WORKSHOP REPORT

Co-Design Workshop on Emerging eCDT Technoloy for Indonesian Fishery Supply Chains

BOGOR, DECEMBER 7-8, 2020

INTRODUCTION

Indonesia is one of the largest seafood-producing countries globally, with high value exports to the United States, Japan, and the European Union as well as a thriving domestic market for local consumption. Over the last five years, Indonesia has moved towards increased compliance with traceability and transparency initiatives in large part driven by export-oriented market forces. Given the characteristics of Indonesian fisheries – long supply chains, extensive number of stakeholders/agencies involved, and varying data required by respective links in the supply chain – data collection requirements (from point of landing to export) can be challenging.

Some fishing industries and government alike have begun to use electronic documentation and recording systems in response to increased demand for transparency within supply chains. The Ministry of Marine Affairs and Fisheries (MMAF) in turn has tasked its Strengthening the Competitiveness of Marine Products Division (PDSPKP) with the development and streamlining of an electronic catch data technology (eCDT) platform known as STELINA. In 2019, MDPI co-hosted a workshop with PDSPKP to identify challenges and opportunities in developing electronic traceability systems for the fishing industry. The workshop was a successful exercise resulting in a matrix of needs, challenges, and potential solutions related to traceability technology. At the time, an outcome/next step identified was the need for a follow-on workshop to strengthen stakeholder collaboration and potential development of how best to connect existing traceability systems in Indonesia for Indonesian stakeholders.

In December 2020, MDPI and PDSPKP, with support from SALT and USAID, hosted this follow-on workshop. Titled a “Co-Design Workshop on Emerging eCDT Technology for Indonesian Fishery Supply Chains,” the workshop had three primary objectives:

1. To strengthen stakeholder understanding of the requirements, benefits, challenges, and methods for achieving comprehensive eCDT;
2. To strengthen stakeholder collaboration and information sharing networks with the shared vision of achieving traceability;
3. To further identify and refine the requirements (in terms of cost, equipment, and human capital) for developing and connecting traceability systems in Indonesia

The following is a report on the activities and outcomes of the workshop.

ACTIVITY SUMMARY

WORKSHOP OBJECTIVES

> STELINA DISSEMINATION

Disseminating on the traceability system developed by KKP (Ministry of Maritime Affairs and Fisheries)

> e-CDT PRINCIPLES DISSEMINATION

Disseminating traceability principles and standard required by the international market

> SHARE INFORMATION

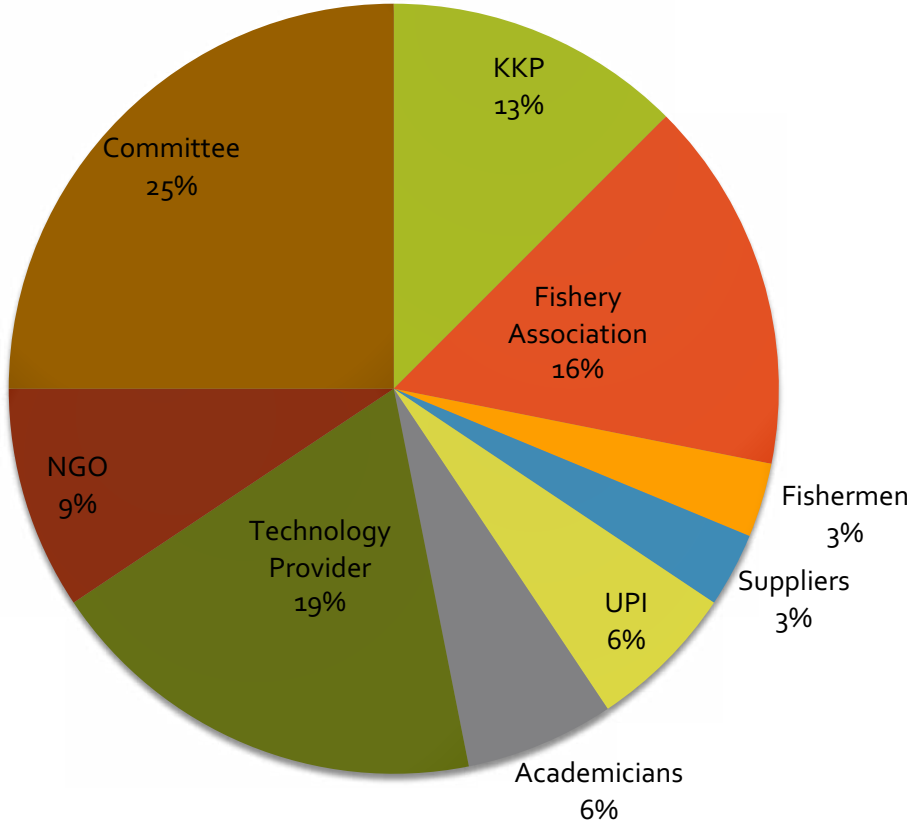
Related to technologies that can be used in collecting data and analyzing and storing fishery data for traceability

> DEVELOP DESIGN

Electronic-based traceability system that can be used in Indonesia fishery

PARTICIPANTS

WORKSHOP PARTICIPANTS



While MDPI anticipated inviting between 50-60 participants, due to the pandemic, 32 participants were gathered in Bogor.

8 FEMALE AND 24 MALE WERE PRESENT

KKP: 4 persons
Fishery Association: 5 persons
Fishermen: 1 person
Suppliers: 1 person
UPI (Fish Processing Units): 2 persons
Academicians: 2 persons
Technology provider: 6 persons
NGO: 3 persons
Committee: 8 persons

KEY POINTS OF PRESENTATION

STELINA APPLICATION ON STREGTHENING PPP: Supporting sustainable fishery management

- Focus on PDSPKP (Directorate General of Strengthening Competitiveness): Development of fishery logistic corridor (Corridor Kendari – Java, Corridor Mimika – Java, Corridor Ambon – Java, Corridor Bitung – Java and Corridor Makassar – Java)
- To support that, KKP signed an MoU with Garuda charter flight airline for Bitung or Ambon area
- National Fish Traceability and Stock System (STELINA) is national fish and fishery product traceability information system to facilitate fishery business actors in recording and tracing traceability and fish and fishery product logistic documents electronically in an effort to fulfil policy and regulations of export destination country
- Within the last six months, KKP was implementing and mentoring STELINA in Mimika – Papua, with mostly female-dominated actors
- STELINA Challenge in Mimika, Papua
    a. Needs STELINA system adjustment, related to user need on the field
    b. STELINA needs boat owner registration, while the reality on the field, some small sized boat <5GT are not yet registered, so it is hard to implement STELINA

COMPREHENSIVE e-CDT PRINCIPLES AND REQUIREMENTS

1. e-CDT = Electronic Catch and Documentation Traceability
2. USAID Ocean helps technology implementation while SALT helps disseminating (knowledge) and empowerment program through training and workshop
3. Traceability must inclusive to large and small stakeholders
4. DESIGN
    a. Infrastructure, data collecting to social information to identify fishermen
    b. Program implementation from utilizing technology for fishery data collecting so program used benefits community socially.
5. SALT will make a guideline for e-CDT principleS
6. There are 3 kinds of documents needed to access Europe, United States of America and Japan market. These market needs Electronic Catch Documentation Traceability information
    a. Europe union (require Catch Certificate document)
        i. Possess certification from competent authority
        ii. Introduce carding system
    b. US SIMP (Seafood Import Monitoring Program)
        i. USA seek importers
        ii. Each product sent to USA market require Seafood Import Monitoring Program document as USA import requirement
    c. JAPAN
        i. Realize the importance of product traceability for food safety and product quality
        ii. Japan has recognized import requirements from Europe and USA in the interim until Japan implements its own import requirement by adopting documents from Europe and USA. KDE alignment from US SIMP and Catch Certificate adoption will be done.

USING RFID TECHNOLOGY TO RECORD TRACEABILITY DATA

- RFID : Radio Frequency Identification
- Case example : Fish data collecting system from supplier, production process until packing and delivery by Shanindo (Makassar) processor cooperating with YKAN (Yayasan Konservasi Alam Nusantara). This fish data collecting starts from supplier, production process until packing and delivery. YKAN objective at the moment is getting supplier's data like catching species, weight, and origin by storing all these data in RFID. End product will be labeled with a barcode.
- Hardware required for RFID : Tablet/Mobile phone/Computer, RFID reader, Scale, Barcode reader and Barcode printer
- RFID as solution for traceability because:
  a. Helps workers work easier : User only need to tap their RFID card and minimal contact with devices and workers can focus on production
  b. Device simplification: Low cost, easy procurement,
  c. Water and extreme temperature resistant
  d. Reusable
  e. Flexibility to determine batch level/tier, through splitting and joining (merging) feature
- Challenges on RFID use :
  a. Mobile RFID reader supporting devices are rather expensive and have to be ordered abroad
  b. RFID adjustment with field condition, water and humidity resistance. Therefore it is needed to do production site requirement survey including production process flow and technology requirements
  c. Hardware installation must meet the standard: must have no rust, no frequent contact to water and product, mapping location goes in accordance with what is established from the factory.

USING BARCODE TECHNOLOGY TO RECORD FISHERY TRACEABILITY DATA

- Barcode is: code in bar and space pattern designed to be scanned and read to computer memory that is usually used on packaged product contains unique product information as identification of the said product. The information on that barcode is read by a Barcode Scanner
- Benefits of using barcode
  a) Faster and more accurate data entry
  b) More accurate data searching
  c) Decrease operational cost from shifting to paperless method
  d) Increase on management performance
  e) Value added for company by being more efficient and effective
- QR Code has information to web URL address of product or company, geolocation data used on map or information that can be written in under 4,000 character or more (depends on type of data).
- Benefits of using QR Code
  a) Helps company market their product by putting company/product site
  b) Can be used in tagging process, that helps tracing product's origin
  c) Fast communication with device, with QR Code scanner device, data can be recorded quickly to input to information system
  d) Helps quickly trace supply chain of a fishery product through labelling

APPLICATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY

- Artificial Intelligence (AI): is an effort to model human thinking process and design machine to be able to copy human behavior
- Machine learning: is computer program that learns from big data that can develop by its own automatically along with experience, so the computer program has knowledge and intelligence.
- Deep Learning: is a machine learning technic where a program is made based on human brain's nerve network system working principle.
- Case Study on fishery for AI and Machine Learning :
  - In doing monitoring of fish catching in the sea, there is a challenge to get information to trace fish like catching area, type of fish caught, time of catching, and the boat and fish catching device used. These data will convince consumers to choose and determine their food product. Information on the time they caught the fish is also needed so consumers can figure out the quality of the fish they will consume.
  - To resolve this, then the technology on board is in form of monitor camera or GPS tracker.
  - But the challenge of this technology implementation is the result data will be too many (pictures and points of coordinate). This will be hard to analyze. So we need a learning machine to process the data analysis with quick result and integrated between data from tracker and type of fish caught. So catching location, type of fish and time of catching will be integrated will be resulted in specific information crucial for tracing.

APPLICATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY, CONTINUED

- How Machine Learning Works
  - Photo resulted through CCTV or camera recording will input to system to be used as training to know the fish (computer training). Machine is trained to know the species and length of fish or other information.
  - After recognized by system, the output can be an Excel Spreadsheet of information on Amount and Types of Fish; Length, Weight, Time and Crop Image of Fish. Result of fish species or length have confidence score, or how accurate the result shown. The more photo introduced to machine learning, the better it will know the fish and the higher the accuracy will be. Then to specifically find the fish caught, it will be integrated with coordinate spot data from gps tracker coordinate.

