Title:

Factors Influencing Industry Uptake of Public-Private Research on Marketing: The Case of the Australian Seafood Cooperative Research Centre

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1. Introduction

To compete and ultimately survive or grow in dynamic domestic and international markets, agri-food companies need to continuously evaluate the opportunity of adopting innovations and of adapting their products and services to customers' evolving requirements and needs (Grunert et al. 1995; Hooke 1997; Petroni 1991; McFarlane and McDonald 1988). As costs and risks of innovation are high and companies need to maintain also their focus on their short-term operations, public-private research and development (R&D) institutions play a crucial role to test and disseminate innovations for agri-food industry adoption worldwide and ultimately to create the pre-conditions for firms' competitiveness in the marketplace. Specifically, there is worldwide evidence that universities have provided technological and organizational knowledge and know-how of companies and so fostered their innovation with the support of government funding and sometimes with the facilitation of public-public agencies in different country settings (Jaffe 1989; Adams 1990; Cockburn and Henderson 1998; Zucker et al. 2002).

However, in practice there are many cases in which the industry does not make any tangible or intangible use of public-private R&D outputs. An industry that does not use a publicly funded research output creates seriously economic inefficiencies in terms of opportunity cost of government budget and of missed benefits. Aware of this problem, many researchers have widely analysed different economic, organizational, managerial, social and psychological drivers of industry adoption of public or public-private R&D outputs (Lindner 1987; Cohen and Levinthal 1989 and 1990; Guerin and Guerin 1994; Rausser 1999; Marra et al. 2003; Rogers 2003; Pannell et al. 2006; Roach 2009; Nossal 2010). Many of these studies

have focused on the role of R&D on industry adoption of technical research, whose value - increasing productivity or decreasing costs within a firm's boundaries (Pralahad 1993) - is generally more tangibly perceived by the industry. On the other hand, research has not focused on the drivers of industry adoption of R&D outputs stimulating market development, whose value - identifying and exploiting a market opportunity outside the boundaries of the firm (Pralahad 1993) - is usually more uncertain and difficult to be perceived by the targeted industry end-users. This is partially due to the fact that R&D expenditure in marketing and post-harvest technology was very limited until a few years ago (Harmsen et al., 2000, Morgan et al. 2003, Rickart and Roberts 2008), apart from specific sub-sectors (Sankaran and Mouly 2005). This seems to be a notable gap in the R&D adoption literature, as pre-competitive public-private R&D in marketing can have a strong impact on the competitiveness of agri-food companies.

To starting filling this gap, this study explores which factors influence industry adoption of public-private R&D in marketing by taking an explorative case-based grounded theory approach (Glaser and Strauss 1967; Eisenhardt 1989). Consistently with this method of inquiry, initially we broadly assess if the nature of the factors influencing industry adoption was mainly economic, organizational, managerial, social or psychological, or a combination of several factors. After this initial broad assessment, we collected further evidence to confirm or disconfirm if the identified factors indeed had a key impact on industry adoption of public-private R&D.

To explore which factors influence industry adoption of public-private R&D, we use the instrumental case of thirty-five market development projects conducted by the Australian Seafood Cooperative Research Centre (CRC) between 2007 and 2010, in collaboration with a number of industry and research partners (Seafood CRC 2011). Although limited to the

Australian seafood sector and to one R&D agency, by comparing and contrasting a number of market development R&D projects in sub-sectors with very different characteristics (including oyster, wild prawn, rock lobster, abalone, tuna, yellowtail kingfish, salmon, finfish, sardines, barramundi) this study allows for an empirical exploration of the impact of the following hypothesized factors on industry adoption of public-private R&D research in marketing: 1) individual firms' characteristics and capabilities, 2) firms' organization and governance within their industry and with external stakeholders, 3) project scope and focus of the value proposition, 4) industry engagement process within each project.

