Launching PURAC FCC

developing an appropriate route-to-market for a product with a complementary product in the meat decontamination market

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Developing an appropriate route-to-market for a product with a complementary product in the meat decontamination market

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List of definitions

Complement product	Product which is required for the primary product to function properly. In this case, the complement product is a spray machine which allows for a proper application of PURAC FCC on the meat surface.
Complement product strategy (CPS)	Strategy on how to bring the primary and complementary product to the market
EU market	The market of carcass decontamination in the EU-27, in which the main focus is on the slaughterhouses, as they convert livestock into (partial) carcasses.
EU-27	Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland, Italy, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia and the United Kingdom
Food processor	Company in which (partial) carcasses are further processed into piece of meat. This can be for all types of species.
Introduction/launch plan	The tactical aspects of an introduction strategy
Introduction/launch strategy	Complete set of strategic and tactical decisions for introducing a new product
Launch Strategy Template (LST)	Excel tool for the selection of a suitable introduction strategy given certain product, market and firm strategies.
Meat company	Slaughterhouses and food processors.
Meat industry	The slaughter and meat processing industry in a specified region
Meat processing industry	The food processing companies in a specified region.
Primary product	The product which is sold by Corbion, in this case PURAC FCC.
PURAC FCC	A lactic acid solution which can be used for meat surface decontamination for both carcasses and pieces of meat, for which the most suitable route-to-market is constructed in this report. Although there are different concentrations of PURAC FCC, these are not seen as product variants, because the concentration differences are due to customers preferences, but each type of concentration should be diluted to a 2 or 3% solution.
Product offering	The kind of offer to the market or customer. This can be a stand-alone product, a service or a bundle of products.
Route-to-market	The combination of a strategic market approach, in which the product offering, complement product strategy and complement product supplier are combined, and the tactical launch plan of the offering.
Set of introduction strategies	The developed introduction strategies as constructed in the previous literature study and depicted in Table 11
Slaughter industry	The slaughterhouses in a specified region.
Slaughterhouse	Company in which livestock is converted into (partial) carcasses. This can be for all types of species.
Spray machine	A machines designed to spray a solution on a given surface or object.
Spray system	Same as spray machine
Spray system supplier	Supplier of any kind of spray system (carcass decontamination, carcass washing, general, food processing or total plant hygienic solutions)
Spray solution	Mixture of water and PURAC FCC which is applied through a spray system on the meat
US market	The United States market of pieces of meat decontamination, in which the focus is on the food processors, as they convert the (partial) carcasses into pieces of meat.

Management summary

In this master thesis report, the route-to-market for Corbion's new product "PURAC FCC" has been constructed for the European market of carcass decontamination and the United States market of pieces of meat decontamination. The route-to-market consists of a market approach to manage the dependency of the product success of PURAC FCC on the spray system and the introduction plans for this offer for both markets. The market approach concerning the management of the complementary product focusses on what to offer, how and with whom. The introduction plan has been determined using the Launch Strategy Template (LST), a constructed and customized template to determine an appropriate new product introduction strategy given various strategic factors. This report first presents the research context, problem statement and deliverables, followed by the applied methodology. Then, the construction of a set of market approaches is presented, followed by the selection of the recommended market approach. Next, the LST will be constructed, validated and customized for Corbion and applied for the defined offer of PURAC FCC from the market approach. Finally, the introduction plans based on the recommendations of the LST will be presented.

Corbion Purac BV is a leading company in the preservation of food, biobased materials and biobased monomers throughout the world. This research focused PURAC FCC, a lactic acid which is applied for carcass or pieces of meat decontamination. The advantages of this application is that it will reduce meat contamination, improving food safety. PURAC FCC should be misted on the meat surface using a spray system. This results in a dependency of the product success of PURAC FCC on a spray system, and in an extra complexity for the introduction of PURAC FCC. The route-to-market is therefore spilt into defining the market approach and determining the introduction plans. The market approach level focusses on managing the complementary product, in which focus is on what to offer the customer, how to offer this and (if applicable) with whom. The introduction plans focused on how to launch the offering of the market approach in the EU and US meat surface treatment market for the decontamination of beef, pig and poultry. More specific, the European market for carcass decontamination (EU market) and the United States market for pieces of already chopped meat decontamination (US market) through the application of lactic acid have been investigated.

In this normative case study the problem definition, analysis and diagnosis and plan of action phase of the regulative cycle of Van Aken et al. (2007) have been performed. A combination of different sources of evidence has been used to construct the route-to-market, namely literature, market research, interviews, (in)formal meetings and questionnaires. The set of market approaches were constructed using literature and market research. The recommended market approach was selected based on interviews and meetings. The LST has been constructed using literature. The validation and customization of this LST was done using questionnaires on two previous product introductions. The application of the LST has been performed using a combination of questionnaires, market research and meetings. Finally, the introduction plans were constructed based on the recommendations of the LST, market research and (in)formal meetings.

The construction of the market approach is the first phase of the determination of the route-to-market and consist of the offer to the customer, how to manage the complement product and with whom to offer this. By combining these individual aspects three suitable market approaches for the current situation have been constructed. The first market approach applies a separate selling strategy, in which PURAC FCC is offered as a stand-alone product. The second market approach is

offering PURAC FCC in a bundle with a spray system through a partnership with the supplier of a spray system. The third market approaches offers a service to the slaughterhouse or food processor through selling PURAC FCC to the providers of these services, creating an OEM-buy situation. These market approaches differ with respect to several characteristics (Added value, service level, costs, customer lock-in etc).

The second phase of the determination of the route-to-market is the selection of the recommended market approach. The characteristics of the constructed set of market approaches have been scored based on the expected preference of the meat companies and Corbion for them. These scorings showed that the product bundling strategy was the most preferred, as this resulted in a high degree of customer lock-in, the proper application method and was financial favorable. This recommended market approach has been further elaborated, in which is discussed that PURAC FCC should be bundled with spray systems from several suppliers through loose partnerships, in which it is critical that the spray system supplier is already present in the meat processing industry and that the spray system is suitable for lactic acid application. In the EU market, the suitable suppliers would be supplier of carcass decontamination cabinets, carcass washing cabinets or a general spray equipment supplier. For the US market, the suitable suppliers are suppliers of spray system or meat processing equipment. The spray systems is pre-financed and paid back for in 2 years.

Next, the LST has been constructed, which is the third phase of the determination of the route-to-market. First, the literature on new product introduction strategies has been reviewed, in which several sets of holistic and partial introduction strategies related to new product success have been discussed, in which strategic and tactical aspects and their relationship with product success were presented. Also, often used success measures for new product introductions have been presented, in which customer acceptance, product performance and financial performance were found to be often mentioned.

The holistic and partial introduction configurations were combined into a set of three launch strategies, namely the Radical & New, the Improve & Grow and the Incremental & Establish strategy, of which the complete set of strategic, tactical launch aspects and recommended success measures has been discussed. The Radical & New strategy is suitable for really new products with a high product advantage, launched in new markets by innovating firms and in which the tactical launch aspects focus on gaining product awareness, using new brands, a low assortment breath, new distribution channels, clearly communicating the product characteristics to the target market. The Improve & Grow strategy is preferred in the case of product improvements and repositionings, launched in a growing market by firms seeking to increase their market share, and in which the tactical aspects aim to stress differentiation, using brand extensions, a medium assortment breath, using established distribution channels. The Incremental & Establish strategy is appropriate in the case of incremental innovations like revisions or cost reductions, which are launched in a mature market with the objective to further fill the market, and of which the tactical aspect focus on maintaining customer loyalty, using brand extensions, intensive distribution, reminding the customer to buy the product. The pricing strategy and the strategic focus are included as two separate sub strategies, as sub strategy can be applied with each introduction strategy. There are two presented pricing strategies, skimming and penetration, in which a skimming strategy is preferred when the product is positioned as being superior to others and a penetration strategy in case the aim is to

increase market penetration as fast as possible. The strategic incentive recommended the marketing focus given the strategic aim of the introduction. Finally, a recommendation on the success measures to apply is given based on the product newness.