Pros of Machine Learning	Cons of Machine learning
1. More complete catch data 2. Catch area and *rumpon* (fish aggregating device) location data 3. Fishery management: Fish stock amount estimate, *rumpon* (fish aggregating device) set up management 4. Helps certification process 5. Artificial intelligence: makes data collecting and analysis faster and increase resources efficiency	1. Data confidentiality: location of catching area 2. Data infrastructure cost 3. Still on research level

APPLICATION OF BLOCKCHAIN TECHNOLOGY

- Blockchain: Highly safe data storing system technology because data are stored in multiple computer system. That makes data harder to steal.
- Blockchain has 3 meanings: chain, link and distributed.
- Why is Blockchain Safe?
  - Blockchain related with fishery traceability puts data to be publicly accessible but stored safely and can not be stolen or hacked.
  - Data are stored on link server to blockchain and shared to public
- Blockchain case study:
  - ANOVA entered data from their many information systems like Tracetales, UPI, laboratory result. The outcome will let them know how is the fish traceability going.
  - AP2HI gets help on data collecting for MSC requirements.
- The main thing in blockchain implementation is the commitment from all supply chains to use that blockchain together.
- Blockchain can filter any data that it wants to filter.
- Weakness of blockchain:
  - Computer speed can not be controlled or will slow down because it is connected with many other computer systems.
  - Data are Public and are available on everyone's computer server
  - Slow data access (read/write)

GATHERING IDEAS ON TRACEABILITY SYSTEMS

CAPTURE FISHERY CONSIDERATIONS

a) Integration from boat, type of fish, weight and length that can be seen from land
b) Eco-friendly catching device, incentive for sustainable-conscious fishermen, law enforcement
c) Affordable & easy technology for small scale fishery
d) Device to detect missing fishermen
e) Device to detect depth of fish to make fishermen catch them easier
f) Technology to count amount of boats in real time (boat >30gt, 20-30gt)
g) Data digitalization improvement M2M system for actors on the field
h) Deep learning + e-logbook + VMS
i) Simplify fishermen's catching data recording/collecting (SHTI, verification of catch result)
j) Technology to determine and trace quality of fish and food safety
k) IIU Fishing small boat permits are not equal in the whole country and needs adjustments between central and regional government, and the importance of simkada dissemination to regional government
l) Online insurance for fishermen
m) Adaptation with international regulation

AQUACULTURE FISHERY CONSIDERATIONS

a) Automatic monitoring water quality
b) Technology for water quality testing at the pond to determine fish wellbeing
c) Management/production monitoring application
d) Technology of shrimp cultivation result
e) Technology of traditional cultivation result
f) Society-based cultivation gonad mature “fish for fish” house building to prevent exploitation
g) Society-based superior fishery product diversification

MINISTRY TRACEABILITY SYSTEM CONSIDERATIONS

a. Integration with other systems, both government and private
b. System integration (SIPEPI, SIMKADA, Kusuka, RVIA/diva tuna) in STELINA
c. Data/system uniformity
d. National policy (MKD) to integrate e-traceability built as ‘one traceability system in Indonesia’
e. Collaboration between directorates within the Ministry of Maritime Affairs and Fisheries
f. Standardization of fishery data collecting (for small/large business)
g. Clear legal protection for all STELINA
h. Omnibus for the Ministry of Maritime Affairs and Fisheries trace system
i. Technology can indicate that a fishery product has certain nutritional value and halal ingredients. Specially for small scale SME that do not put those information on their packaging.
j. Provide and guarantee species data and estimation system in an area in the waters
k. Increase data collecting technology of sea and air quarantine to find out about seafood circulation in Indonesia
l. The use of blockchain for current system
m. The use of RFID from SEA to UPI

MARKET/FINANCIAL SYSTEM CONSIDERATIONS

a. Technology to use as a platform for seller, supplier and buyer to meet
b. Online market place for seafood product with safe packaging and product freshness concern
c. Marketplace dissemination for all systems
d. ERP-finance application at fish processing unit, supplier, etc
e. Availability of financing/financial option online based on sales history
f. Trade system to help domestic market absorption
g. Higher price/award guarantee for non-IUU (illegal, unreported, and unregulated) fishermen
h. Use of Blockchain system for fish amount and price
i. Use of Bitcoin for supplier/fishermen

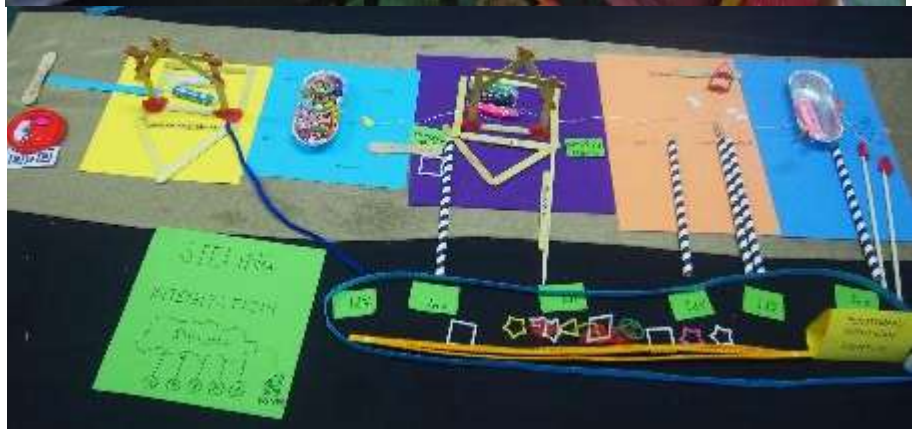
PROTOTYPING

PROTOTYPE 1:

OMNIBUS STELINA

Member :

- Saut Tampubolon (MDPI)
- Dien Wong (Altermyth)
- Bayu (MDPI)
- I Gede Sujana EP(MDPI)
- Hery (Yayasan IPLNF)
- Yuliati Sipahutar (Politeknik AUP)

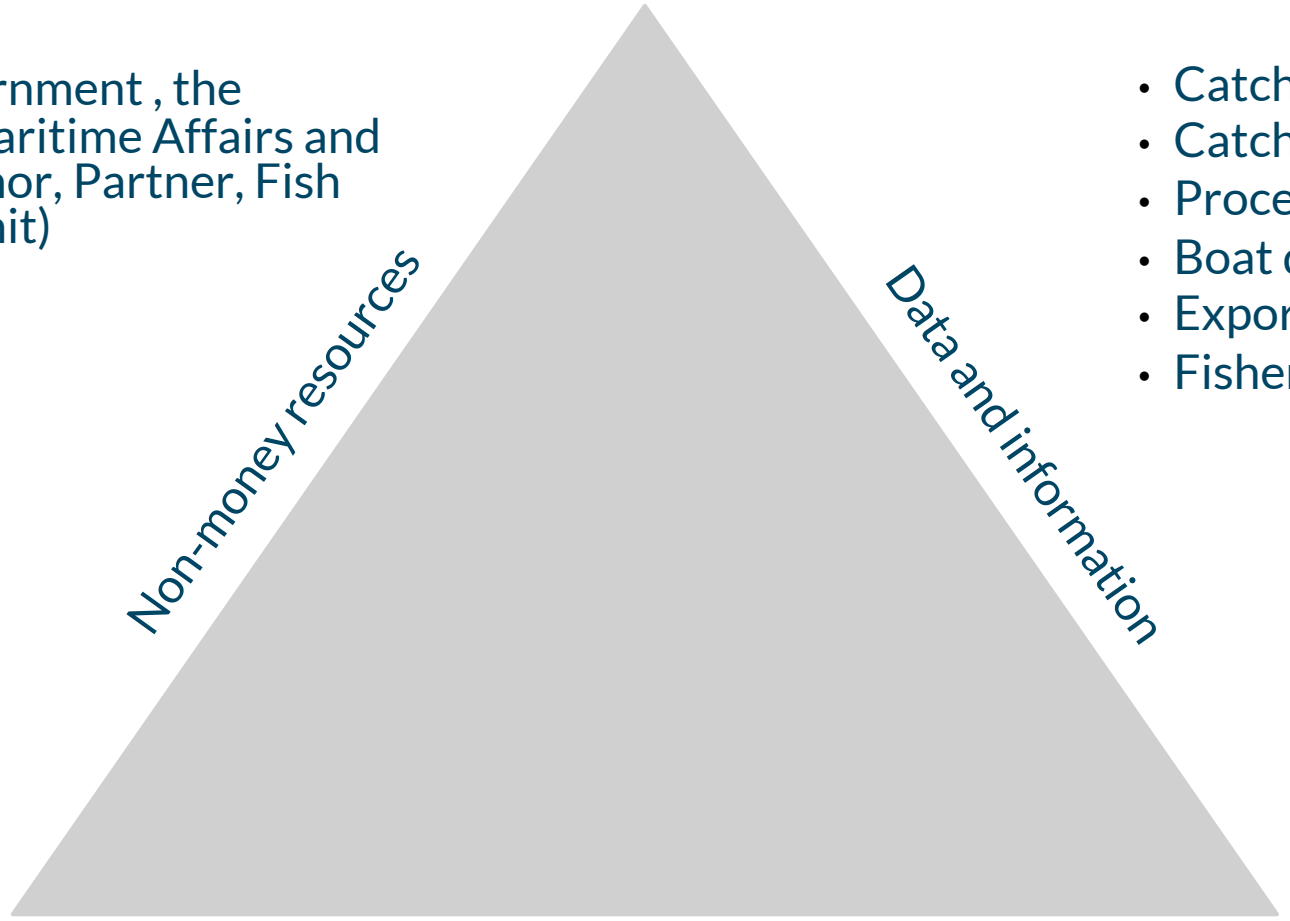


OMNIBUS STELINA

CONCEPT: ONE GATE INDONESIA FISHERY TRACEABILITY SYSTEM/ OSS (ONLINE SINGLE SUBMISSION) FOR THE MINISTRY OF MARINE AFFAIRS AND FISHERIES

- Cut the current long traceability system process to be simpler by making one Indonesia traceability gate from the sea to consumers. Data collected from government system and private system are stored here.
- E-Logbook and SILOPI are expected to be combined and processed to SHTI.
- Fish channel goes to fish processing unit, then to Sister Karoline, private system
- Government get data from STELINA
- The utmost important requirement is higher regulation and willingness from government to enact omnibus. Aside from that, legal foundation for STELINA is also required.

- People (Government , the Ministry of Maritime Affairs and Fisheries, Donor, Partner, Fish Processing Unit)
- Policies



- Catching location data
- Catching data
- Processing data
- Boat data
- Export data
- Fishery data reconciliation

Year

0	1	2	3
Minister Regulation /Decree	Early Planning	Development Integration	Trial Improvement

OMNIBUS STELINA

FURTHER RESOURCES

Research: STELINA Integration	**Participation in pilot:** • The Ministry of Maritime Affairs and Fisheries • Technology Provider • Association/Business Actors • Donor /NGO • Buyer
Experience/knowledge/device: • System developer • API Interface	**Financial Support:** • The Ministry of Maritime Affairs and Fisheries • Donor • Business Actors

PROTOTYPE 2:

SKPI APPLICATION

Member :

- Farid Maruf (USAID SALT)
- Solah (PDSPKP)
- Wildan (MDPI)
- Inggir Lisbeth Sihite (PT. Fresh on time seafood)
- Ruben Wicaksono (PT.ION)
- Dwi Agus (ATLI)

