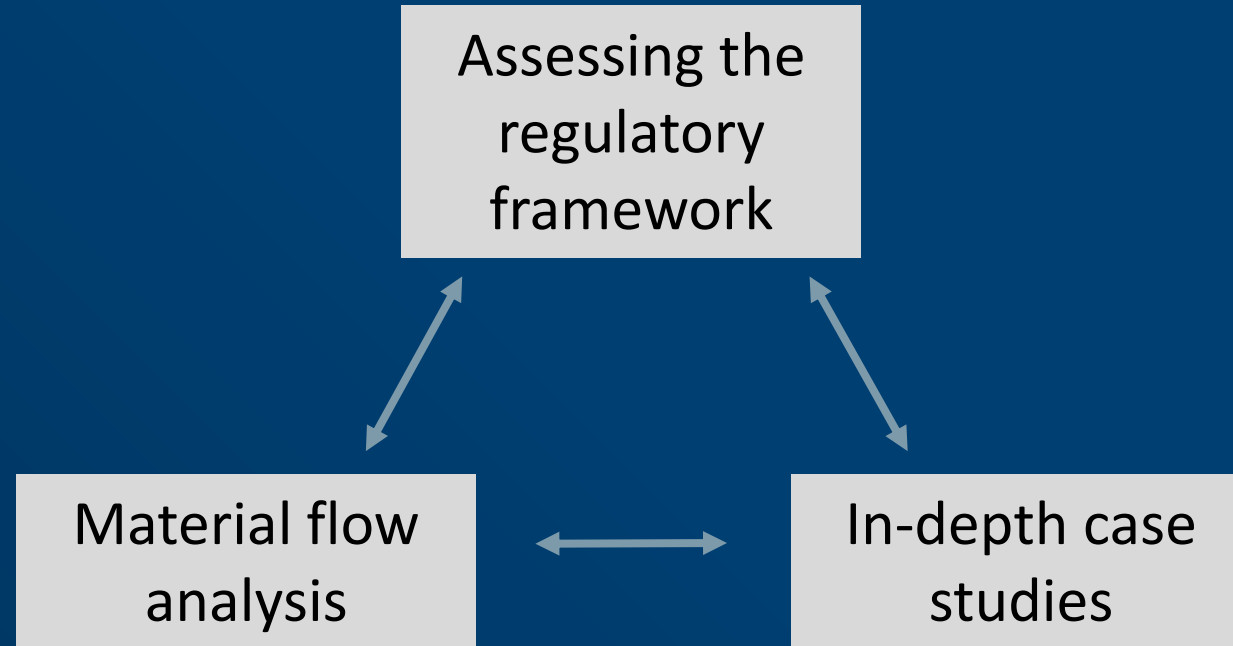
YOU know fake food is lucrative when the mobsters ditch drugs and weapons to traffic it.

Consider this: PricewaterhouseCoopers F-Secure TOTAL holder deg slikker og privat online. Prøv nå!

Discrepancies in the food supply chain



Mixed-method approach



Case study: the Norwegian cod fisheries sector

- Various studies indicates different levels of misreporting
 - Survey by Nofima in 2013 indicates 5% misreporting (Svorken & Hermansen 2013)
- Registered imports and landings do not match domestic consumption and exports – why?