With these three strategies, the actual Launch Strategy Template (LST) has been constructed in the corresponding Excel file and appendix H. In the LST, the strategic launch decisions serve as input, and the recommended launch strategy, including tactical launch decisions, strategic focus and recommended success measures as output for the LST.

The constructed LST has been validated and customized for Corbion using data on two previous new product introductions of Corbion, which is the fourth phase of the construction of the route-to-market. These two cases consisted of a radical new product and an incremental new product. In the first validation step, the actual strategic launch decisions of the two cases have been compared with each other, and with the expected strategic launch decisions of the constructed set of introduction strategies. The radical new product is compared with the Radical & New introduction strategy and the incremental new product is compared with the Improve & Grow strategy. The results from the comparison showed that there can be two types of validation issues, namely equal values of the strategic launch decision for both validation cases or differences between the actual and expected strategic launch decisions. Both types of issues have been further investigated and adapted if required. The second validation step was the comparison of the applied launch tactics with the recommended launch tactics of the corresponding introduction strategies. Also, tactical difference were also compared between the two validation cases, to indicate whether a launch tactic is always or never applied. The result of this validation was a set of introduction strategies and LST which is customized for Corbion, which is slightly different from the original set of introduction strategies and LST.

The customized LST has been filled in for the offering of PURAC FCC in combination with a spray system, which is the fifth phase of the construction of the route-to-market. As the answers for the LST questionnaire was the same for both the EU and US markets, they are presented together. Given the answers of the LST questionnaire, the results of the LST showed that the recommended introduction strategy is the Radical & New strategy. Therefore, the LST has recommended to create awareness, using new brand, through new and existing direct channels, clearly communicating the product advantages through advertising and personal selling, applying a penetration pricings strategy with a relative low initial price which slowly decreases, aiming to lower the perceived risk and using the market share and revenue growth as success measures.

These recommendations have been further translated into an introduction plan in the sixth and final phase of the route-to-market. This introduction plan shows that stressing the financial aspects of the offering is an essential part in creating awareness. Also, the offer should be co-branded with the spray system supplier, creating new brands, while keeping the product assortment small and clear. The distribution should be through the establish channels of the spray system supplier to reach the meat companies. The promotion should target the slaughterhouses, food processors and retailers for the EU market, because these three types of companies can influence the adoption of the offer. For the US, the meat processors and retailers should be targeted for the same reason. The price of the offer can be slightly higher than recommended, due to the added value of the offer. The strategic

focus to lower the perceived risk can be applied through customizing the offer per customers and target strategic customers. Finally, the success measures should focus on gaining market share and customer acceptance.

Finally, this report is concluded by presenting the empirical findings, which is the constructed route-to-market. Also, the theoretical implications of the added value of this report to the literature are given. The management implications present how to implement the constructed route-to-market, the usability of the applied methodology for the construction of the route-to-market and the implications of the extensive set of launch recommendations are presented. Next, the limitation such to the low number of validation cases, lack of evaluation of the constructed route-to-market and the completeness of the LST are presented. Based on these limitations, recommendations for future research are presented, including applying the LST for other products, in other industries and extending the LST.

1 Introduction

Successful commercialization of new products is a crucial factor in new product development. New products impacts a company's performance, as 47% of the sales are generated by products introduced in the past five years, and are perceived as the leading edge of corporate strategy, growth and prosperity (Cooper, 1984). The importance of a well-executed product launch is highlighted by the fact that this stage in the new product development process required the largest amount of time and resources. Also, a new product's launch strategy is one of the most commonly identified impact factor on product success (Hultink et al., 1997) and launch effort is fundamental for a new product to succeed (Cooper & Kleinschmidt, 1986). A new product introductions can shape or reshape the market. So, the impact of new products and new product introduction strategies cannot be understated (Debruyne et al., 2002). Therefore, new product launch is one of the most important driver for product success in the high tech market (Easingwood et al., 2006). Also, due to a small window of opportunity in this market, there is only one shot in establishing the product, again indicating the importance of a proper introduction (Beard & Easingwood, 1996; Easingwood et al., 2006). But also when development cycle times are relatively longer, a proper launch remains important, because short term success will lead to long term success. An effective product introduction is a vital driver for superior performance and a strong product introduction improves the chances of success significantly (Di Benedetto, 1999). Therefore, a new product introduction should be carefully managed and determining which introduction strategy to use is of high importance in this.

Although the importance of a proper launch strategy is acknowledged in the literature, the determination of when to apply which introduction strategy is not. The literature on new product introductions also focusses on stand-alone products. There is little known about the appropriate introductions strategy if the success of a products also depends on a complementary product. Therefore, this master thesis project has explored how to introduce a new product of which the product success depends on a complementary product. The following section will first present the context of this research, followed by the research question and the research goals and deliverables.

1.1 Research context

This research is conducted for the application of PURAC FCC, a lactic acid, in the meat processing industry. The research context will be given in the following section. First, the company of this research, Corbion Purac BV, will be presented. Then, lactic acid and its application in the meat industry is discussed. Finally, the product which forms the subject of this research, PURAC FCC, is presented.

1.1.1 Corbion Purac

Corbion Purac is a leading company in food ingredients and biobased throughout the world. Furthermore, it is market leader with respect to lactic acid, derivatives of lactic acids and lactides. It is located throughout the world, with locations in Asia, Europe, Latin America and the United States, and has a workforce of 1800 people and annual net sales of € 400 million. Its aim is to deliver innovative, environmentally friendly solutions bases on natural ingredients and processes to their customers. The products of Purac are grouped into six categories, which are food ingredients,

bioplastics, biobased chemicals, home & personal care, medical & pharma and animal health. The current research will focus on the food ingredients markets.

Corbion Purac offers several kind of naturally derived preservation solutions and fortification ingredients for the food industry. They are present in several markets, including bakery, beverages, confectionery, dairy, fish & seafood, fruits & vegetables, meat & poultry, mineral supplements, refrigerated foods, sauces, dressings & condiments and savory snacks. Within these markets, the focus is to deliver solutions with respect to food safety, shelf life, salt reduction, mineral fortification and taste. This research focuses on the meat & poultry markets, in which several solutions for food safety, shelf life, sodium reduction and label friendly ingredients are offered by Corbion. These solutions can be applied to fresh meat, cooked meat and carcasses. In this research, the focus will be on carcasses. More specific, this research will focus on the application of lactic acid on carcasses for meat decontamination.

1.1.2 Lactic acid and its application

With respect to the processing of the animal carcasses, the prevention of contamination of the carcass or meat during the slaughter process is considered to be very important. By preventing, or minimizing meat contamination, meat will have a longer shelf life and the food safety will be higher. Although food safety always has been an important subject, it has become even more important as there have been several incidents in the last years. Especially reducing risks of pathogens Escherichia coli, Salmonella and Campylobacter from animal origin is considered important (Ende, 2013). Although tissue of a healthy animal is considered to be sterile before slaughter (Sofos, 1996), during the conversion of live animals into carcasses and meat (Figure 1), microbial contamination is very likely to occur, especially during the removal of the feathers, hide or pelt (Toldra, 2010). Even in a well-managed slaughter process, contamination is considered to be an unavoidable problem. Especially the exterior surfaces are susceptible to microbiological contamination by pathogens during processing (Corbion Purac, 2013). Contamination will not only cause food safety risks if not proper handled, but will also lead to spoilage of meat and thus increased costs (Ende, 2013).

