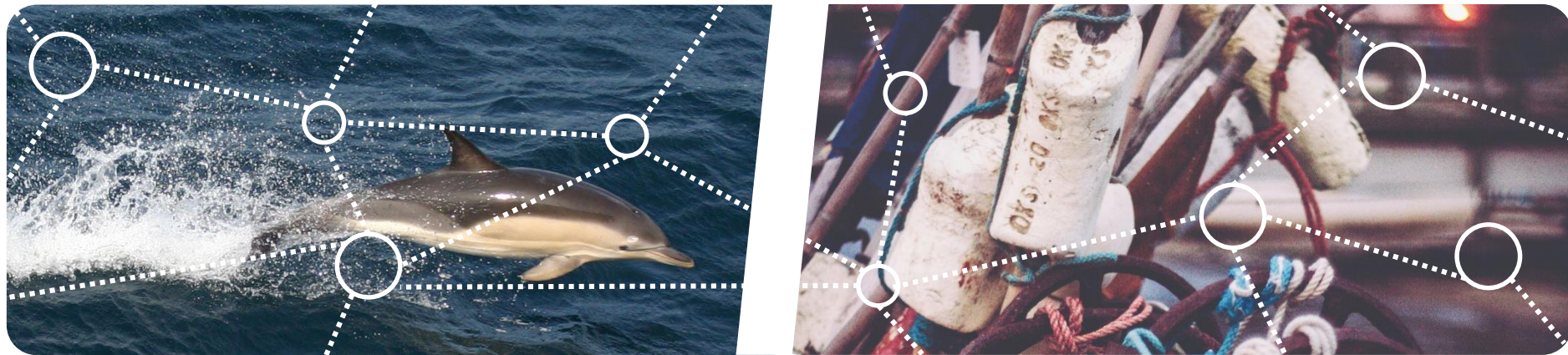


Playing a serious game to visualize the social dimension of cetacean bycatch

17th Annual STS Conference Graz 2018 – Session 30: Imaging sustainable food systems, Mai 7th - 8th 2018



Alice Lapijover¹, Nicolas Becu¹, Vincent Ridoux^{2,3}

¹ Littoral, Environnement et Sociétés (LIENSs), UMR 7266 CNRS – Université de La Rochelle

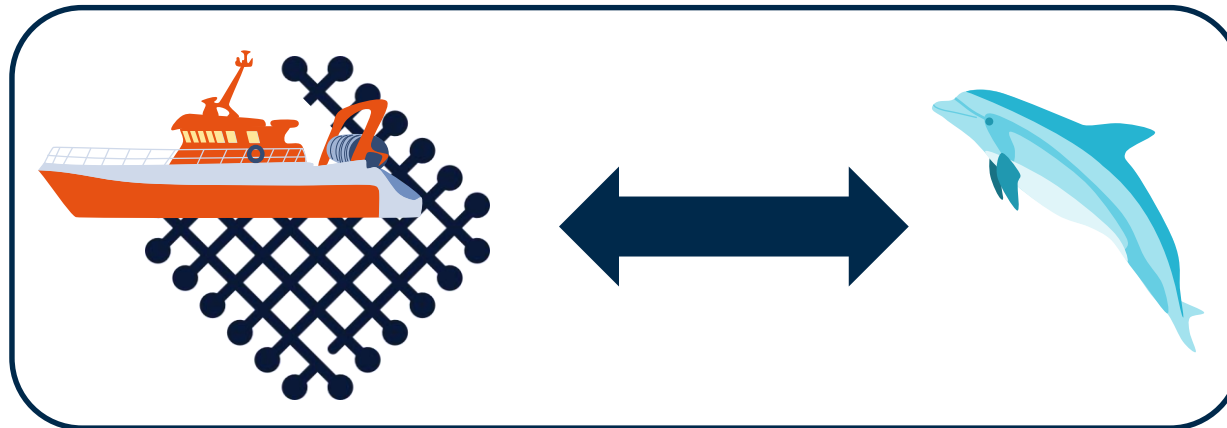
² Centre d'Études Biologiques de Chizé, UMR 7372 CNRS – Université de La Rochelle

³ Observatoire PELAGIS, UMS 3462 CNRS – Université de La Rochelle

VIZUALISING CETACEAN BYCATCH



Public's interest



VIZUALISING CETACEAN BYCATCH



Public's interest

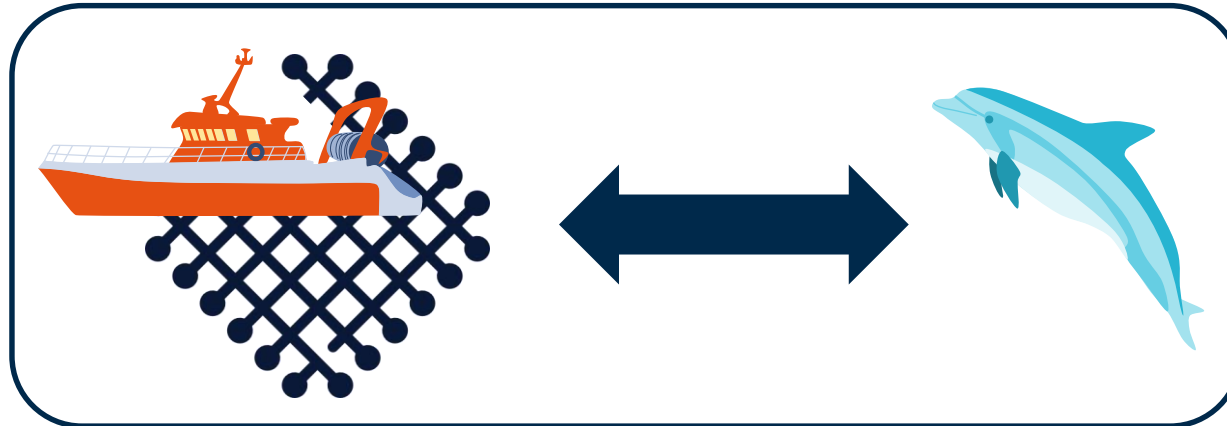
BYCATCH CHARACTERISTICS



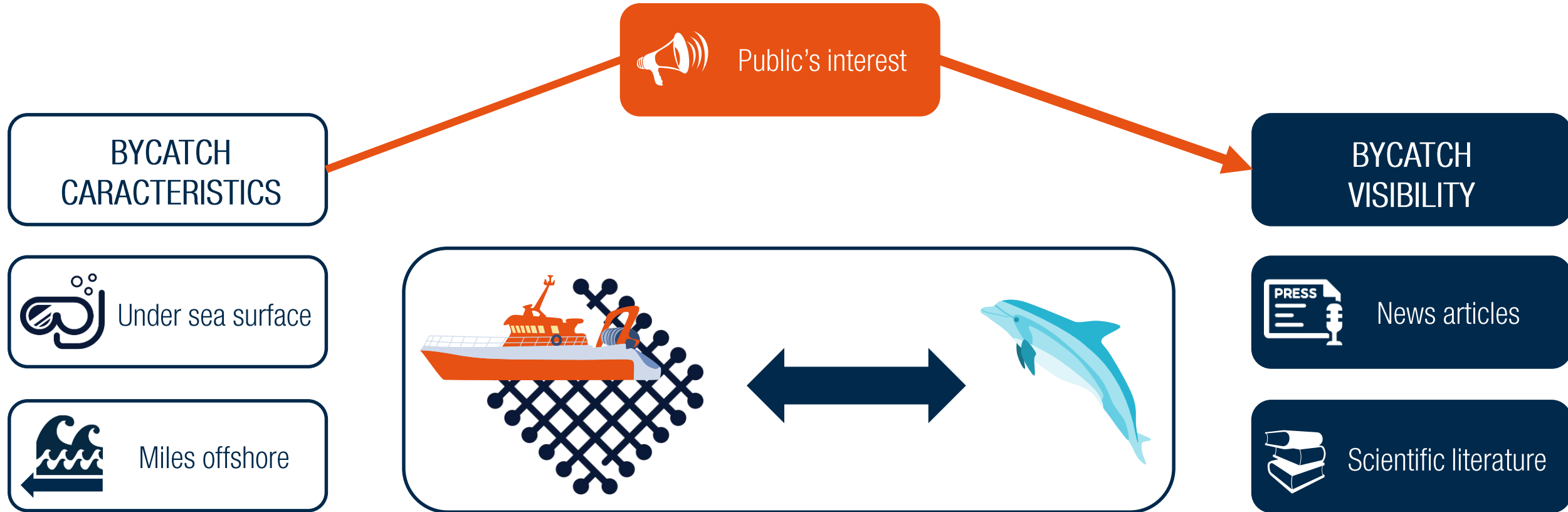
Under sea surface



Miles offshore

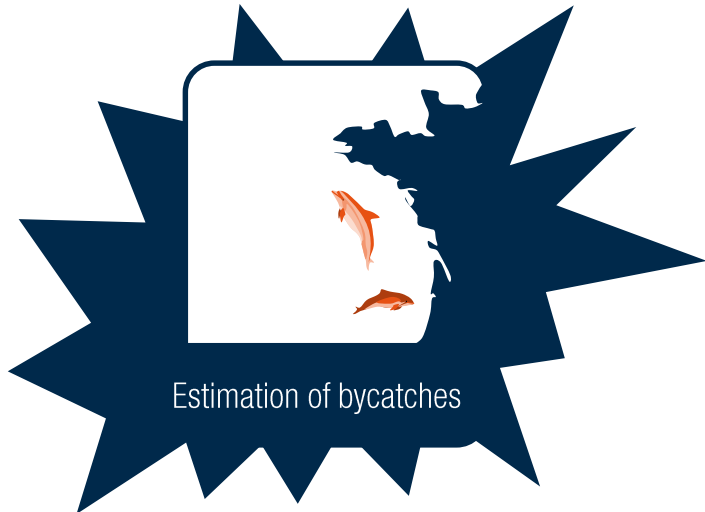


VIZUALISING CETACEAN BYCATCH

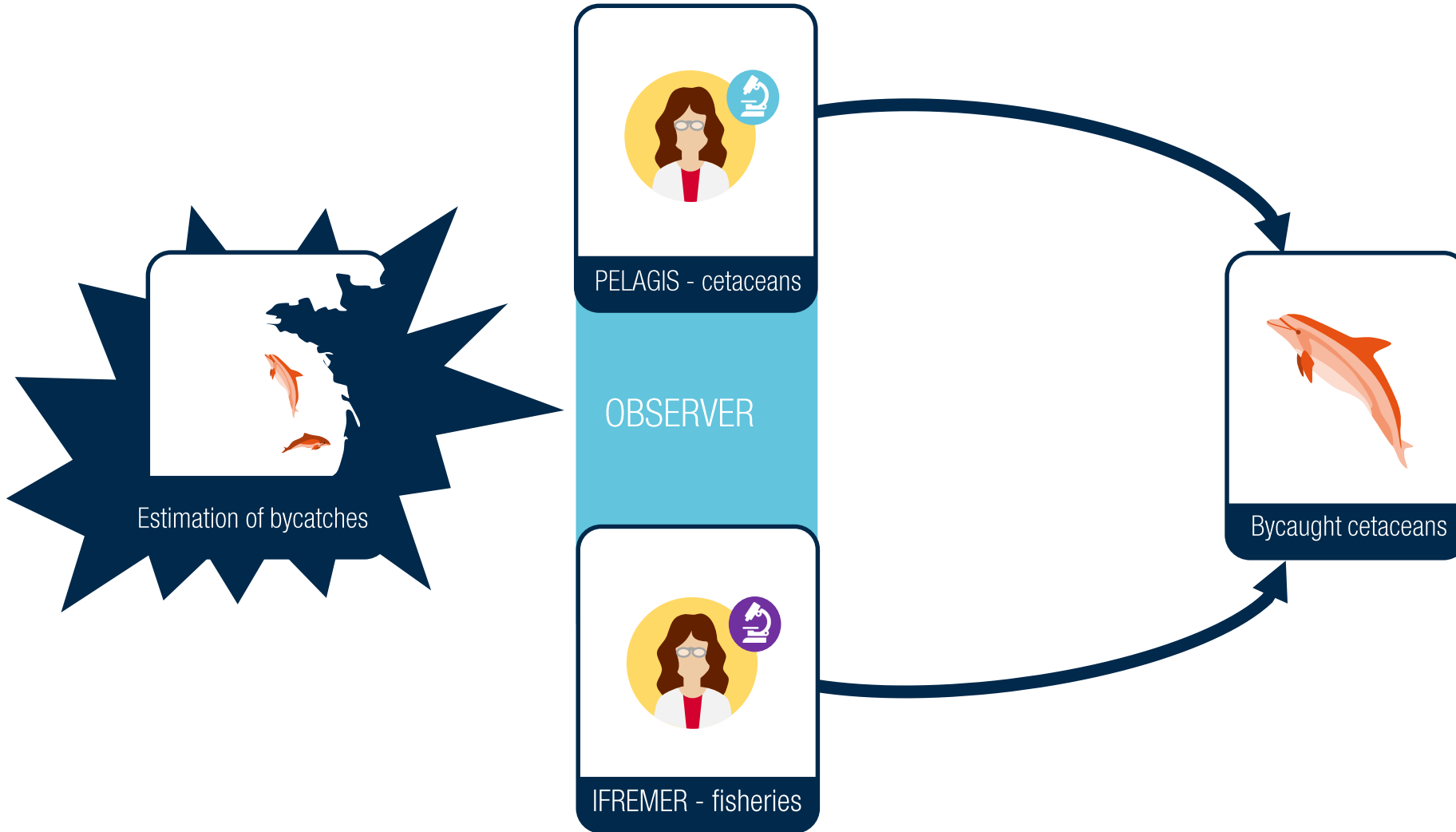


A HIGHLY VISIBLE PHENOMENON DESPITE ITS CHARACTERISTICS

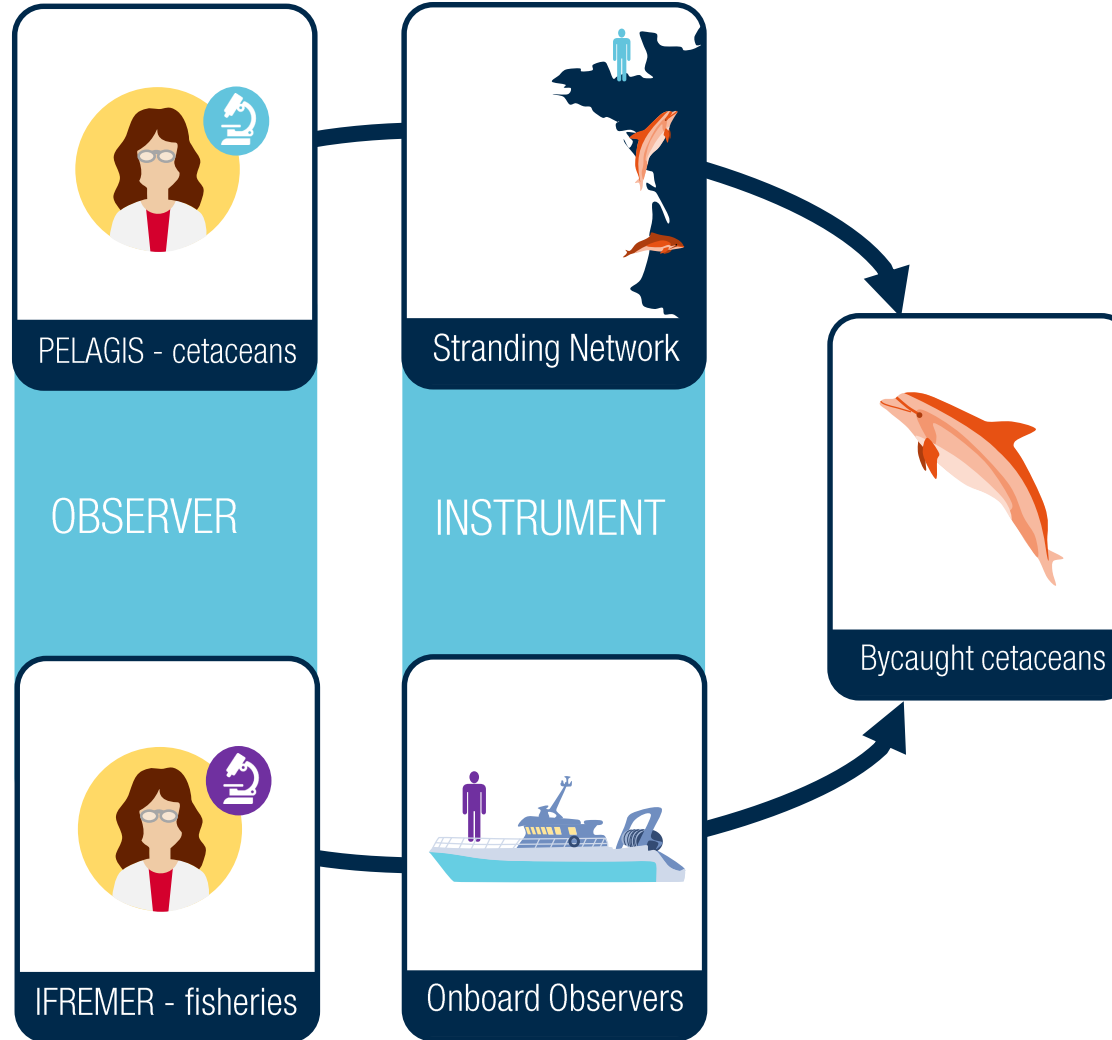
CONTROVERSY ON DEPICTING CETACEAN BYCATCH