SKPI APPLICATION

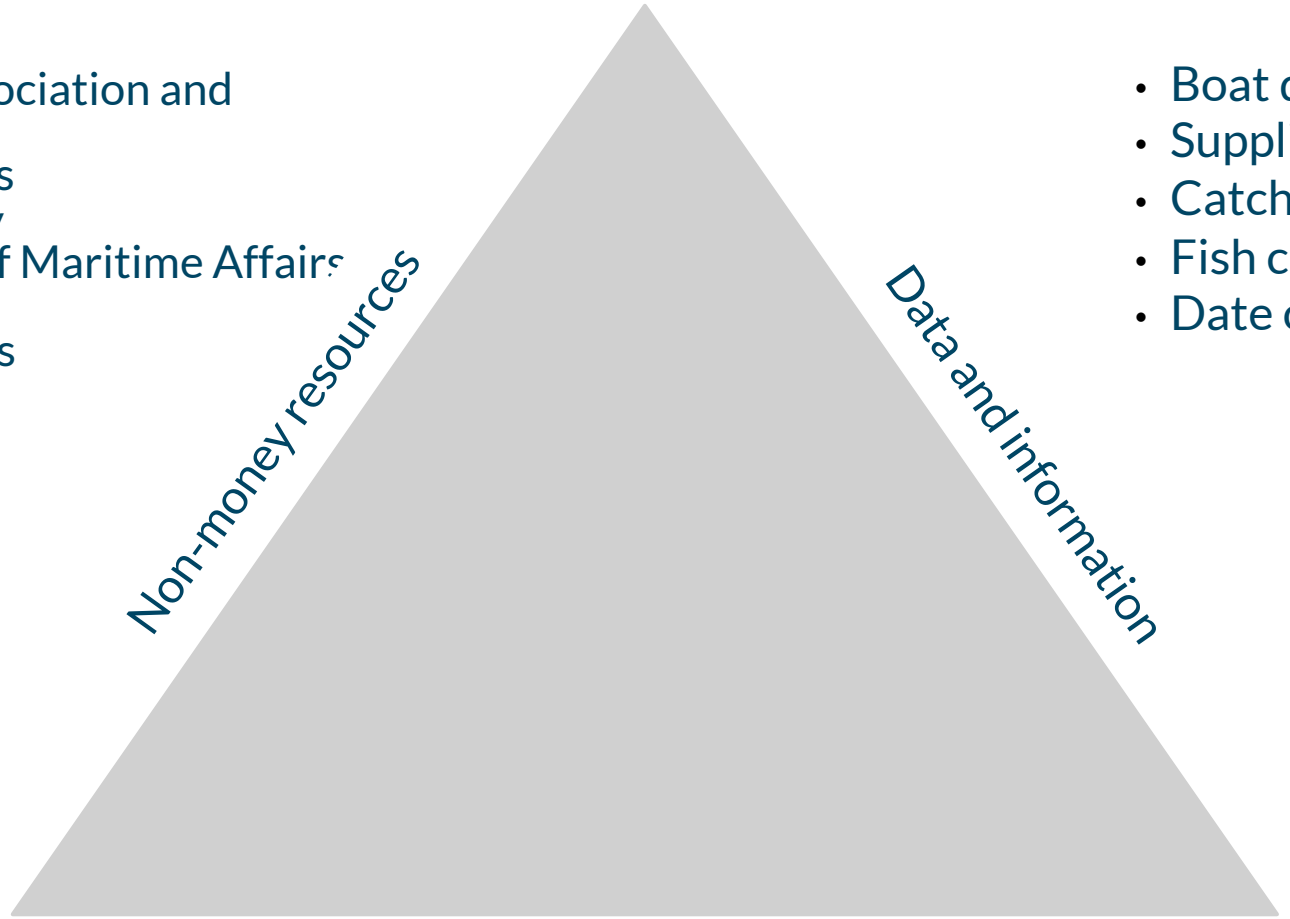
CONCEPT: TRACEABILITY DOCUMENT FULFILMENT IN UPSTREAM (FISHERMEN, SUPPLIERS) TO PENETRATE EU MARKET

- Issue for blue swimmer crabs caught by small fishermen are not yet correctly recorded
- Fish processing units (UPI)/ exporters face difficulties to implement traceability system because the data were not recorded when they go to mini plant, so the fish processing units do the recording and give the data to the harbormaster to verify to make Certificate of Fish Landing Information/SKPI which would later become SHTI (Fish Catching Certificate).
- The current fact is there is no data recording rule yet, no cost to process that, so UPI become the one who record boat data and helps processing small pass.
- So far there are so many SKPI issued by local regional government (200 certificates each day) and have to be manually signed one by one.

Solution:

- Making simple and online website-based SKPI application that harbormaster can access in simple, orderly and uniform parameter.
- Cut document signing time by substituting it with finger print .
- By having application system, all small boats will be recorded.

- Fishermen association and cooperation
- Fishing harbors
- Fishery agency
- The Ministry of Maritime Affairs and Fisheries
- Business actors



- Boat data
- Supplier data
- Catching result data
- Fish catching location
- Date of trip

Tahun

0	1	2	3
• Mapping parameter data user • Hardware preparation • Mapping document model required • SKPI disseminations	• SKPI application development • Application trial • Application update • Application final testing	• Mentoring • Data setup data • App launching	

SKPI APPLICATION

FURTHER RESOURCES

Research: • Traceability chain from upstream to downstream • Challenges faced by fishermen/suppliers • Definition of legal small fishermen (non-IUU)	**Participation in pilot:** • Regional government/ Maritime Affairs and Fisheries Agency • Business actors (fishermen, supplier, fish processing unit) • STELINA system integration
Experience/knowledge/device: • System developer: PT. ION • Mobile/PC/Device • Server connection • Fish processing unit (Fresh on time seafood)	**Financial Support:** • The Ministry of Maritime Affairs and Fisheries & Maritime Affairs and Fisheries Agency • Business actors/ fish processing unit

PROTOTYPE 3:

FAJAT: FISHERIES ACCURATION JOURNAL TO ACCOMPLISH TRACEABILITY

Member :

- Fariz Acron (PT SISFO Indonesia)
- Tedy Harmoko (PT. Nutrindo Fresfood Internasional)
- La Janu Buton (Nelayan)
- Satria Putra Timur (MDPI)
- Aulia (PDSPKP)
- Ayu Ervinia (APRI)

FAJAT

CONCEPT: ONLINE, INTEGRATION, OPEN; INTEGRATION OF ALL DATA FROM BOAT REGISTRATION TO EXPORT

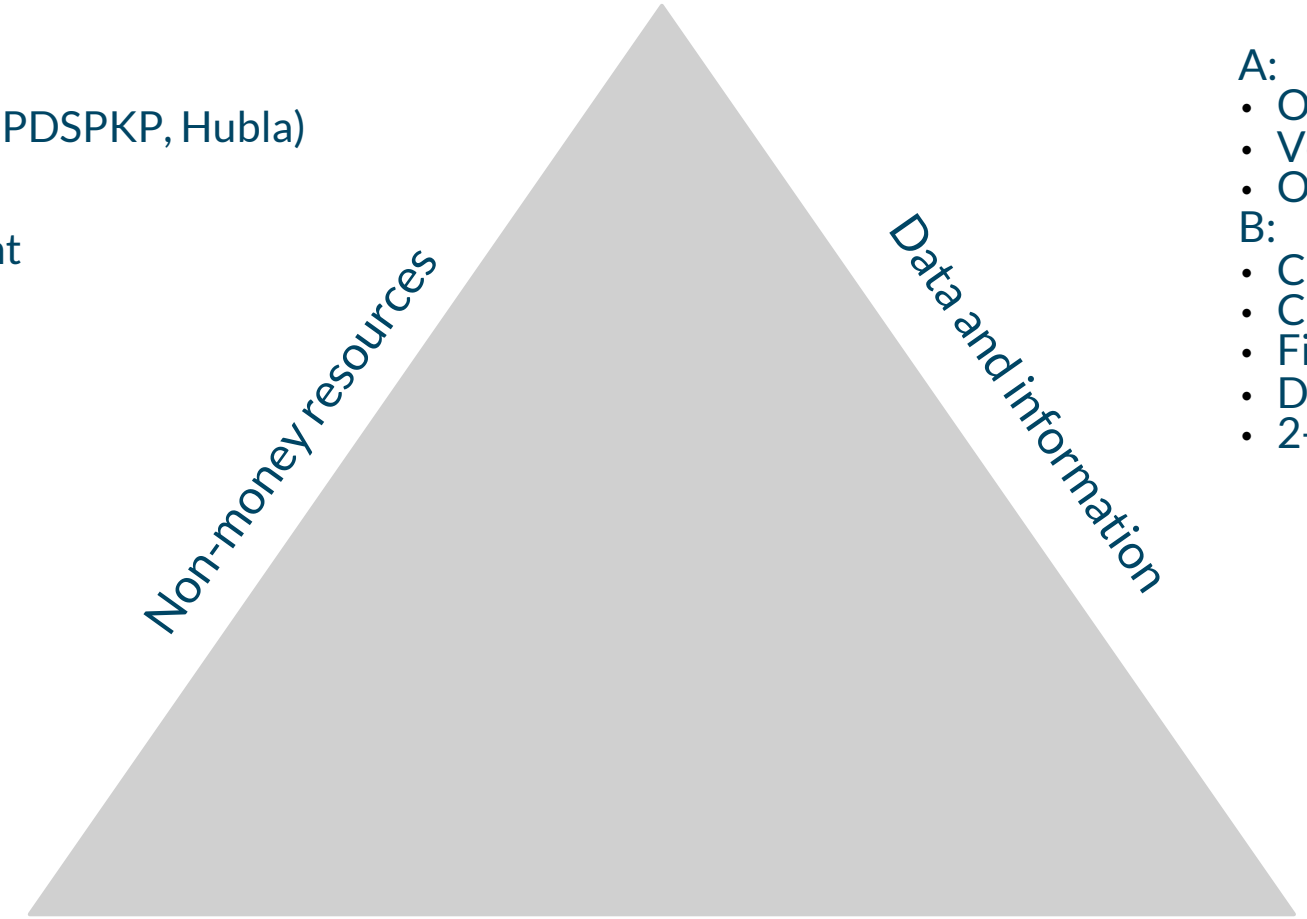
Pre-sailing :

- Make boat permit/boat registration system online
- Make a system to facilitate when boats are ready to sail, get to Request to sailing, get validated and approved. All data use the existing data without having to manually make new request.

Sailing :

- Boat VMS will produce data of catching position, type of catching, fish size, catching device,
- Two-way communication on VMS are crucial, specially related to safety and security issue (should there be sick boat crew) and can not contact their family. If boat have IUU issue in the middle of the ocean, boat can also directly contact government boats
- Each recorded fish will get unique identification code that can be used until they get to UPI (fish processing unit) as tracing code.
- Data can be received both ways
- After landing, government only needs to validate existing data through connected system (business actor do not need to make manual request)
- UPI use RFID and barcode for traceability system product

- Fishermen
- Government (DJPT, PDSPKP, Hubla)
- NGO
- Association
- Regional government
- Supplier



A:
- Online boat registration data
- Vessel clearance data (SIB)
- Online SHTI

B:
- Catching position (coordinate)
- Catching result (type, size, weight)
- Fish unique identification
- Date of trip (departure and arrival)
- 2-way communication

Tahun

0	1	2	3
• Harmonization of collection data • Design • Dissemination • Scoping • Partnership	• Trial • Evaluation • Adjustment • Evaluation • Training	• Launching • Regulation • Adaptation • Implementation	

FAJAT

FURTHER RESOURCES

Research: • Catching legal size • Gonad mature age • Catching composition • Fish catching area • Current's depth, wind, dolphin movement	**Participation in pilot:** • Fishermen • Technology Provider • Fish Processing Unit • Government • Academician
Experience/knowledge/device: • Satellite • VMS (vessel monitoring system) • AI • smartphone	**Financial Support:** • Donor • Fish Processing Unit • Government

PROTOTYPE 4:

VLOGS: VIDEO, LOGBOOK, DAN STELINA

Member :

- Frengky Sihombing (Co-facilitator)
- Anasrin Hi Hamdjah (Supplier)
- Akhmad fauzi (MDPI)
- Alfian Mustopa (AP2HI)
- Muhammad Billahmar (ASTUIN)
- Ahmad Catur Widyatmoko (PhD University of Tasmania/CSIRO)