Notably, the seafood sector offers unique insights to analyse the factors influencing public-private R&D in marketing for a number of reasons. First, seafood is a growing sector worldwide as a larger segment of world consumers increasingly perceives its health benefits. Second, seafood is constrained in terms of wild catch supply because of the issue of sustainability. Third, it is recognized that changing fishermen's perceptions and enhancing their adoption of innovations is a tough task from a cultural point of view, given the nature of their work and life. These three factors make R&D research adoption on marketing in the seafood sector particularly important though complex.

The paper is organized as follows. In the next section we synthesize theories on the adoption of innovations from different disciplines which contributed to shape our initial broad hypotheses. In section 3 we present our methods, in section 4 the selected background information we collected followed by our results in section 5. In section 6 we discuss the managerial and policy implications of our results, and then we conclude.

2. Theory: Drivers of Adoption and Diffusion of Innovations

Three major strands of the literature contribute to provide an economic basis for the exploration of the factors influencing industry adoption of marketing innovations proposed by R&D institutions. First, economic models analysing farmers' and firms' adoption of innovations have overall reached the conclusion that any economic actor producing goods or services takes the decision of adopting an innovation based on his/her expectations of change in the following variables: the prices of the inputs and of the outputs of his/her production, the costs of output production, the risk associated with changes in price and costs, and the presence of a vector of capital assets needed for production (Feder et al. 1985; De Janvry and Sadoulet 1995). These models were widely applied to farmers' adoption of production technology and more recently also on post-harvest innovations (Neven and Reardon 2004, Hernandez et al. 2007). Second, a number of researchers studied farmers' adoption of post-harvest technologies and the choice of market channels (Neven and Reardon 2004, Hernandez et al. 2007) in a number of contexts by applying adoption models (Feder et al. 1985; De Janvry and Sadoulet 1995). Third, a number of studies have recently explored the role of public-private research institutions for providing economic incentives to economic actors. While until the 1980s public institutions provided input and output price incentives by subsidizing part of the prices and costs beared by the private actors, since the late 1980s R&D agencies provided instead economic incentives in terms of information aiming at reducing the risk and uncertainty associated to the adoption of innovations as perceived by the economic actors (Guerin and Guerin 1994; Marra et al. 2003; Moehrle and Walter 2008) and in terms of knowledge expanding the capacity of human capital (Rausser 1999). However, as mentioned these studies on R&D were mainly related to innovations on production technology rather than on post-harvest and marketing.

From a sociological perspective, a crucial research strand is represented by the theories on the diffusion of innovations, which has been effectively synthesized by Rogers

(1985), although several areas of theoretical and methodological advancement have been explored in the more recent years (Valente and Davis 1999, Rogers 2003, Valente 2005). Drivers that have been widely found to have an impact on the adoption and diffusions of innovations include the social segmentation between the potential adopters and the innovators (Rogers 2003), the characteristics of the social ties between innovator and potential adopter as well as among potential adopters (Valente 2005), and the characteristics of opinion leaders (Valente and Davis 1999), industry leaders, representatives or "champions" (Wejnert 2002; Slater and Mohr 2006) as well as other actors that have a high status and reputation within the potential adopters' group.

A number of management and organization studies have analysed the role of industry managers' characteristics moderating the impact of R&D investments on the adoption of innovations (Cohen and Levinthal 1989, 1990, Marra et al. 2003, Roach 2009), deriving the following findings. First, firms have different levels of learning abilities and absorptive capacity, whereas the businesses that have superior learning capacities are more likely to adopt innovations (Cohen and Levinthal 1989, 1990), although managers with high learning abilities may also decide to non-adopt adoptions that are perceived as inefficient (Abrahamson 1991). Second, adoption of innovation depends on a firm's strategic resources such as access information sources and channel sources (Nilakanta and Scamell 1990). Third, managers that have entrepreneurial proclivity (Stevenson et al 1989, Matsuno et al. 2002) and innovation capabilities (Hurley and Hult 1998, Hult et al. 2003) are more likely to adopt new innovation. Finally, firms that are market-oriented (Beverland and Lindgreen 2007) or that belong to a supply chain that is market-oriented (Grunert et al. 2003) are more likely to consider the adoption of innovations through R&D research in marketing.