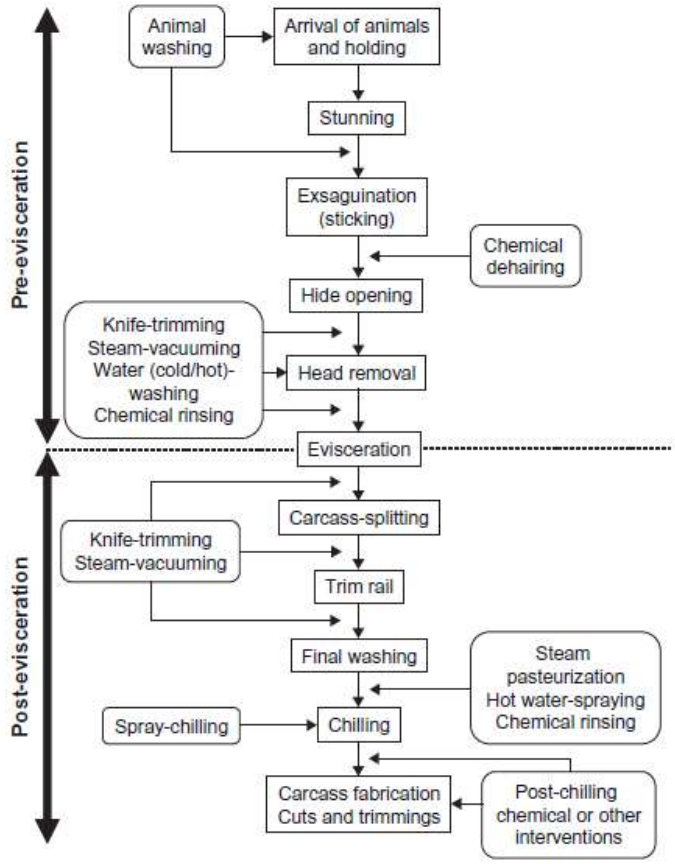

Figure 1: Stages of beef - slaughtering dressing process and points where various physical or chemical decontamination interventions may be applied. Source: (Toldra, 2010)

Meat producers are improving meat shelf life and safety by using surface treatments in order to kill microbes. They have implemented a wide range of decontamination technologies in their processing plants. In this, washing a carcass with antimicrobials is a commonly used technology to reduce microbial counts. In the US, several antimicrobials are allowed for carcass washing, such as organic acids (acetic, lactic), chlorine, sodium, hypochorite, acidified sodium hypochlorite, cetylpyridinium chloride, peroxyacetic acid, and lactoferrin (Acuff, 2005), of which most of them are proven to be effective. In the EU, only lactic acid is allowed. Lactic acid is considered as an industry standard in the decontamination of beef carcasses. It is used by most plants together with per-acetic acid in a multiple hurdle system, in which different antimicrobials are applied in different points in the slaughtering process. This multiple hurdle system results in an almost sterile carcass. (Ende, 2013)

Decontamination of a carcass in generally done by spraying a 1-2% lactic acid solution of the carcass. With this technique, the lactic acid will be evenly distributed over the animal. It is also a cost-effective method, as only a thin layer will be applied. Effective spraying can be applied at various point in a slaughter line, but it is recommended to treat the surface as soon as possible after slaughter. In the US, lactic acid is generally applied at the end of the slaughter process, before chilling (PURAC, Unknown). For the decontamination of carcasses surfaces, Corbion offers the usage of natural lactic acid, named 'PURAC FCC'.

1.1.3 PURAC FCC

PURAC FCC decontaminates the surface of a carcass, reducing the microbial load of the meat, and is applied by spaying or misting it directly on the surface of the carcass. PURAC FCC is offered in different degrees, namely PURAC FCC 50, PURAC FCC 80, PURAC FCC 85, PURAC FCC 88, in which the number represents the concentration of lactic acid in PURAC FCC. PURAC FCC in a 2% or 5% solution can be used as a surface decontaminant for beef, pork and poultry. The advantages of the use of PURAC FCC are that 90 to 99% of Salmonella and E.coli pathogens are killed and the total plate count is also reduced, both increasing the shelf life, without any residual effects or changes in the lactic acid concentration in the meat. Also, the use of lactic acid does not affect the color or the weight of the meat. Furthermore, it is safe to use, it poses no health risks, as it is also naturally present in meat. The fact that it poses no health risk is also stated by the European Food Safety Authority (EFSA) in 2011 (PURAC, 2013). Also, the usage does not result in a discomfort in the work place, it has no effect on the flavor or odor of the meat and it has a (delayed) anti-microbial effect. Finally, the application proces is non patented, it does not result in extra costs on waste water treatment and it is less coslty compared to steam pasteurization (PURAC, Unknown). In summary, the use of lactic acid results in an improvement in food safety, appeal and shelf life.

PURAC FCC in a 2% to 5% solution is an effective surface decontaminant for fresh meat like beef, pork and poultry. It should be applied as soon as possible after slaughtering, preferably on a warm carcass, with a warm solution, because the microorganisms are present on the meat surface but have not yet penetrated into the meat at this stage (PURAC, 2005). It can be applied by spraying or dipping, in which spraying is preferred. It is preferably applied with a spray cabinet or a bird washer (in the case of poultry), on a clean carcass which is free from visible contaminations. The solution should be misted on the surface after the final wash, before cooling. It should not be rinsed of, but left on the surface. If a company decides that it want to apply PURAC FCC for a second intervention, this should be before evisceration as a pre-wash. (PURAC, Unknown)

1.2 Research question

Corbion is currently supplying PURAC FCC, via a specialized distributor to the United States carcass decontamination market (Ende, 2013). However, the meat decontamination market is further developing. The use of lactic acid on carcasses with the purpose to reduce microbial surface contaminations has been applied in the US for some time, and is permitted in Europe since February 2013 (PURAC, 2013). For these two markets, Corbion wants to expand their business activities and increase their market share. However, Corbion has limited market experience and application expertise in these markets (Ende, 2013). This master thesis research has therefore been conducted to construct a suitable route-to-market for PURAC FCC for the EU and US meat surface decontamination market.

When offering a stand-alone product, the route-to-market consists of the introduction plan for this product. However, in this case, the success of the primary product, PURAC FCC, depends on a complementary product, a spray system. A complementary product is defined as a product "that enhances the value of a primary product when the two are used together by the end-user" (Sengupta, 1998). As the spray system is required for effective decontamination of a carcass or piece of meat, this spray system enhances the value of PURAC FCC and vice versa. This dependency of the product success of PURAC FCC on a spray system results in an extra complexity for the introduction of PURAC

FCC. The route-to-market also has to take this extra complexity therefore into account. Managing the complement product cannot be combined with the introduction strategy as one step, because the management of the complement product should be defined before the introduction plan can be determined. The route-to-market is therefore spilt into defining the market approach and determining the introduction plans. The market approach level focusses on managing the complementary product, in which focus is on what to offer the customer, how to offer this and (if applicable) with whom. The introduction plans focused on how to launch the offering of the market approach in both the EU and US markets. Therefore, the main research question is the following:

What is the most appropriate route-to-market for Corbion's product PURAC FCC in the EU and the US meat surface treatment market in order to improve the chance of success?

This main research question can be broken down in the following sub research questions:

- How should Corbion's market approach of the route-to-market be defined in order to position themselves competitive in both markets? In this, the following aspects are considered:
    a. What to offer to the customer?
    b. How to manage the linkage between PURAC FCC and the complement product (the spray system)?
    c. With whom to manage this linkage between PURAC FCC and the spray system?
- How should the constructed market approach be executed in order to improve the chances of introduction success for PURAC FCC in the EU and US markets?

This research focused on the EU and US meat surface treatment market for the decontamination of beef, pig and poultry. More specific, the European market for carcass decontamination (EU market) and the United States market for pieces of already chopped meat decontamination (US market) through the application of lactic acid have been investigated. These markets differ with respect to geographical area, type of meat decontamination, type of companies covered in this research and since how long lactic acid application is permitted. In the EU market, lactic acid is currently only permitted for beef carcass decontamination since 2013. Although decontamination of pig and poultry carcasses is not legally allowed, it is expected that this will be permitted in the future. These species are therefore included in this research. In the US market, lactic acid application has been permitted for several years for various types of meat.

