Managing uncertainty in the marketing of new-technology products

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Abstract: In this paper, we work to systematise the kinds of uncertainty inherent in the marketing of a new-technology product. Our frame is based on the idea that uncertainty can be categorised along dimensions such as the uncertainty about the product, requiring to develop the product as an exchange good, and the uncertainty related to the environment, requiring to develop the product as a product-service complex and relationship. The paper identifies measures and strategies concerning why and how the enterprise and the client ought to manage their relationship, specifying distinctions between environments that are low and high in uncertainty.

Keywords: new technology; product marketing; uncertainty; exchange; contract; confidence; trust; technology; intelligence.
1 Introduction

Strategic uncertainty about the viability of the next generations of new-technology products looms as a dark cloud over the heads of many managers of new-technology enterprises. The recurring leaps of technology, the shortened product life cycles, and the intensified pressures to innovate that have characterised the recent decades of industrial competition have led to the appearance of new kinds of product-related challenges in many enterprises. The managers of industrial enterprises are now more likely than earlier to launch on the market completely new (revolutionary) innovative products before their level of confidence about the feasibility of such a move is high (Yadav et al., 2006). In enterprises where such moments of technological uncertainty are a recurring experience but one that they have learned to manage, the management of the uncertainty can be said to have emerged as a core competence (Tschirky et al., 2000; Luggen and Koruna, 2004). However, in every enterprise where the competence is based on a system of beliefs of what has worked in the past, rather than a system based on deep reflection or on rigorous analysis of the routines used, doubts remain about the sustainability of the
core competence. This paper is an effort to systematise and analyse knowledge about how to market a new-technology product.

The paper reviews aspects of the uncertainty of new-technology marketing, and focuses on developing ways by which to overcome the knowledge challenges involved. We identify and cover in this paper aspects that have not been identified or covered before; namely, what are key types of new-technology products, what kinds of contracting and exchange are suited for these types, what factors are behind uncertainty surrounding the marketing effort, as well as how the above are related to one another. The review of the relevant research literature works to systematise how the enterprise marketing a new-technology product can reduce uncertainty for and with the client. The paper outlines some of the measures that the management of the new-technology enterprise can take to reduce uncertainty. Thus, the paper provides management practitioners in new-technology enterprises new kinds of starting points for how to approach the formulation of strategies in terms of the marketing of a new-technology product. Such possibilities can help these managers to market the products of their enterprise with high ‘technology intelligence’, i.e., with a deep insight about how to gather and deliver information, or to develop and maintain an awareness of threats and opportunities, related to technology and markets (Kerr et al., 2006; Lichtenhainer, 2006). The paper concludes why and how managers can develop new and improved strategies of new-technology marketing, with implications for both further research and for practice.

2 Uncertainties based on the characteristics of the object of transaction

In general, a new-technology product is the result of innovation processes and can crystallise into the very first exchange good of its kind and, thus a new market. Within such a context, one of the key challenges in the new-technology enterprise is the apparent lack of ‘history’ of the market. Even if some kind of a history can be said to exist in the minds of product users (Hargadon and Doulas, 2001), knowledge of such history is often not well documented or it is not readily accessible. Managers in small and medium new-technology enterprises, for one, have limited resources at their disposal to cope with uncertainty (Savioz, 2006). Yet, the situation is not fundamentally different from that in new-technology ventures of large corporations. Given that the technology is new, the market is also new. This kind of a situation tends to involve a high degree of uncertainty concerning markets, technology, and competition (Moriarty and Kosnik, 1989).

Studies of marketing products based on one or several new technologies (i.e., new-technology products) have shown that the general quality of the product has a significant influence on the type and the extent of the stakeholders’ uncertainty. There are two main qualities of products. On the one hand, a new-technology product is ‘a concrete product’, when there is a clear a priori definition of it in terms of its definition and appraisal, as well as on how to conclude the process of exchange of delivery of use or investment value to the client and compensation delivery to the new-technology enterprise for the delivery of such value. On the other hand, a new technology is a ‘promise’, when it is not yet available as concretely manifested offerings at the time of transaction (Rushton and Carson, 1989; Kaas, 1992a). Whereas the concrete product is essentially a commodity, the promise can be co-developed into a unique product with the client because, by definition, uniqueness refers to specificity (Picot, 1991) – in this case,
specificity to the needs, requirements, and desires of the client. A unique product is developed via processes of ‘small-numbers bargaining’ and of face-to-face contact, where social context and contingency matter, in contrast to the ‘spot-market’, where the concrete commodities or exchange goods can be readily traded.