As a whole, these strands of the literature analysed the impact of individual variables from different disciplines on farmers' and other economic actors' adoption and diffusion of innovation. In this paper, we aim at begin exploring which of these factors, if any, is driving the industry uptake of public R&D in marketing.

3. Methods

To identify and analyse which factors drive industry uptake of public R&D in marketing, we followed a case-based "grounded theory" approach of investigation (Glaser and Strauss 1967, Eisenhardt 1989). This method involves inductive research aim at the development of a new theory, as opposed to testing theory deductively. To implement this method, we undertook an iterative process with interaction between data analysis and collection; that is, the first wave of data collection was intentionally somewhat diffuse and broad to realize which factors were more relevant to the problem of interest, while the second and third waves data collection and analysis were more focused, therefore cases and samples were selected to channel the study (Glaser and Strauss, 1967, Strauss and Corbin, 1994). Specifically, grounded theory is considered an appropriate approach to assess complex dynamic issues between and within organizations when a restricted number of data observations are available (Stake, 1995, Westgren and Zering, 1998). Scholars have established that this method requires much interpretive work, in which the interpretations must include the perspectives of the studied subjects (Strauss and Corbin, 1994). Such interpretations are necessary to understand the motivations behind the actions of the subjects under study. Nevertheless, researchers using this approach of investigation accept responsibility for interpreting what they have observed and heard from the subjects, and not simply voicing their viewpoints (Strauss and Corbin, 1994)

Thirty-five R&D projects funded by the Seafood CRC related to innovation in marketing and supply chain in several Australian seafood sub-sectors provided the instrumental cases for this investigation. We interviewed all the partners working collaboratively within each of the thirty-five projects analysed, including Seafood CRC managers, project managers, researchers and targeted industry end-users. Overall, we conducted seventy-five interviews between January and December 2010. Consistently with the case-based grounded theory approach (Eisenhardt 1989), we initially conducted a first round of interviews when we posed broad questions about the project partners' perceived progress and expectations in terms of future costs and benefits arising with industry research adoption. As a pattern of importance of some factors emerged across interviews with partners across various projects (Table 1 in Appendix), we selected a number of other projects to be included in the analysis with a purposive method (Yin 1984), posing more specific questions to the interviewees (Table 2 in Appendix) and collected enough evidence to establish the conditions under which each hypothesized factor has an impact on the industry adoption of public-private R&D in marketing. Consistently with the case-based grounded theory approach of investigation (Eisenhardt 1989), data were analysed iteratively during the data collection process to guide the further rounds of collecting information. Interpretation was led by the researchers, who continuously reported their on-going analysis to CRC managers and other external experts in public-private research to avoid the risk of self-confirmation bias (Eisenhardt 1989). Moreover, in order to avoid the risks of pro-innovation bias (Rogers 2003) and of blaming the industry end-users of research non-adoption (Abrahamson 1991), we chose to analyse projects while the R&D was still taking place and to hear the point of view of multiple industry partners.

Based on the results of the iterative data collection and analysis performed, this study provides exploratory empirical evidence supporting a set of research propositions in a form that can be tested in future research.

4. Selected Background

The Seafood CRC and its "opportunity gap" projects

The Seafood CRC is a public-private R&D institution which, since 2007, undertakes and disseminates research on production, post-harvest and marketing issues throughout the seafood sector collaboratively with research institutions and industry organizations. This is one of the numerous Cooperative Research Centres instituted by the Australian Government since 1991 to enhance collaboration between researchers and private actors in both agricultural and non-agricultural sector. It involves a seven-year plan of investment equal to Australian $140 million from 2007 to 2013. Out of this amount, $77 million is cash from the Commonwealth Government, the Fisheries and Research Development Corporation and the seafood industry, and in minor part from the South Australian Government and other research and development providers.

