





About Future of Fish

Future of Fish is an international non-profit that supports small-scale fisheries and communities impacted by overfishing to build sustainable livelihoods while also protecting fish, a critical source of protein for billions of people worldwide. www.futureoffish.org

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Disclaimer

The following report relied on a combination of literature reviews, in-depth expert interviews, and original data analyses. We thank Dr. Easton White for analyses of Global Fishing Watch data and Google Search Trends data and contributions to interpretations of this work. We validated our pattern-finding analyses using the literature and interview content as cross-references. Fishery systems are dynamic in nature, and subject to rapid and sudden change; the COVID-19 pandemic has only accelerated this volatility. We present this work as a synthesis of current conditions, acknowledging that research content spans several months in time. Future of Fish welcomes feedback to improve the findings.

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Introduction

The economic, social, and environmental impacts of the pandemic on the seafood industry have been severe and diverse. A key response in the food industry, including seafood, was continued **expansion into direct sales**. From initial coping mechanisms such as dockside sales, seafood direct-to-consumer (D2C) business models continued to grow in sophistication and diversity. Today, **D2C models have been launched by every node in the seafood supply chain** and range from small companies servicing local markets to large e-commerce enterprises with international reach.

This report categorizes the different types of D2C models that currently exist within the seafood sector, and evaluates their respective strengths and weaknesses, the enabling conditions important for certain models to thrive, as well as barriers to scale and growth. Please note: references have been omitted in this Executive Summary; detailed references are provided in the footnotes of the full report available *here*.

The Direct-to-Consumer (D2C) Landscape

In a direct-to-consumer model—known as D2C or DTC— a brand sells their product directly to their end customers without third-party wholesalers or retailers. By definition, in D2C models the manufacturer or "maker" is the one that connects with the customer.

Food and beverage D2C is relatively nascent and unique compared to other sectors because the raw material can be the final product. For example, consumers have no use for the dyes or cotton that feed into a final clothing product. In the seafood industry, both sales of raw product by fishers as well as value-added products from down the supply chain are considered D2C transactions. In this report, D2C is defined broadly:

A D2C seafood company is any enterprise that produces and directly sells a seafood product to the final consumer.

This definition includes companies using online sales as one of multiple sales strategies, and offline efforts to sell directly to consumers through pop-up shops or dockside sales.

D2C AND E-COMMERCE

For the majority of D2C companies across the globe, e-commerce is the underlying driver of their business, and they rely on different types of digital platforms for marketing and sales. The emergence of businesses that focus on providing support services specifically for online seafood sales is one of the major indications that D2C models in seafood are likely to continue to stick around (Figure 1).

Direct-to-Consumer (D2C) Models for Seafood

Across the sector, we find companies that launched D2C models over a decade ago expanding and refining their existing approaches and those businesses who came online in early 2021. The diversity and complexity of models reflects the diversity of fisheries production and consumption contexts around the world. We distill this wide range of D2C seafood models into four high-level categories:

- **1. Grassroots**: hyperlocal, minimally processed catch of the day product, mostly driven by fishers, supported by social media and/or digital marketplace technologies.
- **2. Membership**: subscription-based models that range from hyperlocal to national reach, emphasize connection with fisher and exposure to new and different seafood products. Operated by fisher groups or an intermediary and supported by online ordering options.
- **3. Fishmonger 2.0**: businesses with small, physical locations for consumers to purchase seafood in a variety of formats, normally operated by an intermediary and supported by online ordering and home delivery options.
- **4. Brand Direct**: Companies—often processors or distributors—with their own websites for online shopping. Most often sourcing from a variety of producers across local and national scales and partnering with third party logistics providers to support home delivery. Often leverage online market-places for increased exposure.