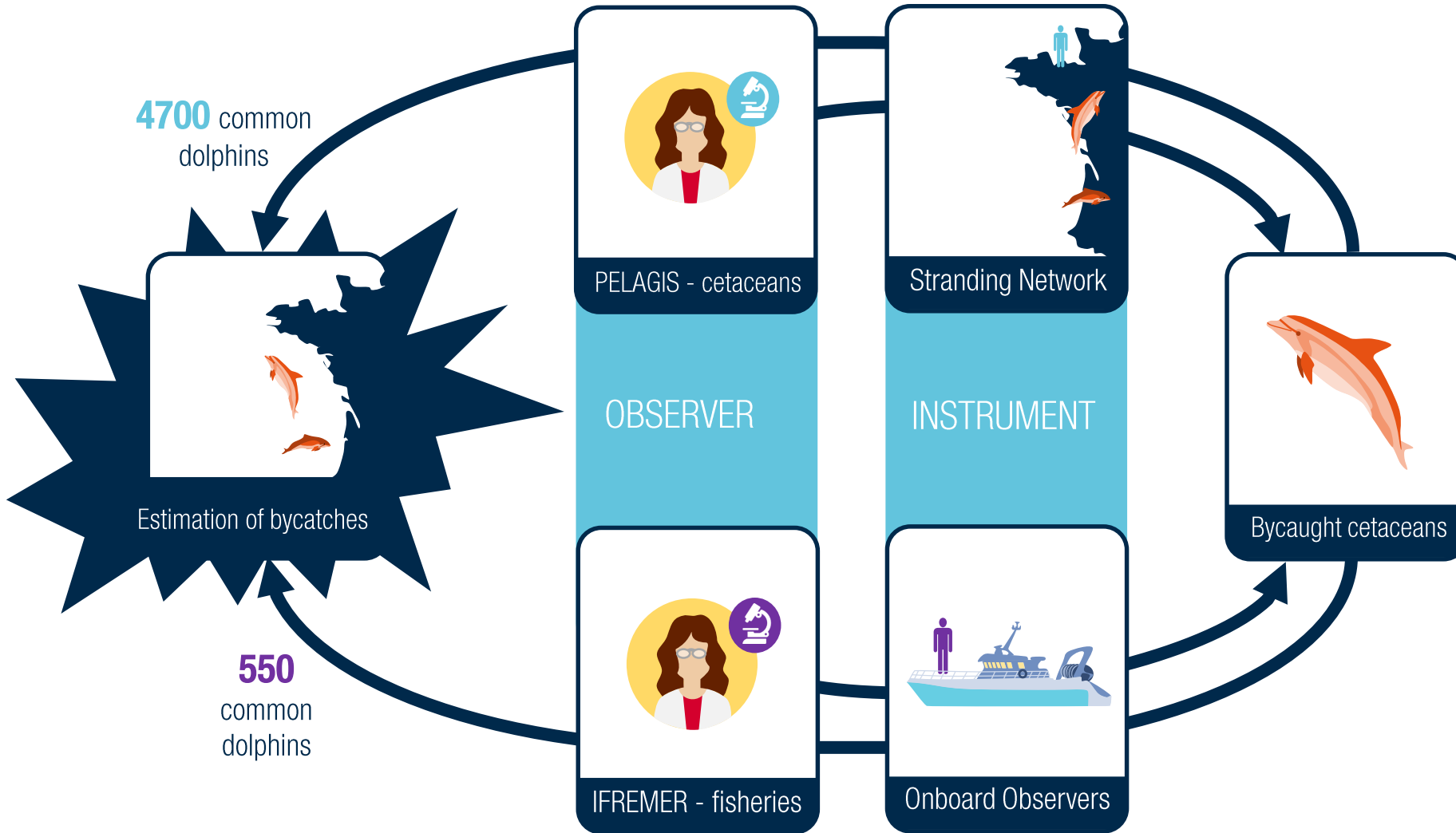
CONTROVERSY ON DEPICTING CETACEAN BYCATCH



CONTROVERSY ON DEPICTING CETACEAN BYCATCH

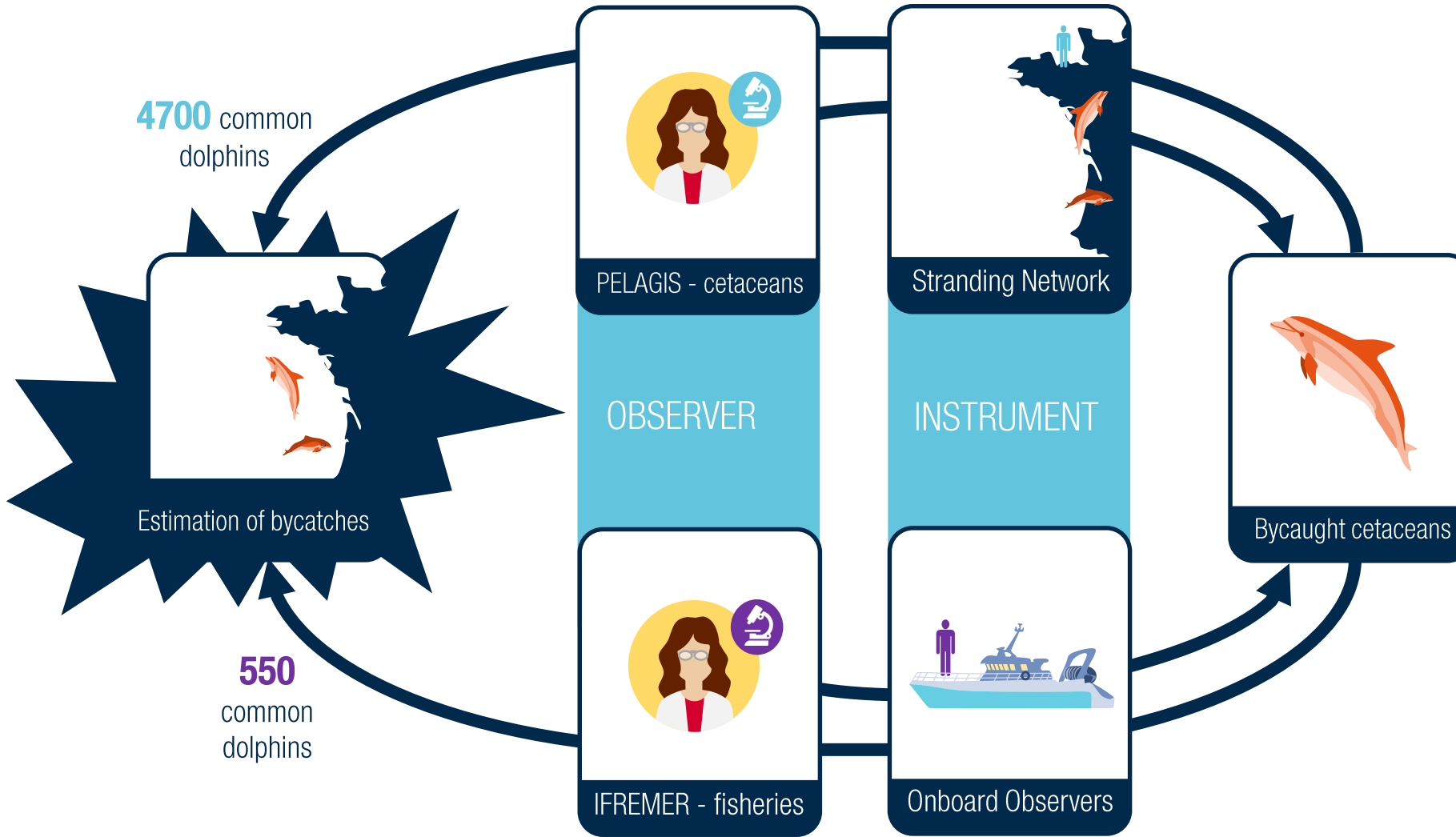


CONTROVERSY ON DEPICTING CETACEAN BYCATCH



OPENING THE BLACK BOX OF OBSERVATION INSTRUMENTS

CONTROVERSY ON DEPICTING CETACEAN BYCATCH

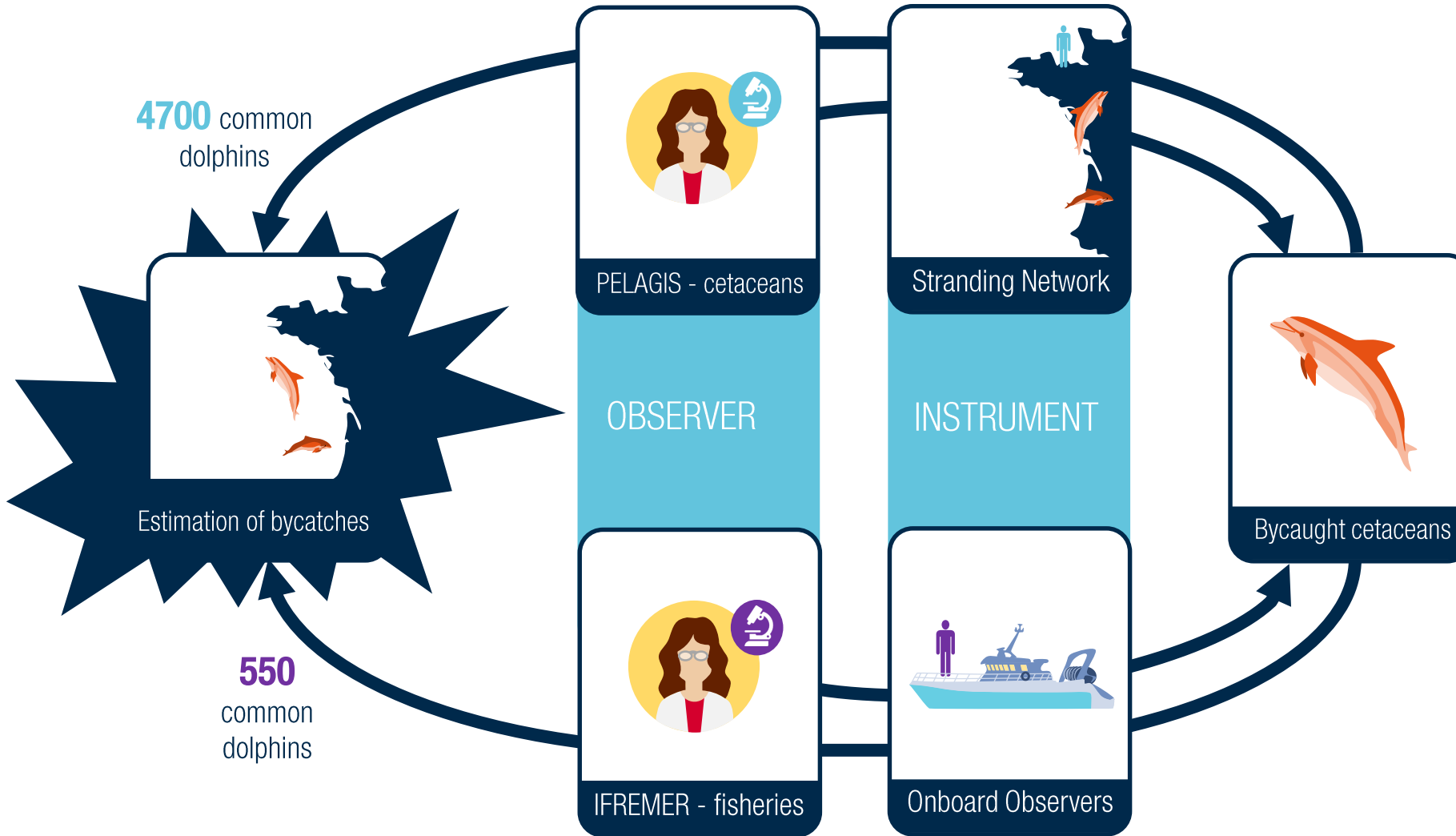


Scientific representation process in question

- How sharp is the image scientists are able to provide?

OPENING THE BLACK BOX OF OBSERVATION INSTRUMENTS

CONTROVERSY ON DEPICTING CETACEAN BYCATCH

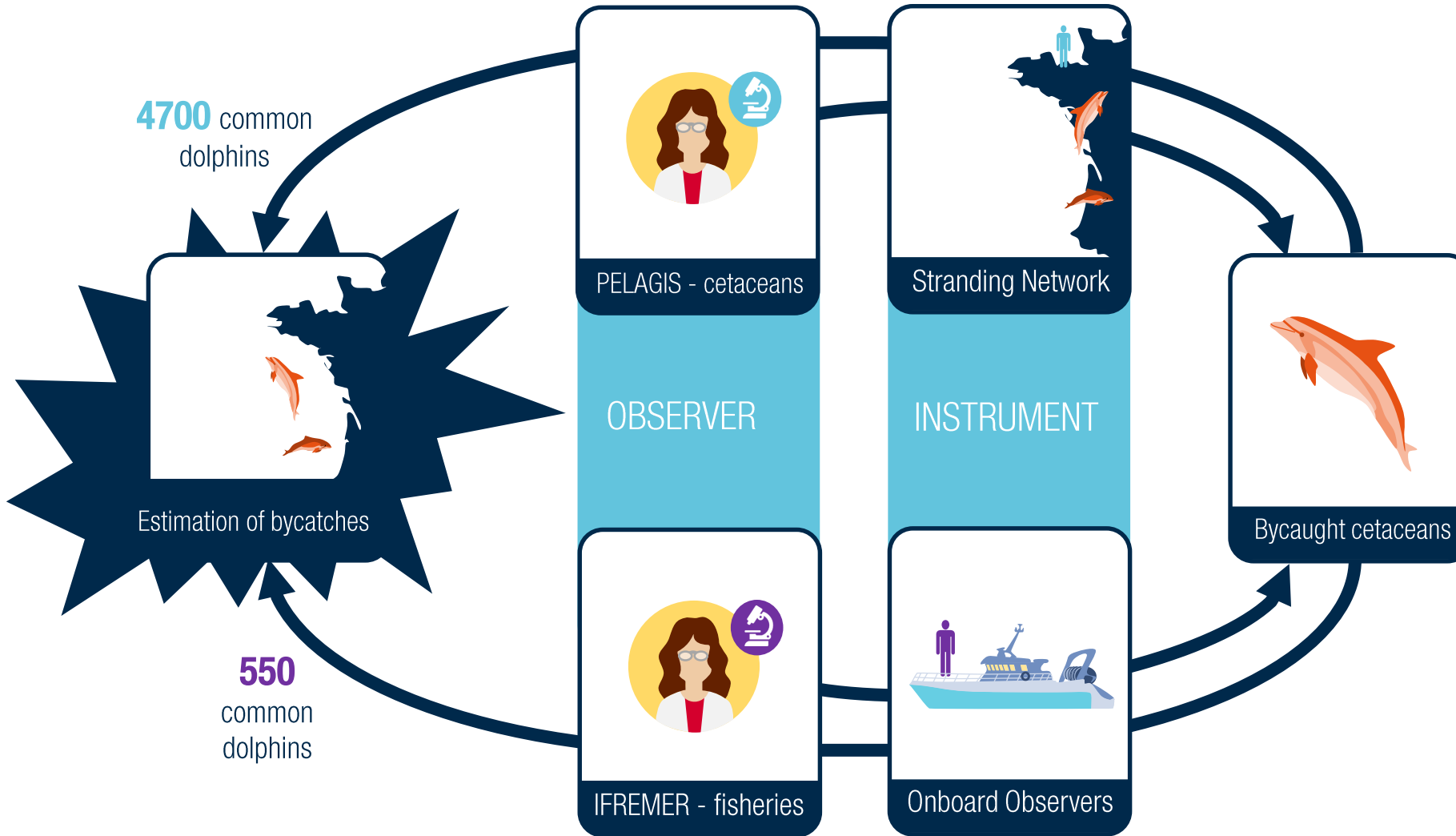


Scientific representation process in question

- How sharp is the image scientists are able to provide?
- If the number of cetacean bycatches is uncertain, who is legitimate to represent them?