This results of this master thesis add to the existing knowledge on both an academic and a practical level. The current literature on new product introduction does not cover how to manage the interdependencies between a primary and complementary product in a new product introduction. This research will investigate these interdependencies and define a suitable market approach. Also, although there is a large amount of literature on (partial) product introduction strategies and their influence on new product success, there is little known on how to determine an appropriate introduction strategy given situational factors. The current research will therefore also examine how one can determine a proper new product introduction strategy, based on the strategic aspects of this product introduction. For this determination of an introduction strategy, a template will be constructed in which several questions related to the strategic aspects of a new product leads to a

recommended introduction strategy for this product. On a practical level, this research will result in a route-to-market which will enable Corbion to launch PURAC FCC properly in the EU and US market.

1.3 Research goal and deliverables

The goal of this study is to define the route-to-market for PURAC FCC. This route-to-market is broken down into a market approach and an introduction plan, which is shown in the process approach of Table 1. For the market approach deliverable, a set of suitable approaches has been constructed, of which the best fitting approach for the current situation is recommended. In the construction of these approaches the types of offerings, complement product strategies and suppliers of the complementary products have been considered.

The recommended market approach has been translated into an introduction plan for PURAC FCC in the EU market for carcass decontamination and in the US market for pieces of meat decontamination. For this determination, a template on applying a certain new product introduction strategy has been constructed, validated and applied. During the validation, the LST has been customized for Corbion. The customized LST has been applied for the offer of PURAC FCC as defined in the recommended market approach. Based on the input, the LST has recommended an introduction strategy, which has been further elaborated for the European and United States markets.

Table 1: Process approach

Deliverable	Stage
Market approach on managing complement product	1. Construct set of market approaches
	2. Select recommended market approach
Introduction plans EU an US market	3. Construct LST
	4. Validate LST
	5. Apply LST
	6. Determine introduction plans for markets with LST

The presented process approach of Table 1 also shows the structure of the remainder of this report, as each stage is presented in a separate chapter.

1.4 Conclusion

This chapters presented the context, problem statement and research goal of this study. Corbion Purac BV has been introduced, in which lactic acid application for meat surface decontamination has been presented. Also, PURAC FCC, the product to be introduced, has been discussed. Next, the problem statement indicated that the introduction of PURAC FCC included an extra complexity due to the dependency of the success of PURAC FCC on a complementary product, a spray system required for effective decontamination. Therefore, the route-to-market for PURAC FCC is split in a market approach in which what to offer, how and with whom is combined, and the introduction plans for the EU and US markets. Finally, the process approach is presented, in which the six stages of the construction of the route-to-market are given. Each of these stages form a chapter in the remainder of this report. However, the methodology of this research will first be presented in the next chapter.

2 Methodology

This research consist of several steps, containing multiple stages, in which different types of research is conducted. Therefore, first an overview of the general research methodology is presented, followed by the applied methodology per chapter.

2.1 General research methodology

This research aims to contribute to current understanding of introduction strategies, and is thus a normative research (Thacher, 2006). Because this research is an inquiry investigating a contemporary event over which no control can be exercised and tries to illustrate a set of decisions, in which multiple sources of evidence are used, the current research is also a case study (Yin, 2003). As this study focuses on one product introduction due to pragmatic reasons, it is a single case study. The advantage of a case study over other types of research is that they permit a combination of different sources of evidence (Blumberg, Cooper, & Schindler, 2008). Triangulation has been applied using literature, documents, interviews, meetings and questionnaires in order to improve internal validity. The concern about a case study is "that they often provide little evidence for scientific generalization" (Yin, 2003). However, as this research aims to expand and generalize theoretical propositions, this concern does not form a problem.

To determine the route-to-market, the regulative cycle of Van Aken et al. (2007), shown in Figure 2, has been followed. Due to pragmatic reasons, only the problem definition, analysis and diagnosis and plan of action phase have been performed. The problem definition has been presented in the introduction. The construction and selection of the market approach and the construction, validation and application of the LST is part of the analysis and diagnosis phase. The introduction plans for the EU and US market which have been constructed using the recommendations of the LST concern the plan of action of this report.

Figure 2: The regulative cycle (Van Aken, Berends, & Van der Bij, 2007)

This research combines different sources of evidence to construct the route-to-market, namely literature, market research, interviews, meetings and questionnaires. A summary of the applied sources per stage is given in Table 2.

Table 2: Summary of applied methodology

Stage	Required input	Sources
1. Construction set of market approaches	Types of offerings	Literature on product offerings, product bundling and servitization
	Types of complement product strategies	Literature on complement product strategies, alliances and partnerships
	Suppliers of complement product	Internet search on list of suppliers of carcass decontamination or washing cabinets, general spray systems and food processing equipment
2. Selection recommended market approach	Set of constructed market approaches	
	Preferences of meat companies on market approach characteristics	Interviews with former worker of Encebe (meat processing company) and with new product engineer of VION (meat company) (In)formal meetings
3. Construction LST	New product introduction strategies	Literature on new product introduction strategies and modeling
4. Validation LST	Previous new product introductions	Questionnaire on two previous introductions
5. Apply LST	Selected market approach	
	Product characteristics	LST questionnaire
		(In)formal meetings
	Market characteristics	LST questionnaire
		Internet search on target market
		Internal documents
		(In)formal meetings
	Firm characteristics	LST questionnaire (In)formal meetings
	Importance of used input characteristics	LST questionnaire
6. Determination introduction plans for markets with LST	Results of LST	
	Market characteristics	Internet search on target market
		Internal documents
		(In)formal meetings

Five types of evidence sources have been used in the current study, namely literature research, market research, interviews, questionnaires and (in)formal meetings. The literature research is the search, analysis and application of academic literature on a given subject. The market analysis consisted of a combination of analyzing internal market documents, websites on market characteristics, such as the FAO, Euromonitor, and Mintel, and company website of the larger slaughterhouses and food processors. There have been two interviews conducted with (former) meat company employees, in which the main focus was to determine their preferences for a type of market approach. For the validation and application of the LST, questionnaires based on the LST have been filled in by the category manager of Corbions meat and culinary division. Other information has been collected through several formal and informal meetings with the category manager of the meat and culinary division of Corbion. The findings form these meetings are summarized in Appendix E. In

the literature and market research, secondary data was gathered, while the interviews, questionnaires and meetings focused on gathering primary data.

Now that the general research methodology is presented, each stage of Table 2 will be discussed individually in the following sections, starting with the construction of the market approaches.

2.2 Construction market approaches

The set of market approaches have been constructed by combining literature on product offerings, complement product strategies and market research on the types of complement product suppliers. The literature on product offerings was collected by searching Wiley, Science direct and Scopus for articles related to product offerings. Key search terms were "Product offering", "Product bundling" and "Servitization". Also, the lecture slides of the course "Service Engineering & Marketing" have been used as a source of information. From the collected literature, a selection of relevant and useful articles has been made.

When searching for literature on complement product strategies, Proquest, Sciencedirect, Wiley and Scopus have been used as database. In this, search terms such as “complement product strategy”, “complement product supplier” and “Network relationship strategies”. Also, because several complement product strategies concern partnerships, a literature search on suitable partnership options has been conducted using the same databases. In this, search terms such as “partnerships complementary product”, “Alliance complementary product” and “Partnership suppliers complementary product” have been used. This search resulted in approximately 40 relevant articles. From this set, a few articles have been selected based on relevance. This literature was then used to give an overview on different complement product strategies.