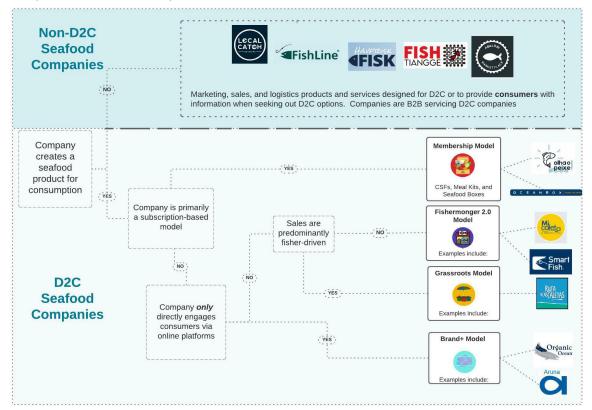


Figure 1. Classification of different D2C models in seafood. Categorization is based on major features of D2C models, including what products are offered, how consumers are engaged, and the method of product delivery. Companies providing support services to D2C are shown in the upper box. D2C companies fall into four high-level business model categories that we are calling: Membership, Fishmonger 2.0, Grassroots, and Brand+. Examples of existing businesses for each model category are from top to bottom: Olha o Peixe (CSF in Brazil); OceanBox (Seafood Box, USA); MiCaleta (Distributor,

Chile); SmartFish (Distributor, Mexico); Rutas De Caleta (Chile); Organic Ocean (Distributor, Canada); Seafood By Aruna (Distributor, Indonesia). For more details on each category, see Direct-To-Consumer (D2C) Models in Seafood section.

These categories are not exclusive, nor rigid. Within each category, there are multiple types of business models; additionally, many companies run a number of sales strategies simultaneously and may occupy more than one category. What differentiates these models are the primary ways in which businesses engage the consumer, impacting the type of technology utilized and geographic reach of the model.



Description: Fishers sell their catch directly to consumers in minimally processed form. Dockside and door-to-door sales models are traditional methods of selling catch around the world and during the initial lockdowns in 2020, this method became a lifeline for fishers who saw their traditional sales channels collapse and for rural fishing communities cut off from contact with the outside world. In many regions, this model is actively evolving to include a growing reliance on digital platforms that provide match-making services or support sales transactions and logistics between fishers and consumers within nearby communities

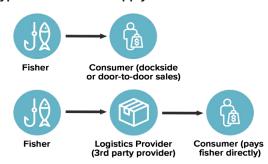
Delivery Method:

- Consumers meet the fisher at the dock or roadside (non-permanent) locations. Also includes small-scale fish vendors—often women or relatives of fishers—selling products at landing or roadside sites;
- 2. The fisher goes door-to-door to sell their catch;
- 3. A third party delivers the product, based on a transaction placed between fisher and consumer.

Types of product: Local catch of the day, fresh finfish or shellfish. Minimal processing such as cleaning and fileting, smoking, or drying, is sometimes provided.

Where we see these models: Versions of grass-roots D2C exist all over the world, but are especially important in low and middle income countries (LMICs) in Latin America, Asia, and Africa.

Typical Number of Supply Chain Nodes:



Strengths: Keeping at least some of their catch flowing through to their neighbors helps fishers support food security needs, reinforces the value of small-scale fisheries within the community, and builds a social network that can provide critical support during times of crisis. Other strengths include:

- Low-cost and require little infrastructure or upfront investment.
- Local, just-landed catch
- No or limited cost for delivery.
- Opportunity to view products before buying them, convenience of door-to-door or roadside
- · Authentic experience of buying from fisher
- The addition of digital platforms today supports improved communication and planning for both parties.
- More resilient to impacts from large-scale global shocks.

Weaknesses: As a fisher-led model, this approach puts the burden of marketing and sales activities onto fishers' already full plates. The exhaustion of D2C sales is one of the reasons fishers stated for giving up on these models once lockdowns were lifted.

- Limited volume and geographic range.
- Local catch may not fit the preferences and price points of domestic consumers.
- Depends on regulations allowing fishers to not only catch, but also sell their fish.



MEMBERSHIP MODELS

Description: Versions of this model include Community Supported Fisheries (CSFs), Seafood Boxes, and Meal Kits and share several common features:

- A focus on long-term relationship building centered around connecting consumers with fishers, place, and food;
- A commitment to education and expanding the seafood palette of consumers;
- Subscription-based sales as a driving component of the financial model (though one-time purchasing options are common)
- Convenience as a major selling point.

Where these models differ is in regard to the type of fisheries they engage, degree of customization by consumers, and proximity to the source of the seafood.