OPENING THE BLACK BOX OF OBSERVATION INSTRUMENTS

CONTROVERSY ON DEPICTING CETACEAN BYCATCH

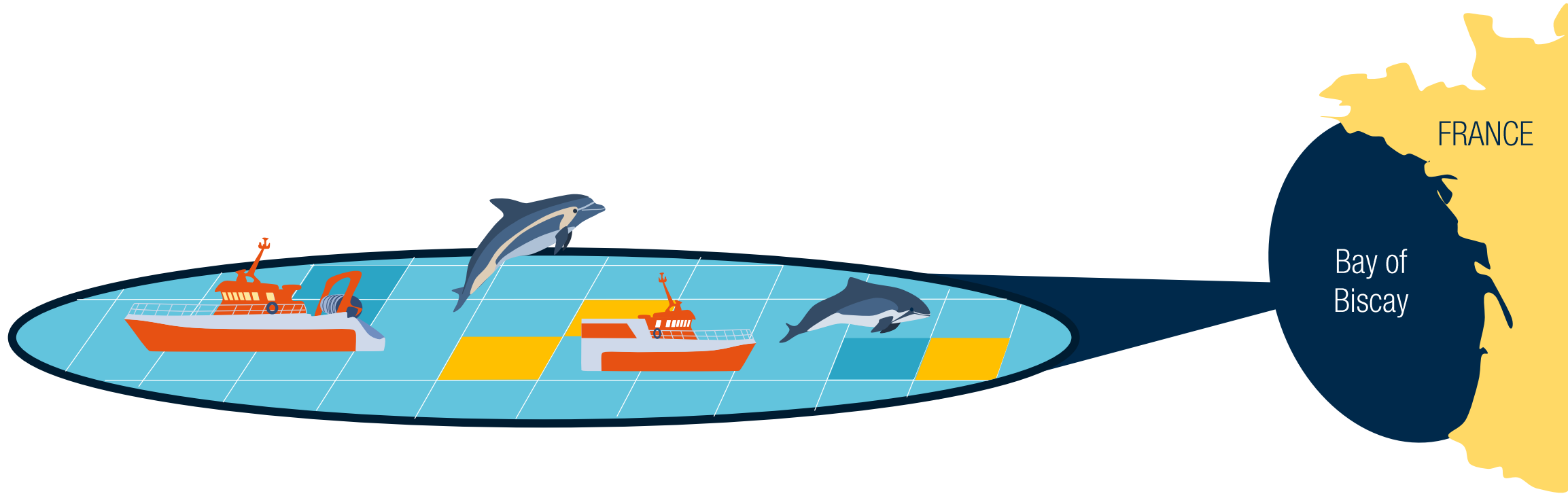


Scientific representation process in question

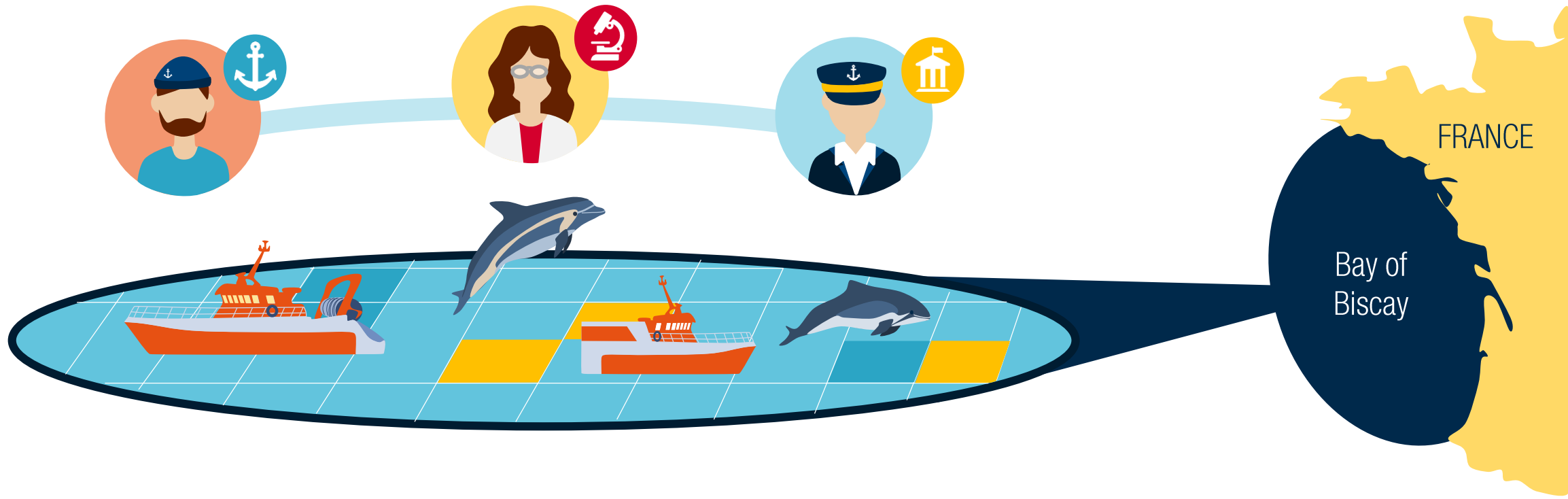
- How sharp is the image scientists are able to provide?
- If the number of cetacean bycatches is uncertain, who is legitimate to represent them?
- How is it possible to assert the impact of bycatch on biodiversity?

OPENING THE BLACK BOX OF OBSERVATION INSTRUMENTS

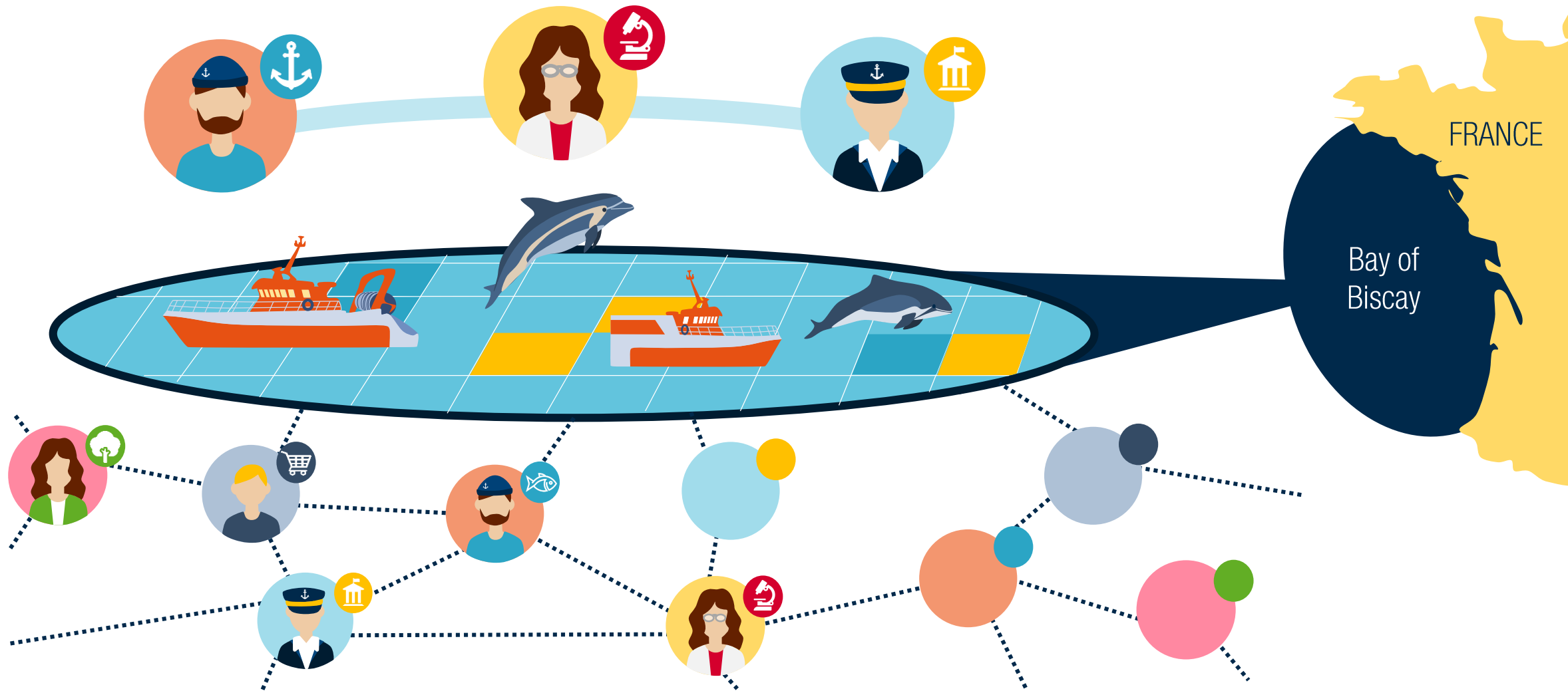
SERIOUS GAMES TO SHADE NEW LIGHT ON FISHERIES / CETACEAN INTERACTIONS



SERIOUS GAMES TO SHADE NEW LIGHT ON FISHERIES / CETACEAN INTERACTIONS

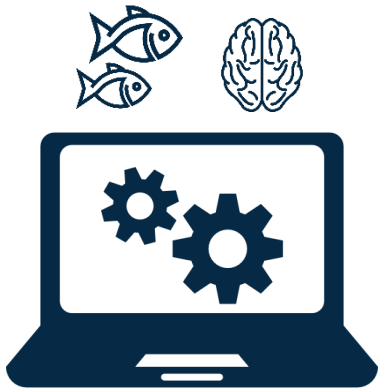


SERIOUS GAMES TO SHADE NEW LIGHT ON FISHERIES / CETACEAN INTERACTIONS



BEYOND THE SPATIAL INTERACTION: IMAGING SUSTAINABLE FOOD SYSTEMS BY INVOLVING STAKEHOLDERS

FROM RESSOURCE TO BEHAVIOR MODELLING: REPRESENTING COMPLEX SYSTEMS

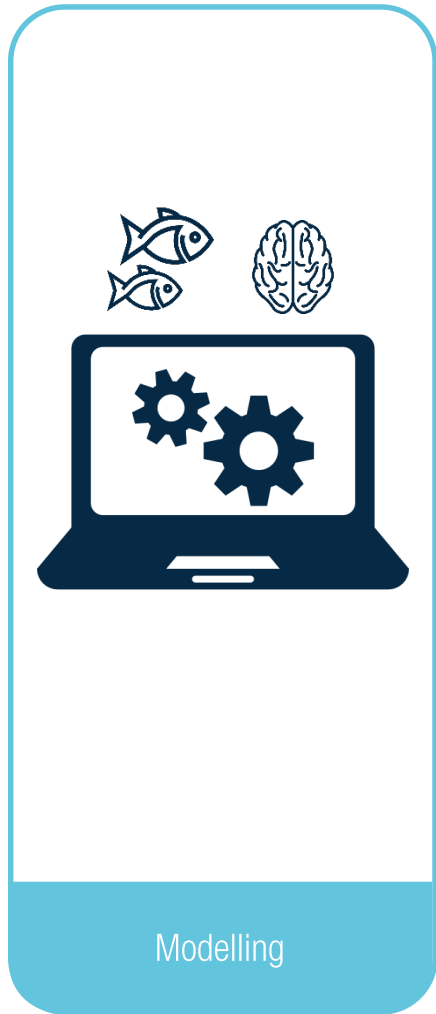


Modelling

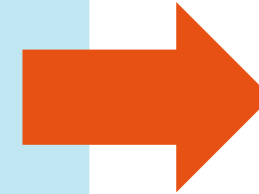


- Description or explanation of complex systems
- Predictive scenarios
- Facilitation of scientific interdisciplinarity
- Interface between science and management
- Support of decision making

FROM RESSOURCE TO BEHAVIOR MODELLING: REPRESENTING COMPLEX SYSTEMS



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Challenge to overcome



How to integrate the **social dimension** into resource management models ?

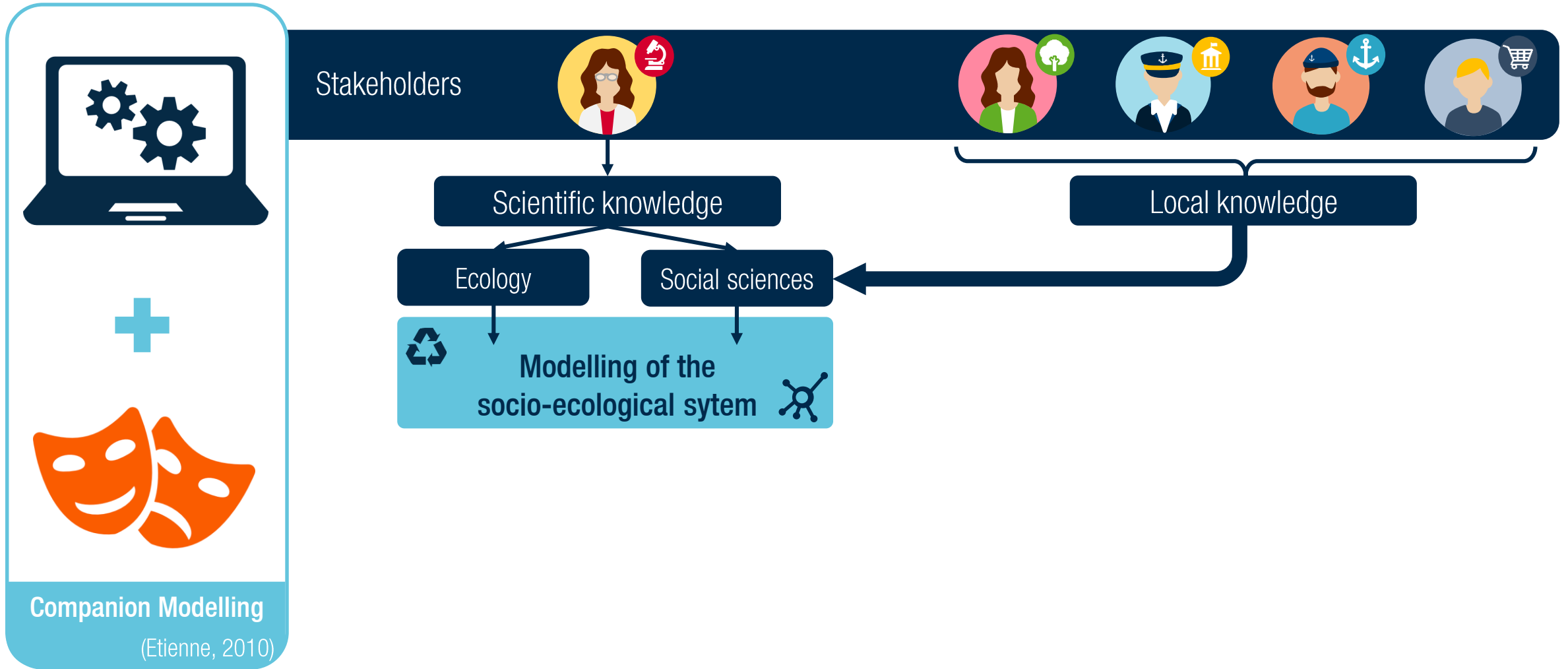
TWO STEP PROCESS: GATHERING DATA TO ACQUIRE NEW ONES



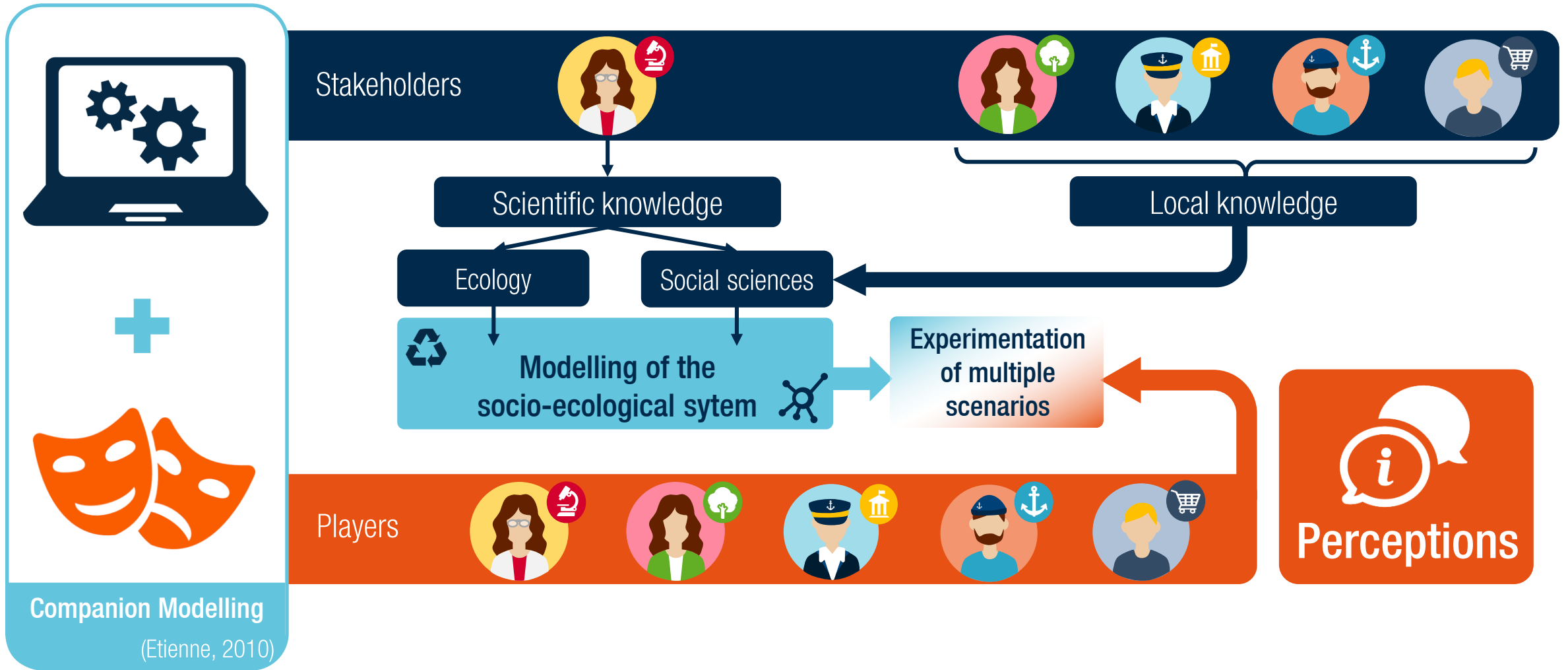
Companion Modelling

(Etienne, 2010)