VLOGS

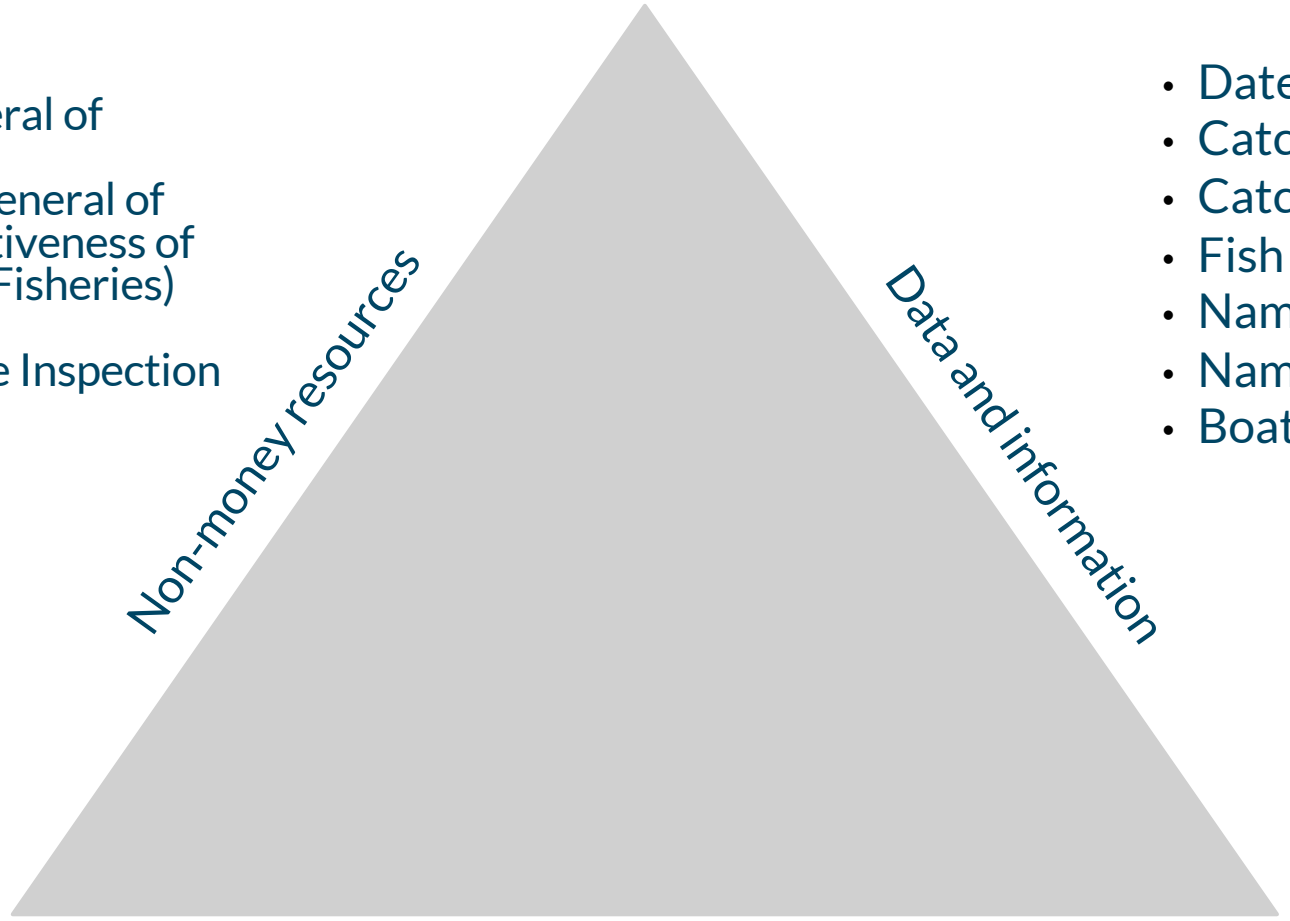
CONCEPT: CREATING ACCURATE DATA TRACEABILITY SYSTEM WITH DOUBLE CHECK SYSTEM USING E-LOGBOOK AND VIDEO

Issue:

There are too many government-made traceability system, so it is unclear which system should be used for what. There needs to be an integrated system so examples like result of e-logbook data do not need to be questioned again.

- On trip, boat will take note in the e-logbook according to government regulation. To verify that data, there will be camera 360 on board.
- Result of e-logbook and camera will be integrated for verification.
- Boat goes into harbor and all fish they have will have fish ID and contains data of type of fish, catching device, date, name of boat, etc.
- No need to input data again, but directly connected with online SHTI (Fish Catching Certificate).
- At UPI (Fish Processing Unit), fish will be transformed into product, and fish data will still be recorded/ connected, and connected to sister karoline.
- There will be barcode label on fish that contains information of name of fish, catching location (WPP) and information whether the fish was caught in IUU way or not, when scanned.

- Boat crew
- DJPT (Directorate General of Capture Fisheries)
- PDSPKP (Directorate General of Strengthening Competitiveness of Maritime Products and Fisheries)
- Harbor
- BKIPM (Fish Quarantine Inspection Agency)
- Technology provider



- Date of departure and arrival
- Catching location
- Catching device
- Fish type and weight
- Name of boat
- Name of captain
- Boat permits

Tahun

0	1	2	3
• System development	• Trial	• Training dan implementation	

VLOGS

FURTHER RESOURCES

Research:	**Participation in pilot:** • Technology Provider • Fish Processing Unit • Government • Supplier • NGO • Association
Experience/knowledge/device: • Camera 360 • E-Logbook (internet connection) • Barcode • Smartphone	**Financial Support:** • NGO • Fish Processing Unit • Association • Government

CONCLUSIONS + RECOMMENDATIONS

In late 2020, the Directorate General of Strengthening Competitiveness of Maritime Products and Fisheries (Ditjen PDSPKP) worked together with MDPI to conduct an Electronic-based Traceability System Development for Indonesian Fisheries Workshop. This workshop was attended by many stakeholder parties. From this workshop, we note participants' comments/ input for the future:

1. Each prototype made are designed to be connected with STELINA, so STELINA is expected to be further developed.
2. There is not yet interoperability between systems of the Ministry of Maritime Affairs and Fisheries (KKP). Needs to get assistance from external party dues to difficulty of communication within the ministry.
3. STELINA needs to be developed for traceability and eradication of IUU Fishing. Later, market/ consumers can find information related to fishery product (for example, if it came from legal/ illegal boat) through one same gate, which is, STELINA. So STELINA needs to be integrated with other systems to increase its competitiveness in international market.
4. Co-design workshop works really well because it was attended by many actors doing fishery traceability so they come with their different perspectives. Result of this workshop can create different architectures. Same kind of workshop needs to be done for hardware development.
5. Traceability also needs to be done for domestic product, aside from export product.
6. All participants were committed to participate in the next stage
7. All participants were satisfied with the activities in the electronic-based traceability system development workshop

As a follow-up from that meeting, on 9 June 2021 another workshop was conducted to create work map for STELINA development year 2021-2024 that is now has been adopted by KKP. To support the smooth STELINA implementation, MDPI as a working partner of KKP that has been working on traceability since 2013 will keep on exchanging knowledge, specially around TraceTales™, a traceability system developed by MDPI.

Referring to elements of work map of STELINA development 2021-2024 that has been adopted, the next step as main priority is to build interoperability between traceability systems in KKP level, followed by development of information system in industrial level. In system and device development stage, a co-design workshop needs to be conducted, involving all actors in fishery traceability, to ensure that development process can be more inclusive and serves many perspectives.

HOSTED IN PARTNERSHIP WITH

KEMENTERIAN KELAUTAN DAN PERIKANAN

SALT
SEAFOOD ALLIANCE FOR LEGALITY & TRACEABILITY

MDPI

USAID

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The following is a report on the activities and outcomes of the workshop. The report is presented in Indonesian with the objective of increasing circulation of this report with its applicable audience.

RANGKUMAN KEGIATAN

TUJUAN WORKSHOP

> SOSIALISASI STELINA

Melakukan sosialisasi mengenai sistem ketertelusuran yang sudah dilakukan oleh KKP

> SOSIALISASI PRINSIP eCDT

Melakukan sosialisasi mengenai prinsip dan standar ketertelusuran yang berlaku di pasar Internasional

> MEMBERIKAN INFORMASI

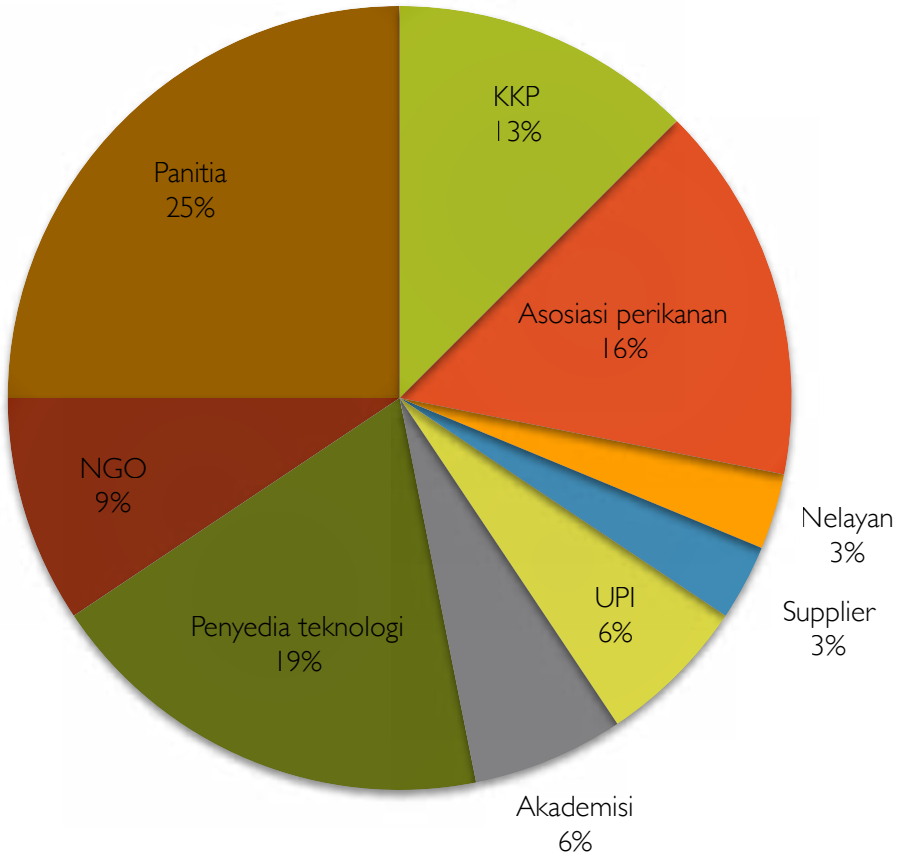
Terkait berbagai teknologi yang bisa digunakan dalam mengumpulkan data dan menganalisa serta menyimpan data perikanan untuk ketertelusuran

> MENGEMBANGKAN DESAIN

Sistem ketertelusuran berbasis elektronik yang bisa dipakai dalam perikanan Indonesia

PESERTA

SELURUH PESERTA WORKSHOP



Padahal awalnya MDPI berharap untuk mengundang antara 50-60 peserta disebabkan oleh kondisi pandemi, 32 peserta dikumpul di Bogor selama dua hari.