Community Supported Fishers (CSFs)

CSFs offer the closest connection to fishers. Consumers can sign up to receive shares of a season's catch and purchase seafood *usually* caught from small-scale fisheries near their home.

The Seafood Box

In the Seafood Box model, consumers may choose from a wide variety of species, or a narrow selection of niche products. Seafood Box models connect the consumer with the company creating the boxes, not necessarily the fisher, but these intermediaries often provide information to build transparency and storied seafood for their customers.

Meal Kits

Meal Kits are focused on providing their customers with everything needed to create a full meal. Consumers are able to customize their orders and receive detailed recipes and pre-cut, pre-chopped, and pre-measured portions of all ingredients, not just the seafood.

Delivery Method:

CSFs traditionally rely on local pick-up locations but may also offer home delivery

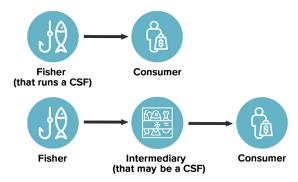
Seafood Boxes and Meal Kits: at-home delivery via third party logistics

Types of product: The majority of CSFs offer fresh products and minimal processing. Meal kits can range from seafood-only to plans that offer seafood as one of many protein options. Seafood boxes provide a variety of (often portioned) seafood, often frozen and ready-to-cook. Because seafood box and meal kit companies aggregate products, they are able to source from larger-scale fisheries than most (but not all) CSFs..

Consumer geographic reach: From hyperlocal to national reach. The majority of CSFs have local pick-up locations; since COVID-19, many have turned to online-driven D2C with localized home delivery. Meal kits and seafood boxes tend to be regional or national scale.

Where we see these models: CSFs are growing rapidly in the USA and Canada, with nascent growth around the world, including in Brazil, Turkey, Australia, and the UK. Seafood boxes are found globally. Meal kits appear to be more limited to the US market, though similar services are being offered in the EU and Chile by restaurants.

Average Number of Supply Chain Nodes:



Strengths: The payment scheme, which provides upfront or recurring payments, helps businesses to stabilize their cash flows and facilitates business planning. Other strengths include:

- Strong customer relationships and flexible options to customize, change, and alter subscription plans
- Safe, contact-less, and convenient recurring delivery at home or regular pick-ups
- Meal Kits and Seafood Boxes can source both small scale and larger industrial fisheries

- Opportunity to expose customers to new species/products
- CSFs, Meal Kits, and Seafood Box companies are competing on more than just price and quality—diversity of offerings, transparency around sourcing, and alignment with eco-friendly and community-first values are important features of these brands
- For many CSFs and Seafood Boxes, not having to rely on imports means these models are more resilient against major global disruptions.

"For those who use meal kit delivery services, the top reasons for doing so are convenience, liking having meals planned for them, and trying something new/ changing diet. A large number of meal kit users also report they use meal kits because these products save them time on meal prep." —Perishable News, 27 Oct. 2021

Weaknesses

- Price point: despite shorter supply chains, products sold through CSFs, Meal Kits, and Seafood Boxes are relatively expensive
- Growing competition from retail is a significant threat as more retailers shift to ready-to-cook and individually portioned products.
- Physical access to consumers (ie working waterfronts) is not always available and limits distribution for CSFs.
- Lack of reliable logistics partners or infrastructure makes fast and secure deliveries a challenge in many places in the world.





Description: Across the wider D2C sector, digitally native companies are embracing an offline presence—often through pop-up shops or kiosks. Within seafood, wholesalers and distributors are selling domestically sourced product at **physical** locations where consumers can shop in person, including wet markets, farmers markets, pop-up shops, and small brick-and-mortar stores.

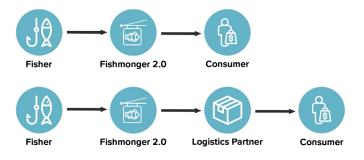
Delivery Method: In-person transactions happen within the stores; online options provide alternative shopping experience, supported by in-store pick up or home delivery.

Types of product: Frozen or fresh, typically domestic product; value-added products. Some carry products beyond seafood.

Consumer geographic reach: Local, from neighborhood to town or city-scale. Online ordering and shipping options allow reach to a national scale.