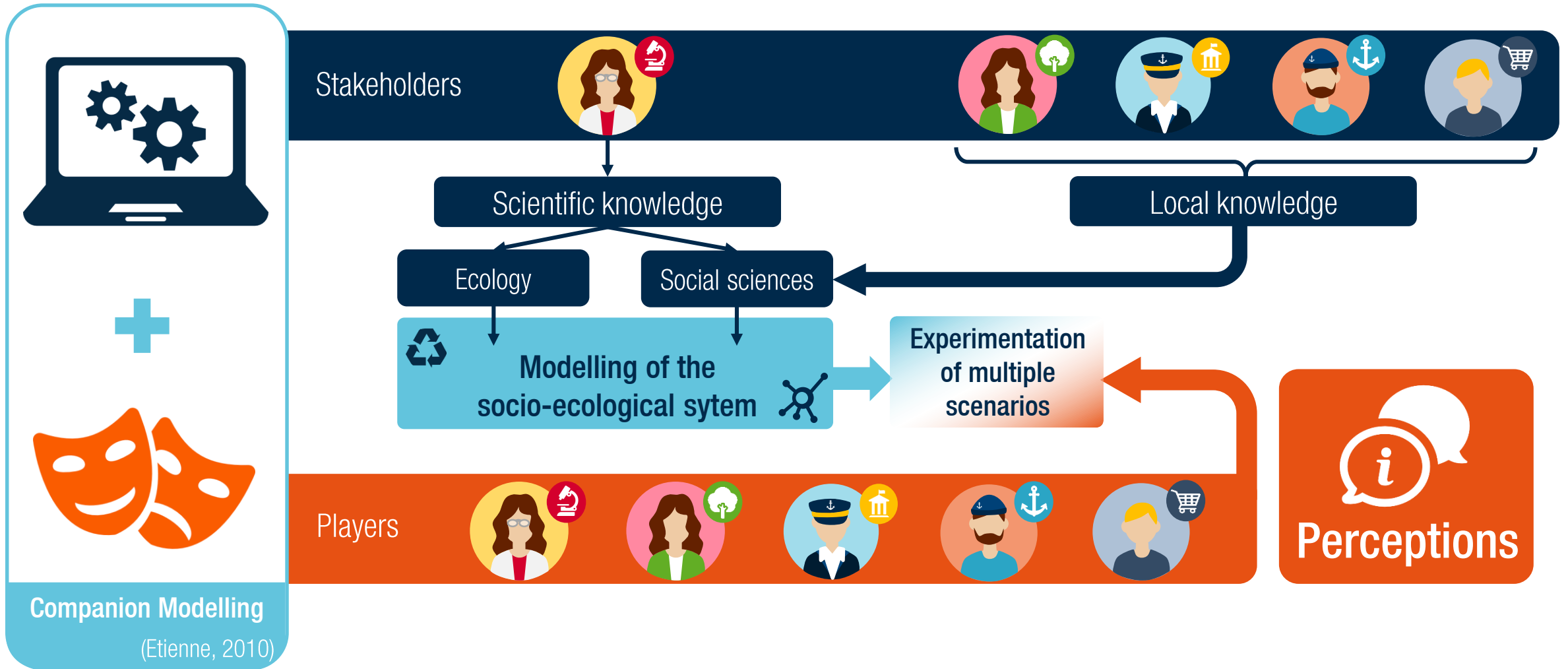
TWO STEP PROCESS: GATHERING DATA TO ACQUIRE NEW ONES



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TWO STEP PROCESS: GATHERING DATA TO ACQUIRE NEW ONES



HYBRID METHODS TO DEPICT AND GAIN KNOWLEDGE ON THE SOCIAL INTERACTIONS ON CETACEAN BYCATCH AND THE OBSERVATION INSTRUMENTS

REPRESENTING THE SOCIAL DIMENSION OF CETACEAN BYCATCH

REPRESENTING THE SOCIAL DIMENSION OF CETACEAN BYCATCH

Experimentation
process

Data



Interviews



Observations



Scientific
literature

REPRESENTING THE SOCIAL DIMENSION OF CETACEAN BYCATCH

Experimentation
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Scientific
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Modelling



Model / Roleplay

GPMax



REPRESENTING THE SOCIAL DIMENSION OF CETACEAN BYCATCH

Experimentation
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Data



Interviews



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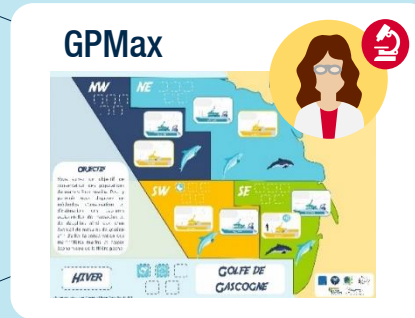


Scientific
literature

Modelling



Model / Roleplay



Exploratory
simulations



Discourse and
scenarios



REPRESENTING THE SOCIAL DIMENSION OF CETACEAN BYCATCH

Experimentation
process

Data



Interviews



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Scientific
literature

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Exploratory
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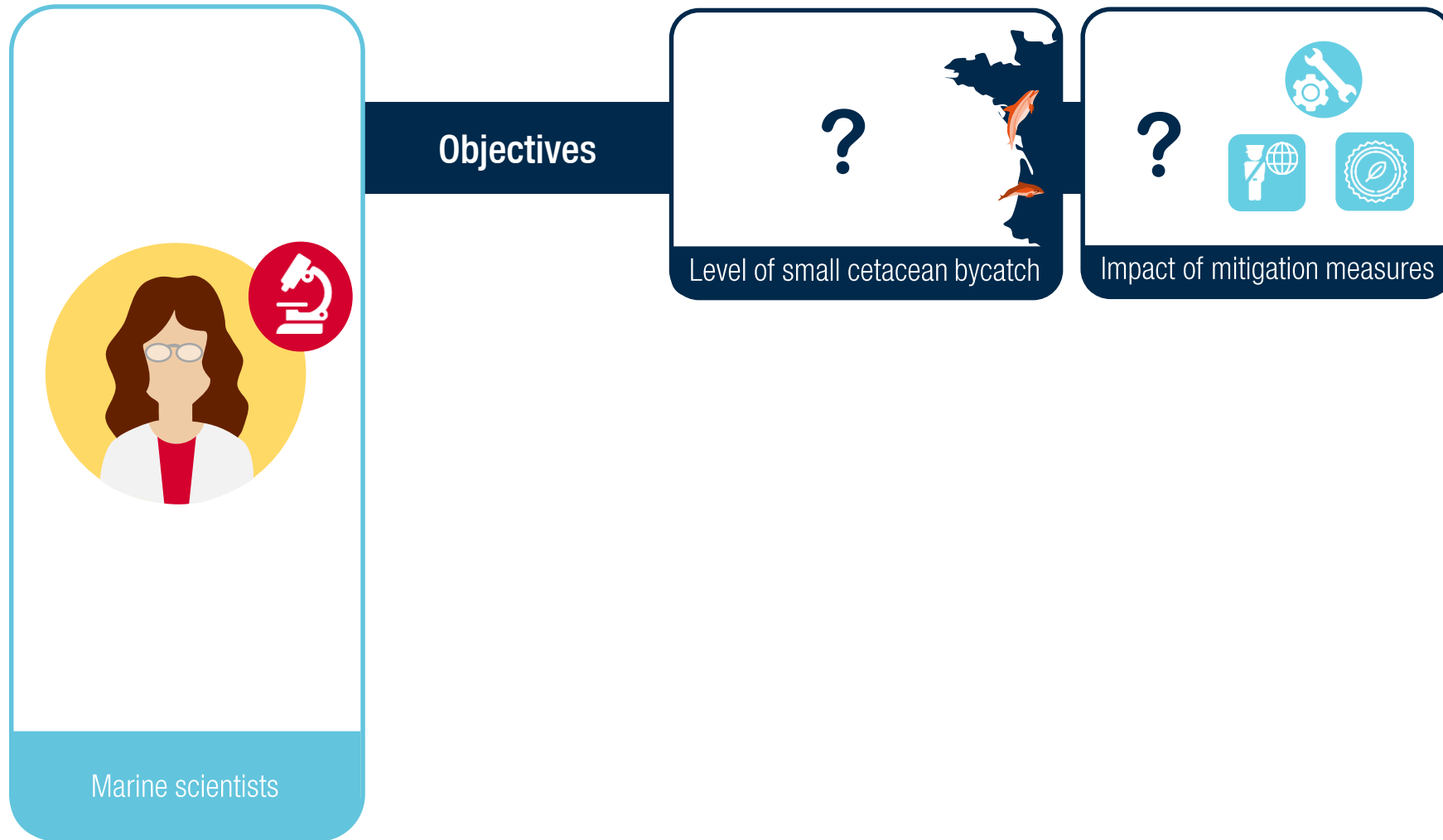


Dynamic and prospective analysis of the context

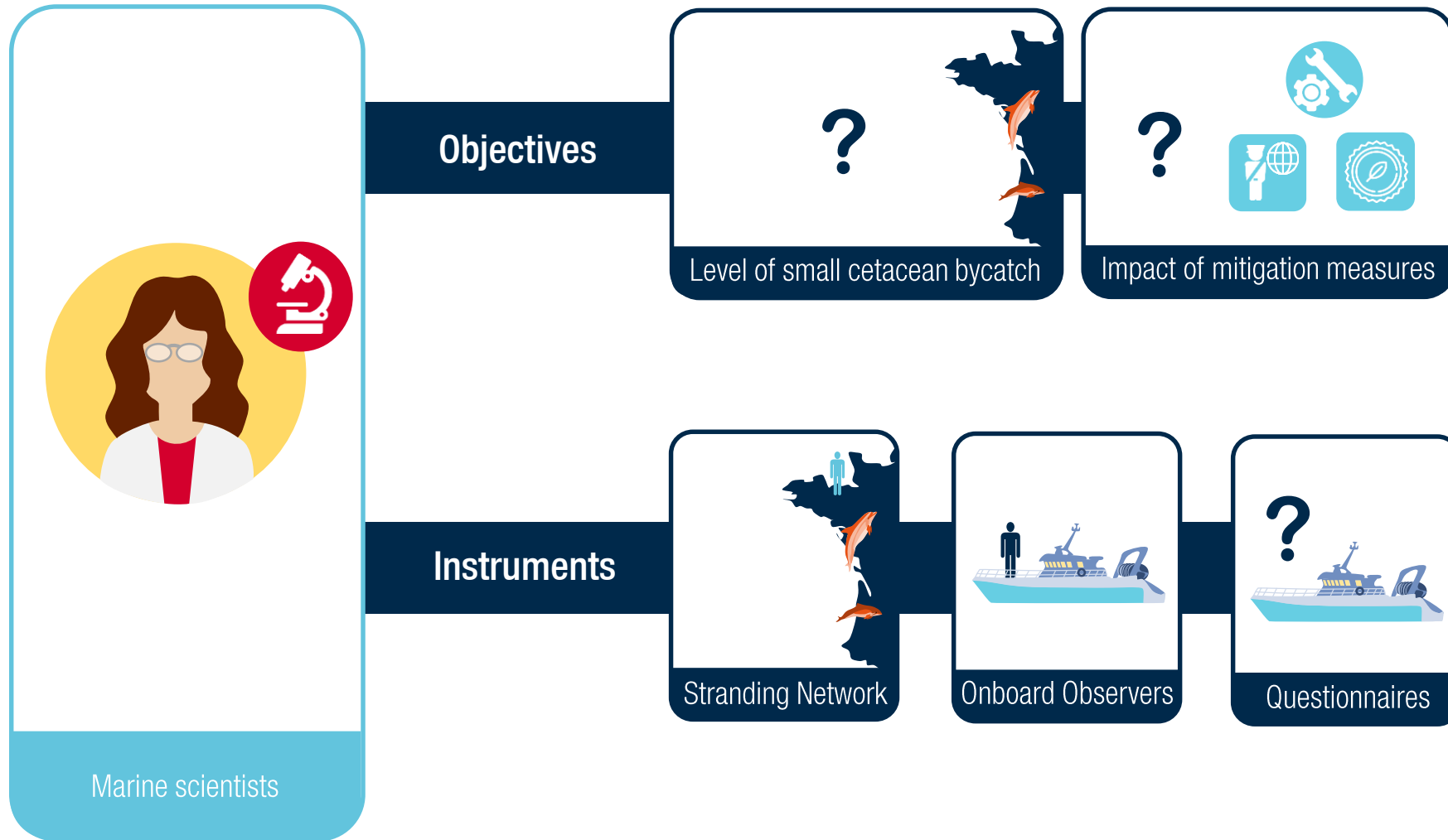
EXPERIMENTING THE SCIENCE IN ACTION IN A MULTI-ACTOR'S ENVIRONMENT

HOW DO SCIENTISTS PERCEIVE AND DEPICT THE MARINE SOCIO-ECOLOGICAL SYSTEM?

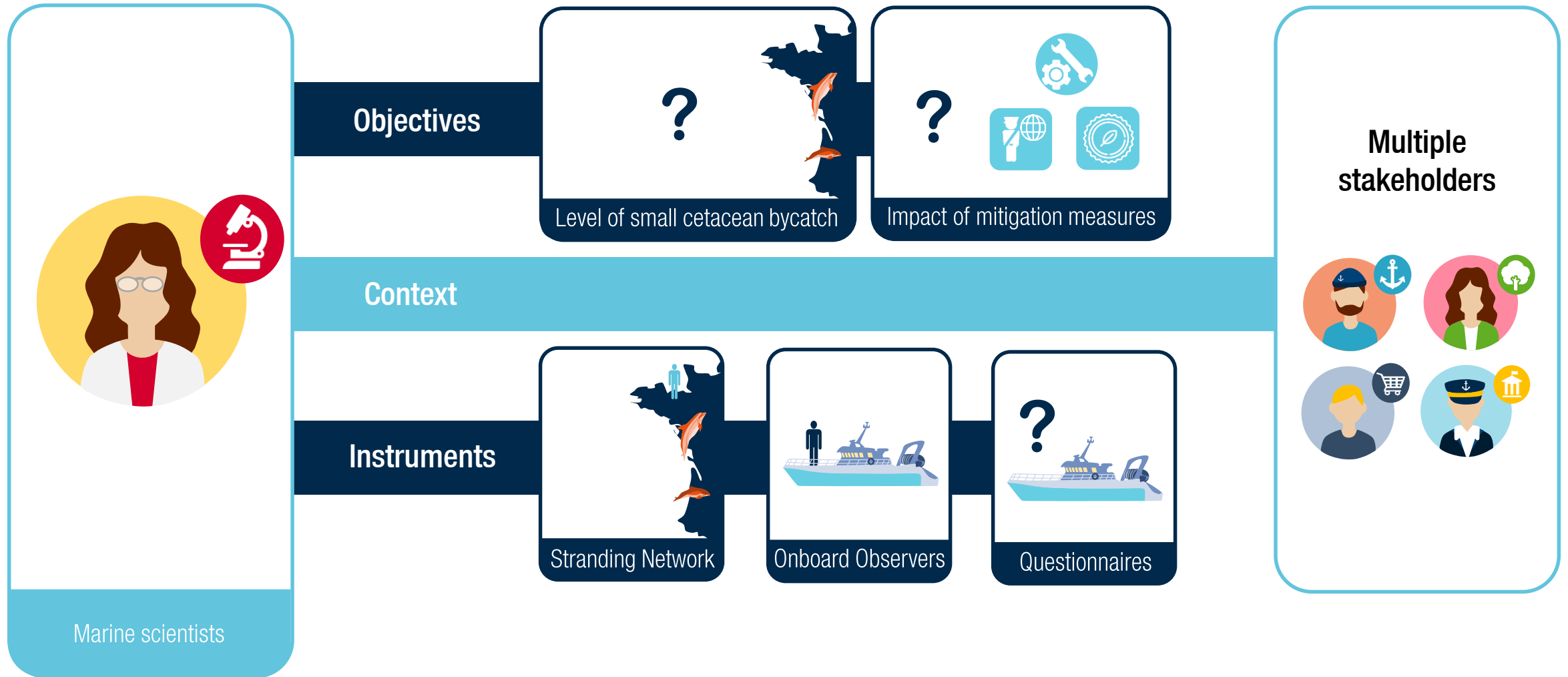
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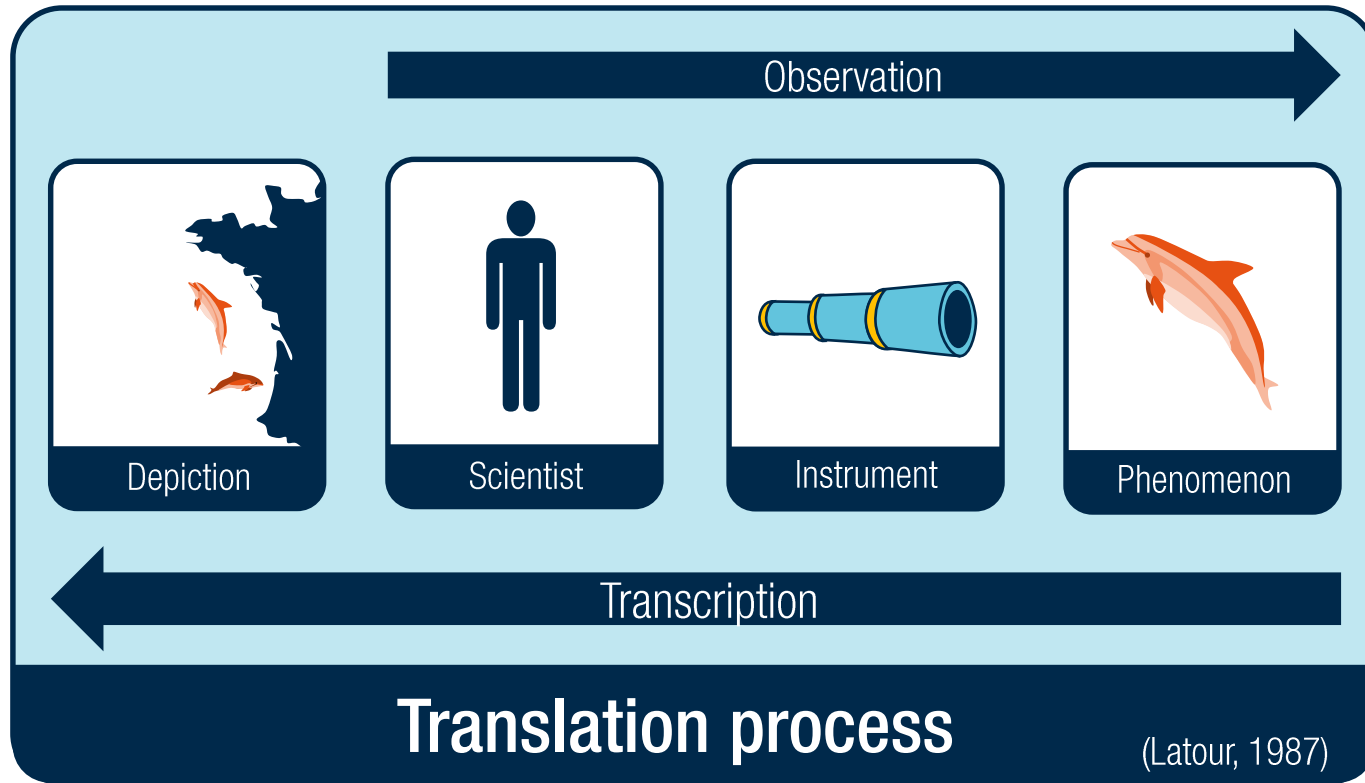
HOW DO SCIENTISTS PERCEIVE AND DEPICT THE MARINE SOCIO-ECOLOGICAL SYSTEM?