Assessing the regulatory framework

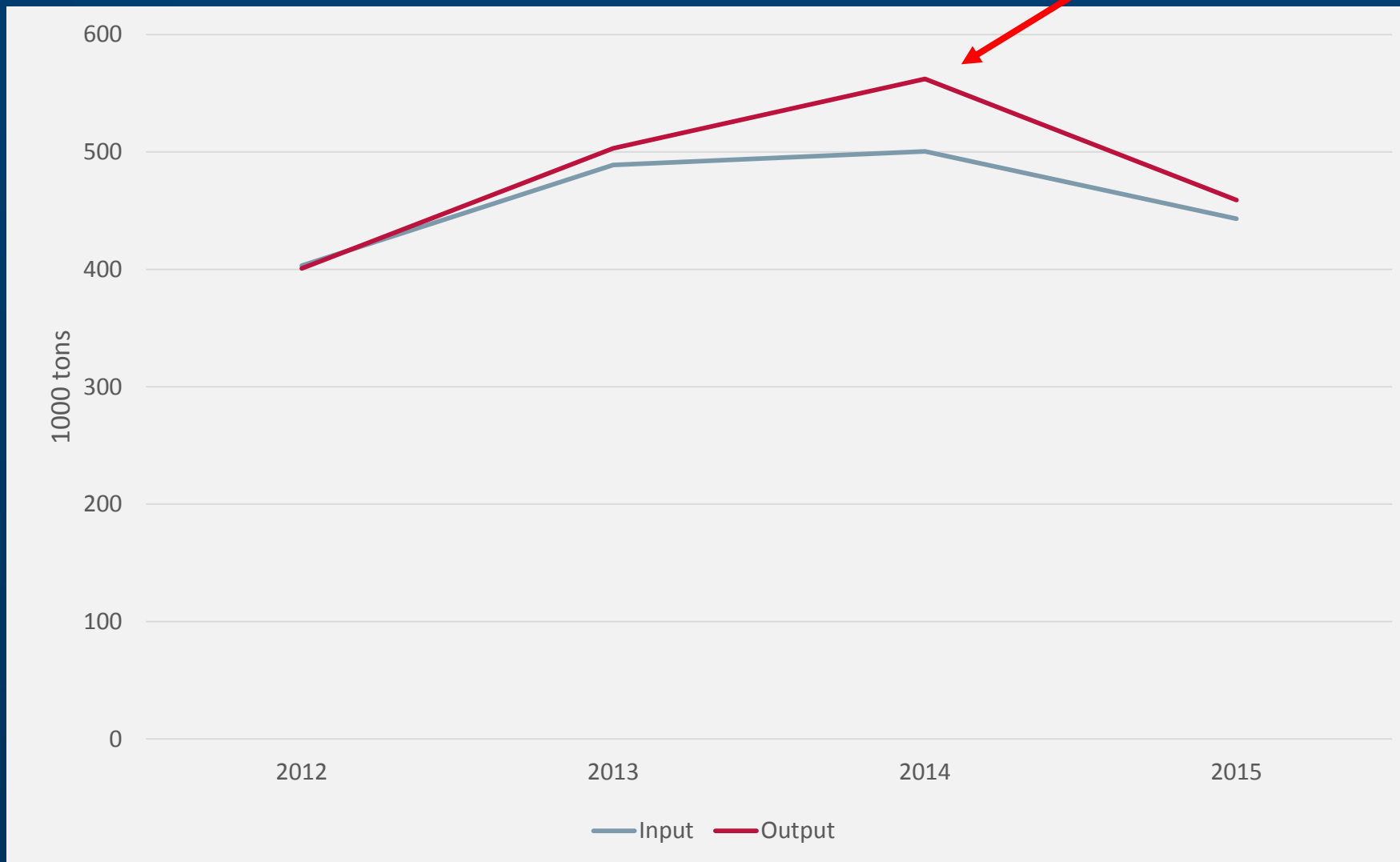
- Highly complex framework
- Gaps in crucial stages of the supply chain
- Overlapping registrations
- Mismatch between registrations
- Lack of coordination and cooperation between authorities on data sharing

Authority	<i>Fisheries directorate</i>								
Value chain	<i>Catch</i>		<i>Production</i>			<i>Transport/export</i>			
Information type	Electronic recording	Advance landing notice	Landing note	Landing report	Labelling and separation	Transport report	Catch certificate storage	Catch certificate production	Catch certificate export
Vessel identification	x	x	x	x	x				
Landing business ID	x	x	x			x	x		
Production county									
Sender ID									
Receiver ID									x
Landing date/time	x	x	x	x			x		
Species	x	x	x	x		x			
Product ID									
Product type ID									
Quantity	x	x	x	x		x		x	x
Catch date	x		x						
Catch area	x		x						
Gear type	x		x						
Quota ID	x		x						
Product form		x	x	x		x	x		x
Conservation			x						
Size grade			x	x		x			
Recorded weight			x	x					
Landing ID			x	x		x			

