

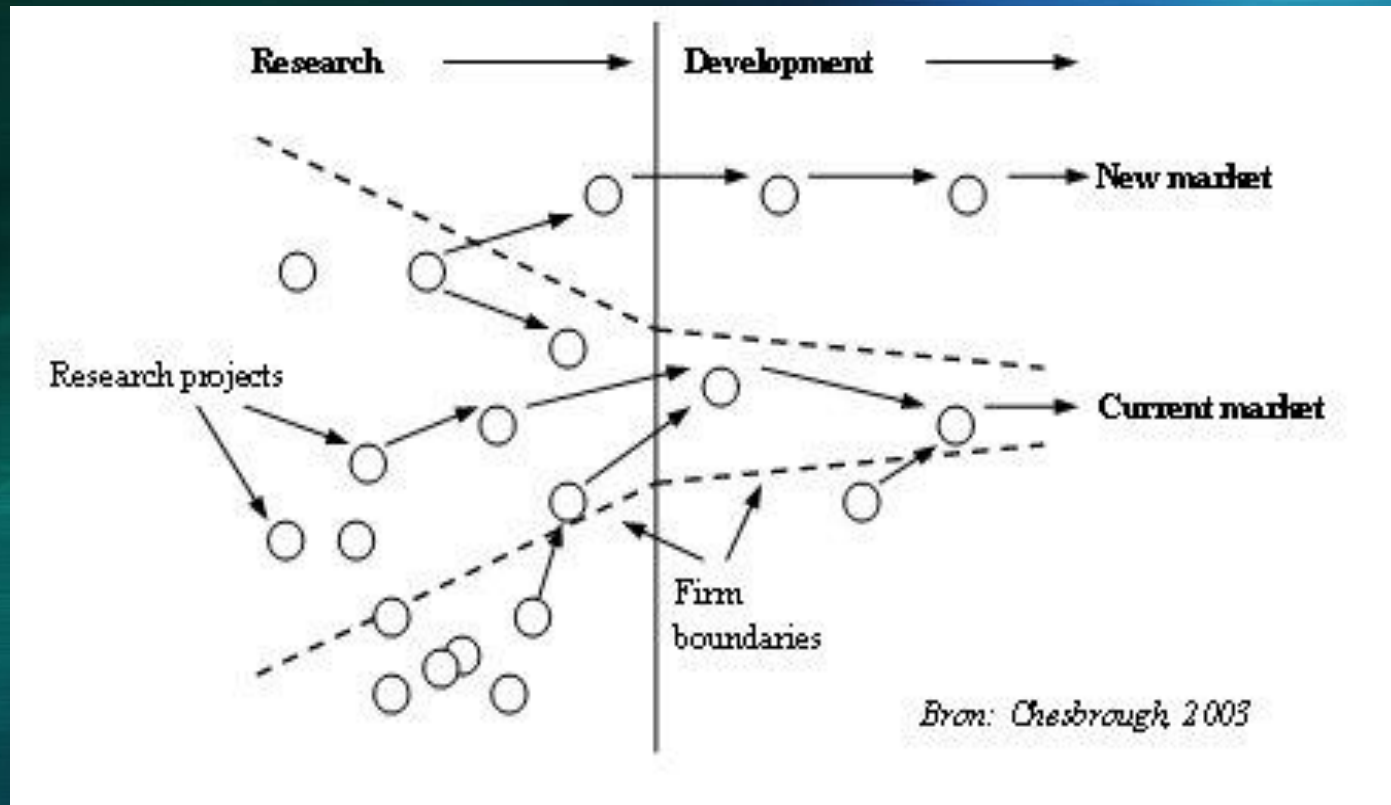
Open innovation in fish and seafood processing: External insights to boost internal R&D efforts

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Introduction



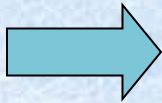
- Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology

Objectives

- To investigate the nature of open innovation/co-innovation practices among fish and seafood exporters in Sri Lanka
- To find out the role of open innovation in the product and process development, market identification, market expansion, brand image, quality control, labelling and certification, sales promotion and advertising, and the sustainability of the resources
- To find out the relationship between open innovation and firm performance

External support: Who are they? What do they support? How?