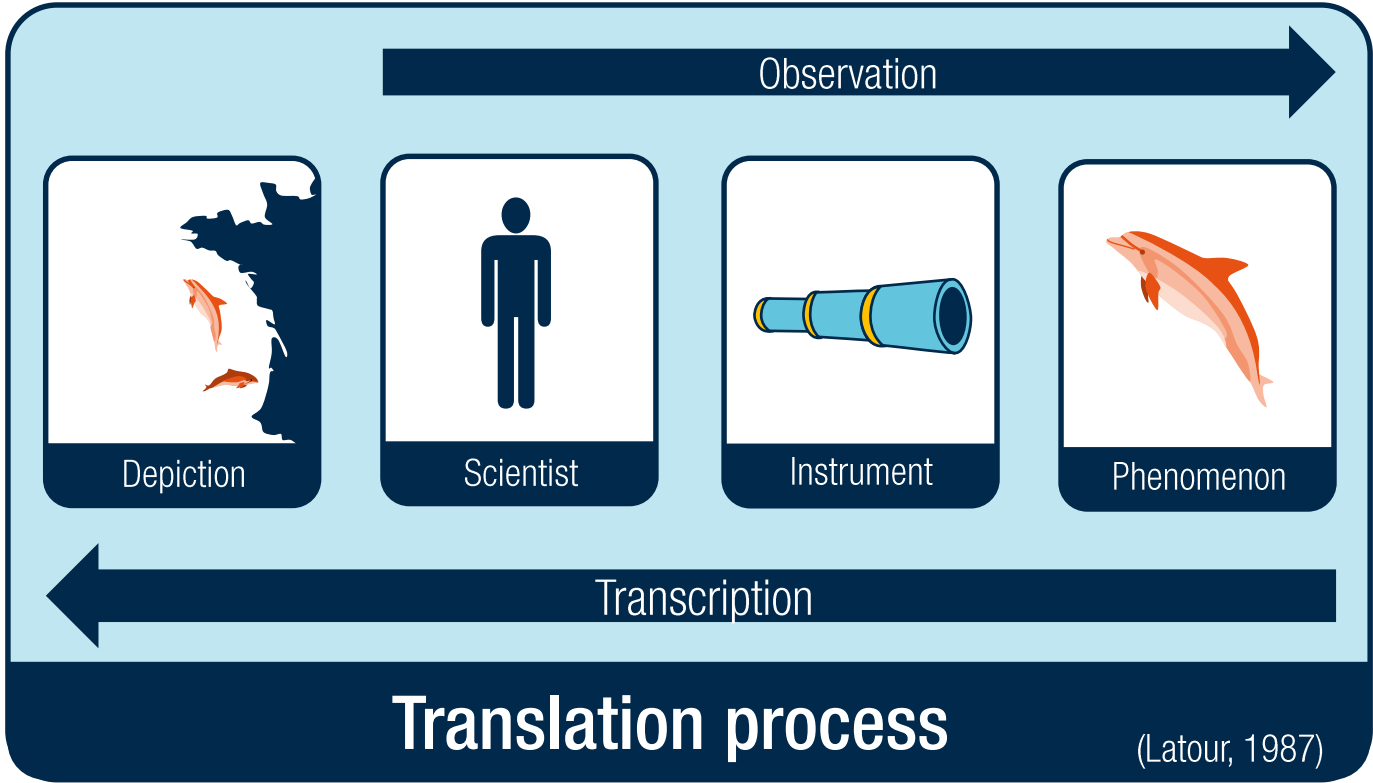
MARINE SCIENTISTS' REPRESENTATION IS LINKED TO THEIR OBJECTIVES, THE INSTRUMENTS THEY USE AND THE CONTEXT IN WHICH THEIR RESEARCH ACTIVITIES ARE TAKING PLACE.

SCIENTISTS AS STRATEGICAL STAKEHOLDERS

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SCIENTISTS AS STRATEGICAL STAKEHOLDERS

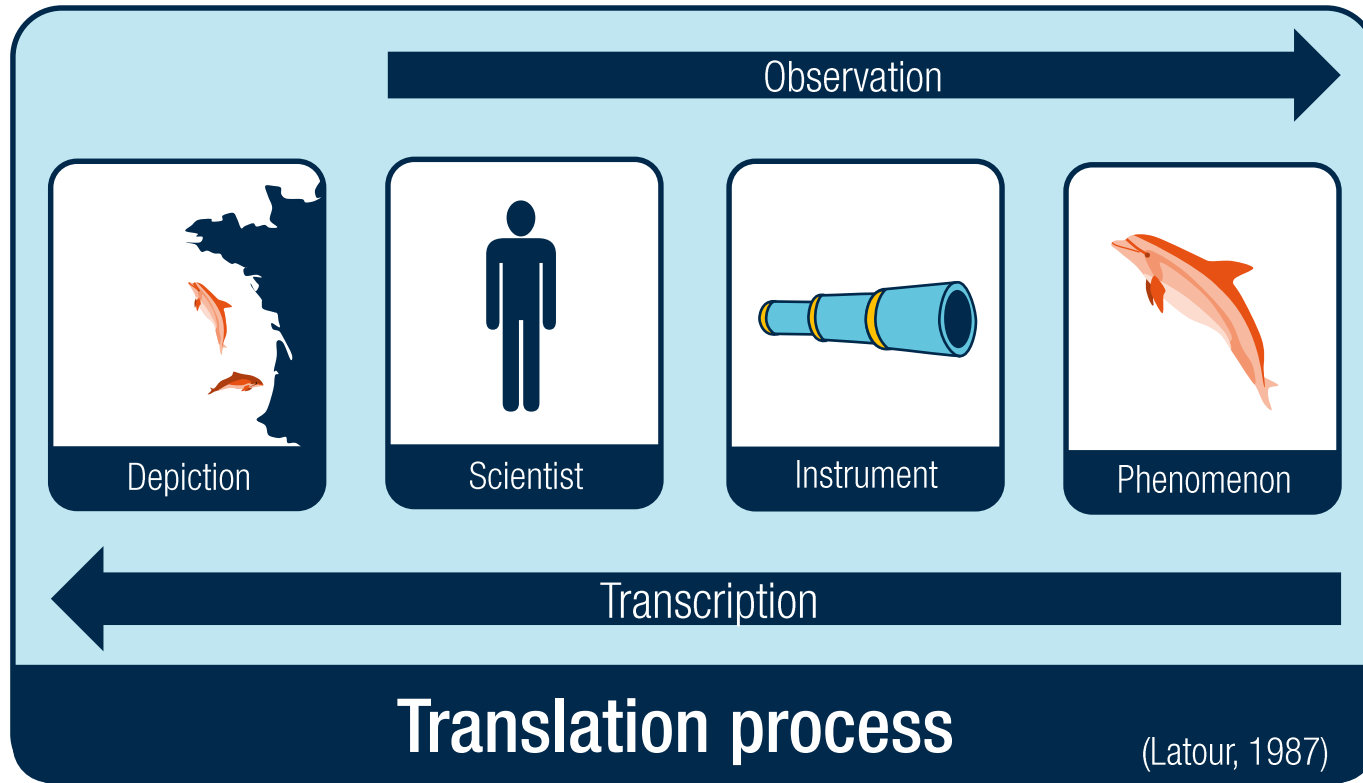


Questioning the translation

Discrepancies in scientific estimation

DIVING INTO SCIENTIFIC ACTIVITIES IN CASE OF CONTROVERSY

SCIENTISTS AS STRATEGICAL STAKEHOLDERS

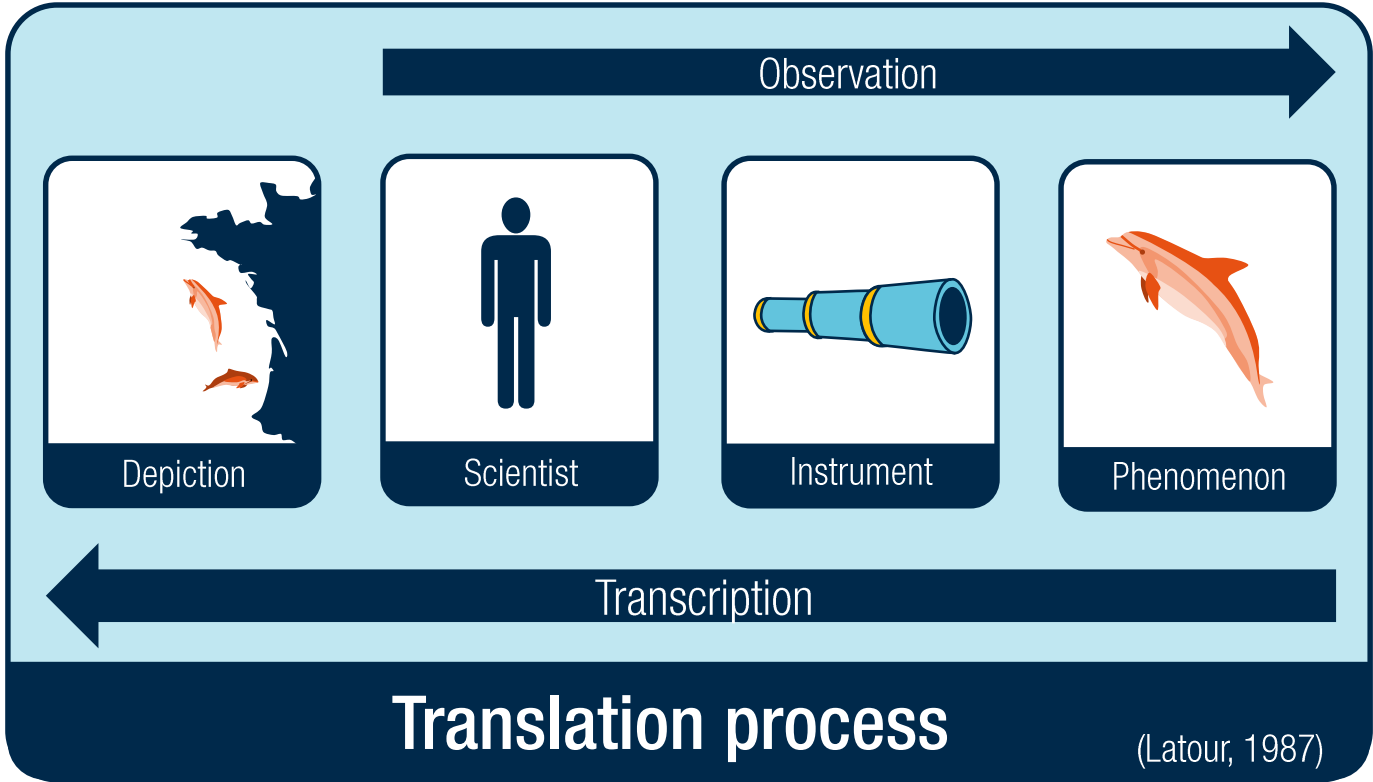


Questioning the translation
Discrepancies in scientific estimation

Looking for new translations
Fishermen as new translation center

DIVING INTO SCIENTIFIC ACTIVITIES IN CASE OF CONTROVERSY

SCIENTISTS AS STRATEGICAL STAKEHOLDERS



Questioning the translation

Discrepancies in scientific estimation



Looking for new translations

Fishermen as new translation center



Sharing Translations

Variety of stakeholders

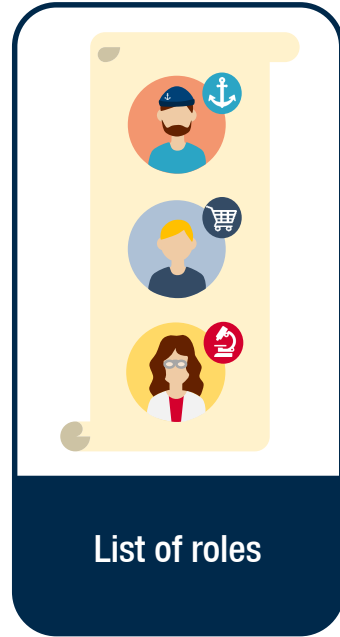
DIVING INTO SCIENTIFIC ACTIVITIES IN CASE OF CONTROVERSY

REPRESENTING SCIENTIST'S POINT OF VIEW ON SMALL CETACEAN BYCATCH



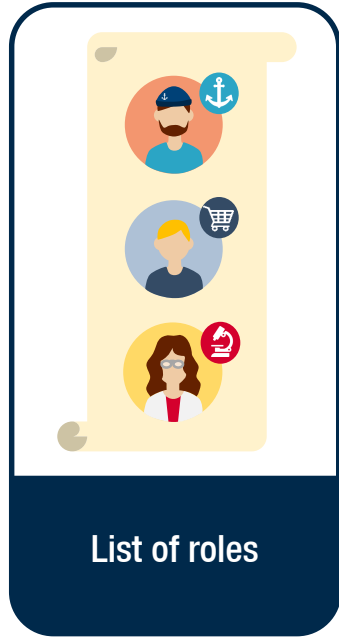
ASSOCIATING MODELS WITH ROLEPLAY PROVIDES A BASIS FOR DISCUSSION TO STAKEHOLDERS TAKING PART IN EXPLORATORY SIMULATIONS.