Where we see these models: Global. Examples: Mexico, Chile, Singapore, and the United States.

Average Number of Supply Chain Nodes:



Strengths: Businesses in this D2C category are building off two current trends — the online to offline (O2O) evolution in retail and consumers' desire for a range of choices—in products and delivery methods. Physical locations allow consumers to view products, ask questions, and, yes, voice complaints, and helps build relationships; ordering options (by phone or online) with home delivery (and local scales) also meets consumers' desire for convenience. Other strengths include:

- Often less investment cost to open a small retail location than expansion into online sales, which requires building out new teams and infrastructure.
- Shops are well-positioned to provide readyto-go and ready-to-cook options —a benefit that continues to be highly valued during the on-going pandemic times.
- Shops can also serve as fulfillment centers for local home delivery services. Small fishmonger shops can serve this function for businesses that are growing their reach through online sales, while also doubling as hubs for local consumers to connect, learn, and try out new products.

Weaknesses: Limited real estate options: dwindling working waterfronts, competition from retail sector for micro-fulfillment spaces, and regulations around food safety and sales can make finding a suitable, affordable space very difficult.

Especially for smaller companies, coordinating inventory and consumer activity across online and offline sales channels can be difficult.

Small shop size limits the amount of inventory, which may be a disadvantage in negotiating third-party logistics as many companies set prices based on order volumes.



Description: Traditional, B2B seafood companies and new, digitally native companies are investing in e-commerce platforms to develop D2C sales channels, competing for customers who are searching for convenient (fast, diverse) seafood delivery. This model requires investment into partnerships to provide logistics at scale, and building expert digital marketing strategies and brand differentiation to survive in a highly competitive online marketplace.

Delivery Methods: Primarily third-party logistic partners; for regional distribution, some Online Brand+ companies have their own fleet of trucks.

Types of product: Large diversity of fresh, frozen, and processed products, including branded value-add. Sourcing includes domestic and international fisheries. Businesses in this model tend to have the largest selection of product forms and types out of all the models—the exceptions are those that are focused on highlighting a specific region's seafood (for example, TrueFin in the USA) or type of seafood (e.g SoloPulpo in Spain).

Consumer geographic reach of D2C: National and some international.

Where we see these models in the world: From North America to the UK to SE Asia, a combination of traditional mid-chain players and new, fully-online companies.

Potential Number of Supply Chain Nodes:



Strengths: Many Online Brand+ D2C companies build off the backbone of an existing seafood business, especially sourcing and processing relationships and expertise. Other strengths include:

- Internal infrastructure from traditional B2B mean these companies can adjust their products to meet the evolving needs of consumers—value-add products, frozen, and readyto-cook especially.
- Diversified revenue streams created by adding D2C to already existing wholesale or retail business.

Weaknesses: For digitally native or mid-chain companies, building brand identity without physical presence depends on online marketing and sales. This requires hiring outside experts who can help not only design the website, but also run the analytics to optimize user experience and build in customer service functions. Other challenges include:

- Logistics are a heavy lift for home delivery, and companies must choose to either invest in building their own fleets or securing partnerships with existing third party providers, both
- Competition for product as retailers move more online and have more grab-and-go and ready-to-cook options and food service opens back up.

SUMMARY OF D2C MODELS IN SEAFOOD

Around the world and across the supply chain, seafood entrepreneurs are embracing an ever-growing variety of D2C business models (Figure 3). None of the four categories identified in this study are exclusive; this flexibility is part of what makes the D2C space difficult to track and predict, but this is also what is driving powerful new models across all nodes of the supply chain. **Fishers** are engaging via CSFs and through local seafood finders, which send consumers to habors for dockside sales. **Processors, whole-salers and distributors** have embraced D2C in multiple ways—from setting up small shops and entering the retail space to launching full-blown e-commerce websites with overnight delivery. Even **traditional fish market vendors** are launching online versions of their stalls. And, in Chile, Southern Europe, and the UK **restaurant chefs** are providing not just take-out, but ready-to-cook meals for picked up or home delivery.