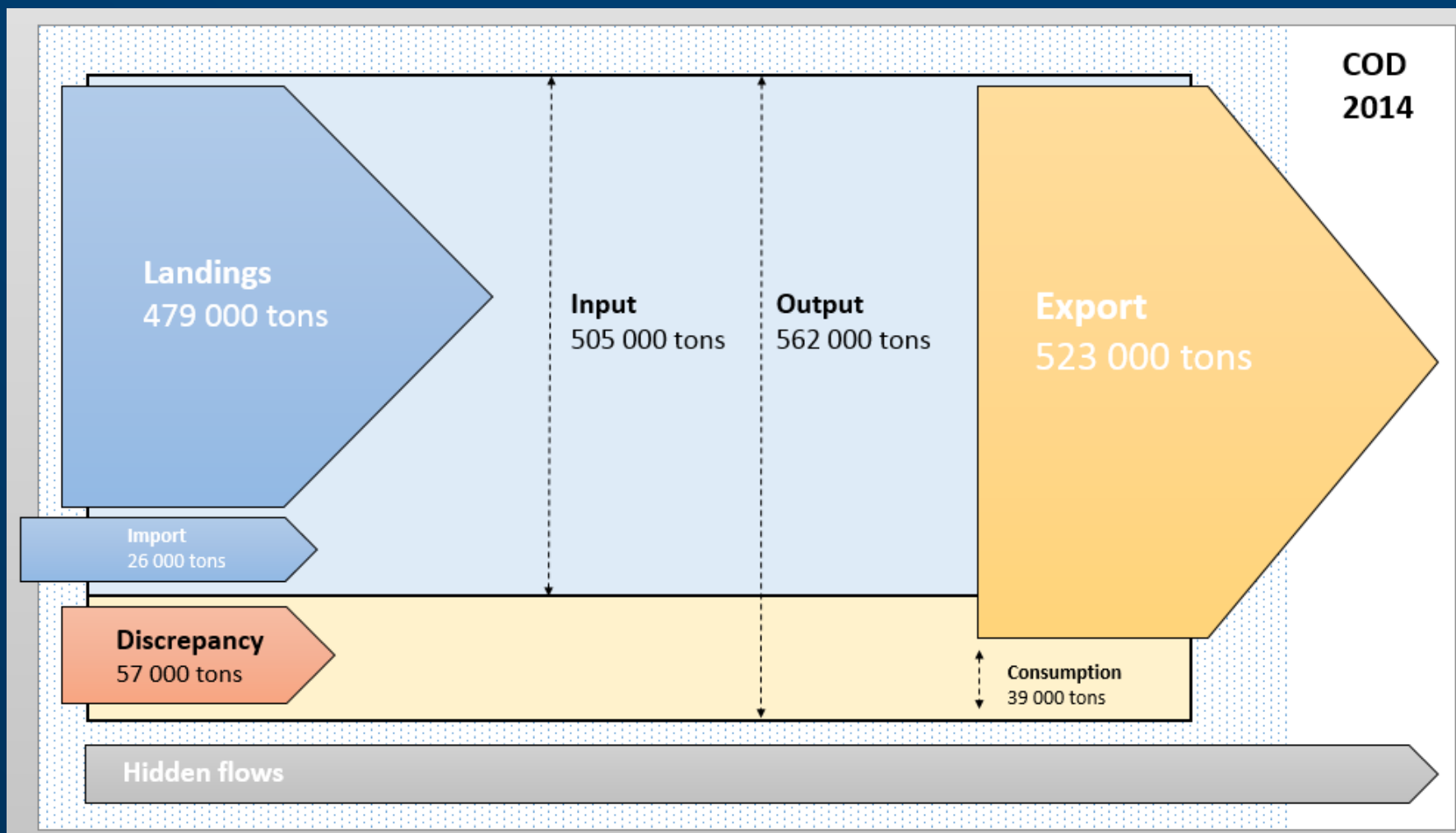
Material flow analysis

- Estimates difference between input and output in a defined system
- Norwegian cod fisheries – Landing/imports and consumption/exports 2012 – 2015

Material flow analysis



Material flow analysis



What causes a discrepancy?

Intentional actions

- Misreporting
- Dilution
- Mislabeled
- Substitution
- Counterfeiting
- Etc...