Three major R&D programs characterize the Seafood CRC: production innovation, innovation in post-harvest technologies and marketing, and education. Specifically, the Seafood CRC program on innovation in post-harvest technologies and marketing included more than seventy projects which are completed, being undertaken or just started. Overall, this program aims at improving profit margins of the primary seafood industry by 1) providing knowledge and expertise for the industry to seize profitable market opportunities and by 2) providing innovation concepts in post-harvest technology for the industry to optimize their operations (i.e., to reduce spoilage and losses). From the time of application for

funding and project concept inception, research providers has to clearly define the value proposition of the project and discussing its value with an interested industry participant. In order to enhance the probability of industry uptake of the research project outputs, a project cannot be funded by the Seafood CRC if an industry partner has first decided to invest with at least one third of the total project expenditure. Industry partners are either large individual companies or local or state industry associations representing the companies of their territory, which can either be small, medium or large enterprises.

From the experience of the Seafood CRC investments since 2007, the projects involving R&D on marketing and supply chain to provide knowledge and expertise to the seafood industry to seize new profitable opportunities have been particularly challenging. Although more than seventy-five projects have been carried out, industry partners has not invested as much as hoped on these projects. Even when these projects started with the industry financial support, some industry partners have remained sceptical about the future impact on the project. In projects involving milestones where decisions of further investment have to be taken, some industry partners sometimes were reluctant in further investing in the project and withdrew from it. Looking from a broader perspective, these challenges relatively to R&D on marketing and supply chain in the Seafood CRC case are not surprising. Industry cannot receive a tangible empirical evidence of the results of these R&D investments neither before or during the project, as the time needed to fully exploit a market opportunity that generates profit is usually longer than the time of the project itself, therefore a higher risk and uncertainty are naturally embedded within these project process. Using the expression by Pralahad (1993), these R&D projects aim at creating value by filling an "opportunity gap" (rather than an "productivity gap") which require strategic rather than operational changes; although more risky and uncertain, these investment may provide opportunities for sustained creation of value over time.

Looking at the detail of the "opportunity gap" R&D projects funded by Seafood CRC and the industry on marketing and supply chain, two categories of projects can be identified. First, some R&D projects have a broader focus and aim at providing knowledge about market channels, estimated supply chain partners' margins and final consumer preferences for existing or potential seafood products in the domestic or international market. Seafood CRC projects in this category have been conducted with barramundi, oyster, farmed and wild prawn, yellowtail kingfish industry partners; moreover, a few large projects involved the entire group of CRC industry participants, including other twelve seafood sub-sectors. These projects are generally led by research partners and Seafood CRC managers engaging the industry by discussing the importance of garnering this information for strategic business purposes. Based on the results of these research projects, the industry and the researchers usually discuss which opportunities are worth and possible to be seized and with which resources, and sometimes this discussion leads to another more focused R&D project. Second, other R&D projects have a narrower focus as they aim at testing if a specific market opportunity can be seized by industry participants. They usually involve one stage of more specific consumer survey, i.e. testing hypotheses about the potential value created through the innovations at consumer level, one stage of new product development in terms of prototypes and one final stage of new product launch. Seafood CRC projects in this category have been conducted with abalone, barramundi, finfish, oyster, sardine, southern rock lobster, yellowtail kingfish and wild prawn industry partners, as well with a few large integrated processing companies dealing with multiple seafood species. These projects have stop-or-go milestones during their entire length where partners have to agree whether it is worthwhile continuing investing or not. Although the project management and organizational dynamics are different, these two categories of project face the same risk of limited industry uptake (either after or

during the project) once the market and supply chain information is presented back to the industry partners.

5. Results

Results of the analysis of the drivers of public-private R&D on supply chain based on the exploratory empirical evidence from thirty-five Seafood CRC projects can be summarized in the following points.