REPRESENTING SCIENTIST'S POINT OF VIEW ON SMALL CETACEAN BYCATCH



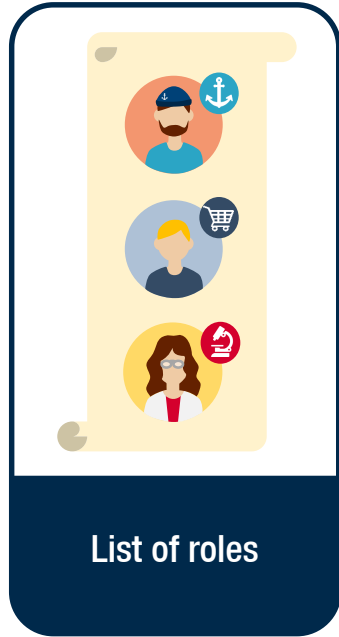
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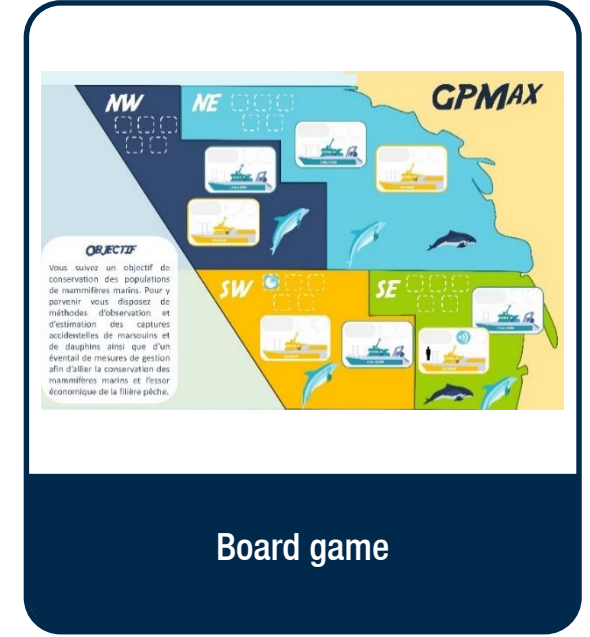
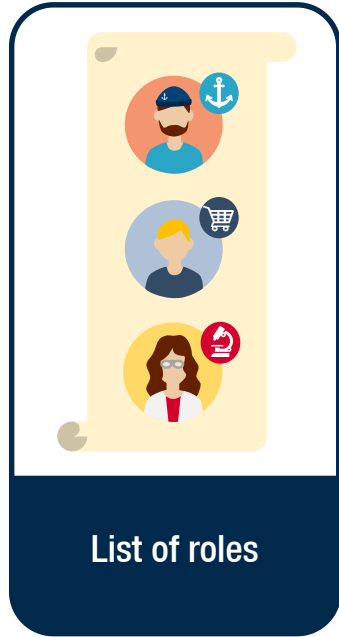
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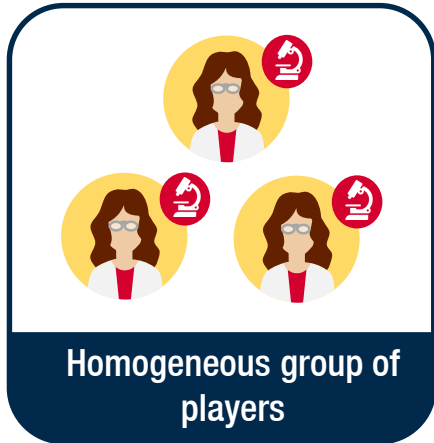
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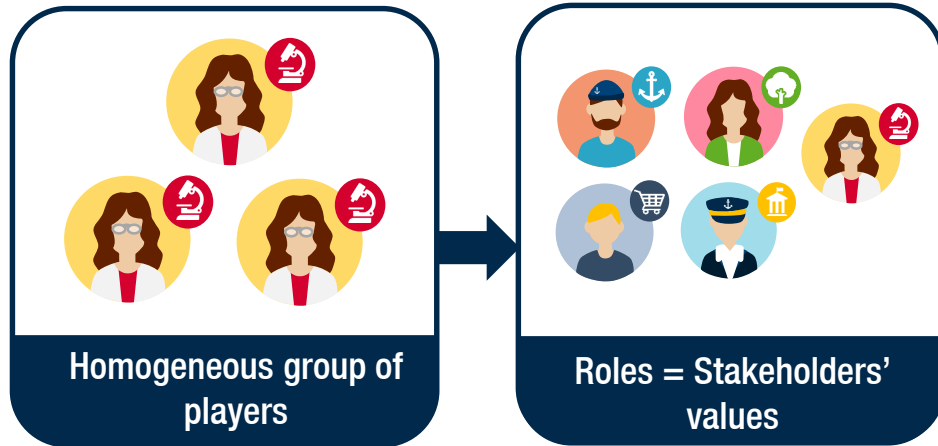


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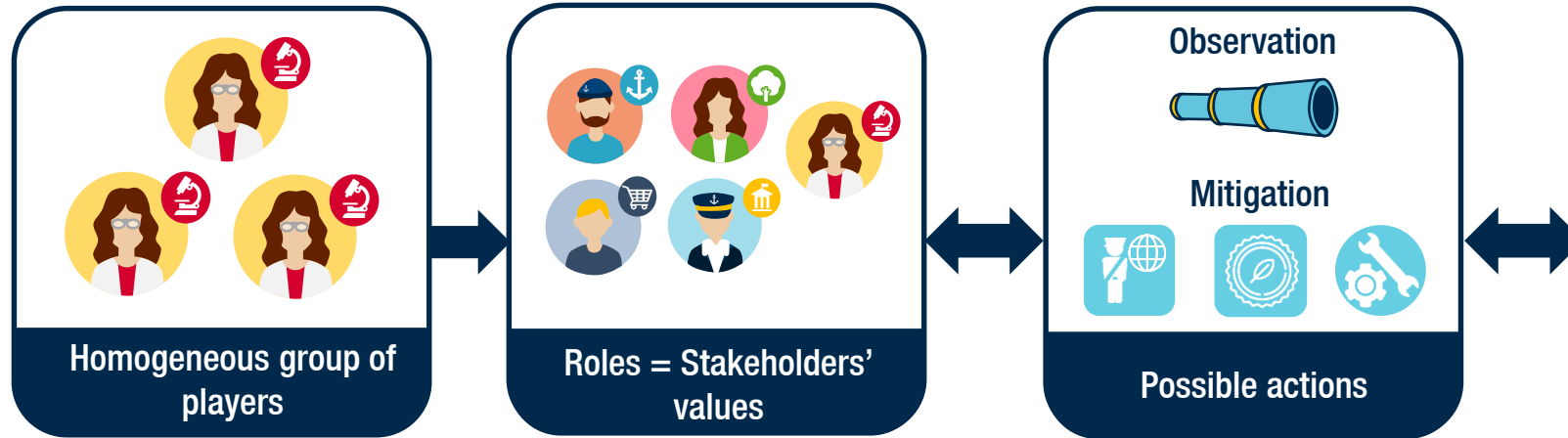
EXPERIMENTING SCIENTISTS' POINT OF VIEW ON CETACEAN CONSERVATION



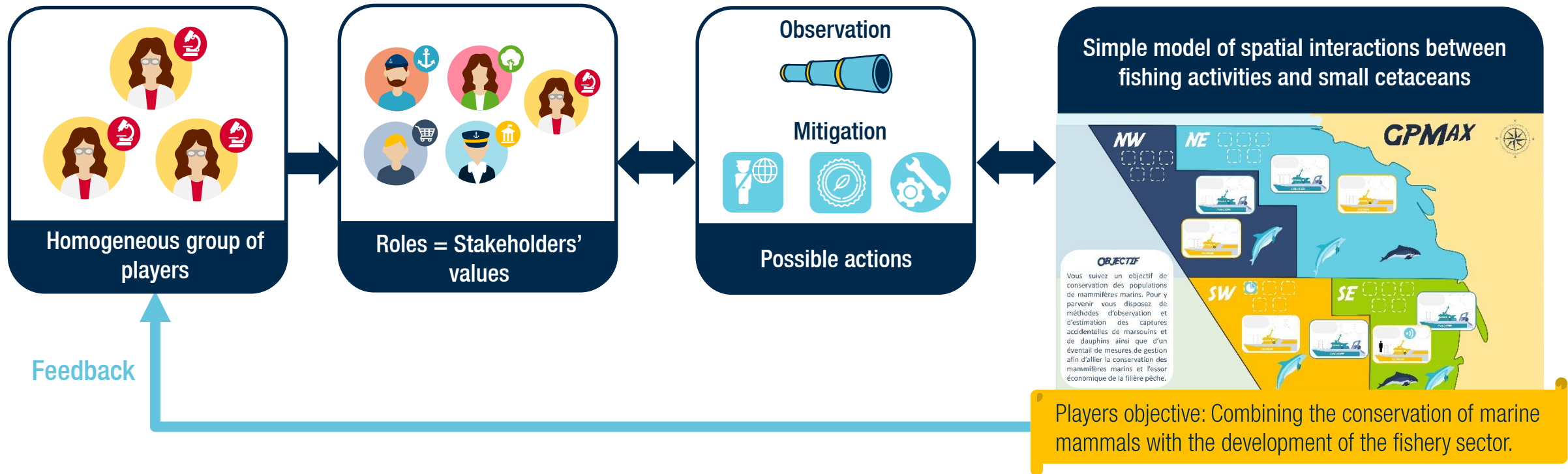
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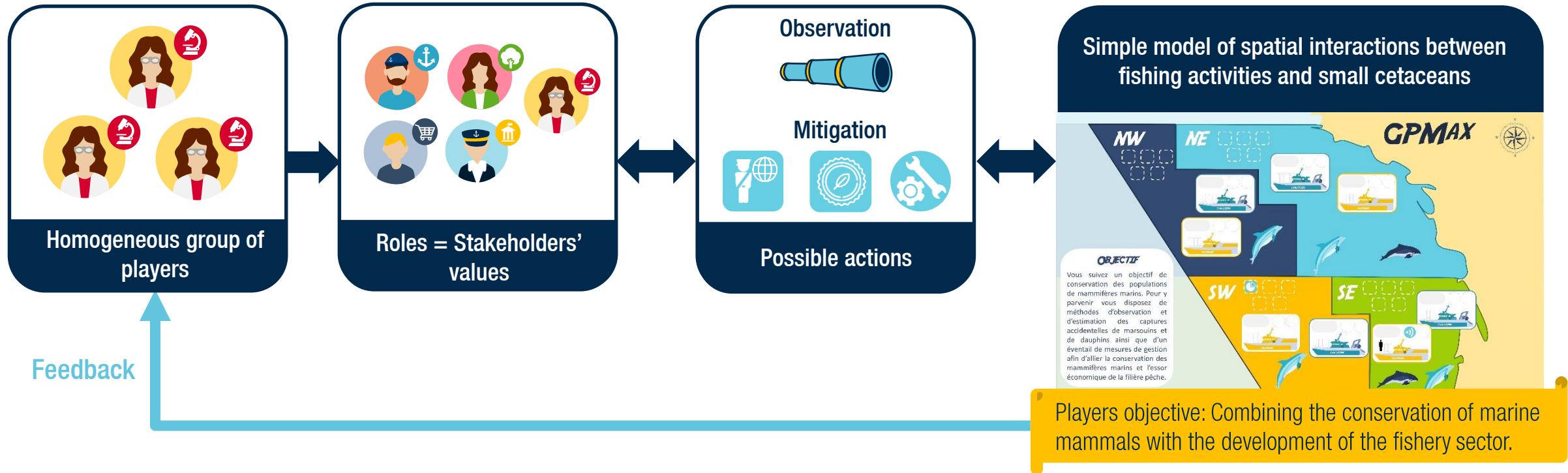


EXPERIMENTING SCIENTISTS' POINT OF VIEW ON CETACEAN CONSERVATION



DEPENDING ON THEIR ROLES, PLAYERS CHOOSE OBSERVATION AND MITIGATION INSTRUMENTS THEY WISH TO IMPLEMENT ON THE GAME BOARD. THEY THEN GET FEEDBACK FROM THE MODEL ON THEIR ACTIONS.

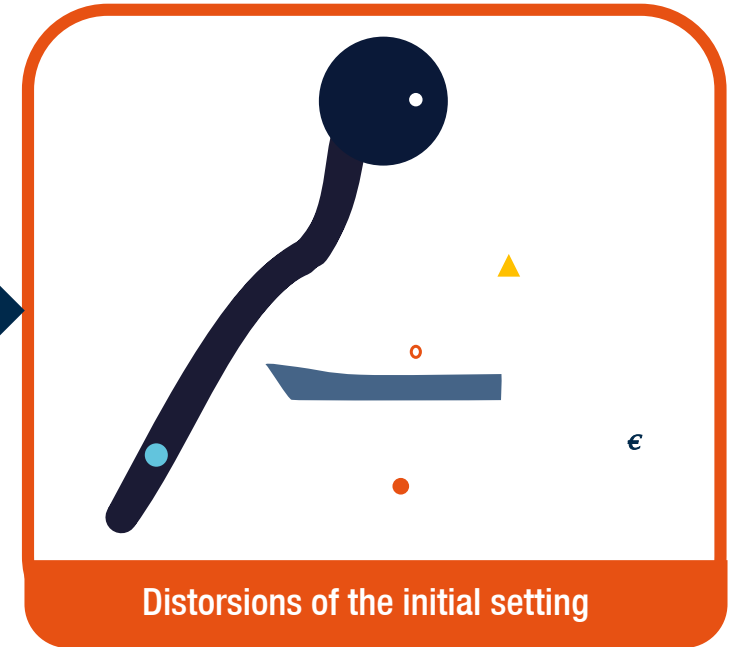
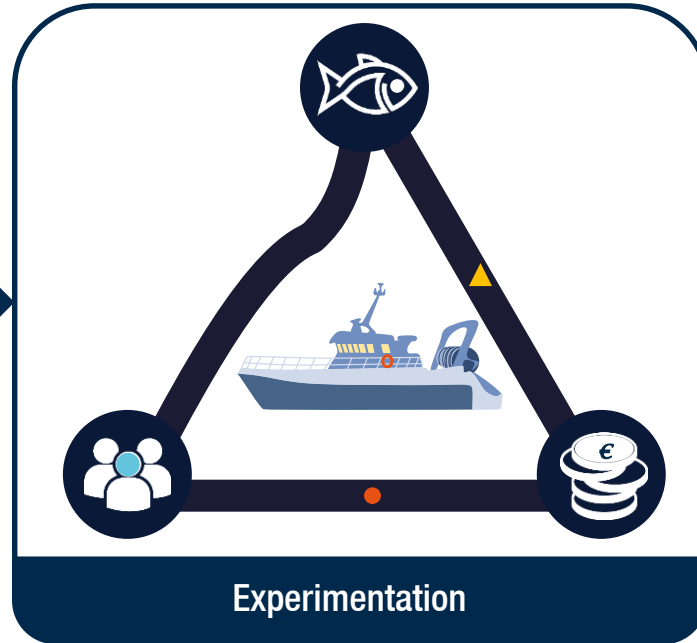
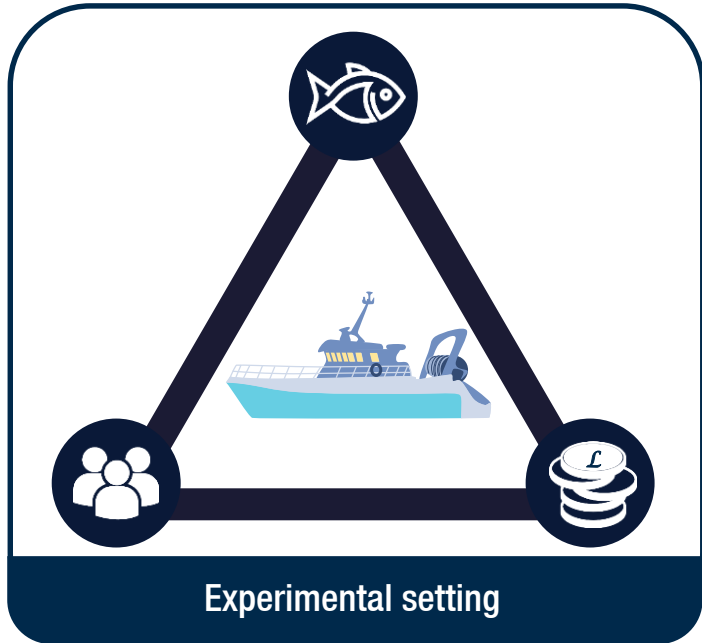
EXPERIMENTING SCIENTISTS' POINT OF VIEW ON CETACEAN CONSERVATION



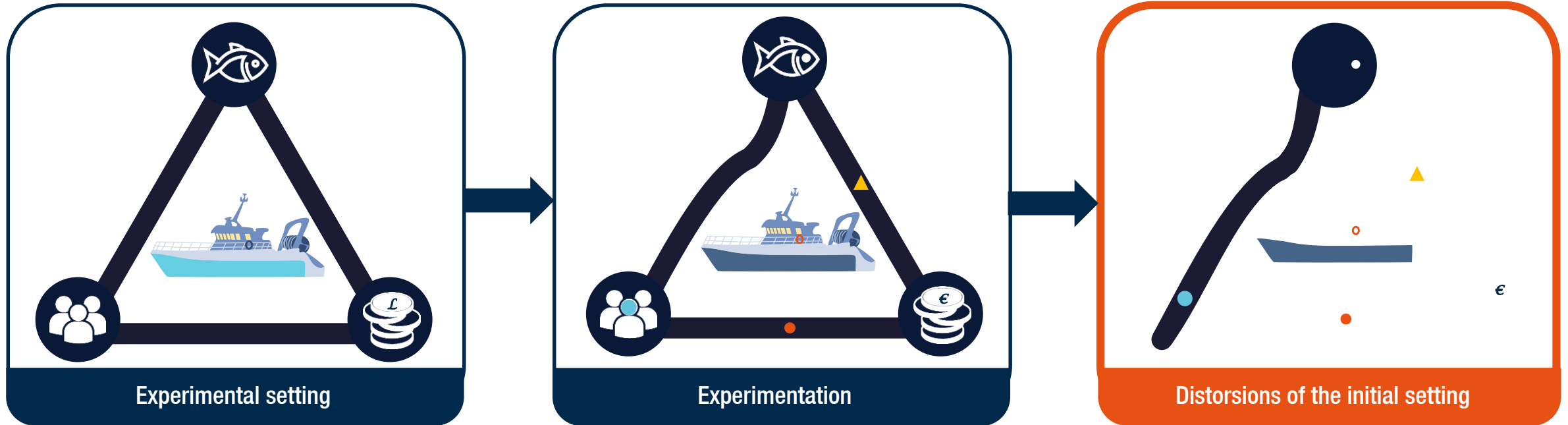
	<i>during the gaming session</i>	<i>after the gaming session</i>
	<ul style="list-style-type: none"> 📍 observation of players' interactions and strategies 	<ul style="list-style-type: none"> → collective debriefing → Individual questionnaire