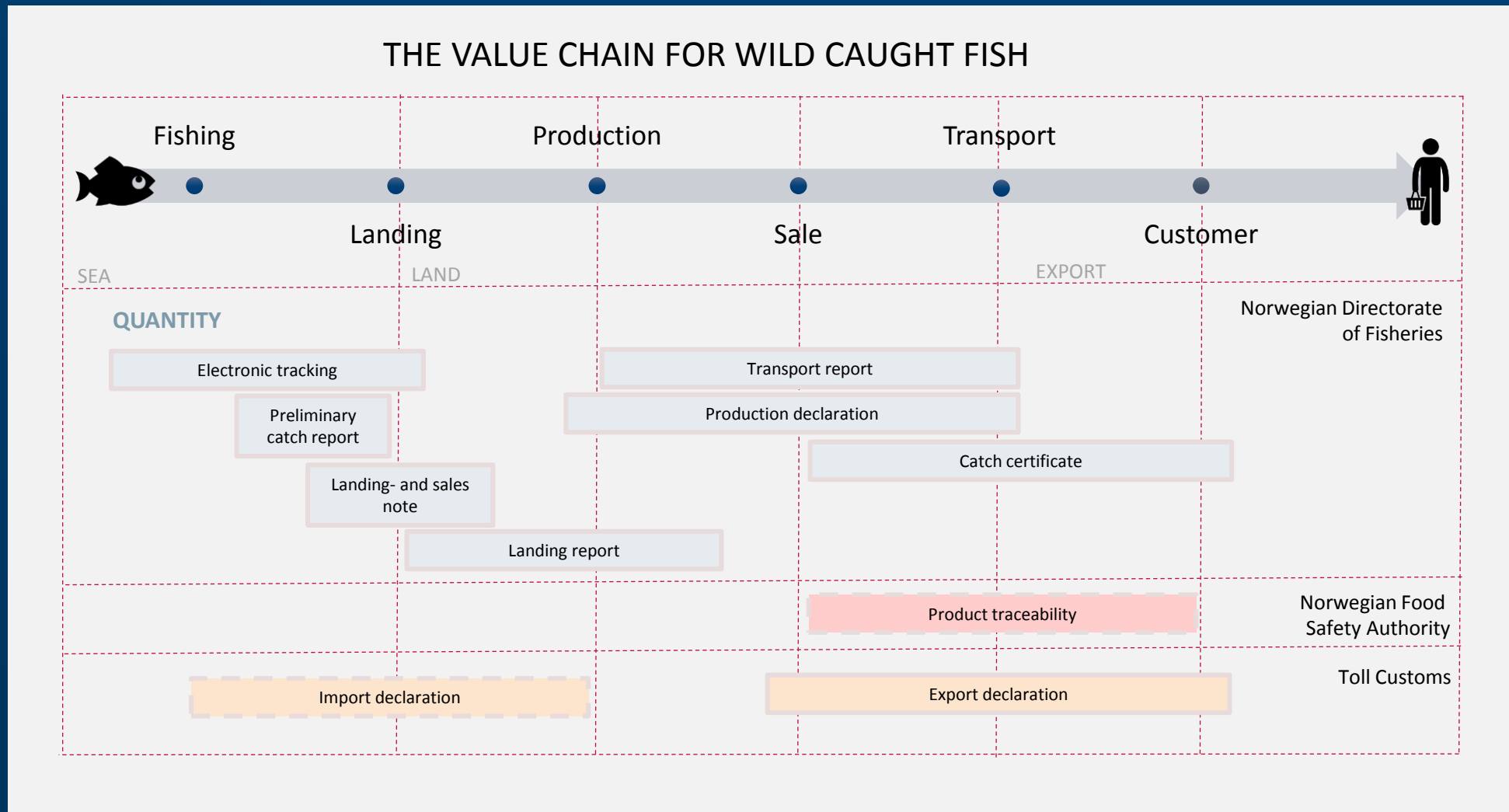
Unintentional

- Product conversion factors
- Biological factors
- Storage conditions
- Warehousing
- Time delay in reporting
- Mismatch between registrations
- Poor quality control
- Production process error
- Human error

