SARGCOOP

WORK PACKAGE : CARIBBEAN SARGASSUM FORUM

07 APRIL 2022 WEBINAR :
« COLLECTION AND VALORIZATION OF SARGASSUM IN THE CARIBBEAN : ISSUES AND PROSPECTS»

The Role of Digital Technologies in Creating Sustainable Value Chains for Sargassum
Presenter: Dr. Shelly-Ann Cox

SUSTAINABLE SARGASSUM VALUE CHAINS

01

Overview of a generic sargassum value chain, considerations for building resilience at each stage and the importance of cross-cutting activities
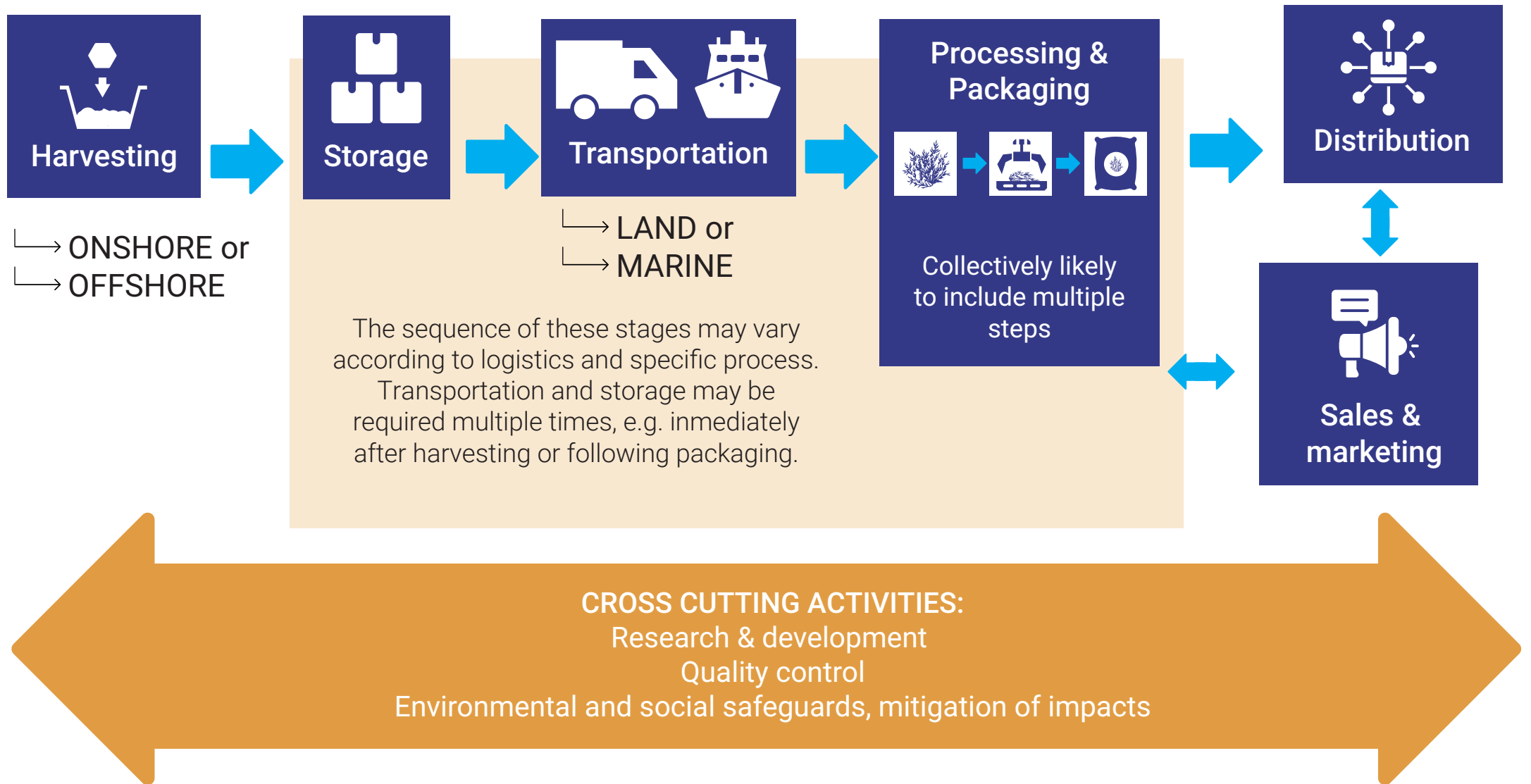
INTEGRATION OF DIGITAL TECHNOLOGIES