D2C Models Around the World



Figure 3. Examples of existing D2C seafood companies around the world and which of the four categories they occur in. Letters represent individual D2C seafood businesses as follows: (a) Organic Ocean; (v) Santa Monica Seafood; (c) Sizzle Fish; (d) Dock to Dish; (e) Ocean2Table; (f) Smart Fish; (g) Olha o Peixel; (h) Pesca en Linea; (i) Ferias Online; (j) Mi Caleta; (k) Pesca Nova; (l) SoloPulpo; (m) Fishbox; (n) Blue Lobster; (o) Day Sea Day; (p) Tres Peces; (q) Ruta de las Caletas; (r) La Pescadería de mi Barrio; (s) Abalobi Marketplace Fishers; (t) Chef ME at Home; (u) Jalongi; (v) My Seafood Mart; (w) Dish the Fish; (x) Aruna; (y) Fish Tiangge Fishers; (z) Fair Fish.

Durability and Scale

While there are many factors that can affect the ability of seafood actors to effectively engage a D2C approach, the potential for D2C strategies to succeed and scale depends largely on three elements:

- **1. Enabling Conditions:** existing resources that allow a model or business to take root and get off the ground;
- 2. Challenges: obstacles that may slow or prevent progress; and
- 3. Drivers: forces within or outside the system that lend momentum to a strategy.

ENABLING CONDITIONS

These factors make it possible for different D2C models to get off the ground and may be more or less important for different D2C models (see Table 1). A few examples include:

IT Support: D2C companies cited the importance of in-house IT support, and/or family members (often from younger generations) as a key enabling condition for launch and as critical to maintain data security and respond quickly to customer needs or complaints.

Industry and Community Connections: Deep, nuanced knowledge of seafood products, supply chain management, and logistics is crucial, as are the trade relationships and networks.

Robust Products and Partners for FulFillment: Reliable, robust packaging that keeps products safe, cold, and attractive (especially through the mail) is critical; thus, access to co-packers and packaging that is fit-for-purpose is a major need for D2C launch and on-going success.

Cultural Fit: Pre-existing conditions at a national or local level matter to D2C success, including: digital literacy, presence/absence of "seafood culture;" and consumer awareness of sustainable seafood. Successful actors built where there were existing conditions of cultural acceptance, or were able to adapt their products to better meet customers where they are.

Table 1. Summary of key enabling conditions for different models. These are the conditions that allow for an initiative to take root and launch, but alone do not ensure scale or durability. Note: CSFs and Seafoodboxes/Meal Kits have been separated out for the Membership Models due to the different geographic reach and reliance on online sales.

ENABLING CONDITIONS	GRASSROOTS	CSFS	MEAL KITS AND SEAFOOD BOXES	FISHMONGER 2.0	BRAND+
Last Mile Delivery Options in Place			X		X
IT Support			×	×	X
Industry and Community Connections	X	X	X	×	X
Robust Products and Partners for FulFillment			X		X
Cultural Fit	X	X	×	×	
Exceptional Customer Service From the Start	X	X	X	×	X

CHALLENGES

Understanding how and why D2C models have failed, and the obstacles entrepreneurs face, can help improve strategies. Examples of challenges identified in the report include:

Digital marketing is a big expense but necessary: Competition is high, and requires new types of marketing strategies designed for the online D2C sector, requiring new expertise and expense.

Critical Digital and Physical Infrastructure Missing: Lack of reliable and fast internet connectivity, decent roads, and cold storage at regional scales limits the geographic range and type of D2C models that can exist.

Some fisheries and species just aren't a good fit: Species landed in high volumes do not work well for door-to-door, CSFs, and small shops; products highly variable in abundance and price are difficult for D2C outlets that require consistency; live product is generally not well-suited.

"I don't see the D2C or CSF markets as lasting into the long term in a major way. Our fishers catch too much to move through these channels—the scale is not a fit." —Fisher Association Leader, USA

D2C loses out to more lucrative markets: As the HORECA sector begins to open back up, many fishers may choose to sell their products back into these traditional (and higher-priced) markets—ending their own D2C businesses or reducing supply for D2C companies.

A Good Third Party Logistics Partner is Hard to Find: In order to scale, the majority of D2C strategies require partnerships with third party logistics companies, which in many regions of the world, remain unreliable, non-existent, or unwilling to provide insurance or other benefits.