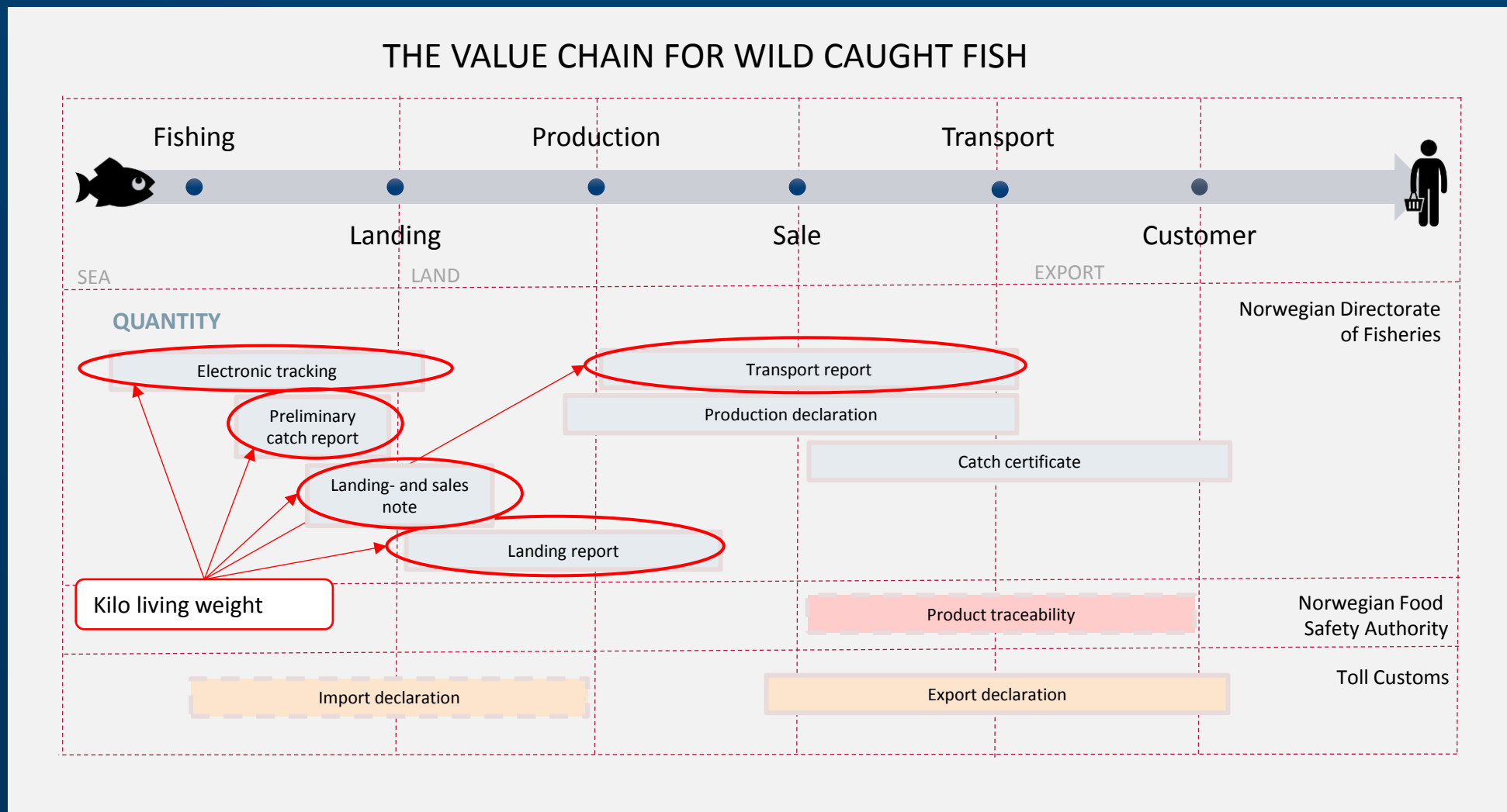
What causes a discrepancy?

Authority	<i>Fisheries directorate</i>									<i>Food safety authority</i>				
Value chain	<i>Catch</i>		<i>Production</i>			<i>Transport/export</i>					<i>Transport</i>		<i>To retail or consumer</i>	
Information type	Electronic recording	Advance landing notice	Landing note	Landing report	Labelling and separation	Transport report	Catch certificate storage	Catch certificate production	Catch certificate export	Product traceability and hygiene	Trade document inland	Trade document export	Food labelling	Quality regulation
Vessel identification	x	x	x	x	x									
Landing business ID	x	x	x			x	x							
Production county														
Sender ID											x	x		
Receiver ID									x		x	x		
Landing date/time	x	x	x	x			x							
Species	x	x	x	x		x				x	x	x	x	x
Product ID											x		x?	
Product type ID													x?	x?
Quantity	x	x	x	x		x		x	x	x	x	x	x	x
Catch date	x		x											x
Catch area	x		x										x?	x
Gear type	x		x											
Quota ID	x		x											
Product form		x	x	x		x	x		x		x	x	x?	
Conservation			x										x?	
Size grade			x	x		x								
Recorded weight			x	x										
Landing ID			x	x		x								