According to the so called incentive-contribution structure school, two broad features are particularly important in such transactions. First, there needs to be agreement about the specifications and appraisal of product performance before, upon, and/or after delivery. Second, the expectation must be that delivery and use are positive rather than negative experiences and the customer is also otherwise satisfied (Kaas, 1992b). As mechanisms to mediate between a promise, on the one hand, and the specification of the set of expectations related to that promise, on the other hand, ‘master agreements’ can be used between one enterprise and its client. Such agreements enable a flexible adjustment of the terms of the exchange with regard to new developments, follow-up negotiations, and change orders (Hauschildt and Leker, 1990). For example, services in areas of application such as facility service can be characterised by such features as low transaction frequencies, high monetary value, and long-term time dimension. Within such an environment of marketing a new-technology product, lock-in costs of a new-technology solution tend to be high. In turn, these costs will tend to mean that ‘learning by doing’ and collection of experience via ‘trial and error’ are not attractive strategic options either to the enterprise marketing its new-technology product or to the client potentially interested in such a product. Rather, deliberate efforts are called for.

In many transactions of new-technology products, there are various third-party stakeholders. These third parties examine and certify quality characteristics of product offered by the new-technology enterprise on behalf of the client or on behalf of the system of co-governance of their relationship. Temporal divides between periods of agreement, production, and finalisation of the relationship, as well as the third-party interventions that are intended to control the above, can contribute to a high level of complexity. An inability to unravel such complexity will emerge as a generator of growing uncertainty from the perspective of the high-technology enterprise, its client, and their relationship.

The inherent uncertainty of many a new-technology product raises on the centre stage various products and qualities that pertain to experience, on the one hand, and qualities that pertain to credence, on the other hand (see lower part of Figure 1). This is because the (potential) clients are often challenged in their attempts to search for, identify, and to evaluate these kinds of products. The most challenging instances correspond to the original definition of a ‘contract good’. Alchian and Woodward (1988) and Kaas (1992a) defined ‘a contract good’ as a complex, highly specific and valuable promise of performance, the realisation of which takes a medium-to-long period of time and implies a well-coordinated match between the supplier and consumer. In these kinds of goods or products, small numbers bargaining in the form of confidential handling of data, quality standards, simple coordination tasks, generous regulation in case of conflicts, and so on, take centre stage. In contrast to contract goods, ‘exchange goods’ are simple, general, and concrete goods, the transfer of which is a non-complex task (Alchian and Woodward, 1988; Kaas, 1992a). To put it differently, new-technology products require complementary processes, additional competences, and/or value-added services, by which to make the material products, the new technologies that they represent, and the use value of these products and technologies currencies that can be traded by terms fair to any party in the process of exchange and the event of transaction.
Many new-technology products that are marketed successfully are bundled in some way with a service contract from the same or different new-technology enterprises. Other products are developed and finalised together with the client (‘lead user innovation’, see e.g., Tapp and Hughes, 2004). Both kinds of arrangements show the importance of the promise or expectations dimension in the marketing of a new-technology product. The promise dimension and the exchange-good dimension in an offering are, in fact, complementarities rather than substitute forms. The promise, the credence of the enterprise making the promise, and the services provided by that or any other enterprise that ensures that the promise is kept are three qualities that serve to underline why and how the relationship between the new-technology enterprise and the potential client is critical for managing the uncertainty related to new-technology marketing. The marketing of many a new-technology product has to take into consideration not only on the good that is exchanged but also on the contractual web and on the service relationship that provide the context that enables and fulfils the expectations that are integral parts of the content, process and outcomes of the exchange. The transaction is but a visible climax of the business relationship in which, in turn, the process of exchange is embedded.