Summary of Challenges

Each model has its own primary challenges (Table 2). Some challenges are barriers that D2C seafood companies have less control over, and require larger initiatives or partnerships to overcome. Others are more feasible for a company to address.

Table 2. Summary of the challenges to growth and scale for D2C seafood models and which of these challenges is most prevalent or important for each model. Note: CSFs and Seafoodboxes/Meal Kits have been separated out for the Membership Models due to the differences in geographic reach and reliance on online sales.

CHALLENGES	GRASSROOTS	CSFS	MEAL KITS AND SEAFOOD BOXES	FISHMONGER 2.0	BRAND+
Home Delivery Has Cost to People and Planet			X	X	X
Digital marketing is a big expense but necessary in an increasingly competitive environment			X		X
Critical Digital and Physical Infrastructure Missing			X	X	X
Some fisheries and species just aren't a good fit	X	X		X	
Lack of existing or willing domestic market	×	X	X		

CHALLENGES	GRASSROOTS	CSFS	MEAL KITS AND SEAFOOD BOXES	FISHMONGER 2.0	BRAND+
D2C loses out to more lucrative markets	×	X		×	
D2C adds work to already full days	X	X			X
Online D2C Models Require Investment Capital			X		X
High Consumer Expectations Are Hard to Meet	X	×	X	X	X
A Good 3rd Party Logistics Partner is Hard to Find			×		X

DRIVERS

The influence of global trends in consumer behavior, technology, politics, and global climate and ecosystem health all add momentum to—or take momentum away from—different D2C models. Such forces often exist outside of the seafood system itself.

More consumers shopping online, including for seafood: Seafood is tracking the overall grocery trends towards increased online purchases.

"Today, e-commerce accounts for nearly 28 percent of grocery sales globally...The corona pandemic has put e-commerce two years ahead of previous growth forecasts."—Norwegian Seafood Council

Shifting Consumer Demands: Today, companies cannot just sell a product, they must sell who they are, and why the customer should choose them in a world of simple, one-click options. Values that today's consumers—Millennials and Gen Z generations especially— are looking for include convenience, personalized and authentic experience, and healthy and diverse options.

More Technologies That Reinforce D2C: An increasing proliferation of tools and products is lowering the barrier to entry for D2C, allowing more businesses to leverage and access online markets effectively (Figure 1) and is a strong indication of durability of the sector.

Innovations in Processing, Packaging, and Cold Chain: From motorbikes with solar-powered coolers to "smart packaging" to eco-friendly packaging, COVID-19 has greatly accelerated the growth of alternative packaging and spurred innovations in cold chain and processing.

Increasing Interest and Support for Domestic Markets: The threat of food insecurity, closure of international borders, on-going shipping and logistic challenges, and lack of international tourism, led governments, industry, and civil society to create tools to boost domestic consumption of locally caught species.

Last Mile Logistics Improving: Three global-level trends have helped to create vast improvements in especially last-mile logistics over the past few years: (1) the rise of e-commerce globally; (2) advancements in logistic systems, including digital systems for managing inventory and distribution; and (3) improvements in product packaging to reduce waste and ensure product integrity. Logistics remain a major hurdle in many parts of the world, but they are improving rapidly and at scale.

Interest from Investment: As the fastest growing sector in D2C, food and beverage companies are attractive to investors, Food delivery start-ups are getting noticed by venture capitalists (VC) and companies with sustainable and socially responsible brands may attract attention of the impact investment sector, which is pushing for more ESG investments.

Summary of Drivers

Drivers and the D2C seafood models they most influence are shown in Table 4. All models have multiple drivers that could lend momentum to their progress.

Table 4. Summary of forces and initiatives that are most prevalent or important for each model. Note: CSFs and Seafoodboxes/Meal Kits have been separated out for the Membership Models due to the differences in geographic reach and reliance on online sales.