**Fish and
seafood
manufacturers**

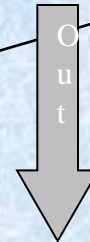
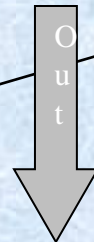
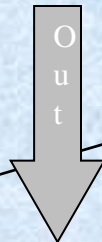


**1. Idea
Generation**
Company own
Research &
Development
lab

**2. Product
Development**

Marketing

Consumer

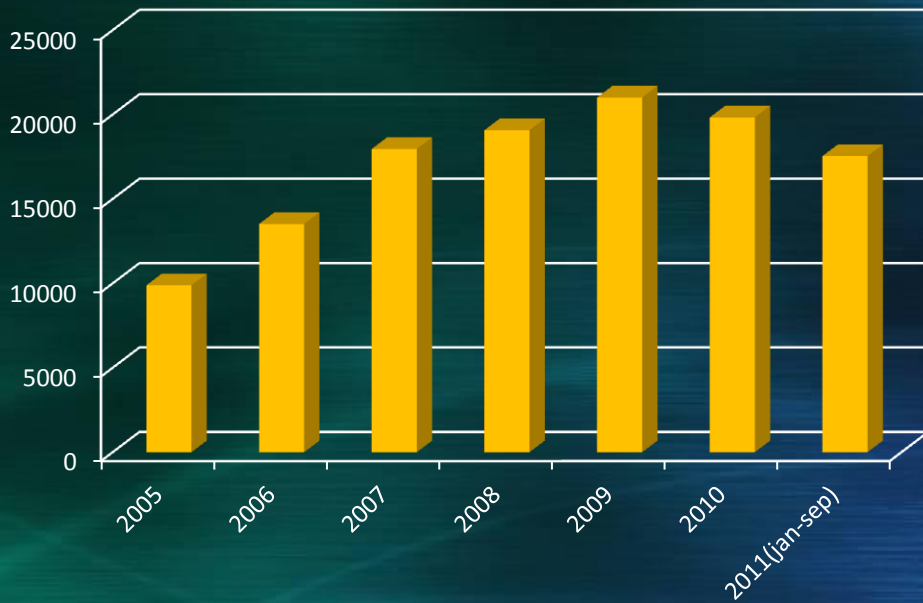


Phase 1

Phase 2

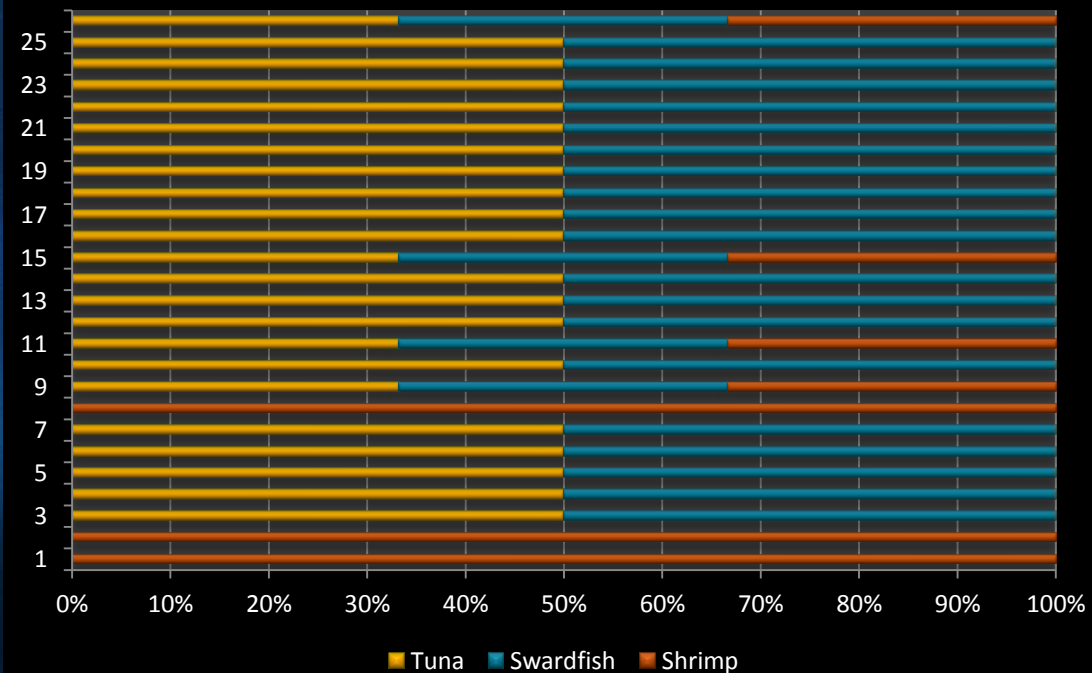
Phase 3

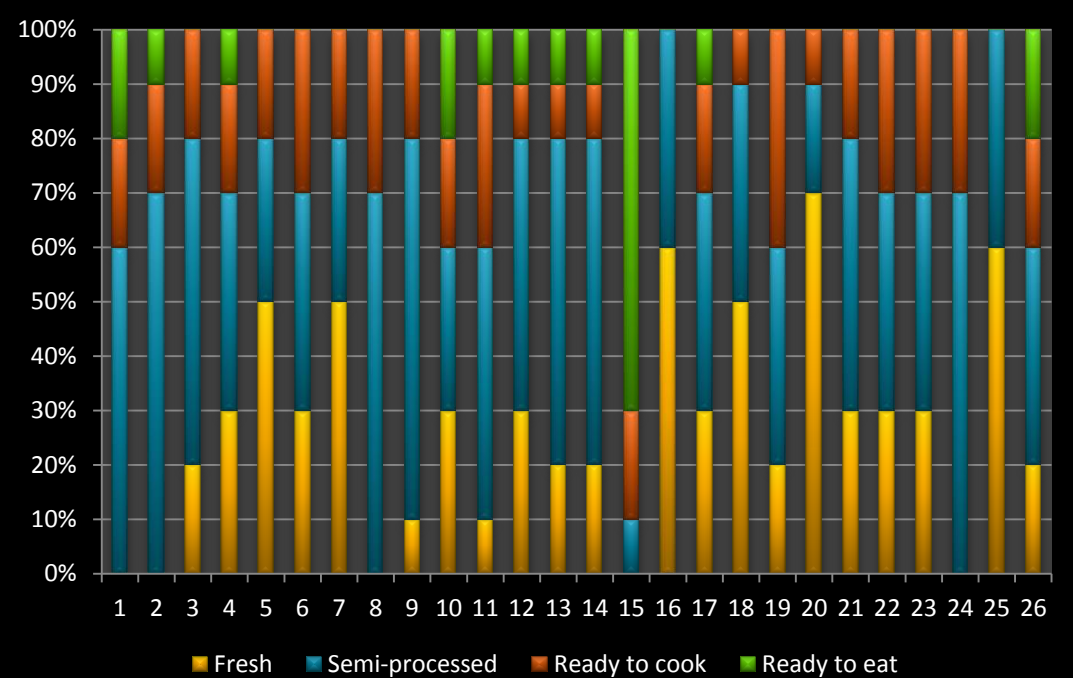




Value (LKR.Mn)