Owing to the high degree of the intangibility of elements of the promise, expectation, service, relationship, and so on, it is often not easy to communicate a new-technology
product to the client, whether one means the core good or the offering enhanced with service and a relationship. The client cannot by any definition fully examine the quality of a complex new-technology product before buying it. It is most awkward to communicate a service’s value with a client confronted with ‘the empty-pocket problem’; that is, the client finds after one transaction that the product entails no use value, no investment value, and yet has no disposable resources to buy into such values anymore, either. The empty-pocket problem obviously will vary according to the visibility/sustainability of the performance of the new-technology product in question. The key product performance can be embedded in a material or non-material environment. In the first instance, performance should be trackable, measurable, and appraisable. In the second instance, the converse may be true. The value of products and services that have a visible result or are produced by visible use of tangible factors can more easily be communicated to a client than the value of products and services that are invisible assets. In the latter instance of invisibility, a client has no other resort than to trust blindly that the enterprise will make the promises, or refuse to contract on the basis of a mere promise. In either case, there are no real guarantees about outcomes (Figure 2).

Figure 2  The classification of service related to new-technology products according to the degree of intangibility of the product-service complex

<table>
<thead>
<tr>
<th>Characteristics of the result</th>
<th>Tangibility / Sustainability / Visibility of the result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance with a tangible result (e.g., repair)</td>
<td>Performance with an intangible result (e.g., training)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristics of the process</th>
<th>Visibility of the process’s tangibility</th>
</tr>
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<tbody>
<tr>
<td>Performance by using tangible factors and visibility of tangibility (e.g., maintenance of machines by using test equipment)</td>
<td>Performance that is non-visible (e.g., automatic online update) or with few tangible factors (e.g., consulting)</td>
</tr>
</tbody>
</table>

The perception of risk that is connected with the purchase of a new-technology product has long been regarded as some of the constituent characteristics of all services (Rathmell, 1974; cit. according to Scheuch, 1982). Recently, marketing literature has begun to make connections between marketing of technology products, services, and innovations (Ainamo and Ventresca, 2007). Such connections suggest the view that embeddedness matters in the marketing of new-technology products as much as do services and a relationship.

The characteristics of new-technology products and their service components have been found to have an influence on the performance, in particular, when it comes to coordination between the spatial-temporal availability of a product and the willingness of a client to contract to process of product adaptation in the relevant spatial-temporal environment (see Gutsohn, 1984; cit. according to Mugler, 1995). Bundling a new-technology product with a service element and situational elements cues and strengthens perceptions of uniqueness or customisation of the product and product performance. Thus, against the background of the uncertainty that tends to be inherent in the marketing of many a new-technology product, specific investments and resources in services and embedding these services in a relationship serve to make sure that
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Small-numbers exchange will not be a source of costs ‘sunk costs’ never recovered from the perspective of the enterprise, the client, or both.

The framing of the client’s purchasing experience into one where the enterprise stands for a source of credible mastery of the uncertainty can be said to represent a useful safeguard instrument, on the one hand, and instrument of efficient implementation, on the other hand, in the marketing of a new-technology product. This kind of framing of experience is a strategy that helps to deal most effectively with uncertainty that characterises the sides of both the client and the enterprise, as well as the interaction between the two (Kollmann and Kuckertz, 2006). Uncertainty is transformed from an issue that is self-aggravating into an issue to be dealt with.

3 Uncertainties based on the characteristics of the transaction relationship

Even if the characteristics of the new-technology product are ‘determinants’ of uncertainty, as reviewed in the foregoing section, the different types of the exchange constellations also have an influence on the uncertainty (Figure 3).

Figure 3 The exchange constellation and the corresponding uncertainties

As shown in Figure 3 the new-technology enterprise promises a (potential) client a new-technology product that is intended to be useful to the client. The promise is connected with uncertainty in the form of ‘information asymmetries’; that is, the client has a deficit of information vis-à-vis that in possession of the enterprise.
The client does not know (i.e., is uncertain as to) the quality performance of the new-technology enterprise. Some of the quality uncertainties are hidden (go back and see Figure 1, again) in that it cannot be overcome even ex post the damage of this kind cannot be recovered after the damage has done (Spremann, 1990; however, see Kaas, 1992b for the opposing argument).

The client also has to cope with uncertainty about processes and outcomes. This kind of uncertainty concerns the ex post assessment of actions and moral hazard in the new-technology enterprise’s behaviour, such as in a situation of the failure to detect principal’s deficient performance. Uncertainty with regard to this kind of non-identification of deficiency is a form of uncertainty regarding quality of decision-making (Kaas, 1992b). According to Spremann (1990), few kinds of ex post quality uncertainty are worth analysis but ex post unknown uncertainty concerning decision-making (moral hazard, e.g., effort, care) is the exception to the rule. Deficient performance must be made visible before they escalate whereby the new-technology enterprise is locked out of reacting to unfavourable veiled characteristics, such as out of crisis owing to the founder of the new-technology enterprise is unqualified for his or her job. The cause must be identified and it must be dealt with before it is too late.