The market research on the types of suppliers of the spray systems was performed using Google as a search engine. As there was no academic overview or internal documents on these types of companies, using Google was found to be a suitable search engine. During this search, search terms such as "carcass decontamination cabinets", "carcass washing cabinets", "spray systems", "food processing equipment", "spray system supplier", "carcass decontamination", "meat decontamination spray system" and so forth were used. This resulted in a list of company website of suppliers of these systems. From these company websites, only the suppliers which were located in the European or United States market were selected. The reason for this geographical selection is that it is expected that these suppliers will have more market knowledge and access than suppliers who are located outside these markets. Next, each supplier was analyzed with respect to their location, in which geographical markets they are present, for which species they offer spray systems, whether they offer spray system for carcasses and pieces of meat and what the offered product precisely was. Finally, the suppliers were listed in groups, in which the groups were supplier of carcass decontamination systems, carcass washing systems, general spray systems or food processing systems.

Next, the types of offerings, complement product strategies and suppliers were combined into a set of three different market approaches. This was done in three steps. First, the types of offerings were reviewed, in which each of the three types were perceived to be suitable. These three offerings were next individually combined with the most suitable complement product strategy. This resulted in a set of three different offering – complement product strategy combinations. These combination

were finally individually linked with the suitable suppliers of spray system. In this final step, multiple suppliers could be suitable for each offering – complement product strategy combination. This resulted in three different combinations of offering – complement product strategy – spray system supplier(s). The detailed discussion of this process is presented in the chapter regarding the construction of the market approaches.

After the construction of the market approaches, the set of constructed market approaches is presented shortly. Also, an overview of the characteristics of these market approaches is given. These characteristics will be reviewed in the market approach selection based on the preferences of the meat companies and Corbion for them. The presented characteristics are a result of the conducted interviews. The values of these characteristics per market approach is based on personal estimations given the results from the interviews and meetings.

2.3 Selecting recommended market approach

The recommended market approach has been selected by scoring the characteristics of each approach. This scoring represents the expected preference of a meat company or Corbion for these characteristics. These expected scores are personal estimations based on the findings from the market research, interviews and meetings. Each consequence is scored on a scale containing --, -, -/+, +, ++, in which -- represents not preferred and ++ highly preferred. The market approach with the highest total score has been selected as the recommended market approach for the route-to-market for PURAC FCC.

After the selection of the recommended market approach, this market approach is discussed into more detail. The findings from the literature research, market research, interviews and meetings were combined to fine tune this market approach for the current situation.

2.4 Construction LST

The construction of the Launch Strategy Template (LST) is done in the previous literature review, but will also be discussed in this report. The methodology of this construction consists of three parts; a literature review, the construction of the set of introduction strategies and the construction of the LST . These three parts will be discussed in the following sections.

2.4.1 Literature review

When searching for literature, Proquest, Sciencedirect, Wiley and Scopus have been used as database. Using key words such as “introduction strategy”, “introduction strategy model” and “new product introductions”, several relevant articles have been found. When downloading these articles, Sciencedirect also gives suggestions for other similar articles, which resulted in more useful articles. Also, using the library catalog of the Technical University of Eindhoven, some interesting books were found. Finally, several interesting articles have been found by scrolling through the tables of contents of the Journal of Product Innovation Management of the last ten years. Also, interesting references in the acquired articles were retraced, increasing the number of articles. Finally, lecture slides of several courses were reread, and relevant references and articles were added to the list of articles. These search action resulted into an approximately 60 articles, which were categorized into three groups; ‘general success factors for product introductions’, ‘market approaches related to product

success' and 'Template design'. The most relevant articles are presented in the literature review, used in the construction of the set of new introduction strategies or in the construction of the LST.

2.4.2 Constructing the new set of introduction strategies

In the construction of the new set of introduction strategies, the academic literature from the literature review has been combined. The academic literature often links a (set of) strategic or tactical launch decisions with the product innovativeness or the product life cycle stage. Therefore, these two factors will form the base of the new set of introduction strategies. When establishing the relationships between these two aspects, it is determined that in the introduction stage of the product life cycle, the new products will be more radical innovations, while in the maturity stage, the new products will be more incremental innovations. In the growth stage, the product innovativeness will be in between. The decline stage of the product life cycle has not been included in this research, because the focus of the literature on new product introduction is mainly on the introduction, growth or maturity stage.

Because there are three product life cycle stages, differing with respect to their innovativeness, in the scope of this research, it was determined that the new set of introduction strategies will consist of three different strategies, one for each product life cycle stage. These strategies are named based on a combination of the product newness and the state of the market the new product is in. The first strategy concerns radical new products in a new market and it therefore named "Radical & New". The second strategy covers improvements of already existing products in a growing market and is thus named "Improve & Grow". The third strategy is for incremental improvements in an established market and is therefore named "Incremental & Establish ".

After the base of the three new introduction strategies was established, this base could be expanded. This has been done by determining the relationship between the strategic and tactical launch decisions in the literature with the new launch strategies and adding this to the new launch strategies. For instance, the marketing objective for each strategy differs. In the Radical & New strategy, the main focus will be to gain awareness of the product. Therefore, the marketing objective for this strategy has been set to gaining awareness for the new product. The complete set of explanations of the relationships of the strategic and tactical launch decisions with the new launch strategies will be discussed in the section concerning the construction of the new set of introduction strategies.

Some strategic launch decisions could not be combined with the new set of launch strategies due to complexity. Therefore, two independent sub-categories have been created. The first sub-category concerns the pricing strategy, which is constructed by combining the literature on pricing strategies. In the literature, there are two main pricing strategies, namely skimming and penetration. These two strategies has been used as a base, which has been extended by combining literature on the two types of strategies. Secondly, the strategic launch incentive have been determined by applying the launch strategies defined by Easingwood et al. (2006). Next, the constructed set of new product introduction strategies was used to construct the LST.

2.4.3 Constructing the LST

Before constructing the LST, the IntroScan by MarketTime (MarketTime, Unknown) was explored to use as a base model. However, several differences between the IntroScan and the desired template

were identified. First, the goal of the IntroScan is to find problem areas regarding the introduction strategy, where the goal of the current model is to determine an appropriate introduction strategy. Second, the IntroScan only asked whether or not something was the case (for instance, a survey question was “Did you do market research?”), whereas in the LST, the contents of the market research is of importance. Due to these differences, it was decided to use the literature and developed new set of introduction strategies as the basis for the LST, while keeping the structure and working of the IntroScan in mind. The LST is therefore not a modification of the IntroScan, but a completely new model. Due to this, the LST was constructed using the set of new product introduction strategies, while keeping the structure and working of the IntroScan in mind.

The relationships between the strategic and tactical decisions and new product performance have been used as a base in the development of the launch strategy template. The strategic launch decisions influence the tactical launch decisions and together, they influence new product success. Therefore, the strategic launch decisions are used as input for the LST, and the tactical launch decisions as the output of the LST. To do this, the tables covering the new set of introduction strategies were adapted to create a working LST.

The strategic launch decisions were converted into multiple choice questions. In some cases, sub question were required in order for the LST to function accurate, for instance, in the case of determining the product newness. Each answers of the multiple choice questions is related to one of the introduction strategies. For instance, if a product’s advantage is never seen before, this would result in an increase in the score for the Radical & New strategy. In the questionnaire, only one answer per question is allowed, except when indicated otherwise. In case more answers are given than allowed, the LST will give an error notification and no results or recommendations will be given.

Next, weight calculations were added to the LST, following the literature of Saaty, (2004). The motivation and calculations of these weights is discussed in the part covering the weights. For the construction of the results & recommendation section, the tactical launch decisions, pricing tactics and success measures from the constructed new set of introduction strategies were incorporated with a ‘look up’ function. In this, when it is determined which introduction strategy is most applicable, the launch tactics of this strategy are looked up and displayed.

In order to keep the design of the template clear, it was decided to hide all cells containing calculations or look up functions in the questionnaire and results & recommendation tabs. These cells can be unhidden, in which they will be shown with a grey background. Also, to prevent that the template can be edited by accident, the tabs are protected, with the exception of the input cells, which contain a blue background.