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OBSERVING PLAYERS STRATEGIES

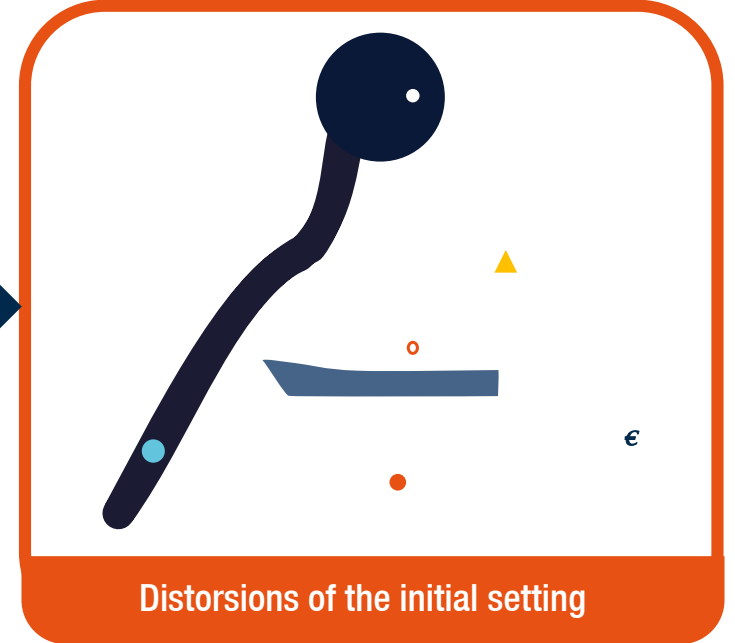
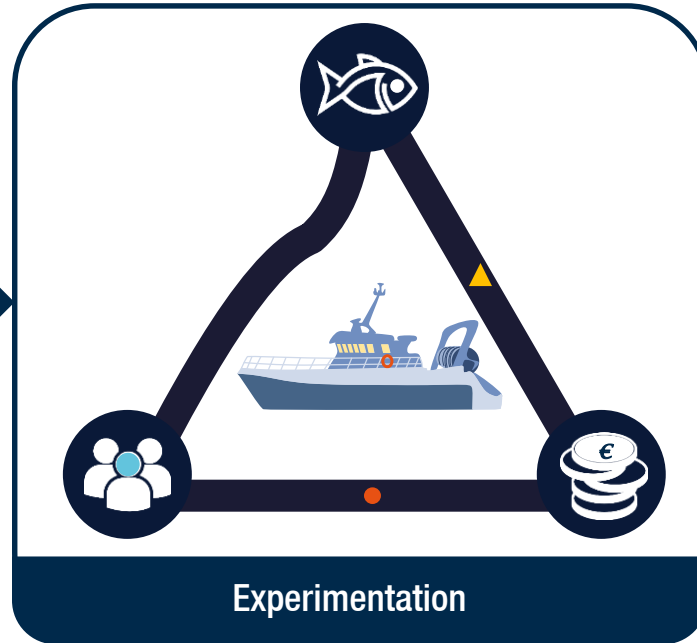
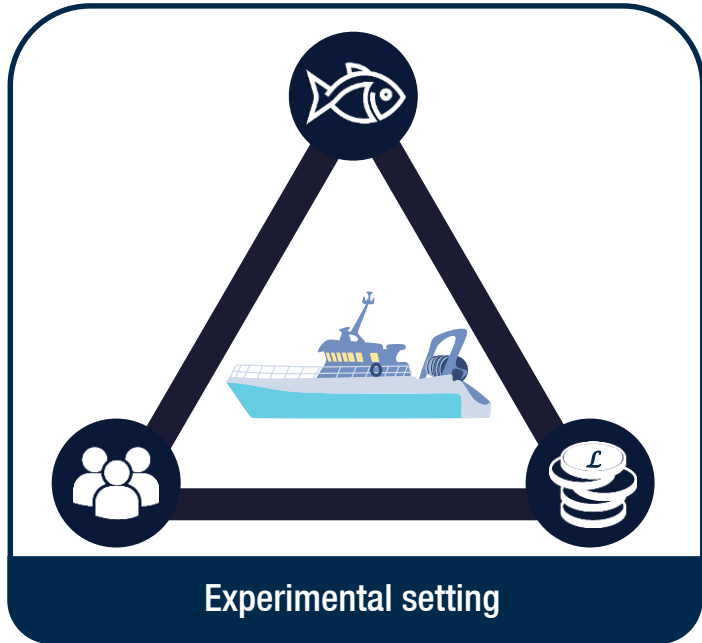


OBSERVING PLAYERS STRATEGIES



THE GAME AS AN INTERMEDIARY OBJECT TO FIX ACTORS STRATEGIES

OBSERVING PLAYERS STRATEGIES



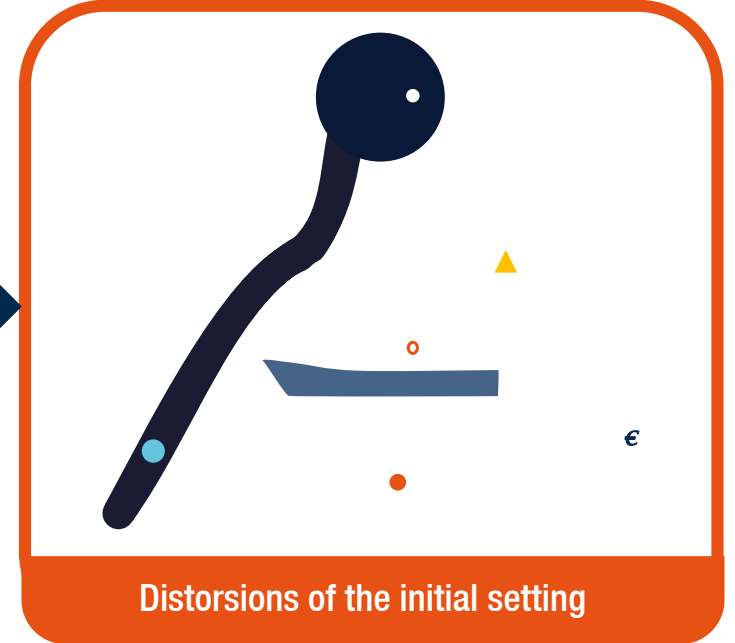
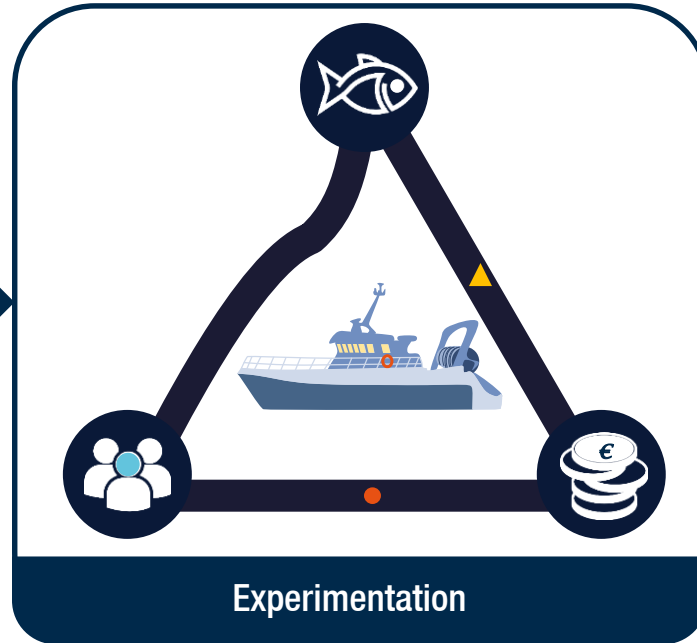
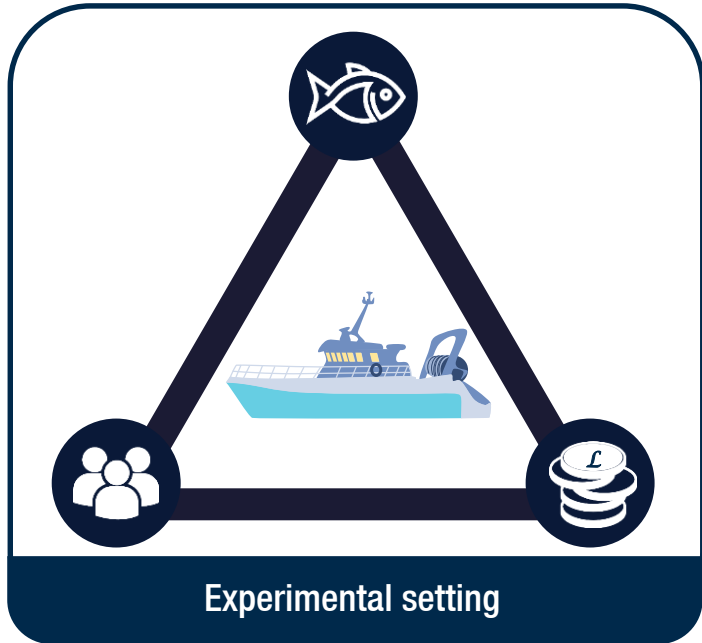
Strategies

Questioning the game

How do players alter the given framework?

THE GAME AS AN INTERMEDIARY OBJECT TO FIX ACTORS STRATEGIES

OBSERVING PLAYERS STRATEGIES



Strategies

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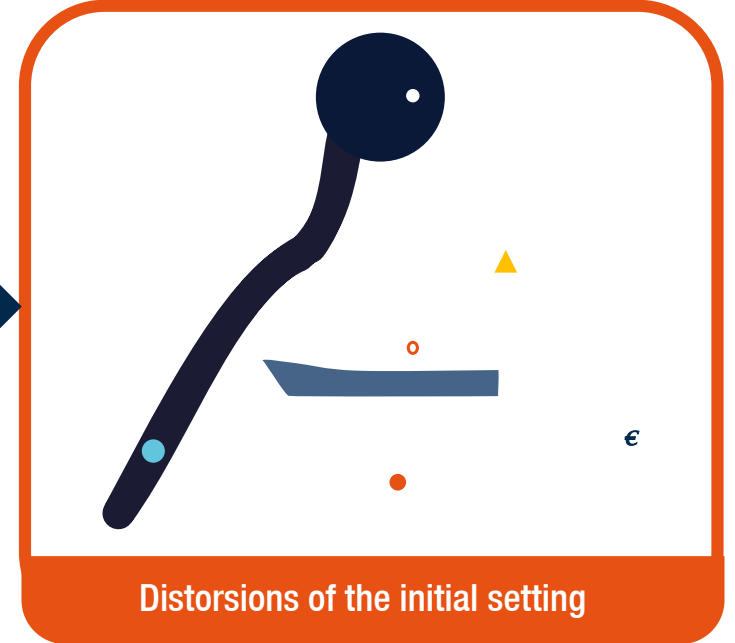
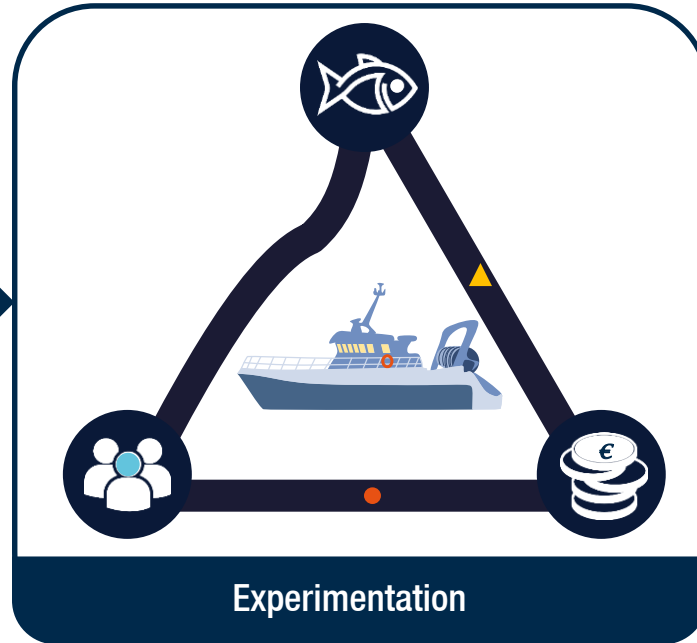
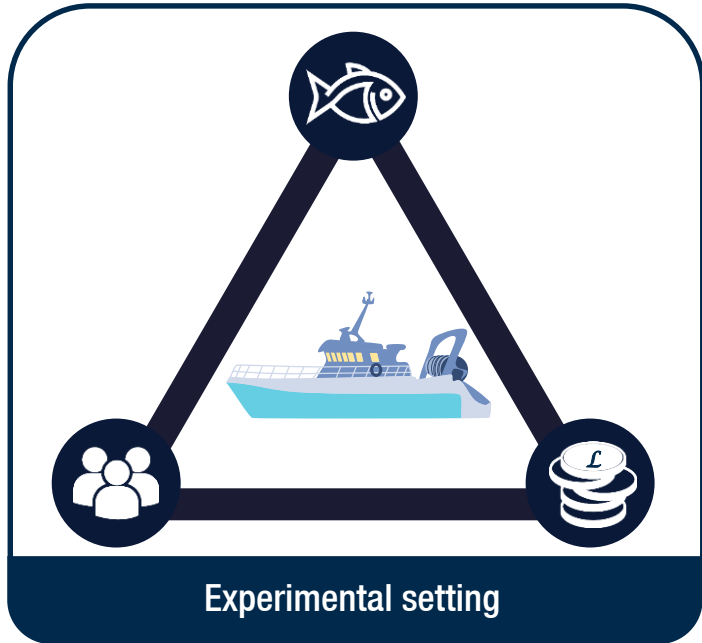
How do players alter the given framework?

Interaction between players

How do players alter their roles?

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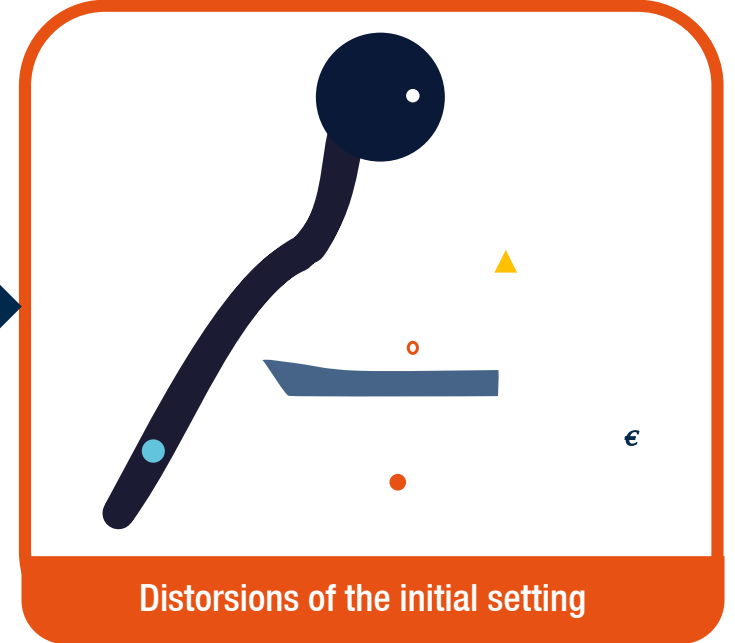
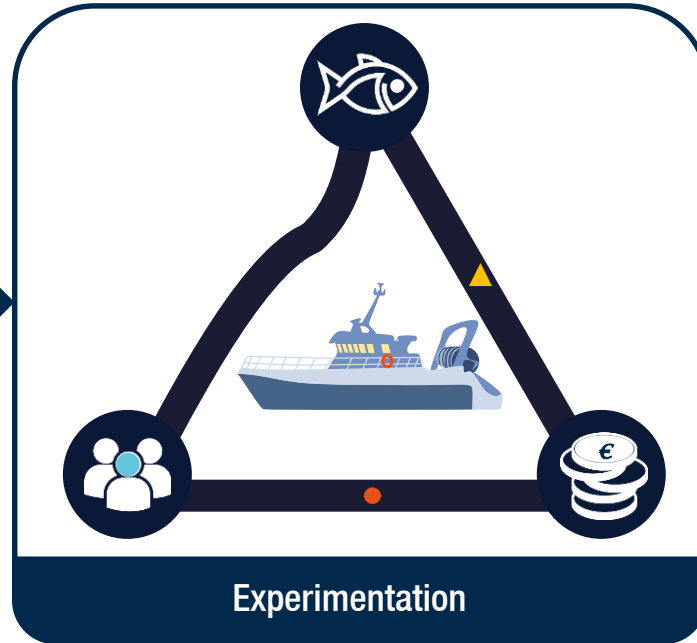
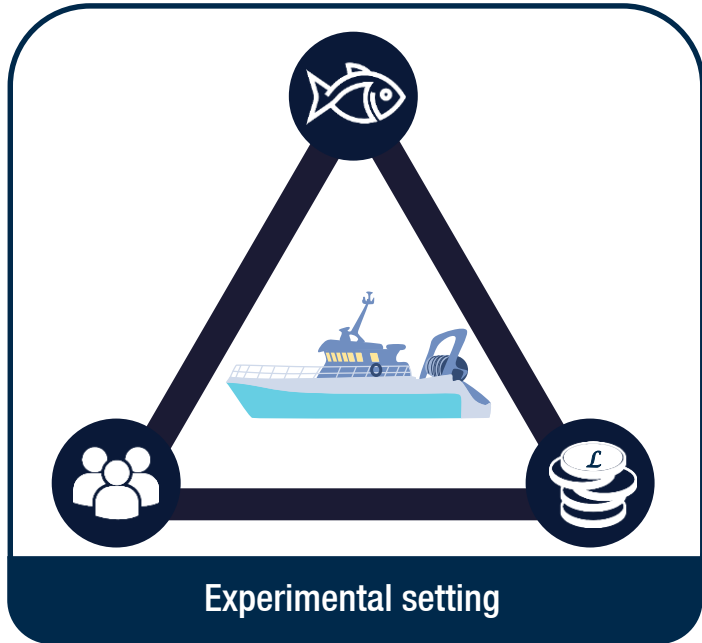
How do players alter their roles?