The client is also confronted with uncertainty concerning managerial decisions in the new-technology enterprise. Spremann makes a difference between ‘fairness and obligation’ as ex post discernible elements of ‘hidden intention’ and ‘effort and care’ as ex post non-discernible ‘hidden actions’. Both of these kinds of uncertainties are difficult to eliminate ex post.

4 How to overcome the uncertainty barrier in new technology

4.1 Relationship management as a framework for the reduction of uncertainty

The non-trivial implication for managers in new-technology enterprises from our analysis is that efforts to reframe the marketing of new-technology products as exchange goods into contract – good relationships can amount to a worthwhile form of strategic exercise. The main aim should never be to excite the client with promises to buy repeatedly from the very first appearance on the market to the delivery of the new-technology product-service solution to a particular client and, finally, to after-sales marketing. Rather, in the marketing of new-technology products, the forging and maintenance of relationships ought to play a decisive role in interaction, negotiation, contracting, and transacting. The client may have fewer incentives to focus on the relationship than the new-technology enterprise, owing to precedent court rulings in business-law, for example. Thus, the client may be able to shift many costs of a possible exit from the relationship to the new-technology enterprise. However, the new-technology enterprise may be able to receive a return on the service of performing uncertainty management on behalf of the client. Proactive delivery of a contract product encouraged may encourage the client to adapt organisation structures, systems, and processes to the product and its underlying new technology.

In contrast to products that include little scope for evaluation of the question as to whether activities have been carried out properly, new-technology products are
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Product-service complexes that require processes and decisions that can be jointly construed as appropriate actions. Any external or in-house evaluator of a process of marketing a new-technology product ought to be able to measure reliably an absence or presence of appropriate actions in the marketing process. As the client attributes higher costs to uncertainty according to the risk level of uncertainties, the presence of such actions ought to diminish the possibility that the client perceives a positive incentive balance in the contract–exchange relationship. Conversely, a high level of the potential customer’s uncertainty may serve as a chance for a new-technology enterprise that competes with an existing new-technology enterprise. The systematic tracker, analyst, and interpreter of uncertainty in new-technology products can identify why and how an enterprise can develop a competitive advantage over competitors through reducing uncertainty, offering a positive experience to the client, and raising credence so that both enterprise and client show interest in the reduction of uncertainty (Figure 4).

Figure 4 Relationship marketing for product-service complexes based on new technology

<table>
<thead>
<tr>
<th>New technology enterprise</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly individualised performance and specific investments owing to the inherent uncertainty of new technology, coping with these uncertainties, and establishing relationship with client</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship MANAGEMENT: Marketing of “contract goods” (i.e., product-service complexes embedded in a relationship)</td>
<td></td>
<td>Loss of effectiveness of client</td>
</tr>
<tr>
<td>Potential client of new-technology enterprise</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Specific investments owing to the inherent uncertainty of new technology, possible realisation of risk, and the establishment of trust to accommodate for uncertainty and risk</td>
<td>Loss of effectiveness of new-technology enterprise</td>
<td>Transaction-marketing: marketing of “exchange goods” (i.e., commodities tradable on spot market)</td>
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Source: Plinke (1996), adapted.

Relationship management aims at the development of the relationship on partnership terms. There ought to be no canvassing for customers (Gummesson, 1997) but a-term orientation that is credible and well-communicated polar extreme to a short-term-profit orientation. One of the main objectives of relationship management is to increase the commitment and thus the loyalty of the customer towards his supplier and the common transaction. The client-as-business-partner should consider the relationship important enough to justify relationship continuance even if the efforts are not immediately compensated by a monetary compensation or a service-in-return at some intervals of the relationship (Schmitz, 1996). When a short-term opportunism is replaced by a long-term orientation, services and services-in-return become separated temporally from one another so that there is a double ‘contingency’ (Luhmann, 1984); that is, both the enterprise and the client will make a promise to the other that the disadvantages of an uncertain relationship will transform into reasons to continue the relationship in the long term. In other words, the enterprise – client relationship becomes more than a facilitator of technology marketing; it also becomes an auto-poetic mechanism, building upon and
strengthening itself. Satisfied clients convert themselves into supporters, even carriers of word-of-mouth marketing (Gummesson, 1997). The client joins in with other clients to constitute a collective source of free advertising and a key part of the marketing mix of the enterprise so that the collective body of clients become the enterprise’s most important marketing employees (Kawasaki, 1997). This is particularly the case in those areas in which the exchanged products do not have any search qualities, as is very often the case in the marketing of new-technology products.