First of all, an industry partner's level of confidence in the value proposition of the innovation project is a necessary and sufficient condition influencing his/her adoption of the innovation. In a set of projects analysed, industry partners have not been convinced that the proposed innovations in marketing and supply chain could indeed provide higher economic benefits than economic costs in the long run. The points of disagreement between researchers and industry partners on the assumptions behind the expectations of future price of outputs and inputs as well as on the change in the production and transaction costs. On one hand, well-conducted market research convincingly highlighted or disconfirmed the presence of a market opportunity for increased consumer demand for an innovative seafood species and format (served in a more convenient format or in a new market channel such that it can better meets consumer needs) will also increase the seafood quantity demanded and to some extent its price at retail. On the other hand, although convinced about the magnitude of the opportunity, industry partners often had one or more of the following three perceptions: 1) production or transaction costs associated with introducing the innovation were not compensating the expected price and quantity increase associated with the market opportunity; 2) the opportunity cost associated with introducing the innovation is higher than the expected price and quantity increase associated with the market opportunity; in other words, resources such as money, time and human resources could be spent more profitably by

introducing a different innovation; 3) the risk of new competing entrants attempting to seize the same market opportunity is too high if the first entrant has no effective barrier to imitation. These perceptions are legitimate and need to be addressed timely by the researchers that are proposing the adoption of the innovation. Therefore, the first proposition that we state is the following:

P1. The potential industry adopter's level of confidence in the value proposition of the marketing & supply chain innovation is positively associated to the probability that the innovation will be adopted.

Second, there is substantial evidence from a number of Seafood CRC projects that when these concerns have been timely taken into consideration and convincingly addressed by the researchers and the R&D institution, then the level of confidence in the value proposition of the marketing and supply chain innovation increased significantly. In some cases, the industry partners expressed one of the three concerns mentioned above to the researchers at the very early stages of the project. This gave the opportunity to the researchers, in an early stage of the project, to collect either primary or secondary data with the aim of testing whether the industry partners' concerns were confirmed or disconfirmed through rigorous empirical observation. This attitude of expressing and addressing each other's concern required a high degree of timely, open-minded and bi-directional communication. In other cases, this level of communication quality was reached only half-way during the project, such that it was clear that a change in the quality of the communication improved the level of confidence of the partners. In other cases, as this level of communication quality was not reached, industry partners decided to leave the R&D project after the first round of data collection and analysis. Based on this evidence, we found that the process of transforming divergences between industry and research partners' beliefs

in future outcome of the innovation in hypothesis testing was of paramount importance of match industry partners' level of confidence in the outcome of the innovation with research partners' confidence. In this way, the process of testing hypotheses through research based on timely, open and bi-directional communication moved from being a theoretical tool to a practical tool for reaching consensus between partners with opposite ideas. Therefore, we state the following second proposition:

P2. The potential industry adopter's level of confidence in the value proposition of the marketing & supply chain innovation increased when the process of transforming divergences in industry and research' beliefs in rigorous hypothesis testing.

Third, there is clear evidence that industry partners that have an ability of collecting, analysing and using market information in their business strategies as well as a natural tendency of looking for external resources to go for new opportunities are more likely to use the R&D in marketing and supply chain and adopting the innovation if a clear opportunity is in place. However, while we found that having this capability and natural tendency of going wisely for opportunities makes innovation adoption more likely, this was not a necessary nor sufficient factor for innovation adoption. On one hand there are industry leaders that, while having a strong capability on identifying opportunity for improving efficiency within their operations, do not have an attitude or specific capability of identifying and exploiting market opportunities. They need marketing experts that identify market opportunities to them and present a strategy for exploiting them. However, when a market opportunity is presented, these industry partners evaluate the opportunity and they either get convinced or not, independently from their initial attitudes or capabilities. On the other hand, there are industry partners that have – given their large firm dimension - a strong capability of identifying and exploiting market opportunities within their organization staff. Some of these industry

partners are convinced by the value proposition of the project, while others are not. Therefore, the following third proposition is stated:

P3. The potential industry adopter's market-sensing capability and entrepreneurial proclivity are positively associated to the probability that the innovation will be adopted.

Fourth, we found that the process of transforming divergences in industry and research' beliefs in rigorous hypothesis testing through timely, open and bi-directional communication between research and industry partners is a key factor influencing the development of industry partners' market-sensing capability and entrepreneurial proclivity. Therefore, it was suggested that projects were assessed not only in terms of financial benefits and costs but also in terms of non-monetary benefits in order to provide a clear incentive to researchers to take care of this process with the aim of transferring these capability and attitudes. Relatively to transferring these capabilities through traditional education, industry partners have the chance of learning with a more direct involvement on how to collect, analyse and use market information since it is the exact situation when their own money at stake.