02

The promise of block chain, IoT devices, Artificial Intelligence (AI), Machine Learning and Deep learning in sargassum management and governance

EXISTING AND POTENTIAL TECHNOLOGIES

03

Examples of existing and potential applications of digital technologies. Future applications for a sustainable future

Harvesting

└→ ONSHORE or
└→ OFFSHORE

Storage

The sequence of these stages may vary according to logistics and specific process. Transportation and storage may be required multiple times, e.g. inmediately after harvesting or following packaging.

Transportation

└→ LAND or
└→ MARINE

Processing & Packaging

Collectively likely to include multiple steps

Distribution

Sales & marketing

CROSS CUTTING ACTIVITIES:
Research & development
Quality control
Environmental and social safeguards, mitigation of impacts

Source: UNEP-CEP Sargassum White Paper 2021

MANAGE, MEASURE AND CREATE INSIGHT

| Create business value | Understand the strategic value of technology | Drive business innovation | Provide holistic optimization | Transform into a service broker | Engage and deliver services |

EFFICIENCY
TRACEABILITY
CUSTOMER SATISFACTION
PROFITABILITY

SERVICE ORIENTATION   DIGITAL ORIENTATION

PROVIDE ORGANIZATIONAL CHANGE

DELIVER CONTINUAL SERVICE IMPROVEMENT

SUPPORT ACTIVITIES

RESEARCH AND DEVELOPMENT

Satellite monitoring, Mobile applications, Information Communication Technology (ICTs) Blockchain, Internet of Things (IoTs), AI, Machine learning and Deep learning

QUALITY CONTROL

Blockchain powered traceability platforms, Internet of Things (IoT) sensors and devices e.g. heavy metal testing

ENVIRONMENTAL AND SOCIAL SAFEGUARDS

Internet of Things (IoT) sensors and devices e.g. CAIRNET Micro Sensors (H_2S and NH_3)

MITIGATION OF IMPACTS

Geographic Information Systems (Sargassum hazard and exposure mapping), Decision Support Systems

PRIMARY ACTIVITIES

Harvesting	Storage/Transportation	Processing and packaging	Distribution	Sales and Marketing
UAV and underwater robots to estimate volumes & types Semi-autonomous aqua drones for harvesting at sea	IoT devices and sensors to support ideal storage practices Vessel monitoring systems (sea) | GPS tracking systems (land). Data verification and analytics to support efficient operations	IoT devices and sensors to support efficient operations E.g. Smart scales, solar-powered autonomous processor, 3D printers	Supply chain insight platforms powered by blockchain and AI Vessel Monitoring Systems (sea) | GPS tracking systems (land)	Online sales and marketing platforms powered by blockchain and AI Social media marketing and AI-powered insights

Interreg Caraïbes
Fonds européen de développement régional
UNION EUROPÉENNE
SARG'COOP
Programme caribéen de coopération de lutte contre les algues sargasses

Harvesting

- **Unmanned Aerial Vehicles (UAV) e.g. drones and semi-autonomous underwater robots can be used to estimate sargassum volumes & species types**

- **Monitoring and mapping sargassum influxes using Artificial Intelligence (AI) and evolving technologies can support response planning**

- **Machine learning algorithms to classify, batch and compress labelled datasets**

- **Semi-autonomous aquadrones for harvesting sargassum at sea**

Storage/Transportation

STORAGE

- **Internet of things (IoT) devices and sensors to support ideal storage practices**