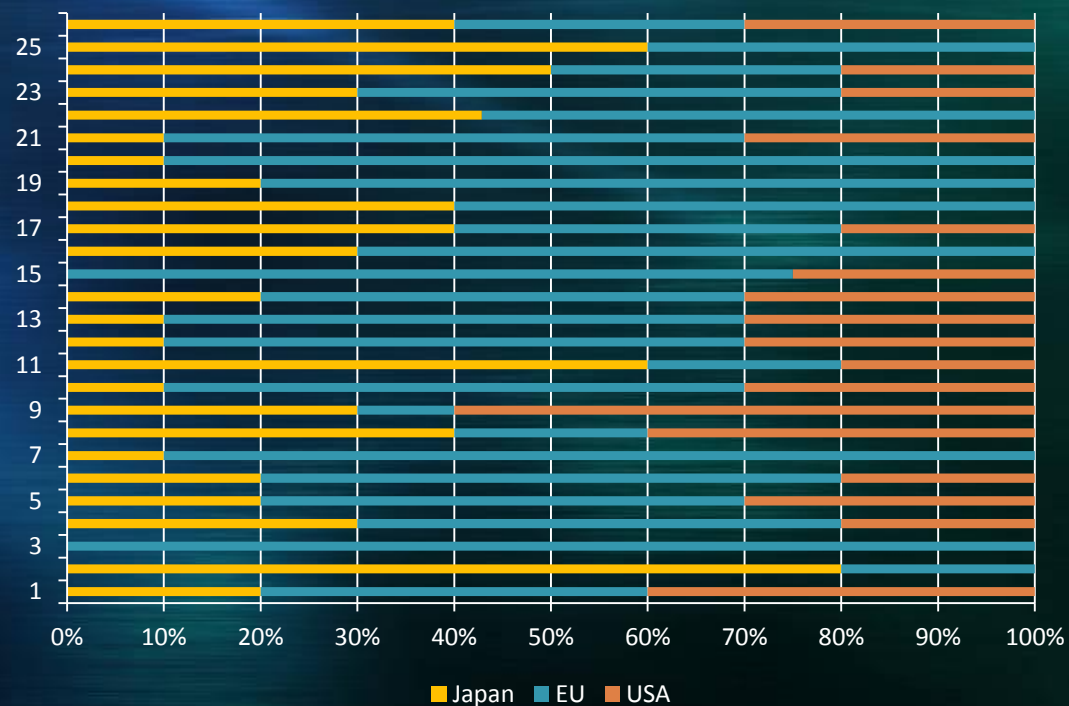
Export composition based on species

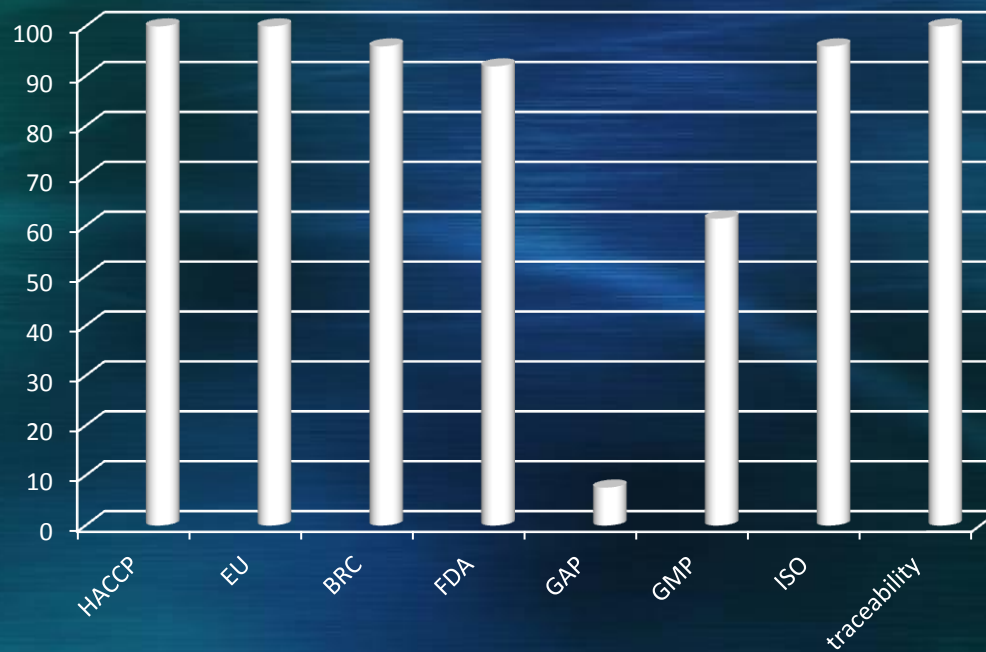




Export composition based on product categories

Export market diversification





Commitment on international market regulations

Methodology

- Study population - 103 fish and seafood export processing firms
- Sample composed of 26 EU approved establishments
- Data collection tool - structured questionnaire & structured interviews via telephone
- Hansen and Birkinshaw's (2007) capability measure was used to measure the firm's level on idea generation, conversion and diffusion
- Five point Likert scale (1-strongly disagree; 2-disagree; 3-neither agree nor disagree; 4-agree; 5-strongly agree))
- **H_0 : Open innovation has no significant relationship with firm performance (number of products developed and number of markets catered for)**

Results & Discussion

- **Nature of the open innovation practices**
- Open innovation experiences: organisations increasingly need to team up with their external stakeholders and networks in developing and refining ideas, services and products
- Fish and seafood export processing industry in Sri Lanka highly depends on the external ideas, starting from raw material suppliers to final consumers

External crowds, nature of their support and process of collaboration

Phase one - Idea generation

- The majority (93%) of the export processors were directly linked with foreign retail chains
- Retail chains provide regular market information
- Importers, traders and wholesalers
- Local research institutions, research labs and universities were facilitating through transfer of technologies, product and process ideas, product upgrading and troubleshooting, contract research and development, supplying standards and manuals, and market research
- Established export processors were maintaining strong links with university academics, researchers and employ interns regularly

- Social networks with foreign and local entrepreneurs, start-up companies and SMEs
- Competitors, (local and foreign) competitive spirit is useful in providing market trends, ideas and regulatory requirements
- Only few firms were able to manage strong ties with their consumers,
- Majority of the sample totally depends on their buyer's requirements as they export directly to retail chains and individual buyers in international market
- Consumer links are helpful in getting valuable ideas on preferred species, product types, product design, packaging, processing methods, seasonal demands and socio-cultural requirements.

Phase two - Product development