8 PEREMPUAN DAN 24 LAKI-LAKI HADIR

KKP: 4 orang
Asosiasi perikanan: 5 orang
Nelayan: 1 orang
Supplier: 1 orang
UPI: 2 orang
Akademisi: 2 orang
Penyedia teknologi: 6 orang
NGO: 3 orang
Panitia: 8 orang

POIN KUNCI PRESENTASI

PENERAPAN STELINA DALAM RANGKA PENGUATAN PPP: Mendukung pengelolaan perikanan yang berkelanjutan

- Fokus PDSPKP : Pengembangan Koridor logistic perikanan (Koridor Kendari – Jawa, Koridor Mimika – Jawa, Koridor Ambon – Jawa, Koridor Bitung – Jawa dan Koridor Makasar – Jawa)
- Untuk mendukung hal tersebut, KKP melakukan MoU dengan maskapai Garuda charter flight untuk wilayah Bitung atau Ambon
- Sistem Telusur Logistik dan Ikan Nasional (STELINA) merupakan sistem informasi ketelusuran ikan dan produk perikanan nasional untuk memfasilitasi para pelaku usaha perikanan dalam pencatatan dan penelusuran dokumen ketertelusuran dan logistik ikan dan produk hasil perikanan secara elektronik dalam rangka pemenuhan kebijakan dan regulasi negara tujuan ekspor
- Dalam kurun waktu enam bulan terakhir KKP melakukan implementasi dan pendampingan STELINA di Mimika – Papua, dengan pelaku didominasi oleh perempuan
- Tantangan STELINA di Mimika, Papua
    a. Perlu penyesuaian system di STELINA terkait kebutuhan pengguna di lapangan
    b. STELINA memerlukan pendaftaran pemilik kapal sedangkan fakta dilapangan untuk kapal berukuran kecil <5GT sebagian belum terdaftar, sehingga sulit untuk melakukan implementasi STELINA

PRINSIP DAN PERSYARATAN eCDT YANG KOMPREHENSIF

1. eCDT = Electronic Catch and Documentation Traceability
2. USAID Ocean membantu dalam hal implementasi teknologi sedangkan SALT membantu diseminasi (pengetahuan) dan program pemberdayaan melalui pelatihan dan workshop
3. Traceability harus menginklusifkan stakeholder besar dan kecil
4. DESAIN
    a. Infrastruktur, pendataan hingga informasi sosial untuk mengidentifikasi nelayan
    b. Implementasi program mulai dari pendataan perikanan memanfaatkan teknologi agar program yang dijalankan memberikan dampak yang baik untuk sosial masyarakat.
5. SALT akan membuat satu panduan untuk principal eCDT
6. Terdapat 3 jenis dokumen yang diperlukan untuk akses pasar Eropa, Amerika Serikat dan Jepang. Market tersebut memerlukan informasi Electronic Catch Documentation Traceability
    a. Europe union (mensyaratkan dokumen Catch Certificate)
        i. Ada sertifikasi dari otoritas kompeten
        ii. Mengenalkan carding system
    b. US SIMP (Seafood Import Monitoring Program)
        i. Yang dikejar oleh USA adalah importirnya
        ii. Setiap produk yang di kirimkan ke pasar USA, memerlukan document Seafood Import Monitoring Program sebagai persyaratan import USA
    c. JAPAN
        i. Menyadari pentingnya ketertelusuran produk untuk keamanan pangan dan kualitas produk
        ii. Jepang telah mengakui persyaratan import dari negara Eropa dan USA sehingga Jepang menerapkan persyaratan import dengan mengadopsi dokumen dari Eropa dan USA, melakukan KDE alignment dari adopsi US SIMP dan Catch Certificate.

PENGGUNAAN TEKNOLOGI RFID UNTUK MENCATAT DATA KETERTELUSURAN

- RFID : Radio Frequency Identification
- Contoh case : Sistem pendataan ikan mulai dari supplier, proses produksi hingga pengemasan dan pengiriman dilakukan oleh prosesor Shanindo (Makasar) kerja sama dengan YKAN (Yayasan Konservasi Alam Nusantara). Pendataan ikan ini mulai dari supplier, proses produksi hingga pengemasan dan pengiriman. Tujuan saat ini dari YKAN adalah untuk mendapatkan data supplier seperti spesies tangkapan, berat ikan, asal ikan dengan menyimpan data tersebut ke dalam RFID. Produk akhir akan diberi label barcode.
- Perangkat keras yang dibutuhkan untuk RFID : Tablet/Mobile phone/Komputer, RFID reader, Timbangan, Barcode reader dan barcode printer
- RFID sebagai solusi traceability karena:
  a. Memudahkan tenaga kerja : User hanya melakukan tapping terhadap kartu RFID dan Minim kontak dengan alat , pekerja focus produksi
  b. Simplifikasi perangkat : Biaya murah, Pengadaan mudah,
  c. Tahan air dan suhu extreme
  d. Reusable
  e. Fleksibilitas dalam penentuan level/tier batch, melalui fitur splitting dan joining (merging)
- Tantangan Penggunaan RFID :
  a. Perangkat pendukung RFID reader mobile agak mahal dan harus pesan dari luar
  b. Penyesuaian RFID dengan kondisi lapangan, tahan air dan kelembaban. Untuk itu harus dilakukan survey kebutuhan site produksi yang mencakup alur proses produksi dan kebutuhan teknologi
  c. Instalasi hardwere harus sesuai dengan standar : tidak boleh karat, tidak boleh kontak air dan produk terlalu sering, lokasi pemetaan sesuai dengan penetapan dari pabrik.

PENGGUNAAN TEKNOLOGI BARCODE UNTUK MENCATA DATA KETERTELUSURAN PERIKANAN

- Barcode adalah : kode berupa berbagai pola batang dan spasi yang dirancang untuk dipindai dan dibaca ke dalam memori komputer yang biasanya digunakan pada suatu produk kemasan yang berisi tentang informasi produk yang bersifat unik sebagai pengidentifikasi produk tersebut. Informasi yang tertera di dalam barcode dibaca dengan Barcode Scanner
- Keuntungan penggunaan barcode
  a) Entry data lebih cepat dan lebih tepat
  b) Lebih akurat dalam melakukan pencarian data
  c) Dapat mengurangi biaya oprasional karena tidak lagi melakukan pencatatan dengan menggunakan kertas (Paperless)
  d) Peningkatan kinerja manajemen
  e) Value added bagi company karena bisa lebih efisien dan efektif
- QR Code memuat informasi yang di dalamnya alamat URL web ke produk atau perusahaan, datageolokasi digunakan pada peta atau informasi yang bisa ditulis di bawah 4.000 karakter atau lebih (tergantung pada jenis data).
- Manfaat penggunaan QR Code
  a) Dapat membantu perusahaan dalam memasarkan produk dengan mencatumkan site company/ produk
  b) Dapat digunakan dalam proses taggig sehingga dapat mempermudah penelusuran asal usul produk
  c) Komunikasi cepat dengan perangkat, dengan perangkat QR Code scanner, data dapat direkam dengan cepat untuk di input ke dalam sistem informasi
  d) Membantu menelusuri secara cepat terkait rantai pasok dari suatu produk perikanan, melalui pelabelan

APLIKASI TEKNOLOGI ARTIFICIAL INTELLIGENCE

- Artificial Intelegence (AI) : adalah usaha memodelkan proses berpikir manusia dan mendesain mesin agar dapat menirukan perilaku manusia
- Machine learning : adalah program komputer belajar dari data yang besar (big data) yang dapat berkembang sendiri secara otomatis seiring dengan pengalaman, sehingga program computer memiliki pengetahuan dan kecerdasan.
- Deep Learning : merupakan salah satu teknik machine learning dimana suatu program di buat dengan berdasarkan prinsip kerja dari jaringan saraf otak manusia.
- Case Study dalam perikanan untuk AI dan Machine Learning :
  - Dalam melakukan monitoring penangkapan ikan di laut., ada kesulitan mendapatkan informasi untuk menelusur ikan seperti daerah penangkapan, jenis ikan yang ditangkap, waktu penangkapan, serta kapal dan jenis alat penangkapan ikan yang digunakan. Data-data ini akan meyakinkan konsumen untuk memilih dan menentukan produk makannya. Informasi tentang waktu ikan tertangkap juga dibutuhkan konsumen karena terkait dengan kualitas ikan yang akan dikonsumsi.
  - Untuk mengatasi hal ini maka teknologi di atas kapal berupa kamera monitor atau GPS tracker.
  - Namun tantangan dari implementasi teknologi ini berupa data yang dihasilkan akan sangat banyak (gambar dan titik koordinat). Hal ini akan sulit untuk dianalisa. Sehingga dibutuhkan sebuah mesin learning yang dapat memproses analisa data yang dihasilkan dengan cepat dan terdapat integrasi antara data hasil tracker dan jenis ikan yang tertangkap. Sehingga lokasi tangkap, jenis ikan dan waktu penangkapan akan terintegrasi menghasilkan informasi spesifik yang penting untuk sebuah ketertelusuran.

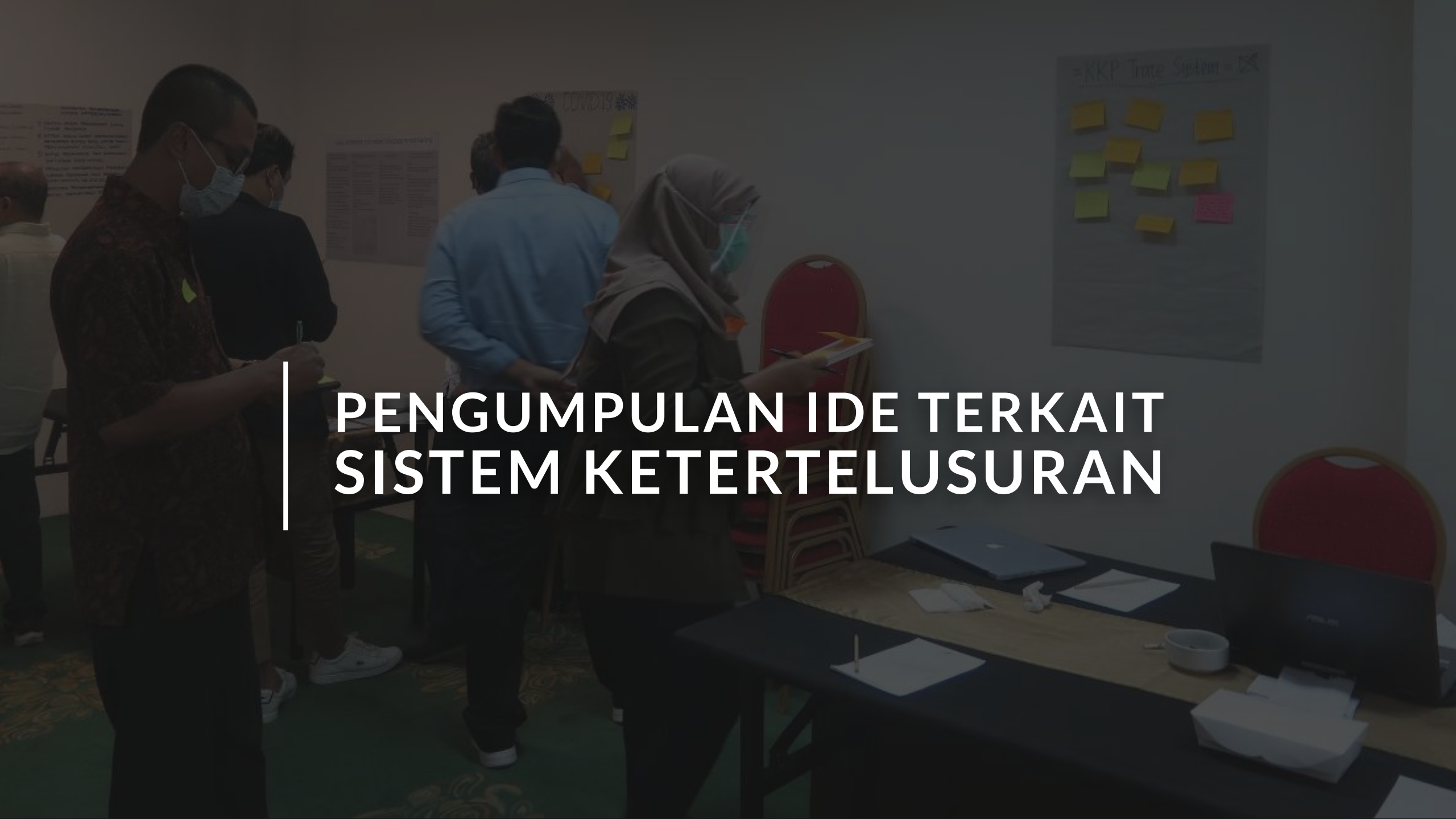
APLIKASI TEKNOLOGI ARTIFICIAL INTELLIGENCE, CONTINUED

- Cara Machine Learning Bekerja
  - Foto yang dihasilkan melalui rekaman cctv atau kamera akan diinput ke dalam system untuk diberikan pelatihan dalam mengenal ikan tersebut (computer training). Mesin dilatih untuk mengenal spesies dan Panjang ikan ataupun informasi-informasi lainnya.
  - Setelah dikenal oleh system, maka outputnya dapat berupa Spread sheet Excel berupa informasi Jumlah dan Jenis Ikan; Panjang, Berat, Waktu dan Crop Gambar Ikan. Hasil dari pengenalan spesies ikan ataupun Panjang ikan memiliki confidence score, atau seberapa akurat hasil yang dimunculkan tersebut. Semakin banyak poto yang sering dikenalkan pada machine leraning, maka akan semakin baik dia akan mengenal ikan dan akan semakin tinggi akurasinya. Kemudian untuk mengetahui secara spesifik dari ikan yang tertangkap akan diintegrasikan dengan data titik koordinat dari gps tracker