TRANSPORTATION

- **Vessel monitoring systems (sea)**

- **GPS tracking systems (land)**

- **Data verification and analytics to support efficient operations**

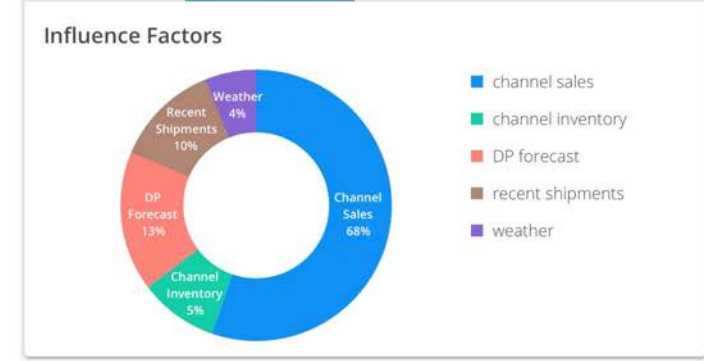# Processing and packaging

- **IoT devices and sensors to support efficient operations**
- **Smart scales can be used to determine weights and support image processing. Data is uploaded to cloud and can be matched to the harvesting vessel or beach where sargassum was harvested.**
- **3D printers can be employed using bioplastic made from sargassum to create environmentally friendly packaging**
- **Solar-powered autonomous processor turns waste and biomass (sargassum) into green hydrogen, energy and carbonated byproducts**
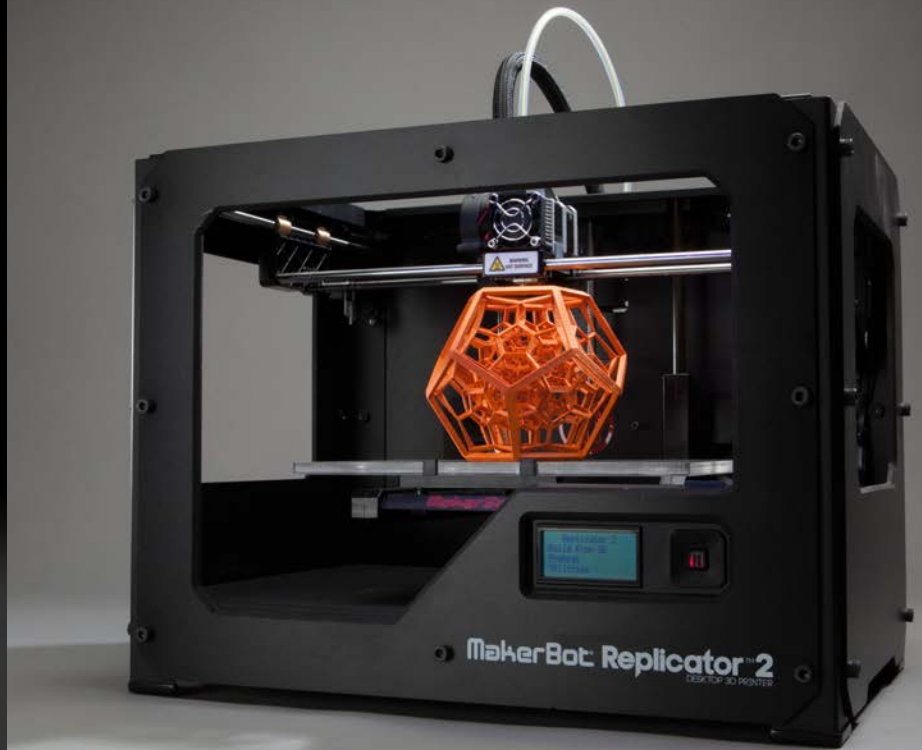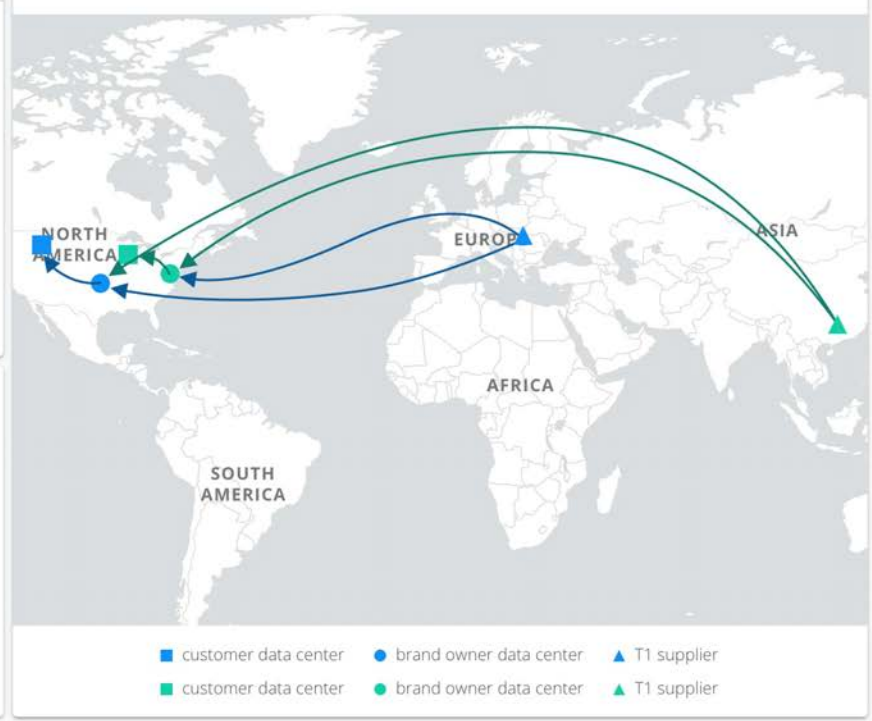
Distribution