2.5 Validation of the set of introduction strategies and LST

The validation was done using two earlier product introduction of Corbion, one radical and one incremental new product. For these two products, a questionnaire on the strategic and tactical launch decisions and their weights was filled in by the marketing director meat & culinary of Corbion. This questionnaire was derived from the LST, in which the questions regarding the strategic launch decisions and their weights were the same as in the LST. The questions regarding the tactical launch decisions were constructed the same way as the strategic launch decisions questions. Based on the tactical launch decisions of Table 11

Table 11, each tactical launch decision was transformed into a multiple choice question, in which each answer was related to an introduction strategy. The constructed and filled in validation questionnaire is shown in Appendix I.

The radical new product is compared with the Radical & New introduction strategy and the incremental new product is compared with the Improve & Grow strategy. These two strategies were the recommended introduction strategies when applying the questionnaire and weights in the LST. The Incremental & Establish strategy can thus not be validated or adapted, except when a launch decision is deleted. This introduction strategy will remain part of the set of introduction strategies, with the note that it is not validated or customized. Also, this strategy will remain in the LST. However, if this strategy would be found to be most suitable, the LST will indicate that this strategy is not validated and customized for Corbion.

The validation approach of the strategic and tactical launch decisions differ, as these decisions have a different role in the LST. Figure 3 shows that the strategic launch decisions and their weights determine the suitable introduction strategy. Given this introduction strategy, the tactical launch decisions are presented by the LST. This figure also shows that only the strategic and tactical launch decisions are validated. The relationship between the strategic and tactical launch decisions will also be taken into account when validating the tactical launch decisions. The usage of the weights is not validated. However, as the weight of the strategic launch decisions are different to each other and are different between radical or incremental new product, it is assumed that the weights are relevant for the LST. Also, the applied method for the determination of the suitable introduction strategy is not validated, due to lack of a proper validation method. Then, the set of constructed introduction strategies are not validated with respect to whether they are complete and whether other introduction strategies should be included.

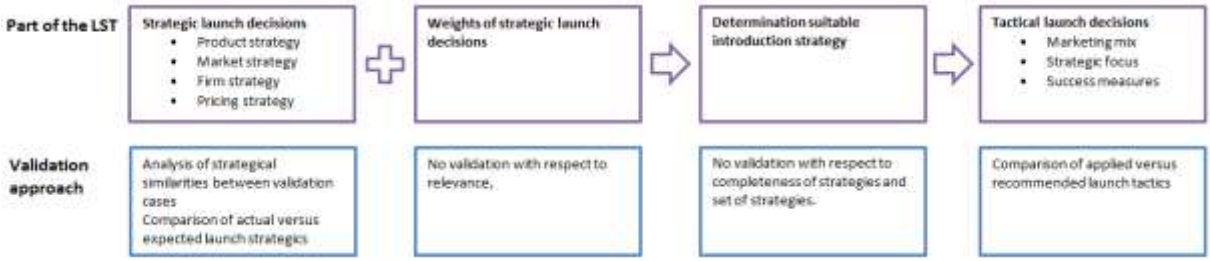

Figure 3: Validation approach

2.5.1 Validation strategic launch decisions

The strategic launch decisions from the selection criteria for the suitability of the introduction strategies. Given the answers of the validations questionnaires, the actual strategic launch decisions of the radical new product have been compared to the actual strategic launch decisions of the incremental new product, as shown in Figure 4. Also, the actual strategic launch decisions have been compared with the expected strategic launch decisions of the corresponding introduction strategy.

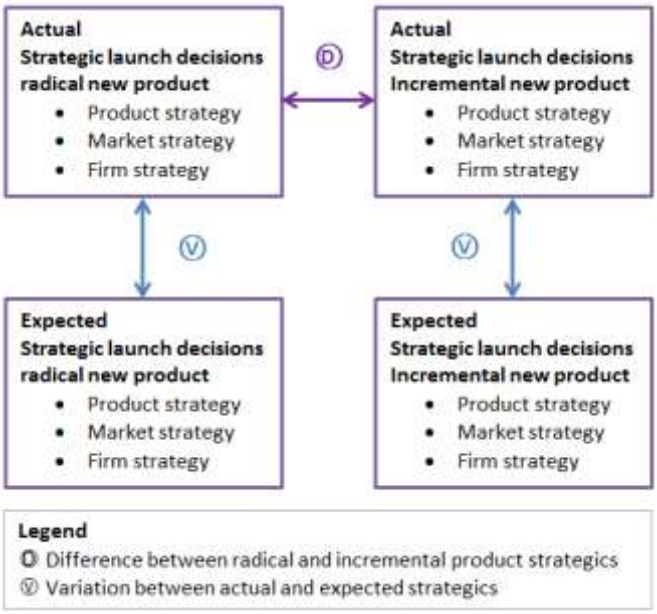

Figure 4: Strategic launch decision validation methodology

In these comparisons, two types of validation issues were observed, similarities between the applied strategic launch decisions for both validation cases and differences between the actual an expected value of a strategic launch decision given the product innovativeness. Having similarities between the actual strategic launch decisions indicated that this strategic launch decision is not relevant for the selection of an introduction strategy. When determining the suitable introduction strategy, the differences between these strategies are used as selection criteria. If a strategic launch decisions is equal between strategies, it can thus not be used as a selection criteria. For instance, if the product compatibility of both the radical and incremental case is medium, then this launch decision cannot be applied in the selection of an introduction strategy, as the score for both strategies is equal. If there is a differences between the actual and expected values of the strategic launch decisions, there is a variation between what Corbion perceives to be a selection criteria and what the literature indicates as a selection criteria. Both types of validation issues have been further investigated. Based on this examination, the original constructed set of introduction strategies and the LST have been adapted and customized for Corbion.

2.5.2 Validation tactical launch decisions

The introduction tactics are the output of the LST and can thus be validated by comparing the applied introduction tactics with the recommended tactics, as shown in Figure 5. The main focus of this validation was to compare the applied launch tactics with the recommended tactics. Tactical difference were also compared between the two validation cases. This variation gave insights whether launch tactics were always or never applied. The differences and variations have been further asses and the original set of constructed strategies and the LST have been altered if needed.

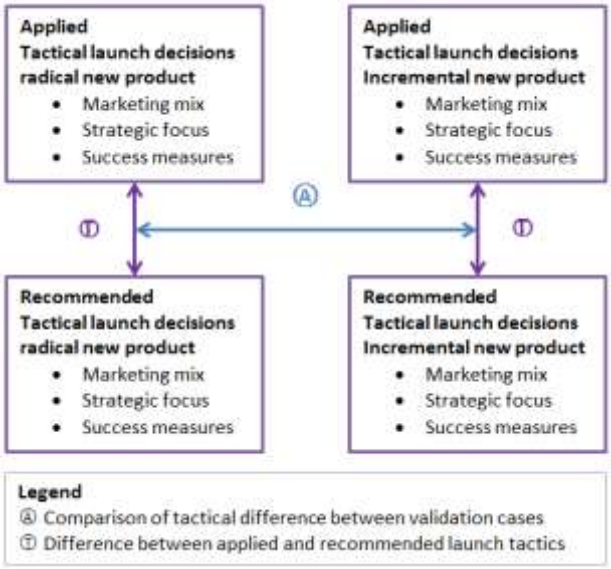

Figure 5: Tactical launch decision validation methodology

2.6 Applying the LST for PURAC FCC

Of the customized LST, the questionnaire and weights were filled in for the offering as defined in the market approach. The filling in of the LST questionnaire and weights were first performed by the category manager of the meat and culinary division of Corbion. Next, the answers of the questionnaire were reviewed with keeping the main findings of the market research and meetings in mind. The weights have not been further analyzed, as these could not be reviewed.