- Firms holding sole responsibility of the product development stage accomplish their tasks with external support
- All export processors were maintaining healthy relationships with governmental organisations which facilitate the export industry
- Principally, the quality control division of the Ministry of Fisheries and Aquatic Resources provides legal and policy strength to the export processors

- Closer links with universities and research institutions were enjoying a wider product range and catering to a large number of market segments
- Phase three - Marketing
- Value chain members : Raw material suppliers (including own vessels and crews) to final consumers
- outbound logistics such as air freight, shipping, transport (local and foreign), insurance, etc.,
- The majority depend on retail chains in the UK, Germany, France, Switzerland, Italy, the USA and Japan, and they were handling the entire marketing process without burden to the processors
- Trade exhibitions and advertising campaigns help to identify new consumers, buyers, market trends and regulatory background of the international markets

Table 2: Measurement of In-house idea generation

Statement	Mean	Std. Deviation	Skewness (statistic)
1. Our culture makes it hard for people to put forward novel ideas	2.15	0.54	1.75
2. People in our company come up with lots of good ideas on their own	4.03	0.19	5.09

Table 3: Measurement of Cross-pollination among businesses

Statement	Mean	Std. Deviation	Skewness (statistic)
3. Few of our innovation projects involve team members from different units or subsidiaries	2.38	0.80	1.65
4. Typically, our people collaborate on projects internally, across units,	4.00	0.00	0.00

Table 4: Measurement of external sourcing of ideas

Statement	Mean	Std. Deviation	Skewness (statistic)
5. Lots of good ideas for new products and businesses come from outside the company	4.23	0.42	1.35
6. Our people often regret a "not invent here" attitude – ideas from outside are considered as valuable as those invented within	4.00	0.00	0.00

Table 5: Measurement of idea/product selection

Statement	Mean	Std. Deviation	Skewness (statistic)
7. We have tough rules for investment in new products-it's often too hard to get ideas funded	2.53	0.58	0.50
8. We have a risk-taking attitude toward investing in novel ideas	3.34	0.84	-0.76

Table 6: Measurement of idea/product development

Statement	Mean	Std. Deviation	Skewness (statistic)
9. New product development projects often don't finish on time	2.84	0.36	-2.03
10. Mangers receive lots of support in developing new ideas	3.96	0.19	-5.09