- **Supply chain management platforms powered by blockchain and AI can promote resilient distribution plans to handle market changes, including supply disruptions and demand increases**

- **Vessel Monitoring Systems (sea), GPS tracking systems (land), flight trackers (air) employed to collect location data that can support more efficient distributions plans**
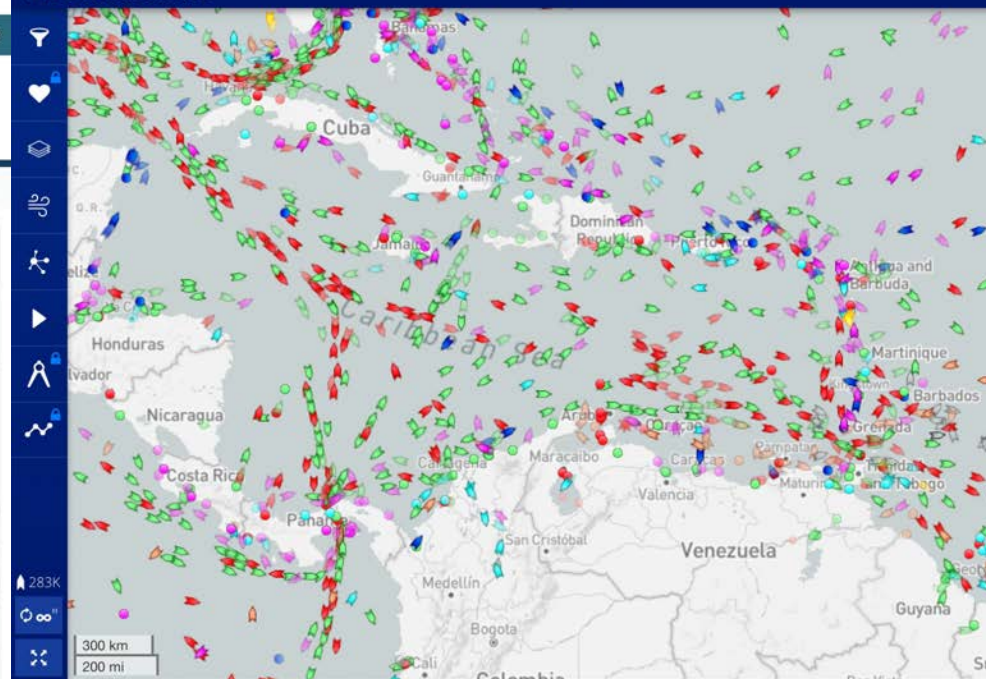
E2OPEN