P4. The potential industry adopter's market-sensing capability and entrepreneurial proclivity is positively associated with the process of transforming divergences in industry and research' beliefs in rigorous hypothesis testing.

Fifth, we found that the diffusion of the innovation on marketing and supply chain is more likely when there is weak internal rivalry within the industry. However, internal rivalry is not a factor influencing the adoption of the innovation by individual partners. There is evidence that some industry partners are characterized by internal rivalry as their

associations' collective decision-making is constrained by individual incentives of private companies and individuals. In these cases, the industry associations partnering within the Seafood CRC projects have not expressed a clear and univocal opinion on the innovation proposed by research providers. However, strongly adversarial industries have demonstrated in other cases to find an agreement to jointly uptake and further invest in research if they were convinced by the value proposition. On the other hand, industry groups that have been proving to have the capability of taking joint univocal collective decisions and make appropriate strategic changes at industry level (and so having no internal rivalry) have sometimes demonstrated low levels of confidence on the value proposition of an innovation. Based on this evidence, we state the following research proposition:

P5. Internal rivalry within the group/association representing the potential industry adopters is negatively associated with the diffusion of the innovation once few individual industry partners have adopted it.

Finally, we found that the history of previous collaboration between the researchers and the industry leaders is a factor that may influence the probability that innovations will be adopted by industry partners, although this is not a necessary nor sufficient condition affecting the adoption of innovation. In some cases industry partners showed initial low level of trust in research partners and CRC managers that were not familiar with. On the other hand, industry associations that have a strong and positive history of collaboration with CRC, state agencies and research providers showed that are also more likely to further invest in and use CRC project research outputs. However, while certainly slowing down the process of adoption of innovations, this situation did not determine the rejection of further investment in a project or of project uptake if the industry partners demonstrated confidence in the value proposition of the innovation. Therefore, we state the following proposition:

P6. The previous history of collaboration between the research and industry partners influences the probability that the project outputs will be used. However, this is not a necessary and sufficient condition influencing research usage.

6. Conclusion

While numerous disciplines have investigated the drivers of farmers' and other economic actors' adoption and diffusion of innovations, this paper explored which of these factors were crucial in the specific case of innovations proposed through public R&D investments in marketing and supply chain.

The results from this investigation based on the evidence from thirty-five Seafood CRC projects can be synthesized in the following three points. First, we found that that the necessary and sufficient condition determining industry uptake of the research is the level of confidence in the value proposition of the innovation, although industry structure and governance characteristics, individual business characteristics and the history of previous collaboration between the industry and other stakeholders has a significant impact as well. Second, in order to increase the level of confidence in the value proposition of the innovation on marketing and supply chain, the researchers need to provide focused results from consumer research that challenge the project partners' prior beliefs by testing hypotheses rigorously to compare the benefits stemming from the identified market opportunity with its associated costs and risks. Third, in order to provide focused results from consumer research that challenge the project partners' prior beliefs, it is crucial to establish a procedure of communication among project partners (including R&D managers, researchers and industry partners) before the design and the launch of the research is completed. This requires timely, open-minded and bi-directional communication. The challenges of communication among

partners (especially with different backgrounds and geographically dispersed) are known, but this analysis found this point to be crucial to increase the level of confidence in the value proposition of projects and ultimately the industry uptake of the research outputs of R&D in marketing and supply chain.

These results need to be taken with some notes of caution before attempting any generalization. First, the "grounded theory" approach followed to collect and analyse data is exploratory in nature (Glaser and Strauss, 1967) and provides evidence that is only sufficient enough to proceed and test the stated the stated propositions formally in future research. Still, stating these propositions has a value for indicating a future research direction in a domain (drivers of adoption of R&D in marketing and supply chain) with limited development. Second, these results are drawn on the basis of the observation of only one R&D institution operating in only one country and with only one industry. Nevertheless, we compared and contrasted thirty-five projects that proposed different innovations related to marketing and supply chain that were undertaken by different researchers with different methodologies for data collection, analysis and dissemination. Moreover, these projects targeted industry partners with different individual, group and sub-sector characteristics. Therefore, future research may attempt generalization by testing these propositions in different settings, including different R&D institutions, countries and sectors.