Kelebihan Machine Learning	Kekurangan Machine learning
1. Data tangkapan lebih lengkap 2. Data lokasi daerah pengkapan dan rumpon 3. Managemen perikanan: Pendugaan jumlah stock ikan, manajemen pemasangan rumpon 4. Membantu proses sertifikasi 5. Artificial intelegence: mempercepat proses pengambilan dan Analisa data dan meningkatkan efisiensi resources	1. Kerahasiaan data : lokasi daerah penangkapan 2. Biaya infrastruktur data 3. Masih dalam tahap penelitian

APLIKASI TEKNOLOGI BLOCKCHAIN DALAM MENDUKUNG KETERTELUSURAN

- Blockchain : Teknologi system penyimpanan data yang sangat aman karena data yang disimpan dalam berbagai system computer. Sehingga akan sulit dicuri datanya.
- Blockchain mengandung 3 makna : chain, link dan distributed.
- Kenapa Blockchain Aman?
  - Block chain terkait dengan ketertelusuran perikanan adalah menemmpatkan data agar bisa diakses oleh public tetapi datanya akan sangat aman dan tidak bisa dicuri ataupun dihack.
  - Data disimpan di server link ke blockchain dan di share ke publik
- Case study blockchain :
  - ANOVA yang telah memasukkan datanya dari berbagai sistem informasi yang mereka punya seperti Tracetales, UPI, hasil lab. Hasilnya akan diketahui bagaimana ketertelusuran ikan tersebut.
  - AP2HI sedang dibantu datanya untuk kebutuhan MSC.
- Dalam implementasi blockchain hal utama yang sangat penting adalah adanya komitmen dari berbagai rantai pasok untuk bersama-sama menggunakan blockchain tersebut.
- Blockchain bisa melakukan filter terhadap data apa saja yang mau disharing.
- Kelemahan blockchain:
  - Kecepatan komputer tidak bisa dikontrol atau akan melambat karena terhubung dengan berbagai system computer yang lain.
  - Data bersifat Publik dan ditaruh di server computer semua orang
  - Kecepatan akses data (read/write) lambat



PENGUMPULAN IDE TERKAIT SISTEM KETERTELUSURAN

DARI SISI PERIKANAN TANGKAP

a) Integrasi mulai dari kapal, jenis ikan, berat, Panjang yang dapat dilihat dari darat
b) Alat tangkap ramah lingkungan, insentif bagi nelayan yang peduli akan sustainability, law enforcement
c) Teknologi murah & mudah untuk perikanan skala kecil
d) Alat untuk mendeteksi nelayan yang hilang
e) Alat yang bisa mendeteksi kedalaman ikan sehingga nelayan gampang menangkap
f) Teknologi untuk hitung jumlah kapal secara real time (kapal >30gt, 20-30gt)
g) Digitalisasi data improvement M2M system untuk pelaku di lapangan
h) Deep learning + elogbook + VMS
i) Menyederhanakan pencatatan/pendataan hasil tangkap nelayan (SHTI,verifikasi hasil tangkap)
j) Teknologi untuk menentukan dan menelusuri kualitas ikan dan *food safety*
k) IIU Fishing perizinan kapal kecil didaerah belum merata dan perlu penyelarasan antara pemerintah daerah dengan pusat dan pentingnya sosialisasi simkada ke pemerintah daerah
l) Asuransi untuk nelayan online
m) Adaptasi dengan regulasi internasional

DARI SISI PERIKANAN BUDIDAYA

a) Monitoring otomatis kualitas air
b) Teknologi pengujian mutu air di tambak untuk mengetahui kesehatan ikan
c) Aplikasi manajemen/monitoring produksi
d) Teknologi untuk panen hasil budidaya udang
e) Teknologi hasil budidaya tradisional
f) Budidaya berbasis masyarakat pembangunan rumah" ikan untuk ikan" yg matang gonad sehingga tdk dieksploitasi
g) Diversifikasi produk perikanan produk unggulan berbasis masyarakat

DARI SISI SISTEM KETERTELUSURAN KKP

a. Integrasi dengan system lain baik antara sistem pemerintah dan sistem swasta
b. Integrasi system (SIPEPI, SIMKADA, Kusuka, RVIA/diva tuna) dalam STELINA
c. Keseragaman data/system
d. Kebijakan nasional (MKD) untuk mengintegrasikan e-traceability yang sudah di bangun menjadi ‘satu system traceability Indonesia’
e. Kolaborasi antara direktorat KKP
f. Standarisasi pencatatan data pada perikanan (Baik untuk usaha kecil/besar)
g. Payung hukum harus jelas untuk STELINA
h. Omnibus-kan KKP trace system
i. Teknologi bisa memberikan indikasi bahwa suatu produk perikanan mengandung nilai gizi dan bahan baku yang halal. Terutama bagi produk UMKM skala kecil yang pada kemasannya tidak tercantum informasi tsb.
j. Menyediakan dan jaminan keamanan data-sistem estimasi species yang ada disuatu di wilayah perairan
k. Tingkatkan teknologi pendataan dari karantina laut dan udara guna mengetahui perihal peredaran seafood di Indonesia
l. Penggunaan blockchain untuk system sekarang
m. Penggunaan RFID mulai dari SEA to UPI

DARI SISI PASAR/SISTEM KEUANGAN

a. Teknologi untuk mempertemukan penjual, supplier dan pembeli
b. Online market place untuk seafood produk yang memperhatikan packaging yang aman dan kesegaran produk
c. Sosialisasi market place untuk semua system
d. Penerapan ERP-finance di UPI, supplier dll
e. Ketersediaan pilihan financing/keuangan, online berdasarkan riwayat penjualan
f. Sistem perdagangan untuk membantu penyerapan pasar domestic
g. Adanya jaminan harga lebih tinggi/award untuk nelayan yang bebas IUU
h. Penggunaan Blockchain sistem terhadap jumlah dan harga ikan
i. Penggunaan Bitcoin untuksupplier/nelayan

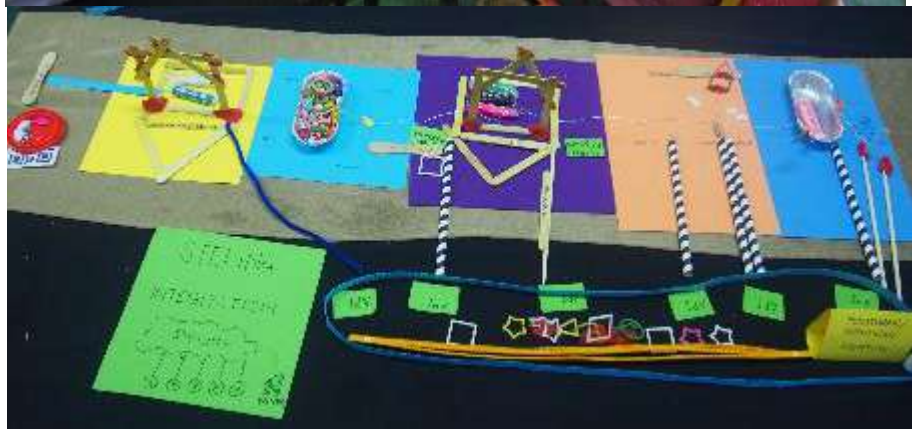
PROTOTYPING

PROTOTYPE 1:

OMNIBUS STELINA

Anggota :

- Saut Tampubolon (MDPI)
- Dien Wong (Altermyth)
- Bayu (MDPI)
- I Gede Sujana EP(MDPI)
- Hery (Yayasan IPLNF)
- Yuliati Sipahutar (Politeknik AUP)

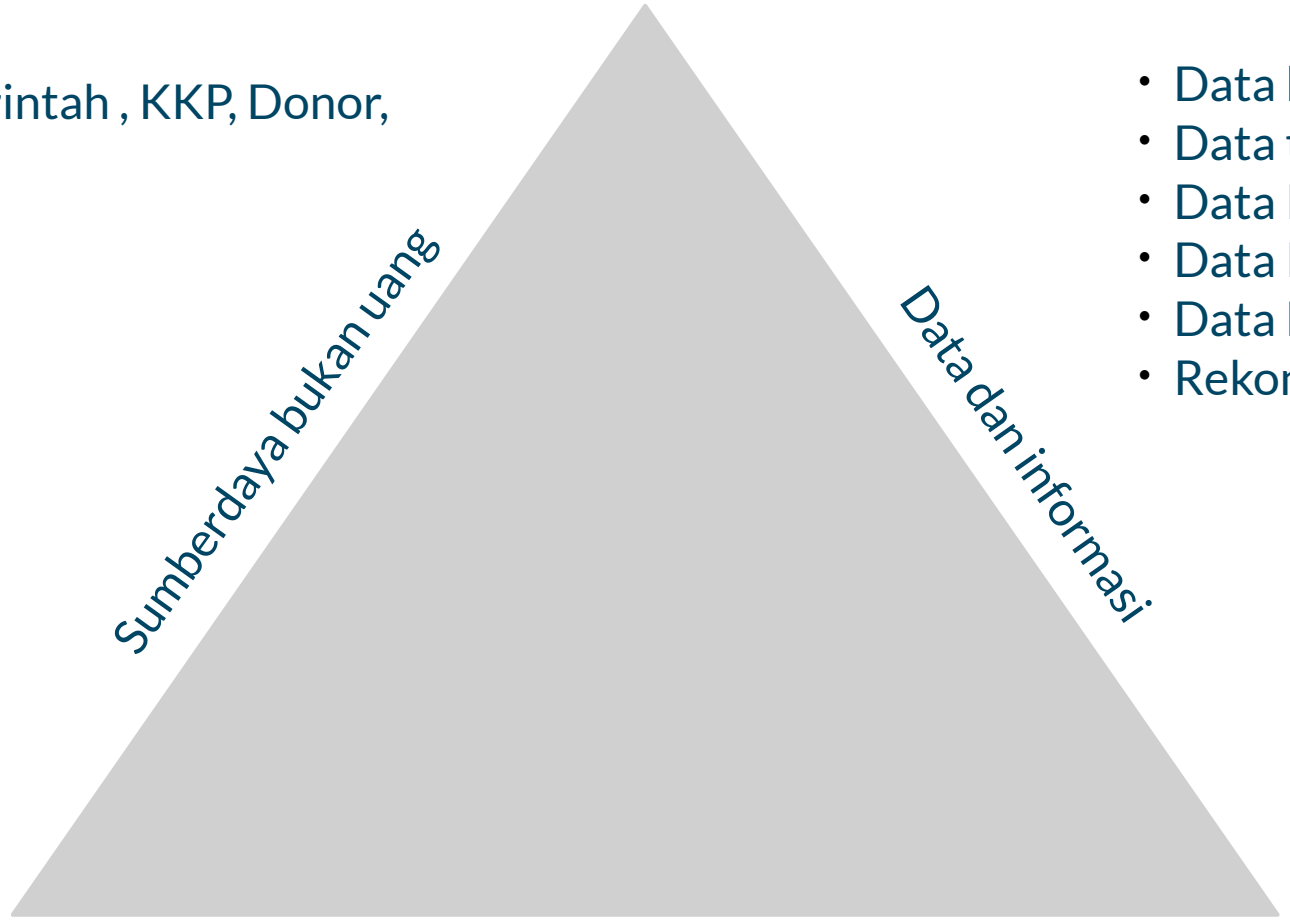


OMNIBUS STELINA

KONSEP: SATU PINTU SISTEM KETERTELUSURAN PERIKANAN INDONESIA / OSS KKP

- Memangkas proses panjang sistem ketertelusuran yang sudah ada menjadi lebih sederhana dengan membangun satu pintu ketertelusuran Indonesia mulai dari laut sampai ke konsumen. Baik data yang dikumpulkan dari sistem pemerintah maupun sistem yang dikumpulkan pihak swasta.
- eLogbook dan SILOPI diharapkan menjadi satu lalu diproses ke SHTI.
- Jalur ikan masuk ke upi, setelah masuk , masuk ke sister karoline, sistem swasta
- Pemerintah mendapatkan data dari stelina
- Syarat paling penting perlu peraturan lebih tinggi dan ada kemauan dari pemerintah untuk melaksanakan omnibus. Disamping itu perlu landasan hukum untuk STELINA.

