



**The Incorporation of Research
Products into the Product Offerings
of Private Service Providers**

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Background

To improve the role private service providers can play in linking agricultural researchers and farmers, the Cooperative Research Centre for Irrigation Futures (CRCIF) is looking to develop effective relationships geared to the delivery of desired outcomes by service providers. While private service providers can be key users of research findings and new technologies, not all providers within an industry are suited to partner research organisations. In addition, intense pressure on limited resources can mean that there is a need to identify which providers it would be “best” for research organisations to develop relationships with.

Ultimately, the motivation and capacity of research organisations to form successful partnerships with private service providers is related to the alignment of the outputs of the research program with the business objectives of the service providers (Lourey and Linehan 2004; Warner 2002). Therefore it seems logical that research organisations that want to develop these relationships need to identify instances where potential alignment may exist with private business.

For the CRCIF this means understanding the decision-making process of those service providers who are most likely to adopt their research products (new technology and research findings). In this report the concepts of buyer behaviour (Assael *et al.* 1995) and competitive advantage (Porter (1985) are used to provide a basis for identifying prospective partners among private service providers. Our objective is to provide a framework for understanding the potential market for CRCIF research products and for identifying private service providers whose businesses align with those products.

In the next section we will outline purchase behaviour theory in relation to primary producers and discuss the application of the theory to the purchase of research innovations by landholders. We then describe the four types of competitive advantage strategies and the innovations compatible with each of the strategies in order to understand the potential for alignment between service providers and research products. Finally, we outline a process for research organisations to identify partners among private service providers to promote the dissemination of research products.

Purchase behaviour

If an innovation is to be thought of as worthwhile for a private service provider to consider, that innovation must be useful to their clients. In other words, the innovation must be perceived as useful by at least some of the landholders that constitute the clientele of the service provider. Consequently, identifying the set of landholders that might be potential

adopters of an innovation, the market for an innovation, requires identifying the needs the innovation itself can meet and under what instances it can meet these better than the alternatives that might be available (Kaine 2004).

Market research techniques based on consumer behaviour theory provide an understanding of the circumstances in which innovations do, or do not, generate benefits that are relevant to the customer's needs (Assael et al. 1995). Kaine (2004), Kaine *et al* (2004) and others have shown how this framework can be successfully employed to identify the market among landholders for the adoption of agricultural innovations. Briefly, they have argued that the adoption of agricultural innovations is, in marketing parlance, a form of high involvement purchase that invokes complex decision-making. Complex decision-making is a systematic, often iterative, process in which the decision-maker develops a set of purchase criteria for evaluating products in terms of their needs, learns about the attributes of products, evaluates products against their purchase criteria and chooses the product that will best meet their needs. Kaine (2004) has developed a methodology for applying these concepts to the adoption of agricultural innovations.

Kaine (2004) suggests a new technology must be integrated into the existing mix of technologies, practices and resources that already exist on the farm. Hence, the likely outcome of adopting the technology depends on the compatibility of the technology with the existing farm system. This means the benefits resulting from adopting the technology often depend on contextual factors that are specific to the circumstances of each farm enterprise (Crouch 1981; Kaine and Lees 1994). Consequently, the decision to adopt an agricultural innovation depends on the degree to which the technology meets farm business needs as defined by the contextual factors that are relevant to that innovation. In short, these contextual factors represent the purchase criteria landholders' use to evaluate the innovation.

Knowledge of the purchase criteria landholders employ to evaluate innovations provides a basis for identifying the set of landholders that might be potential adopters of an innovation, that is, the market among landholders for an innovation. The next step is to identify from among those businesses that offer products and services to those landholders, those service providers whose business aligns with the innovation.

Competitive advantage and innovation

For service providers the decision to supply a new technology or service to clients is an adoption decision. Like landholders, service providers will use a set of criteria to evaluate the benefits of incorporating a new technology into its product or service offering. In the case of service providers, however, the criteria will be an outcome of the basis on which they

compete with their business rivals. This means, first, a new product or service technology must be consistent with the needs of their customers. For example Leib *et al.* (2002) suggest that the increased interest in scientific irrigation scheduling by providers is 'new information technology that allows business to better serve their customers'. Second, a new product or service technology must be consistent with the competitive strategy of the service provider (Porter 1985). An organisation's competitive strategy forms the basis for making decisions about what products and services they sell and how they sell it to maintain a profitable position in an industry. Here we will outline the four types of competitive advantage strategies, the types of innovations compatible with each strategy and the circumstance that make technology change more attractive, to understand the potential market for research products.