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Appendix

Table 1 – Hypothesized Factors Influencing Industry Adoption of Public-Private R&D Marketing Research

Sector Characteristics
- Vertical Coordination among Partners along the Chain (from disintegrated to integrated)
- Sector Focus (from local to global)
- End-User's Perception of Market Opportunities (from low to high)
- End-User's Perception of Competitive Threats (from low to high)
- End-User's Perception of Changes in Industry Profitability (from negative to positive)

Project Characteristics
- Extent of Consultation between Research Providers and Industry Partner (from small to large)
- History of Collaboration between Providers and Industry Partner (from short to long)
- Number of previous CRC projects (from low to high)
- Time Range of Realization of the Value Proposition (from short to long)
- Extent of Initial Investment by End-Users (from small to large)

End-User Institutional Governance Characteristics
- Organizational ability of the association to change strategy when needed (i.e., organizational flexibility) (from low to high)
- Perceived risk of industry leader/association manager (from low to high)
- Number of firms within association (from few to many)

End-User's Initial Individual Characteristics
- End-User's Initial Level of Innovation in recent product/processes (from low to high)
- End-User's Initial Interest in markets (i.e. from studies, participation to workshops, personal info) (from low to high)
- End-User's Initial Level of Collaboration (from low to high)
- End-User's Initial Exposure to Environment External to Its Daily Business Operations (from low to high)

Table 2 – Open Questionnaire for In-Depth Interview

Analysis of the Impact of Seafood CRC Projects on the Industry Usage of Marketing Research Outputs

Interview Guide with Industry Leaders

Domenico Dentoni (Project Manager), Francis English and Rebecca McBride (Project Enumerators)

Introduction

- Personal Role in this Research Project 2010/749
- Project Objectives (1. Analyse factors influencing industry usage of project outputs; 2. Measuring the project generation of non-monetary benefits such as understanding consumers, markets and competition; evaluating changes in product, processes and commercial relationships based on market information; exploiting the market opportunities to generate profits).
- Why do we engage with you and what do we ask you

Broad Initial Questions

- What is your first initial reaction relatively to this Seafood CRC project?
- Would you consider this Seafood CRC project as a successful process or not? Why?
- What worked and what could have done better within this Seafood CRC project process?

Industry Usage of the Research

a) **Extent and Nature of Industry Usage**
- How would you describe the use that you made/are you making/you intend to make of the Seafood CRC research output?
- How does the Seafood CRC marketing research project fit within your overall company/association marketing strategy? Did it bring the contribution to your overall strategy that you expected?
- Specifically, how the market information garnered from the Seafood CRC project process and from the research output has been used:
    - The information was not even evaluated (why? Because already known, not understandable, impossible to put in practice) and no learning process by the industry occurred

- o The information was evaluated and you perceive that you/your industry members changed their attitudes/capacities from this process (in terms of understanding buyers' requirements and consumers' preferences, how to change the product/process to respond to these opportunities, how to make a profit from these opportunities); but the industry is taking/is intending to take NO action (investment of time and/or money) to meet these market opportunities (why no action?)
  - o The information was evaluated and the industry is taking action to meet the opportunities and you perceive that the industry learnt about it (how do you realized that change is occurring?)
  - o The information was evaluated, the industry took action to meet these opportunities but you perceive that no learning process in terms of changing attitudes/capacities in occurring (why?)
- To sum up, do you perceive that the Seafood CRC project research output was/is being useful for the general purposes of your association/company?

b) Qualitative and Quantitative Evidence of Industry Usage

- You mentioned that your company/your association used the research outputs to a certain extent and in a certain way/ways. What did it gave you this idea? How could you provide evidence of it? Could you give us a few examples showing how you used the information in the way/to the extent you mentioned?