- Orang (Pemerintah , KKP, Donor, Partner, UPI)
- Kebijakan



- Data lokasi penangkapan
- Data tangkapan
- Data Pengolahan
- Data Kapal
- Data Ekspor
- Rekonsiliasi data perikanan

Tahun

0	1	2	3
Peraturan /Keputusan Menteri	Perencanaan awal	Pengembangan Integrasi	Uji coba Perbaikan

OMNIBUS STELINA

SUMBERDAYA LEBIH LANJUT

Riset: Integrasi STELINA	**Partisipasi dalam pilot:** • KKP • Penyedia teknologi • Asosiasi /Pelaku Usaha • Donor /LSM • Buyer
Pengalaman/ilmu/alat: • Pengembang sistem • API Interface	**Dukungan finansial:** • KKP • Donor • Pelaku Usaha

PROTOTYPE 2:

APLIKASI SKPI

Anggota :

- Farid Maruf (USAID SALT)
- Solah (PDSPKP)
- Wildan (MDPI)
- Inggir Lisbeth Sihite (PT. Fresh on time seafood)
- Ruben Wicaksono (PT.ION)
- Dwi Agus (ATLI)

APLIKASI SKPI

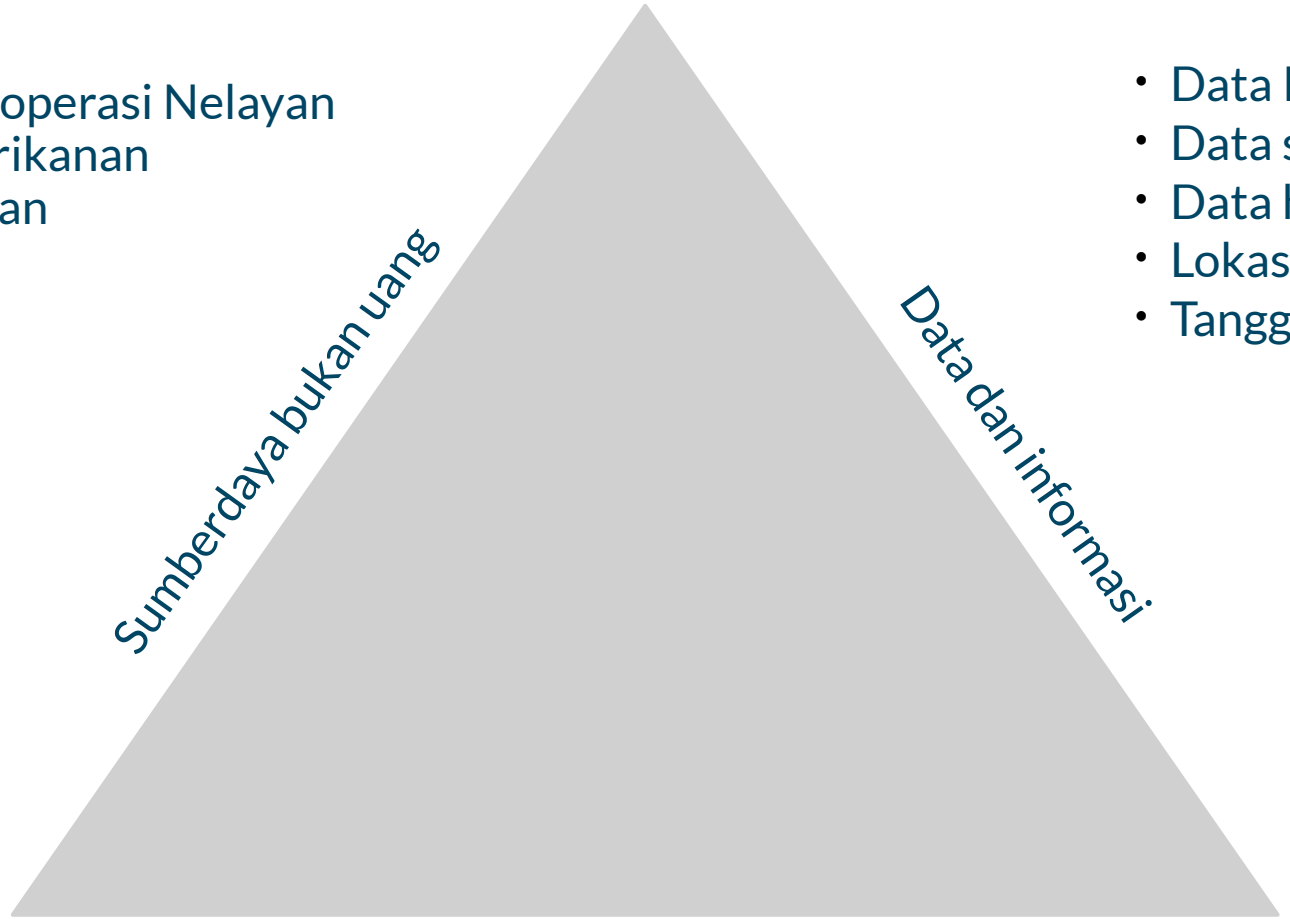
KONSEP: PEMENUHAN DOKUMEN KETERTELUSURAN DI HULU (NELAYAN, SUPPLIER) UNTUK MEMENUHI PASAR EU

- Isu untuk spesies rajungan yang ditangkap oleh nelayan kecil belum dicatat dg benar
- UPI/ Eksportir sulit menerapkan sistem traceability karena data tidak tercatat saat masuk ke dalam miniplant sehingga yang mencatat data adalah UPI kemudian diserahkan kepada syahbandar untuk diverifikasi sehingga menghasilkan Surat Keterangan Pendaratan Ikan/SKPI dan nantinya menjadi SHTI.
- Fakta yang ada belum adanya aturan untuk mencatat data, tidak ada biaya untuk mengurus sehingga UPI yang akan mencatat data kapal, dan membantu pembuatan pas kecil agar bisa dibuat.
- Selama ini SKPI yang diterbitkan pemda setempat sangat banyak (sehari 200 lembar) dan harus ditanda tangan manual satu persatu.

Solusi:

- Pembuatan aplikasi SKPI berbasis web secara sederhana dan online yang bisa diakses syahbandar dengan parameter sederhana, teratur dan seragam.
- Tujuan memotong waktu tanda tangan dokumen yang lama dan diganti dengan *finger print* .
- Dengan adanya sistem aplikasi, semua kapal kecil akan terdata.

- Asosiasi dan koperasi Nelayan
- Pelabuhan perikanan
- Dinas perikanan
- KKP
- Pelaku usaha



- Data Kapal
- Data supplier
- Data hasil tangkapan
- Lokasi pengambilan ikan
- Tanggal trip

Tahun

0
- Mapping parameter data user
- Persiapan hardware
- Mapping model dokumen yang dibutuhkan
- Sosialisasi SKPI

1
- Development aplikasi SKPI
- Uji coba aplikasi
- Update aplikasi
- Testing akhir aplikasi

2
- Pendampingan
- Setup data
- Launching app

3

APLIKASI SKPI

SUMBERDAYA LEBIH LANJUT

Riset: • Rantai ketertelusuran dari hulu ke hilir • Hambatan yang dihadapi nelayan /supplier • Definisi nelayan kecil legal (bebas IUU)	**Partisipasi dalam pilot:** • Pemda /DKP • Pelaku usaha (nelayan, supplier, UPI) • Integrasi sistem STELINA
Pengalaman/ilmu/alat : • Pengembang sistem :PT. ION • Mobile/PC/Device • Koneksi server • UPI (Fresh on time seafood)	**Dukungan finansial:** • KKP & DKP • Pelaku Usaha /UPI

PROTOTYPE 3:

FAJAT: FISHERIES ACCURATION JOURNAL TO ACCOMPLISH TRACEABILITY

Anggota :

- Fariz Acron (PT SISFO Indonesia)
- Tedy Harmoko (PT. Nutrindo Fresfood Internasional)
- La Janu Buton (Nelayan)
- Satria Putra Timur (MDPI)
- Aulia (PDSPKP)
- Ayu Ervinia (APRI)

FAJAT

KONSEP: ONLINE, INTEGRATION, OPEN; SEMUA DATA TERINTEGRASI MULAI DARI PENDAFTARAN KAPAL HINGGA EKSPOR

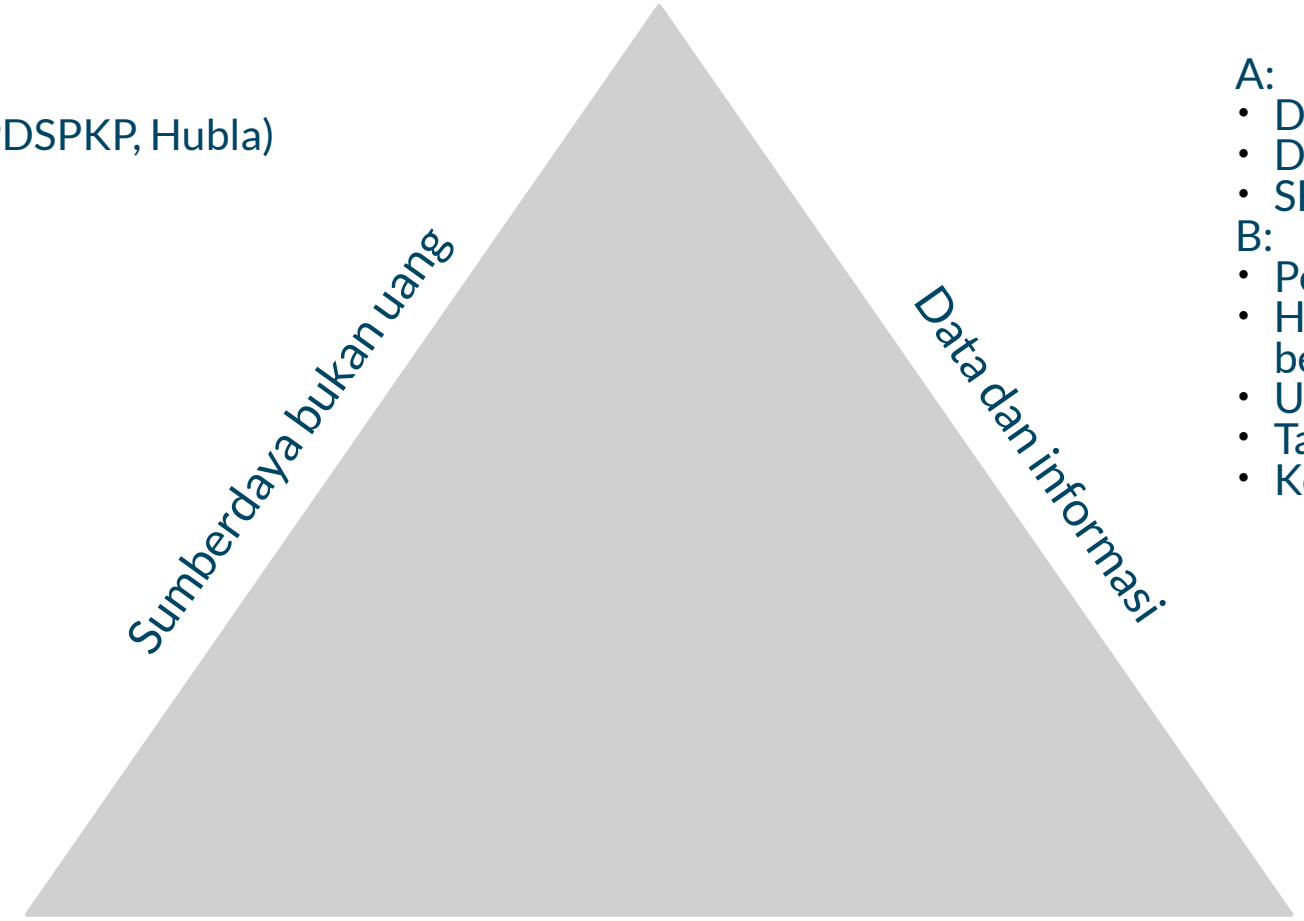
Presailing :

- Membuat sistem ijin kapal /pendaftaran kapal secara online
- Membuat sistem yang bisa memfasilitasi saat kapal siap untuk berlayar lalu masuk ke Request to sailing , divalidasi dan setelah itu disetujui. Semua data menggunakan data yang ada tanpa membuat permohonan baru secara manual.