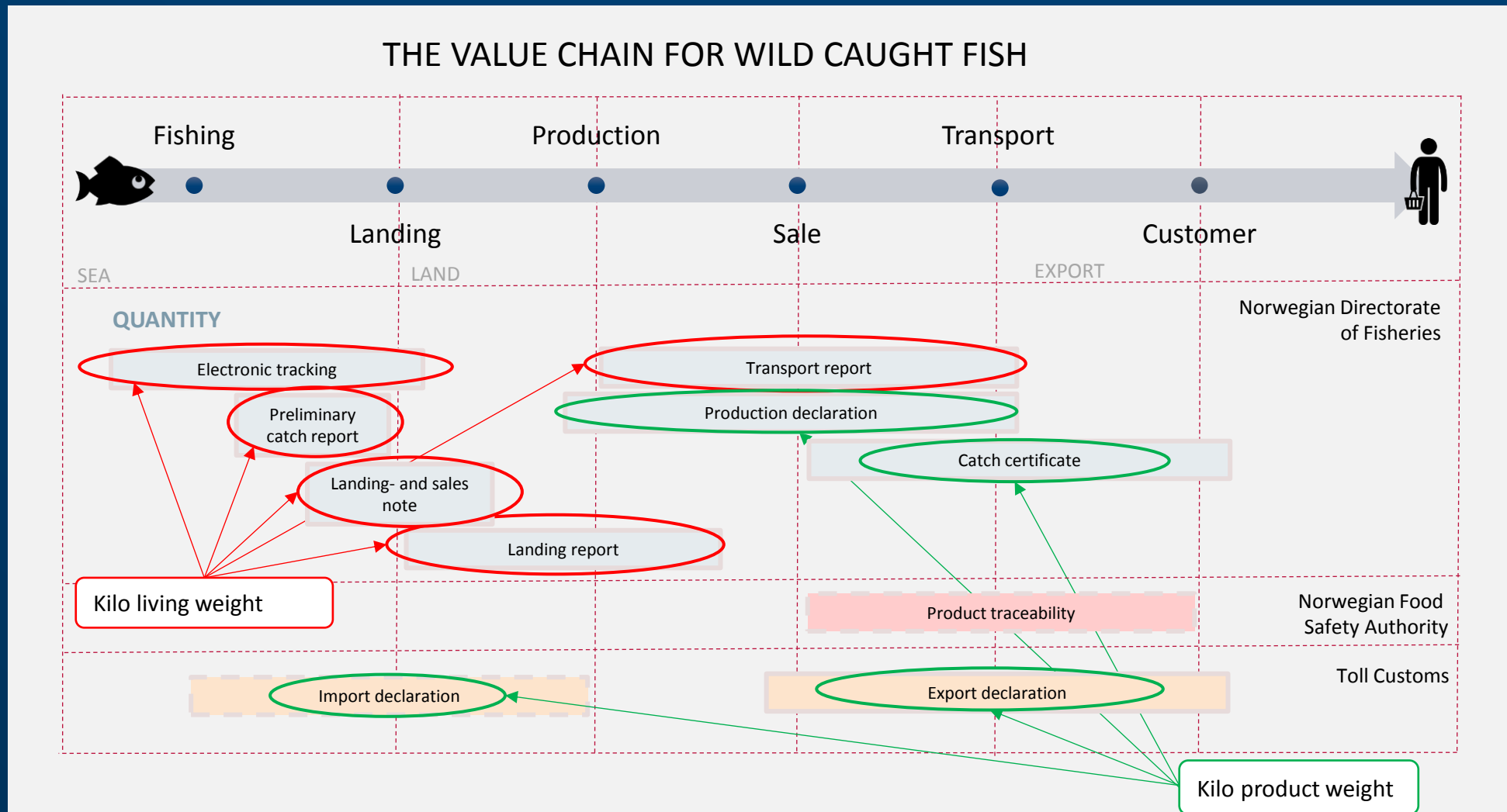
What causes a discrepancy?