4.2 Measures and strategies for the reduction of uncertainty

A new-technology enterprise can reduce a client’s uncertainty by increasing its

- capacity for product performance and quality
- willingness to perform and carry out decisions in favour of a behaviour according to the agreement
- volume and quality of evaluation, analysis, and improvement of product delivery and performance (Spremann, 1990; Kaas, 1992b).

With any of these ways of reducing uncertainty, ‘credence qualities’ become less important. With the relativisation of the importance of trust, any relationship will lose importance as barriers for market entry by other enterprises. If the potential client is able to specify and examine the new-technology product, the enterprise can thus be easily replaced by the other enterprises. The price becomes the central criterion for the decision, especially in the case of those other enterprises that produce high-quality products and services and are beginning to be regarded as trustworthy.

However, the remaining uncertainty experienced by the potential client will lead to the “obligation of the consumer (i.e., client) to rely on ‘reputation’ for the purchase decision” (Klein-Altenkamp, 1992, p.824). The enterprise with a track record of decreasing uncertainty for the client will have a superior level of credence. A client that is uncertain and indecisive tends to select products and producers with a superior reputation for trustworthiness and product and other kinds of qualities.

A client with a low level of know-how in the field of the technology at stake tends to buy into the brand name of a well-known and highly reputable new-technology enterprise, whereas the client that represents high expertise and experience will also consider purchasing products of unknown brand and unknown reputation. The above means that an enterprise of inferior product quality might be successful in exploiting rather opaque markets where inefficient negative word of mouth has resulted in lack of brand names and their reputations, owing to limited possibilities by clients to ex ante examine products of ex post communicate experiences with the product. The focus on opaque markets is a strategy that can be pursued by an enterprise, for example, that frequently alternates location (e.g., going from fair to another), that is confronted with a variety of clientele (e.g., souvenir shops in the tourism sector of the global economy); or meets a-periodic services (e.g., real estate agents who normally only carry out one transaction for the customer. The people looking for an apartment at a certain point in time do not know each other; negative word of mouth therefore has a high level of waste coverage). In any of these opaque markets, the enterprise will incur fewer punishments to betraying the trust of a client than an enterprise locked in a (long-term) relationship with a client.
The correlations and dynamics of quality, price, and trust can to some extent be shed light upon by referring to search and experience qualities (signalling; Kaas, 1992a; Kleinaltenkamp, 1992). In a long-term relationship between an enterprise and client, strategies to reduce uncertainty aim at the transformation of the enterprise’s trust-building credence qualities into its testable search qualities (Schmitz, 1996). Instead of promising high quality, the enterprise will guarantee to use certain materials, for example; the latter will be operationalised and can consequently be examined more easily. The objective becomes that “promises become viewed as credible expectations” (Rushton and Carson, 1989, p.32); consequently, the uncertainty is perceived by the client as less problematic than before. References to samples, technical specifications of the production machinery, the level of education of employees, seals of quality, quality awards, certificates, etc., all will be testimonies to such a decrease in degree of the gravity of the problem. Capacity and willingness to perform to expectations can be communicated by the enterprise by means of ’input-oriented commitment’ (Kaas, 1992a). Such commitment – together with the other control procedures – will limit the enterprise’s scope of action via specifications of the production process, the materials that are used, procedures, etc. In the extreme, the enterprise can take over the risks of the result’s uncertainty by issuing performance guarantees or profit-related payments (output-oriented self-commitment). By doing so, the enterprise assumes the risks of a deficient performance, independent from its cause (e.g., exogenous causes, the supplier’s lack of qualification or lack of effort). The costs of such guarantees can be compensated by the value delivered to the client from monitoring reliability, etc., and by the corresponding revenue stream (Kaas, 1992b).

The degrees of monitoring of the search, experience and credence qualities depend on the client’s needs, requirements, and wants for such monitoring and on cost-benefit analysis. The key quality of a new-technology product can be a credence quality for one actor owing to a lack of knowledge, whereas another actor identifies the same characteristic as a search quality. The main objective of reducing the potential client’s uncertainty can be achieved by communicating knowledge about the kind of quality that is most salient to the particular client. This will lead to an improvement of the controllability of uncertainty from the perspective of the client and, indirectly from the perspective of also the enterprise.