Sailing :

- VMS kapal akan mengeluarkan data posisi penangkapan, jenis tangkapan, ukuran ikan, alat tangkapan,
- Komunikasi dua arah pada VMS sangan diperlukan khususnya terkait isu safety dan security (apabila ada ABK yang sakit) dan tidak bisa memberi kabar kepada keluarga. Apabila kapal menemukan isu IUU ditengal laut, kapal juga bisa berkoordinasi langsng dengan kapal pemerintah
- Setiap ikan yang tercatat akan mendapatkan kode identifikasi unik yang nantinya bisa digunakan hingga ke UPI sebagai kode penelusuran.
- Data bisa diterima secara bolak balik
- Setelah landing, pemerintah tinggal memvalidasi data yang ada melalui sistem yang sudah terhubung(pelaku usaha tidak perlu membuat permohonan secara manual)
- UPI menggunakan RFID dan barcode untuk sistem ketertelusuran produk

- Nelayan
- Pemerintah (DJPT, PDSPKP, Hubla)
- NGO
- Asosiasi
- Pemda
- Supplier



A:
- Data registrasi kapal online
- Data vessel clearance (SIB)
- SHTI online

B:
- Posisi penangkapan (koordinat)
- Hasil tangkapan (jenis, ukuran, berat)
- Unique identifikasi ikan
- Tanggal trip (berangkat dan pulang)
- Komunikasi 2 arah

Tahun

0	I	2	3
• Harmonisasi data collection • Design • Sosialisasi • Scoping • Kemitraan	• Uji coba • Evaluasi • Adjustment • Evaluasi • Training	• Launching • Regulasi • Adaptasi • Implementasi	

FAJAT

SUMBERDAYA LEBIH LANJUT

Riset: • Legal size penangkapan • Umur matang gonad • Komposisi tangkapan • Daerah tangkapan ikan • Kedalaman arus, angin, pergerakan lumba-lumba	**Partisipasi dalam pilot:** • Nelayan • Penyedia teknologi • UPI • Pemerintah • akademisi
Pengalaman/ilmu/alat: • Satelit • VMS (vessel monitoring system) • AI • smartphone	**Dukungan finansial:** • Donor • UPI • Pemerintah

PROTOTYPE 4:

VLOGS: VIDEO, LOGBOOK, DAN STELINA

Anggota :

- Frengky Sihombing (Co-facilitator)
- Anasrin Hi Hamdjah (Supplier)
- Akhmad fauzi (MDPI)
- Alfian Mustopa (AP2HI)
- Muhammad Billahmar (ASTUIN)
- Ahmad Catur Widyatmoko (PhD University of Tasmania/CSIRO)

VLOGS

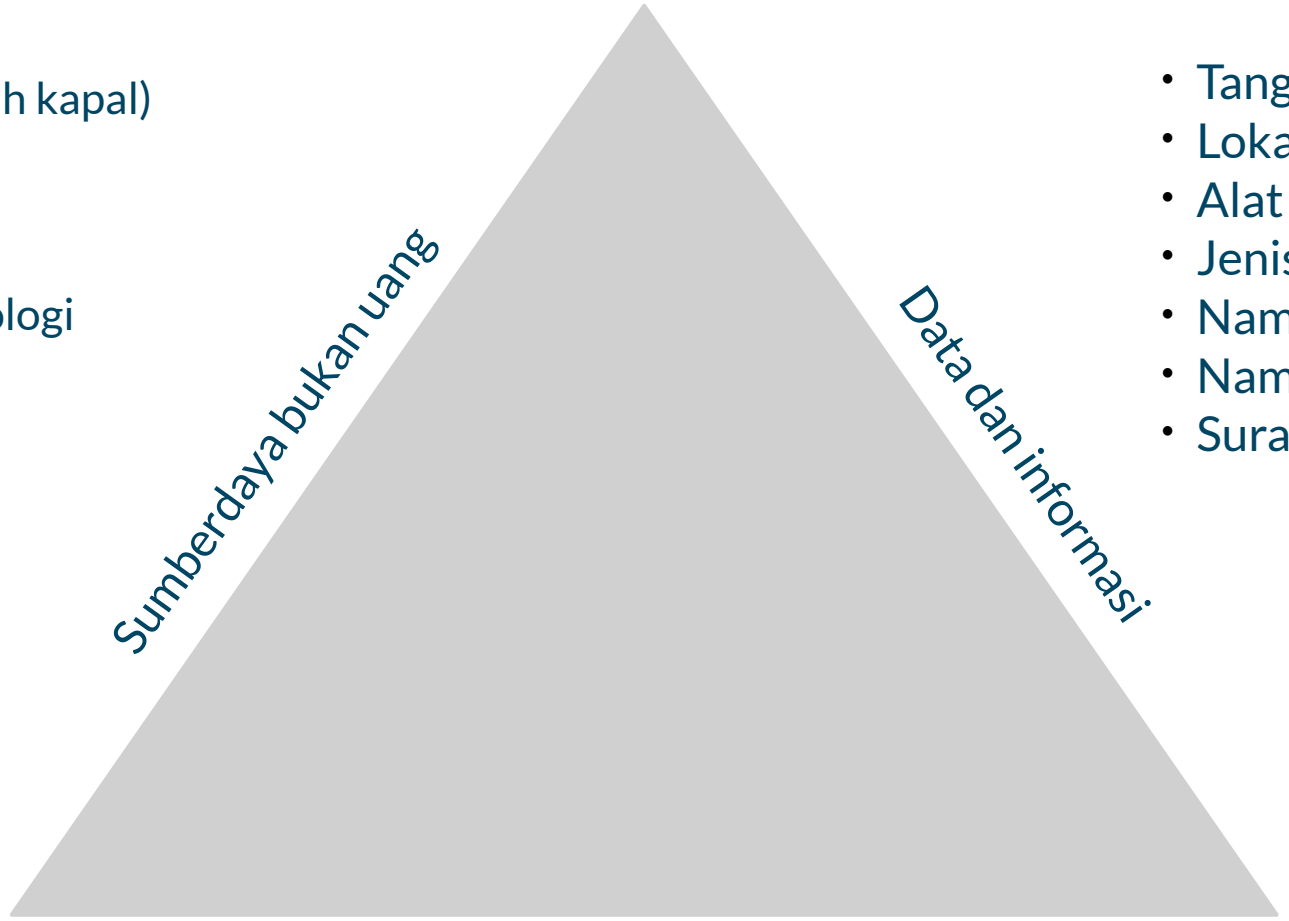
KONSEP: MENCIPTAKAN SISTEM KETERTELUSURAN DATA YANG AKURAT DENGAN DOUBLE CHECK SYSTEM MENGGUNAKAN E-LOGBOOK DAN VIDEO

Isu:

Sudah terlalu banyak sistem ketertelusuran yang dibuat oleh pemerintah. Tidak jelas sistem mana yang perlu dipakai untuk apa. Perlu dibuat sistem yang teritegrasi sehingga contoh seperti hasil data e-logbook tidak perlu ditanyakan lagi.

- Saat trip, kapal akan mengisi e-logbook sesuai aturan pemerintah. Untuk memverifikasi data tersebut pada kapal akan dipasang camera 360 .
- Hasil e-logbook dan kamera akan terintegrasi untuk verifikasi.
- Kapal masuk ke pelabuhan dan setiap ikan yang masuk akan memiliki ID ikan dan mempunyai data jenis ikan, alat tangkap, tanggal, nama kapal dsb
- Data tidak perlu diinput lagi tapi bisa terhubung langsung dengan SHTI online.
- Saat di UPI, ikan akan dibentuk menjadi produk, dan data ikan tetap tercatat / tersambung, dan konek ke sister karoline.
- Pada ikan akan diberi label barcode yang apabila discan akan berisi informasi nama ikan, Lokasi penangkapan (WPP)dan informasi apakah ikan ditangkap secara IUU atau tidak.

- ABK (Anak Buah kapal)
- DJPT
- PDSPKP
- Pelabuhan
- BKIPM
- Penyedia teknologi



- Tanggal berangkat dan Kembali
- Lokasi penangkapan
- Alat tangkap
- Jenis ikan dan berat
- Nama kapal
- Nama kapten
- Surat ijin kapal

Tahun

0	1	2	3
• Pengembangan sistem	• Trial	• Training dan implementasi	

VLOGS

SUMBERDAYA LEBIH LANJUT

Riset:	**Partisipasi dalam pilot:** • Penyedia teknologi • UPI • Pemerintah • Supplier • NGO • Asosiasi
Pengalaman/ilmu/alat: • Kamera 360 • E-Logbook (koneksi internet) • Barcode • Smartphone	**Dukungan finansial:** • NGO • UPI • Asosiasi • Pemerintah

CONCLUSIONS + RECOMMENDATIONS

Sebagai langkah awal, Direktorat Jenderal Penguatan Daya Saing Produk Kelautan dan Perikanan (Ditjen PDSPKP) bekerja sama dengan MDPI mengadakan Workshop Pengembangan Sistem Ketelusuran Berbasis Elektronik untuk Perikanan Indonesia. Workshop ini dihadiri oleh berbagai usur pemangku kepentingan. Dari hasil workshop, peserta punya komen/persetujuan berikutnya:

1. Setiap prototipe yang dibuat didesain untuk terhubung dengan STELINA, sehingga diharapkan STELINA bisa dikembangkan lebih lanjut.
2. Interoperability antara sistem KKP belum ada. Perlu ada bantuan dari pihak eksternal karena ada kesulitan dalam komunikasi internal KKP
3. STELINA perlu di kembangkan untuk ketertelusuran dan pemberantasan IUU Fishing. Nantinya apabila market /konsumen bisa mencari informasi terkait produk perikanan (contoh apakah dari kapal yang legal /tidak) melalui satu gerbang yang sama yaitu, STELINA. Sehingga perlu dilakukan intergrasi STELINA dengan sistem lain untuk meningkatkan daya saing di market internasional.
4. Workshop Co-design sangat bagus karena dihadiri dari berbagai aktor yang melakukan kegiatan ketertelusuran dalam perikanan sehingga bisa membawa perspektif yang berbeda-beda . Sehingga hasil dari workshop bisa sehingga menciptakan arsitektur yang berbeda-beda. Perlu dilakukan workshop yang sama untuk pengembangan hardware.
5. Ketertelusuran tidak hanya dilakukan untuk produk ekspor tapi juga produk domestic dalam negri.
6. Semua peserta berkomitmen untuk berpartisipasi dalam tahap selanjutnya
7. Semua peserta merasa puas dengan kegiatan yang dilakukan dalam workshop pengembangan sistem ketertelusuran berbasis elektronik

Sebagai tindak lanjut dari pertemuan tersebut, tanggal 9 Juni 2021 kembali diadakan workshop untuk menyusun peta jalan pengembangan STELINA tahun 2021-2024 yang saat ini telah diadopsi oleh KKP. Demi mendukung kelancaran implementasi STELINA, MDPI selaku mitra kerja KKP yang telah berkiprah di bidang ketelusuran sejak 2013 juga akan terus saling bertukar pengetahuan, khususnya seputar TraceTalesTM, sebuah sistem ketelusuran yang dikembangkan oleh MDPI.

Mengacu pada elemen peta jalan pengembangan STELINA 2021-2024 yang telah diadopsi, langkah selanjutnya yang menjadi prioritas utama adalah membangun interoperabilitas antar sistem ketelusuran di tingkat KKP, dilanjutkan dengan pembangunan sistem informasi di tingkat industri. Dalam tahap pengembangan sistem dan perangkatnya, perlu diadakan workshop co-design yang melibatkan seluruh pemeran dalam ketelusuran perikanan, agar proses pengembangan dapat menjadi lebih inklusif dan menyajikan beragam perspektif.

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