Table 7: Measurement of idea/product concept diffusion

Statement	Mean	Std. Deviation	Skewness (statistic)
11.We are slow to roll out new products	3.30	0.97	-0.68
12. Competitors are slow to copy our product introductions	3.07	0.93	-0.16
13. We don't penetrate all possible channels, customer groups and regions with new products and services	3.92	0.39	-5.09

Table 8: Measurement of open innovation capability

Statement	Mean	Std. Deviation	Skewness (statistic)
14. Few of our projects involve with external members (consumers) of the company	2.65	1.01	1.02
15. Few of our projects involve with external members (suppliers) of the company	2.53	0.90	1.10
16. Few of our projects involve with external members (retailers) of the company	2.50	0.94	1.52
17. Few of our projects involve with external members (traders and wholesalers) of the company	3.00	1.01	0.00
18. We are well connected with sales promotions/advertising/media personnel	3.23	0.86	-0.08
19. We have open window to get ideas from outsiders	3.76	0.71	-1.80
20. Our new product development incorporate ideas of value chain members	4.30	0.47	0.88

Table 9: Measurement of commitment on sustainability

Statement	Mean	Std. Deviation	Skewness (statistic)
21. We are committed to produce sustainable products	4.34	0.48	0.68
22.We are always follow international market regulations and certifications	4.46	0.50	0.16

Rating open innovation in fish and seafood value chains

- **In-house idea generation:** processors were rich in ideas and employees in different levels of the organisation bring lots of bright ideas on product and process development
- **Cross-pollination of business ideas:** innovative projects are the result of team work rather than individuals
- **External sourcing of ideas:** product and process development, technological know-how, market information, etc.
- Processing firms were figuring positive attitudes towards investing in new product or process concepts if available resources permit

- **idea/product selection** : new product development projects were not completed within time frames (Resource constraints, mainly financial, human capital and technological barriers,)
- **conversion of product concepts or ideas** : processing firms can be categorised as conversion moderate group
- **diffusion of product idea**: processing firms were neutral & not penetrating all possible markets and channels, and not catering to wider market segments
- **managing collaborative initiatives** with foreign retailers, retail chains, consumers and suppliers on idea generation and sustainability of the resources

Hypothesis testing

- Results reject the null hypothesis in favour of the alternative, indicating a significant relationship between firm performance and open innovation

	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Products	7.38	6.657	5.65	25	.000

	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Markets	2.57	2.84	4.619	25	.000

Conclusion

- None of the firms have their own R&D department
- R&D allocation of the firms was 4.61% & some firms do not allocate a separate R&D budget
- Directing funds for the product and process development whenever the necessity occurs
- Key collaborators were the firm's employees in different departments or sections, foreign retail chains, research institutions, national universities, academics and researchers (both local and foreign), competitors and final consumers
- Government institutions involved in facilitating the process

- foreign retail chains, distributors, logistic providers, consumers, researchers and academics were playing an important role in the product development process
- Results of the Hansen and Brikshaw's capability measure : processing firms were idea rich and were positively collaborated internally for innovative projects
- behaving moderately on conversion of innovative ideas into products

- Firms were idea rich and were positively collaborated internally for innovative projects
- Resource constraints lag plans behind or made firms more risk averse
- Firm performance, both products and markets, have significant relationship with open innovation



Thanks!

FISH | S | L | F | E

FRESH



Yellow Fin Tuna STEAK

Yellow Fin Tuna – Thunnus Albacares

Caught by long line vessels, every fish caught is immediately immersed in ice slurry where the temperature is brought down to 0 °C and transferred into ice storage. Only suitable grades of yellow fin tuna fish are used to process our products.

Specifications

Skinless / Boneless / Black meat off
Weight : 80 gms +

Packing Method

1/2 P, BVP in 20 kg Master Carton

Histamine tested, full traceability, respect of social & environmental regulations, ISO 22000
BRC Grade "A", IFS Higher grade, Friend of the Sea



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