In sum, the uncertainty with regard to performance capacity and evaluation of the result can be reduced with surrogate information and with sanction mechanisms in connection with monitoring procedures. These measures are strategies that reduce the uncertainty by strengthening the confidence of the client in the use or investment value of the new-technology product. The indicators for the performance capacity, comprehensive guarantees and output-oriented incentive systems cannot impede that the enterprise with the offering most attractive to the client may be only partially be willing or able to deliver the new-technology product agreed upon. This may be particularly the case if there is a slight chance that sub-standard product performance is never detected by the client (Kleinaltenkamp, 1992; Kaas, 1992a). The uncertainty concerning the willingness of the enterprise to perform as promised, however, can only be reduced by establishing trust.

4.3 Measures for the reduction of uncertainty by means of trust

The importance of trust to manage the uncertainty in the marketing of a new-technology product will never be fully standard across clients. Some relationships revolve around products surrounded by highly uncertain environments. Such uncertainty cannot be
reduced without building of trust. In a reversal of the famous Lenin quip, Bleicher (1989, p.112) postulates that “[c]ontrol is good, trust is better”. In contrast, when the uncertainty in a relationship is low, the need for trust-building to offset that uncertainty decreases, and further investments in trust-building would only incur cost-inefficient measures of uncertainty reduction in the form of needless bureaucracy and paperwork. In the latter kind of relationship, trust can remain ostensibly at a low level. The remaining uncertainty in relationship can be managed by virtue of the ability in the enterprise and by that of the client to contain uncertainty into issues that are essentially routines of exchange rather than serious challenges of contracting.

Regardless of the kind of good and the kind of ways of managing uncertainty in the marketing of the new-technology product, the categories for such management include: building reputation, creating dependencies and focusing management attention on marketing activities.

*The development of a reputation as a competent and fair enterprise.* The enterprise, its history, and its value ought to be transparent for the people in the (potential) client organisation who make the relevant decisions about contracting or exchange. The potential client – rightly or wrongly – uses reputation as a proxy to find quick answers to his/her questions about how risky is a leap into a relationship with an enterprise where there are no explicit guarantees about shapes of things to come, given an inherently uncertain future (Luhmann, 1989). The building of reputation must start before first contact with a potential client because reputation building is a diffuse process that takes time. The outcomes of emergent or deliberate reputation building cannot be brought about instantaneously upon a need for them. Reputation is based on the enterprise’s history and self-portrayal so that the recent past and interpretations of the more recent past blend.

*Creation of dependencies and thus ensuring trust and commitment.* Trust can be developed if an enterprise invests in its client-relationship through such activities as planning, free consultation and communicating when capacity for customised runs of production is available, that is, offerings that Tolle (1994) calls ‘specific investments’. As many of these offerings have limited value in any other client-relationship context, they constitute sunk costs for the enterprise, which the client can exploit at the expense of the enterprise. As an example, the customer may use the offerings of one enterprise for contracting with a competing enterprise, so that this competitor may be able to deliver the product at a lower price than the original marketers of the competitor has no business model of ‘open innovation’; that is, a business model where some products, services, or both are free of charge to invite networks of innovation and scale economies, while the replenishment of the enterprise’s resources will be based on payment for a core offering, whether that be the platform or the interface application (Chesbrough et al., 2006). The explicit strategy here is for the enterprise to be exposed to the good or bad will of the customer. When the enterprise makes few efforts to eliminate the possibility of a breach of trust by the client, the connotation is that members of the enterprise trust the ethic of the client. The enterprise is thus ready to ‘await a possible breach of trust with composure, without […] considering such a breach a basis for action (Luhmann, 1989, p.86). This self-submission not only leads to a more attractive offer, but also represents advances of delivery without contract or payment. This self-imposed vulnerability on the part of the enterprise may – and is, in effect, intended to – produce a certain type of moral pressure on the client: a social need and psychological desire among members
of the client organisation not to disappoint the expression of confidence. Voluntary self-submission of the new-technology enterprise is designed to initiate a process of reciprocal and self-reinforcing process of trust-building between the enterprise and the client (Roessl, 1996; Adler, 2001; Fink, 2005). Free offers and guarantees have a double function: On the one hand, they reduce uncertainty as the enterprise takes over risk for the possibility that its performance might be deficient (Kleinaltenkamp, 1992). On the other hand, free offers and guarantees promote trust. The marketer of the new-technology product might also offer a free examination of the contents of the offer, certified by an independent authorised expert, perhaps chosen by the client.