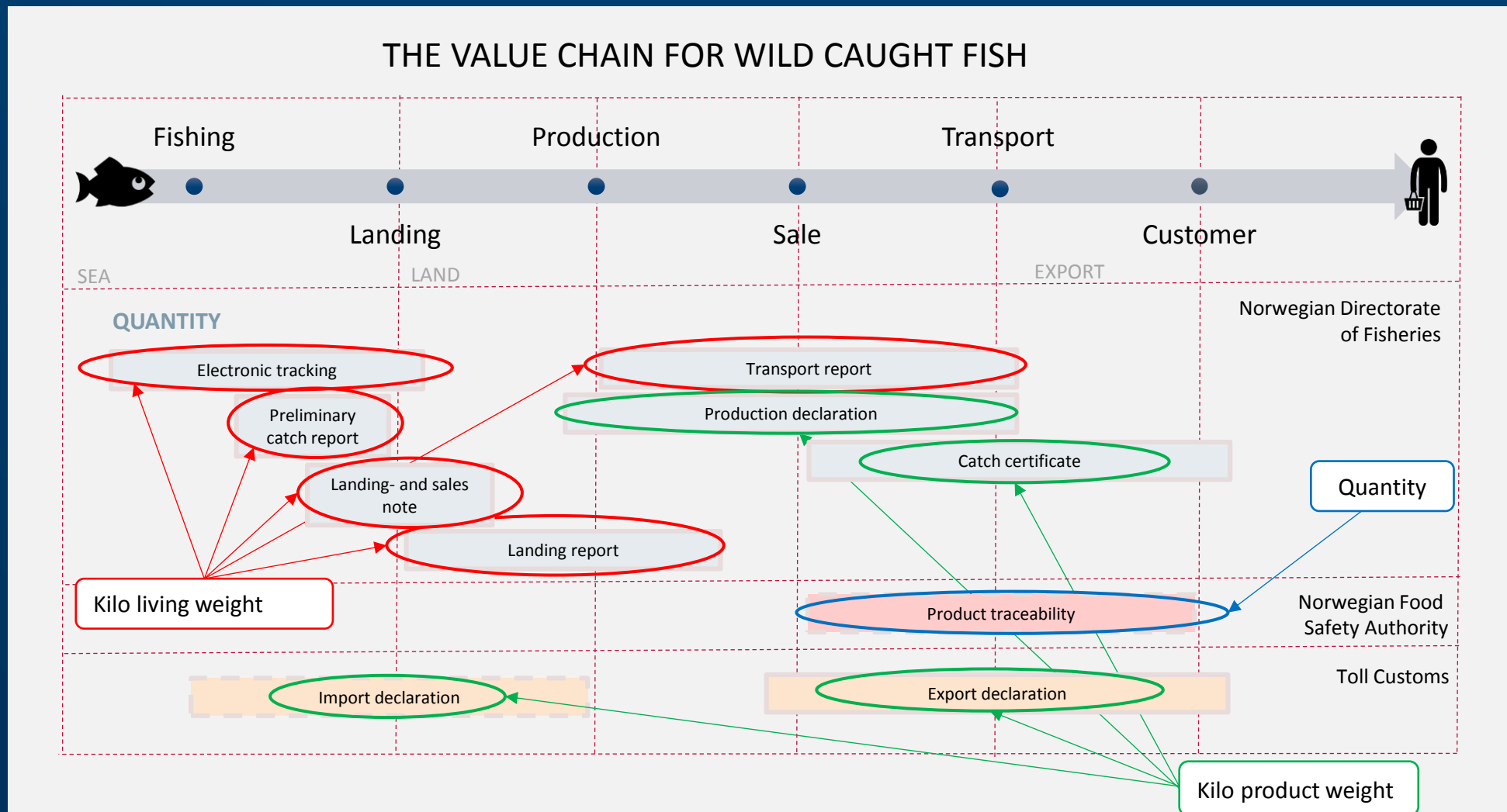
What causes a discrepancy?



What causes a discrepancy?



What causes a discrepancy?



Discrepancies in the food supply chain

- Strengths
 - Highlights institutional weaknesses
 - Highlights nodes in the supply chain susceptible to fraud
 - Gives indications of the scope
- Effective action against fraud requires knowing
 - The scope of the problem
 - Where the problem occurs
 - Why the problem occurs



**Thank you for your
attention**

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