Process Management ⌄

Burton Guster 🔔7

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Edit Task Resolution < >

Forecast & Sales **Influence Factors**

Influence Factors

- channel sales
- channel inventory
- DP forecast
- recent shipments
- weather

Weather 4%
Recent Shipments 10%
DP Forecast 13%
Channel Sales 68%
Channel Inventory 5%

Projected Inventory

300
200
100
0
-100
-200
-300

3/22 3/29 4/05 4/12 4/19 04/26 5/03 5/10 5/17 5/24

■ demand ■ supply — inventory

Global Supply

NORTH AMERICA EUROPE ASIA
AFRICA
SOUTH AMERICA

■ customer data center ● brand owner data center ▲ T1 supplier
■ customer data center ● brand owner data center ▲ T1 supplier

Resolution Scenarios

Resolution	OTD by Revenue	OTD by Qty	Purchasing Cost	Shipping Cost	Rank Score	Action
Baseline	75.3%	82.7%	$416,524.00	$416,524.00	NA	👁
Expedite from supplier	99.7%	99.7%	$416,524.00	$416,524.00	1	👁 ▶
Alternate supplier	95.1%	93.5%	$416,524.00	$416,524.00	2	👁 ▶
Internal material move	99.3%	99.7%	$416,524.00	$416,524.00	3	👁 ▶
Adhoc						

MarineTraffic

Live Map Explore ⌄ Community ⌄ Solutions ⌄

Cuba Dominican Republic Honduras Nicaragua Costa Rica Panama Venezuela Colombia Guyana Martinique Barbados Maracaibo

283K 300 km 200 mi

FlightAware

500 km 500 mi

Sales and Marketing

- **Online sales and marketing platforms powered by Blockchain and Artificial Intelligence (AI)**

- **Social media marketing using platforms such as Facebook, Twitter, LinkedIn, Instagram, YouTube, Pinterest, TikTok.**
AI-powered insights

- **Social media marketing platforms e.g. Hootsuite**

- **Branding sargassum products and services as blue growth initiatives**

07 april 2022 WebinaR : "Collection and valorization of sargasssum in the Caribbean : issues and prospects"

New Board

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My Tweets Hay ...

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Bank of Canada wary of business investment surge
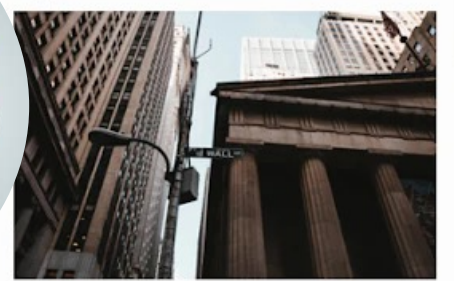
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📋 Monday 9 December
⏰ 1pm - 2:30pm
📍 Jubilee, G31

Hayward University
21hours ago • View on Twitter

Refugees travel 2 billion km every year to seek safety from violence. Step up with them, join the UNHCR, the UN Refugee Agency challenge!

These are the current figures on our ranking
🏃🏃:

Geneva - 701KM
Barcelona - 1,427KM
Madrid - 576KM

Haven't signed up? Sign up with your fitness app, and whether you are a walker, a hiker, a jogger or a dancer, join the challenge to step with refugees and gain an opportunity to attend the Nansen Refugee Award.

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Your feedback last year told us there was nowhere for you to make hot food and drinks ☕ We introduced a new Student Kitchen with a hot water tap and microwave, making these winter months a little more bearable ❄️

My Posts Haywar...

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👍 💬 ↗ 🔖 ...

Reply as Hayward Schoo... 😊 📎

Malcolm Williams Thank you for sharing

Hayward School of Finance
21hours ago

Business and Management Studies student Pippa Donalee is running a series of podcasts called "You Belong" which are about how to get more women into top business positions in the future.

My Tweets Hay ...

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1

NON FUNGIBLE TOKENS

Creatives producing sargassum related art should consider the use of Non Fungible Tokens (NFTs)

2

BLUE BLOCKCHAIN

Blockchain powered blue carbon credit trading platforms can be considered in the future

3

TECH STARTUP COLLABORATIONS

Sargassum innovators should explore collaborations with tech startups in the region

Thank You!

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