Management attention to trust-building activities. Trust cannot be simply ‘produced’ or ‘demanded’ but can only be made possible by permitting it to develop, or not. When managers – who tend to have possibilities at their disposal to hinder trust from developing – permit the development of trust, they are facilitators of trust and creators of long-term contracting and exchange potential. A management orientation in terms of trust ought to be most credibly communicated by family enterprises, for example, as these types of enterprises ought to have an orientation to think across generations and the long term. Furthermore, the orientation of management has to be in line with a consistent behaviour on the market, to communicate a trustworthy history of self-portrayal. Often, SMEs or Small- and Medium-Sized Enterprises have such an advantage. They tend to be embedded in a regional social environment, which allows for a better visibility of their history and identity and the consistency of their behaviour can be easily controlled in comparison with large MNCs or Multinational Enterprises that have activities that are less fully transparent locally. Communication barriers are lower with spatial and psychological proximity of a partner to an exchange than without. SMEs have an obvious resort to rely on word-of-mouth marketing.

Independent of enterprise size or the geographical spread of its operations, integrating personnel across the enterprise and the client into an inter-organisation project will encourage the process of developing an atmosphere of proximity, a common destiny, team spirit, and trust. Here, the formalisation of the project organisation structure will have a signalling effect. When, in addition, someone is put in charge of managing dependencies across the enterprise and the client, this serves as a certain kind of pledge concerning the reputation of these executives. With a formal project, if the project ultimately fails owing to the deficient performance in relation to the formal goal, both the enterprise and the client are directly concerned: their reputations are damaged. The signalling effect, the pledge, and the reputation effect are mechanisms that operationalise credence and experience qualities both in exchange-good transactions and in contract – goods relationships (Roessl, 1991).

5 Conclusion

The paper has reviewed how to manage uncertainty in the marketing of a new-technology product, taking into consideration the viewpoints of both the client for the product and the enterprise marketing the product. The paper finds that uncertainty related to new-technology products tends to have a negative influence through incentive-contribution structure of the enterprise-client relationship in a ‘contract good’. Thus, a distinction should be always made between an exchange good, tradable on a
spot-market of open exchange, on the one hand, and a contract good, tradable only in a small-numbers contract constellation, on the other hand. Some approaches and measures to handle uncertainty in the marketing of a new-technology product reduce the uncertainties of new-technology marketing (increasing confidence). Others enable enterprise and its client to accept persistent uncertainty (increasing trust). For the successful marketer of a new-technology product, one has to work on both its home turf and on the client dimension with equal intensity. The dual mode represents a new challenge concerning the expertise and also – to a large extent – the social competences of the managers in the new-technology enterprise. The competent handling of uncertainty by a well-prepared marketer of a new-technology product facilitates transactions that could otherwise not be realised owing to high uncertainty. The generation of relevant knowledge and know-how will often happen through co-development of the new-technology product together with the client. Both SMEs and new-technology ventures of large corporations may derive considerable advantages from our suggestions on how to market new-technology products. A long-term orientation of relationship management in certain kinds of enterprises can serve as an ethos for high client satisfaction and sustainable competitive advantage.

Even though we believe that our paper serves as a contribution for understanding why and how to manage in the context of marketing new-technology products, we have to refer to some significant limitations in our study. First of all, the ideas presented in this paper have to be examined within the context of an empirical investigation to further assess their relevance for management practitioners. Second, the separation between those uncertainties connected with the characteristics of the exchange good and the uncertainty connected with the characteristics of the exchange relationship – the distinction we introduced for analytic purposes – is a theoretically informed decoupling of empirically intertwined phenomena. We know through our practical and professional experience in industry and business of interesting interdependencies between products and the ways they are best marketed. The integration of these two dimensions uncertainty might lead to uncovering further significant aspects with regard to managing uncertainty in the marketing of a new-technology product.

References


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Note

1For more information, note that Rushton and Carson (1989) and Weiber and Adler (1995) provide more extensive reviews of different kinds of products or offerings, product quality, different types of its examination (quality of inspection, experience and confidence) than is possible in this space.