Factors Influencing Industry Research Usage

a) Broad Initial Questions
- Why you decided to use the project outputs in the way/to the extent you are using it?
- What are the factors that in your opinion were crucial for you to take the decision of using these research outputs? Which factors were also important?

Along with the factors and reasons for usage that you have just mentioned, we would like to brainstorm to explore if any of these other factors were important in your opinion:

b) Sector Characteristics
- Vertical Coordination (from disintegrated to integrated): maybe the way your relationships, transactions, knowledge and info flow along your industry chain (with your buyers, suppliers, final consumers) played a role for your usage? Could you please describe your vertical coordinations with buyers and suppliers anyways?
- Focus (from local to global): Maybe your exposure to different markets played a role? Where do you sell your products?
- Market opportunity perception (from low to high): maybe your perception/sense/intuition that out there in the market there are opportunities that need to be exploited played a role? If yes, which opportunities?

- Competitive threat perception (from low to high): maybe the fact that you felt/feel threatened by competitors either locally or globally played a role? Who are the competitors that you see in your market?
- Perception of profitability change (from negative to positive): maybe the feeling that your profitability is decreasing or is not increasing as expected played a role? How are your profits going in the latest few years (profits = revenues – costs; revenues = prices*quantities)

c) Project Characteristics

- Extent of consultation with CRC staff and stakeholders (from small to large): maybe the fact that your association/your company works since a certain time with CRC and other public institutions played a role? Could you please describe your consultation and previous market development projects briefly?
- History of collaboration among organizations (research and industry): maybe the fact that your association/your company works since a certain time with this research provider or other within its same institution played a role? Could you please describe your consultation and previous projects with same research provider briefly?
- Presence of previous CRC projects (or other govt programs and industry): maybe the trust built in previous CRC projects was crucial to undertake and use the project output that is object of this study?
- Resources Needed to Use Project Output (from few to many): maybe the fact that you do/do not have enough resources determined your project output usage? What are the resources you would need to use this research output in practice?
- Level of Shared Procedure (from not shared at all to very shared): maybe the extent the project investigators shared the research procedure and came to their results engaging the industry contributed to the project output usage? How would you describe the procedure used by the research providers to reach their project outputs? Do you think that a different research method would could have given more useful results?
- Time range of value creation (from short to long): maybe the expected time length or/and uncertainty that benefits from the CRC project are generated played a role in your decision of using the project output? What are your estimates of benefit generated by this project in the next 15 years and how are distributed over time?
- Extent of Initial investment of End-Users (from small to large): maybe the money and timing of the initial investment needed to effectively use the research outputs influenced your choice of using them?

d) End-User Association Characteristics

- Organizational ability of the association to change strategy when needed (i.e., organizational flexibility) (from low to high): maybe your ability of changing strategy when needed/decision-making process played a role? Could you please describe in detail how your decision-making process work? In your opinion, what are the causes behind this low/high organization flexibility?

- Perceived risk of industry leader/association manager (from low to high): maybe the way the governance within your association played a role? In particular, how much respobilities/risks in taking strategic decisions are on the industry leaders versus the other members? In your association, risk/responsibility is shared or in the hands of only one person?
- Number of firms within association (from few to many): maybe the number of members within your association played a role? How many are they?

e) End-User Individual Characteristics
- Innovation in recent product/processes (from low to high): maybe the research output usage depend from the fact that your association members were already inclined to make changes to their product, processes, relationships in the attempt to generate more profit? In your opinion how did they acquired this ability/attitude?
- Interest in markets (i.e. from studies, participation to workshops, personal info) (from low to high): maybe the research output usage depend from the fact that your association members were already inclined in observing, discussing and somehow using market information on their own about consumer tastes, buyer requirements and products from competition? In your opinion how did they acquired this ability/attitude?
- Level of collaboration (from low to high): maybe the research output usage depend from the fact that your association members were already inclined in taking strategic/operational decisions jointly among them or with people outside the association?
- Exposure to environment external to business operation (from low to high): maybe it depends on the fact that association members are naturally exposed to external information outside their business so that they are more used to listen and use information from other sources?