The LST presented the scorings for each introduction strategy and selects the most suitable introduction strategy based on the highest scoring. Of this strategy, the introduction tactics are automatically recommended by the LST. These introduction tactics have been used to construct the introduction plans for PURAC FCC.

2.7 Introduction plan for PURAC FCC

The introduction plan of PURAC FCC has been established by making the recommendations of the LST more specific for Corbion and the target markets. By combining the recommendation with the findings from the market research, interviews and meetings, a complete introduction plan for the EU and US market has been constructed. Due to similarities between these markets, a part of the introduction plan is the same for both markets and thus presented combined for both markets. If differences between the markets require a differentiation between the introduction plans, these markets are presented separately.

2.8 Conclusion

The methodology of the current research has been presented in this chapter. First, the general research of methodology is given, in which is explained that this study is a normative case study following the problem definition, analysis and diagnosis and plan of action phase of the regulative cycle. Next, the methodology of each chapter is presented, in which the summarized methodology of Table 2 is discussed into detail per chapter.

Now the methodology of this research is given, the constructed route-to-market will be presented in the following chapters. Each chapter represents a stage of Table 1. First, the market approach will be determined.

3 Construction of the market approaches

The construction of the market approach is the first phase of the determination of the route-to-market of Table 1 and it is the first step defining of the suitable market approach. The market approach consist of the offer to the customer, how to manage the complement product and with whom to offer this. This chapter will combine these three aspects into three applicable market approaches for the current case. First, suitable types of offerings, complement product strategies and spray system suppliers are combined. This set of offer, CPS and spray system supplier combinations form the base for the set of constructed market approaches. These market approaches will be presented secondly in this chapter.

3.1 Combining the individual aspects of the market approaches

The individual aspects of the market approaches focus on what to offer, through which strategy and with which partner (if applicable). The suitability of these individual aspects are dependent with each other. For instance, when offering a stand-alone product, the CPS should be to do nothing and no supplier would be involved. Therefore, these aspects have been combined using a stepwise approach. First, suitable types of offers will be presented. Next, these offers will be combined with an appropriate complement product strategy CPS. Then, the combinations of offer and CPS will be linked to suitable spray system suppliers.

3.1.1 Suitable types of offering

PURAC FCC can be offered as a stand-alone product, a product bundle with a spray system or part of a total service package. These three types of offering will be reviewed with respect to their suitability in the following sections.

First, PURAC FCC can be offered as a stand-alone product. In this option, the responsibility of integrating the product in the production process with other products is held by the customer, in this case the meat company. This option is low in complexity, but also creates no control over the availability of a complementary product. As there are several suppliers of spray systems, this does not have to be a problem. It also does not offer an extra benefit to the customer, resulting in a lower competitive positioning for Corbion. Finally, it leads to low costs, as no transaction costs are made. The market research in Appendix B showed that meat companies are very cost conscience. So offering a stand-alone product is considered to be a suitable option for PURAC FCC.

The second option is to offer PURAC FCC in a product bundle with a spray system. In this case, instead of the customer procuring the primary and complementary product separately, the two products can be procured together. This bundling can be applied within a company, or between companies. In the latter, coordination between the companies will be necessary. By applying a bundling strategy, a firm can differentiate oneself by offering the customer the convenience of buying multiple compatible products at once. Also, the availability of the spray system and the compatibility of PURAC FCC with this spray system can be ensured. Because the meat companies are very cost conscience, it is advised to pre-finance the spray system and let the meat company pay it back in a certain amount of time. Therefore, a contract should be used. This will also result into a 'lock-in' of the meat company for the duration of the contract. This will create a certainty for Corbion with respect to their customers. Also, there are few companies who offer this kind of bundle.

Therefore, Corbion can differentiate oneself from the competition by applying this strategy. Therefore, this option is considered to be suitable for PURAC FCC.

Finally, PURAC FCC can be offered as part of a service package. When offering a service, mutual value can be created by selling product-service systems. Offering a service is driven by increasing complex customer needs and is often applied in high capital industries (Baines, Lightfoot, Benedettini, & Kay, 2009). Offering a service instead of a product has several advantages. When procuring a service, the customer can focus on their core competences while no initial investment is required, as a service is paid for through a service contract. Financially, a service generates a continuous, stable revenue throughout the product life cycle and the margins of a service are higher than the margins of a product. Strategically, a service is less visible, more labor intensive and difficult to imitate, leading to a sustainable competitive advantage. Finally, a service will generate a higher level of trust and loyalty (Wouters & Schepers, 2012). When offering a service, the core business of the company should be service oriented. If the firm is currently product oriented, switching to offering a service will require a strategic shift, resulting in high investments and high degree of risk, especially when entering an unknown market. Offering PURAC FCC as a service would requires no initial investment but distributes the costs over a certain time period instead, leading to less risk and margin pressure for the meat processor. Because the core business fit of Corbion with a spray system is very low, offering PURAC FCC as a service solution is not a suitable solution. If meat companies prefer a service over a product, PURAC FCC could be offered to the service providers of the meat companies. In this case, Corbion would not deliver the complete service, but would be a part of the service provision. As the market research indicated that a service would be preferred due to the spreading of costs, this option is further taken into consideration.

Concluding, PURAC FCC can be offered as a stand-alone product, a product bundle or as part of a service. These three options will be combined with a suitable complement product strategy in the next section.

3.1.2 Types of complement product strategy

From the literature, several complement product strategies (CPS) can be identified. These CPSs can be grouped into four categories: do nothing, buy the complementary product and resell it, collaborate with a company selling the complementary product, or make the complementary product yourself (Sengupta, 1998). These CPSs differ with respect to degree of control and resource commitment, which is low for doing nothing, medium for reselling, high for collaborating and very high for in-house production. The three suitable types of offerings will be combined with one of these four types of CPSs in the remainder of this section.

When offering PURAC FCC as a stand-alone product, the only suitable CPS is separate selling, as this is the only CPS in which there is no coordination between the primary and complementary product. This combination results in no transactions costs, leading to low costs. Due to the high importance of costs in the meat industry, as shown in the market analysis of Appendix B, this combination of stand-alone product and separate selling is therefore a suitable combination.

When offering PURAC FCC in a product bundle, the most suitable CPS would be to collaborate with suppliers of a spray system. In this strategy, resources are shared between companies in the development and marketing of the complementary product. Costs and risks are also shared in order

to attain know-how on technical and marketing aspects they individually lack (Sengupta, 1998). This strategy would lead to an increase in the control over the availability and compatibility of the spray system, while costs will not increase to a high extend. Also, one can profit from the spray system supplier's reputation and market knowledge. Therefore, the combination of product bundling and collaborating is viewed as suitable.

When offering PURAC FCC as part of a service, the buy-resell CPS would be best-fitting. Corbion cannot offer PURAC FCC as a service by themselves, as the core business fit of Corbion with a service is too low. In the proposed OEM-buy strategy, PURAC FCC will be sold to a service provider, who will combine it with a suitable spray system. In this strategy, the service provider will be a party between Corbion and the meat company, and thus will the success of PURAC FCC also depend on the service provider.

Based on the above, the suitable offering and CPS combinations are: stand-alone product using separate selling, product bundling through collaborating, and service through an OEM-buy. These three combinations will be combined with the suitable types of suppliers in the next section.

3.1.3 Types of suppliers

The overview of the types of complement product suppliers of Appendix D shows that there are five types of suppliers: those supplying carcass decontamination cabinets, carcass washing cabinets, general spray systems, processing equipment and total plant hygienic services. The suitability of these types of supplier will be assessed for the three combinations of offer and CPS in this section.

When offering PURAC FCC as a stand-alone product, there is no coordination with suppliers of spray systems. Therefore, in this strategy, there are no suppliers to take into consideration.