DRIVERS	GRASSROOTS	CSFS	MEAL KITS AND SEAFOOD BOXES	FISHMONGER 2.0	BRAND+
More consumers shopping online, including for seafood			X		X
Shifting Consumer Demands	×	X	X	×	X
More Technologies That Help Capture and Keep Customers			×		X
Low-Lift, User-Friendly, and Scalable Technologies	X	×	×	X	X
Innovations in Packaging and Cold Chain		X	X	X	X
Increasing Interest and Support for Domestic Markets	Х	X		Х	
Last Mile Logistics Are Improving			X	×	X
Interest from Investment Could Drive More Innovation in Food and Beverage E-commerce			X		X

DURABILITY OF D2C MODELS

The combination of enabling conditions, challenges, and drivers helps provide insight into how ripe and developed the landscape for D2C in seafood is and where there are still gaps (Table 5). The more Drivers there are to address challenges, the faster the rate of uptake or scale of different models; the more Drivers that may be helping to build enabling conditions, the more we are likely to see replication or adoption of existing models in new contexts.

Overall, there exists today multiple drivers in the system with the potential to build enabling conditions and mitigate many of the leading challenges faced by D2C. This is evidence of a strong, durable system that is continuing to mature and progress.

Impacts and Potential Outcomes for the Seafood Trade

The rapid increase of D2C channels in seafood, and its continued proliferation in various forms, brings up two pressing questions:

- 1. How have these D2C efforts affected the way seafood is bought and sold around the world?
- 2. What are the implications for food access, sustainability, and social responsibility of the sector?

PROSPECTS FOR LATIN AMERICA AND THE CARIBBEAN

The D2C seafood movement in Latin America and the Caribbean does not have as many large Online Brand+ or Meal Kit/ Subscription box companies delivering at national scales as do the USA, EU, and Asia. Fishmonger 2.0 models are growing, however, and are fulfilling the logistics gap. Several drivers point towards continued experimentation and growth of D2C in this region:

- Consumer trends in Latin America reflect those at the global scale. Consumers are turning to
 online shopping more and are looking for companies that they can trust to deliver safe, healthy
 products, that are not contributing to environmental harm, especially waste.
- 2. In Mexico, small scale fishers have increasingly adopted social media for direct marketing and sales at local levels, and continue to do so. And social impact networks and NGOs are providing the digital infrastructure and training to support growth of this trend.
- 3. In Chile, an entrepreneurial culture includes accelerators and other support for small and medium enterprises to launch and gain traction; and a program sponsored by the government during COVID-19 supplied women in rural areas with cell phones, data, and training to help them with their businesses.
- 4. In the Caribbean, UNDP-supported WiFetch is helping to create logistical and market solutions to connect consumers with all kinds of products, including local seafood.

These initiatives and existing drivers are a strong indication that D2C in the Latin American region—especially for Fishmonger and smaller Brand+ approaches—is poised for growth.

RIPPLE EFFECTS OF D2C

The following themes emerged from our analysis as potential disruptions or ripple effects that seafood actors are noticing as they continue to engage in the trade.

Digital Transformation of the Trade: All four D2C models have strategies that rely on digital data systems, whether it is social media for marketing or e-commerce websites for trade. This digital transformation of the sector has several implications:

- · Greater efficiencies and better inventory management, which can help reduce waste
- Increased insight into consumer behavior and thus, increased capacity to meet consumer needs and drive consumption
- Better data quality and availability for monitoring food safety, fraud, and illegal fish

- Lower barriers to entry for new technology, for example, electronic catch documentation and traceability schemes
- For informal parts of the sector, electronic data builds a digital identity that can facilitate more formal trade and access to finance.

More Demand for Processing: Creating products for individual home consumption used to be the realm of retailers and restaurants. As more seafood enterprises, from fishing cooperatives to international distributors, start to sell direct, there is increased demand for processing capacity. As D2C models prioritize customer preferences, this processing capacity needs to be flexible and diverse: individual portions, value-add products, and of course, more high-quality, frozen products.

"We are now doing a lot more processing. Seems to be more competition for people wanting that custom processor. By being one of first in the market and having that relationship from before has helped secure that spot for us. Others are challenged to get fish processed." –

North American Seafood Distributor

Competition for consumers and possibly, product: The entrance of producers and mid-chain players into the market, plus new D2C channels within grocery, and digitally native companies, mean more buyers are vying for consumer attention.

Diversification and potential to increase seafood consumption: As competition increases for popular species, D2C companies have an opportunity to educate and introduce new species and new product forms to consumers.