Argumentation of choices

On what type of rhetorical constructions do players rely to defend their point of view?

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Major Themes

How do players mention or react to some major themes?

THE GAME AS AN INTERMEDIARY OBJECT TO FIX ACTORS STRATEGIES

FROM THE GAME TO REALITY: OBSERVING ACTORS' STRATEGIES

THE ANALYSIS OF A 3 HOURS WORKSHOP WITH A GROUP OF MARINE BIOLOGISTS SHOWED THE RELEVANCE OF THE OBSERVATION DEVICE.

FROM THE GAME TO REALITY: OBSERVING ACTORS' STRATEGIES

Questioning the game

How do players alter the given framework?

Players altered the composition of the group of participants

They wished that NGOs, civil society and the press had been better represented in the roleplay.



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Interaction between players

How do players alter their roles?

Players joined forces to defend a common point of view

Two players agreed that decision making should be considered on a long term basis to facilitate concertation.



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Players relied on prior knowledge

One player suggested the use of onboard cameras that are not modelized in GPMax.



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Major Themes

How do players mention or react to some major themes?

Observation instruments

Players expressed their doubts about the relevance of onboard observers to estimate bycatch.



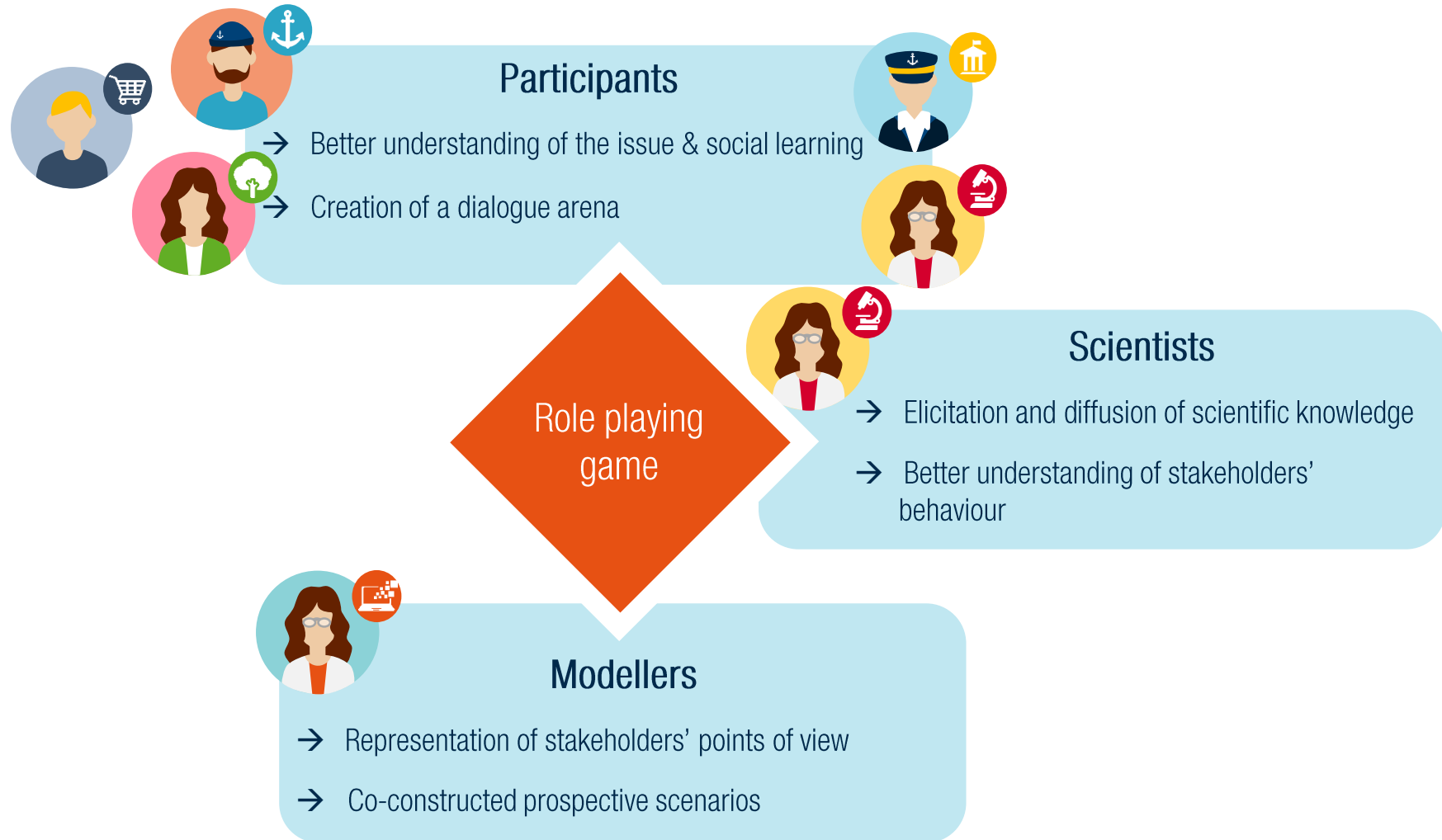
THE ANALYSIS OF A 3 HOURS WORKSHOP WITH A GROUP OF MARINE BIOLOGISTS SHOWED THE RELEVANCE OF THE OBSERVATION DEVICE.

WHAT CAN BE EXPECTED FROM THIS TYPE OF GAMES?

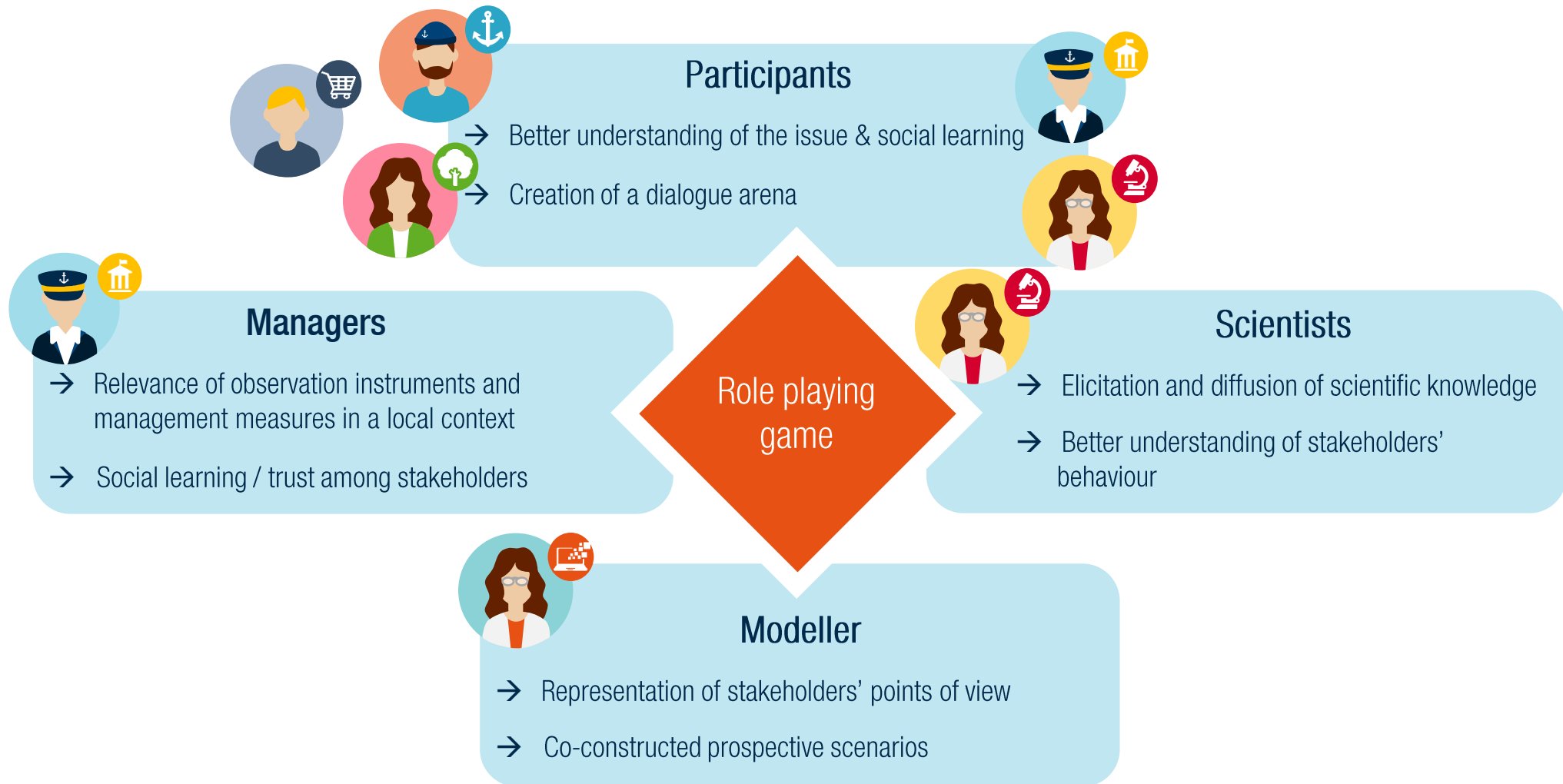
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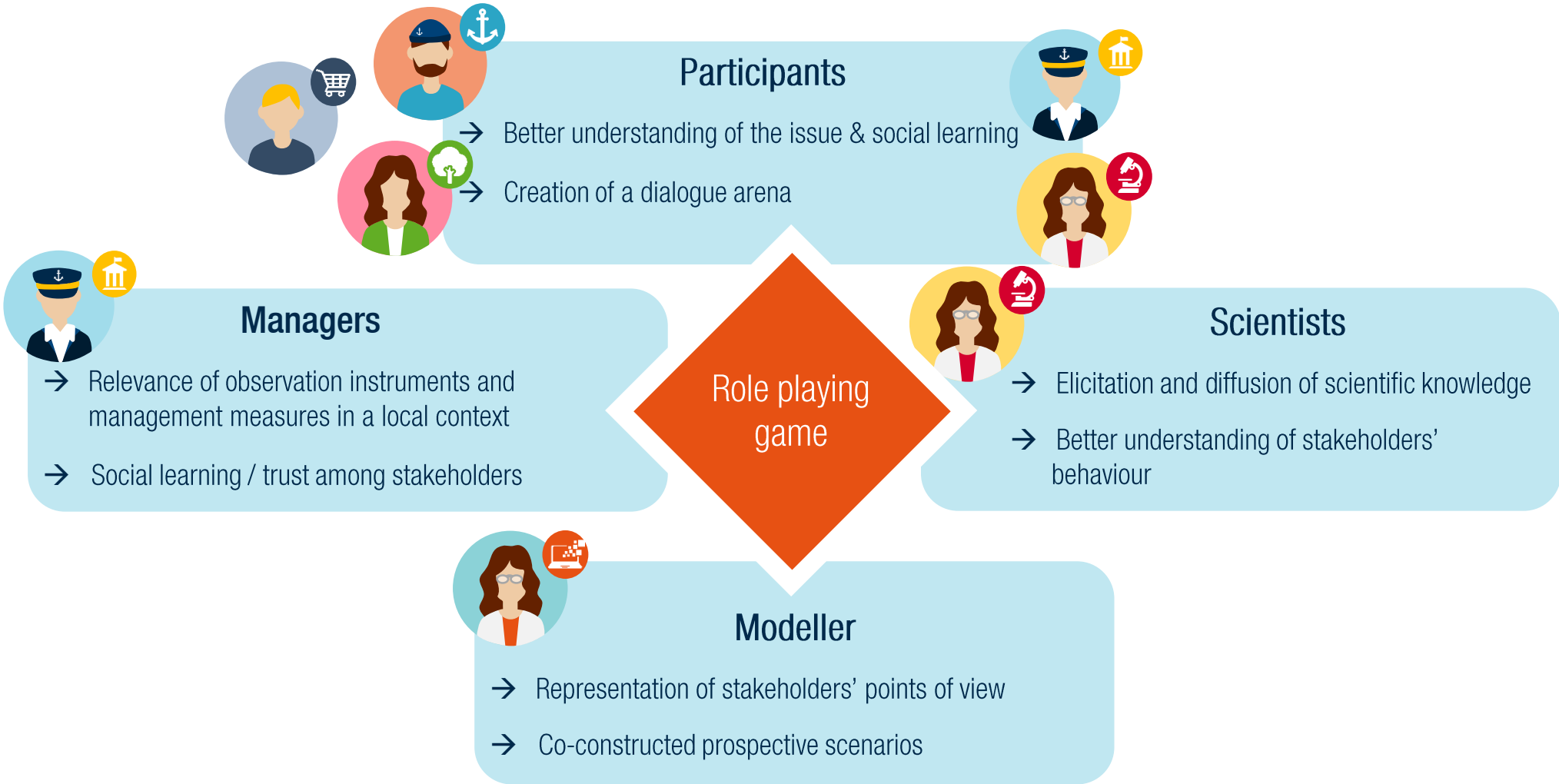
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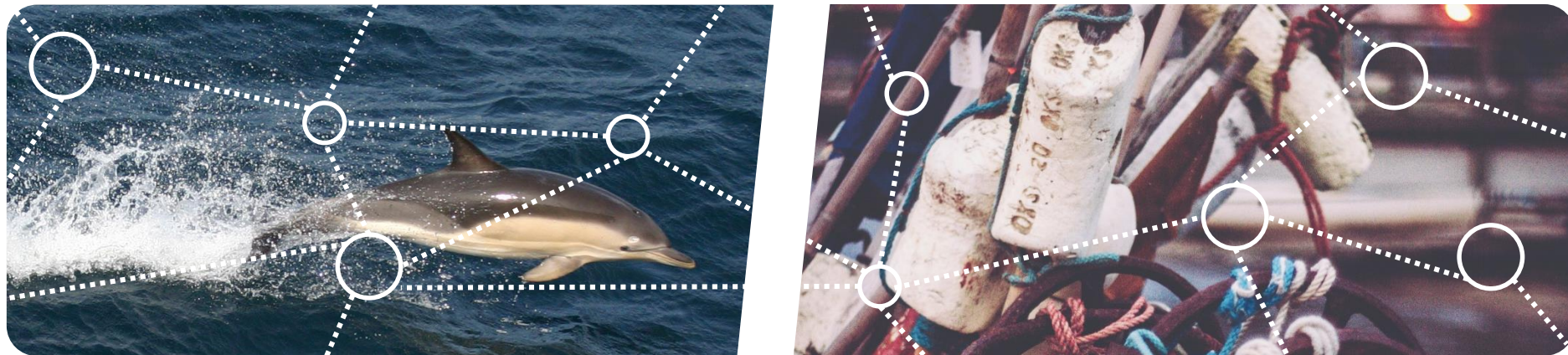
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INTEGRATION OF MULTIPLE POINTS OF VIEW TO CO-CONSTRUCT A SHARED AND THOROUGH VISION OF THE WITHDRAWN PARTS OF FOOD SYSTEMS

Thank you for your attention!

17th Annual STS Conference Graz 2018 – Session 30: Imaging sustainable food systems, Mai 7th - 8th 2018



Playing a serious game to visualize the social dimension of cetacean bycatch

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