Competitive advantage strategies

Porter's (1985) study of competitive advantage provides a framework for understanding the factors influencing commercial interest in new innovations. The competitive strategy of a firm is defined along two dimensions: *competitive advantage* and *competitive scope*. In terms of competitive advantage, businesses can either seek a *cost advantage* or a *differentiation advantage* (ie. differentiating their product from a competitor's product). Competitive scope relates to the extent to which the activities of a business are either *broad* or *focused*. The type of competitive advantage sought combined with the scope of the target in which the advantage is to be realised creates four generic competitive strategies (refer Figure 1) which we will now briefly describe.

		Competitive advantage	
		<i>Lower Cost</i>	<i>Differentiation</i>
Competitive scope	<i>Broad Target</i>	1. Cost Leadership	2. Differentiation
	<i>Narrow Target</i>	3. Cost Focus	4. Differentiation Focus

Figure 1: Four generic competitive strategies (adapted from Porter, 1985).

Cost leadership strategy

Under this strategy an organisation seeks to be the low cost producer in an industry (Porter 1985). Such organisations usually sell 'no-frills' products into a number of segments in a market. Such products or services are produced at a relatively low cost by taking advantage of economies of scale and minimising overhead and operating costs. A cost leader is interested in innovations that lower production costs. A cost leader is not interested in innovations that lead to new products or enhance the features of existing products unless they need to maintain proximity to the product and service offering of their competitors.

Differentiation strategy

With this strategy organisations compete by identifying unique features or benefits that are valued by customers across a range of segments in a market and position themselves to meet these needs. Hence, these organisations must identify products that appeal to a broad range of buyers, while allowing the organisation to maintain costs in line with their rivals. Organisations adopting a differentiation strategy are attracted to innovations that lead to new products and services or enhance features of existing products or services.

Cost Focus and Differentiation Focus strategies

Organisations following a focus strategy select a segment within the industry and tailor their product and service offering specifically to meet the particular needs of that segment. Organisations using this strategy are interested in innovations that allow them to meet the unique needs of the target segment while still maintaining cost in line with their competitors (Porter 1985).

Understanding the type of competitive advantage a business is seeking assists in identifying partners that are likely to have an interest in a research product. For example, to gain a strong position in weed control market for their product Roundup™, Monsanto encouraged the expansion of conservation tillage. Roundup™ has become the herbicide of choice in conservation tillage, as its method of control—a non-selective herbicide—is considered a close 'fit' with conservation tillage practice (Monsanto 2001).

Technology change is one of the key drivers of competitive advantage and so, competition between businesses. Product and service innovations can have a significant influence on cost positioning or differentiation and therefore can either enhance or undermine an organisation's competitive strategy. Consequently the appeal of an innovation to a business depends on the extent to which:

- The innovation itself can lower costs, or increases the opportunity for, differentiation and can be protected from imitation,

- The innovation itself can reduce the costs and strengthen the uniqueness (eg lower economies of scale, make interrelationships possible where they were not before) to the benefit of the organisation,
- Pioneering the innovation translates into first-mover advantages (eg. first firm to take a particular action gains advantages such as cost advantage by securing patents, or can establish reputation as the pioneer or leader) in addition to those inherent to the technology itself,
- The innovation improves industry structure, thereby improving the attractiveness of the industry and therefore the profitability. The potential affect of technology on industry structure means selecting to change technology by an organisation needs to include consideration of the possible impacts on structure (Porter 1985).

With the benefit of Porter's (1985) insights it seems likely that service providers would find research products most attractive if those products can contribute to the competitive advantage of the business. Private service providers are unlikely to incorporate innovations into their product and service offering if those innovations do not enhance their competitive strategy, either in terms of differentiation or cost leadership.

Conclusion

The decision as to whether an innovation is adopted by a landholder depends on the degree to which the characteristics of the innovation better match the needs of the landholder and so offer benefits to the landholder.

The decision as to whether an innovation is incorporated into the product and service offering of a private service provider depends, first on whether the innovation offers benefits to its clientele and, second, on whether the innovation will enhance the competitive strategy of the service provider.

In our view service providers would be most likely to consider incorporating an innovation or practice change in their product and service offering if the innovation meets the following criteria:

1. The service provider can identify a market for the innovation or new practice amongst its clientele,
2. The innovation allows the service provider to better meet the specialised needs of their customers if they follow a focus strategy, or to offer a lower cost product if they follow a cost leadership strategy, or to better differentiate their product if they follow a differentiation strategy.

There is the possibility that service providers would consider incorporating an innovation into their product and service offering if the innovation offers the chance to change the basis for competition in a market. In other words, the innovation has the potential to create a new competitive advantage.

We believe the CRCIF should consider directing resources to identifying potential partners among service providers who are likely adopters of an innovation based on the degree to which the criteria outlined above are met.

In addition to setting out a strategy for the CRCIF to identify those service providers who might be potential partners for the outputs of their research there is need to identify those processes that will assist the CRCIF to effectively operate with these partners. The next step in this research will involve examining network management strategies that will assist the CRCIF to work with such partners.

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