"My favorite part: the education piece. People learn because I tell them, not in a sales-y way, but telling them why frozen is OK even though not fresh; the difference in Omega 3 in sockeye from king. Tons of education. It is organic way to educate about seafood industry-that benefits all companies...That is hard to do on a website- easier when I'm there just chatting."—D2C Fishmonger, USA

Access and equity opportunities: Advancements in technology systems mean that even small players can have bigger platforms and get noticed. This, combined with advancements in logistics, more diverse products, and new business models have left D2C models well-positioned to move more fish to new areas while keeping costs down, potentially increasing access to affordable, nutritious seafood farther from the coast. Finally, in terms of access, Fishmonger 2.0 and Membership (CSF) businesses are bridging the gap between those that are fully comfortable in a digital environment and those who still want to see, smell, and touch their fish—and talk about it—before buying.

"As Jeffrey and Angeline [founders of Dish The Fish in Singapore] introduced their modern methods of displaying, packaging and selling fish, they had to help their customers adapt too. 'It took quite a bit of explaining and educating initially, but the time taken to convert many of the older generation of shoppers was not as long or tough as expected.' Angeline credits sincerity and commitment that got the elderly on board with them."

Transparency in the mid-chain: As consumers are increasingly interested in where their seafood comes from, D2C companies—including those in the mid-chain—are having to increase their own traceability and transparency. This provides a new opportunity to leverage public pressure for more sustainable and responsible seafood.

The Value-Prop of Sustainable, Responsible Seafood Is Going Up: The marketplace for online sales is increasingly crowded, and D2C companies across all sectors have to spend more on advertising and work harder to differentiate themselves. Sustainability and social responsibility are two ways that we see brands doing just that.

Brands with Personalities: The seafood industry is not known as a particularly fashion-forward sector in terms of branding. But this is starting to change as online competition increases for new generations of tech-savvy, brand-conscious consumers—Gen Z and Millennials especially. Online D2C seafood companies need to distinguish themselves not just on quality, price, and selection, but also on their authenticity, personalized services, and unique story. Creating a fresh, recognizable, relatable brand that reflects the core values of the company—and the target consumer—is part of the new normal.

Conclusions

There are now enough players in the D2C seafood space that the system is starting to mature—there are many new tools and resources designed to support food and beverage, and even seafood-specific, D2C enterprises. This kind of supportive infrastructure helps to lower the barrier of entry to D2C for other companies that may not be quite as pioneering or are more risk averse. As more companies join the fray, two things are happening:

- 1. Different D2C models are having proof of concept, attracting more interest, especially from investors:
- 2. Competition is driving continued innovation, and development of even more ancillary, support industries, which in turn, help more companies adopt D2C models.

In considering the future of D2C in seafood, experts and seafood actors noted that consolidation is likely to occur, with big players such as Amazon taking over fulfillment. Especially when it comes to food, most people want to shop for all their grocery needs at once. However, we are also seeing strong signs of continued innovation, which indicates that the system is still on the growth and maturation stage of the innovation curve

Real Good Fish's Site Host option is an example of continued experimentation that reinforces the sense of community and helps address issues of cost and environmental impact. Another example is the tech company Daily Catch, which is experimenting with providing small scale producers (fishers and farmers) with sensor and digital tools to not only run their business, but tell their stories to drive customer interest and engagement in online marketplaces—increasing potential for both B2B and D2C opportunities.

We are also seeing the "cross-over" or "hybrid" approaches. For example, Kroger's Home Chef provides meal kits that can be delivered at home or purchased in their retail outlets. The recent emergence of Restaurant Meal Kits is a very recent innovation within the restaurant D2C business, and shows how new approaches continue to surface.

When thinking about innovation adoption curves, the shift to online seafood shopping and direct sales has certainly hit a maturity phase—widespread uptake by consumers and proliferation of options in terms of back-end technologies and logistics to support home delivery continuing to improve. The existing, system-level drivers (many of them linked to the overall e-commerce boom) are creating improved enabling conditions and reduced barriers for seafood D2C moving forward. The early pioneers have paved the way for increased experimentation and adoption of D2C across the seafood sector, and we can expect these models to continue to evolve and scale in the near future.



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