When offering PURAC FCC in a product bundle through a collaboration, the suitability of the types of suppliers depend on whether the supplier already offer the spray systems or the easiness to which the spray system can be adjusted into being compatible with PURAC FCC. As the spray system supplier are specialized in delivering the most suitable spray equipment, it is expected that all types of suppliers are suitable with respect to this criteria. However, this is expected and thus not certain. This should therefore be considered when suppliers are selected. The second consideration is whether Corbion wants to bundle the product with one or more suppliers. The advantage of bundling a product with multiple suppliers is the usage of multiple distribution channels and thus more exposure for PURAC FCC. If product bundling is to be applied with only one supplier, then only the suppliers of general spray systems are suitable, as only these suppliers are present in both markets. However, the product bundling strategy can be easily applied with multiple suppliers, as there is a relatively low number of spray system supplier. Therefore, it is recommended to collaborate with multiple suppliers through loose partnerships. Finally, a provider of total plant hygienic services is not considered to be a suitable supplier to partner up with, because they already offer different kind of a decontamination sprays and will thus probably not refer to another company supplying such a spray.

In the case of the OEM-buy combination, only the supplier of total plant hygienic services are considered to be suitable. In this case, PURAC FCC would be offered as a part of a service package by the service provider. The other types of supplier are product oriented and are therefore not expected to be interested in buying and reselling PURAC FCC as part of their offering.

In summary, when combining the individual market approach aspects, three combinations are perceived to be suitable: stand-alone product using separate selling, product bundling through collaborating with multiple spray system suppliers, and service through an OEM-buy with a supplier of total plant hygienic solutions.

3.2 Set of constructed market approaches

The combination of the individual aspects of the market approach resulted in three suitable combinations. These combinations have been further developed into market approaches. The first market approach applies a separate selling strategy, in which PURAC FCC is offered as a stand-alone product. The second market approach is offering PURAC FCC in a bundle with a spray system through a partnership with the supplier of a spray system. The third market approaches offers a service to the slaughterhouse or food processor through selling PURAC FCC to the providers of these services, creating an OEM-buy situation. These market approaches will be further presented in the next section.

3.2.1 Separate selling

The null scenario covers the basic market approach is which the complementary product is not taken into account by Corbion. Instead, PURAC FCC and the spray system would be sold separately, in which there no coordination between the two products (Figure 6). This market approach will lead to the lowest price with respect to the spray solution, as there will be no extra costs such as transaction costs.

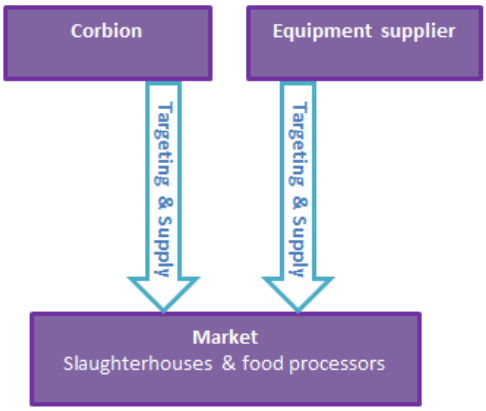

Figure 6: Separate selling

This market approach is suitable when the main decision driver of the market for buying something is the product price, regardless of the level of service. This market approach is also preferred when supplier contracts are of short term and the market does not demand a high degree of service. Instead, the product should be offered at a low price with steady quality and constant delivery (Weele, 2008).

3.2.2 Product bundling with a spray system supplier

In this market approach PURAC FCC is offered in combination with a spray system through collaborations with several spray system suppliers. These suppliers can be a supplier of carcass decontamination cabinets, carcass washing installations, spray systems or food processing systems. In this market approach, it is not advised to offer the bundle with only one supplier, as the interview

of Appendix F indicated that food processors select suppliers also based on whether they already have equipment from them. So, it is recommended to establish loose partnerships with these preferred suppliers.

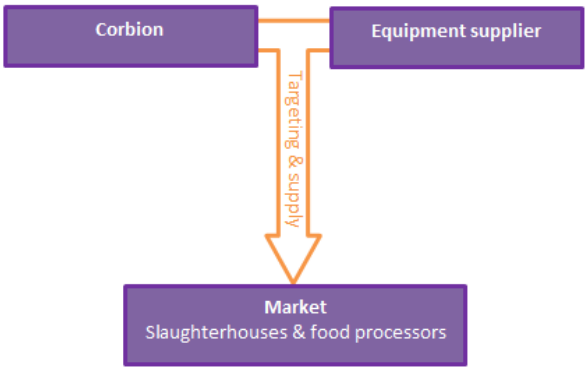

Figure 7: The alliance market approach

In this market approach, the spray system will be pre-financed and paid back over a period of time. The interview on the preferences of the meat companies in Appendix F showed that when contracts are used, the length of these contracts is maximal two years. Therefore, the spray system should be paid back within two years. The price of the product bundle should therefore include the price of PURAC FCC, the spray system and the transactions cost. Also, the meat company should be billed on a weekly or monthly basis. This market approach will allow the slaughterhouse or food processor to use lactic acid for meat decontamination at a low cost, as there is no initial investment in a spray system required. This reduces the risk of adoption for the meat company. After the spray system is repaid by the meat company, and thus property of this company, the product bundling will no longer be required. PURAC FCC can then be bought directly from Corbion.

3.2.3 OEM buy with an system integrator

The third proposed market approach is to create an OEM buy partnership with an system integrator, thus a service providers for complete solutions for the hygienic management of a plant. In this market approach, Corbion supplies the service provider with the decontamination product, and the service provider uses this in their offering to the slaughterhouse or food processor. Besides the interaction between Corbion and the service provider, it is advised for Corbion to apply targeted communication to the market of slaughterhouses or food processors in order to create awareness for the product in the market. This targeted communication will create a demand for the product from the market to the service provider. By applying this mix of a push and pull targeting strategy, the chances for the adoption of PURAC FCC is improved.

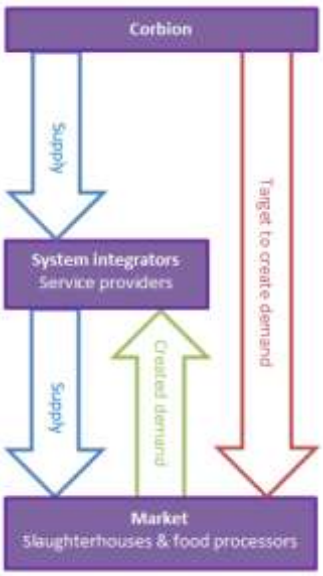

Figure 8: The OEM market approach

3.2.4 Market approach characteristics

The three constructed market approaches differ with respect to several characteristics, of which an overview is given in Table 3. The interviews and meetings, Appendix E to Appendix G., indicated that these characteristics were the main selection criteria for a meat company for adopting a new technology or were the preferred outcomes for Corbion.

The characteristics are grouped based on their consequence for the meat companies and for Corbion, because these characteristics will be reviewed based on the preferences for these consequences for the meat company and Corbion in the next chapter. The meat company selection criteria are a result from the interviews (Appendix F and Appendix G), and the preferred outcomes are a result from the (in)formal meetings (Appendix E).

Table 3: Characteristics of market approaches

	Separate selling	Product bundling	OEM buy
Meat company selection criteria			
Added value market approach to meat company	Lowest cost	Convenience of bundle of products with pre-financing	Service / total solution by one supplier
Service level	Low	Low	High
Initial investment in spray system	High	Low	Low
Pre-financing of spray system	No	Yes	Yes
Transactions costs	Low	High	Medium
Preferred outcomes Corbion			
Close relationship with meat company	Yes	Yes	No
Lock-in of meat company	Low	High	Low
Ensured proper application method	No	Yes	Yes

*** Expected, as this is determined by the service provider, not Corbion.**

The characteristics are not further discussed in this section, as these will be presented and reviewed in the next chapter. Also, it should be noted that the characteristics for the meat companies of the OEM buy market approach are determined by the service supplier, not Corbion.

3.3 Conclusion

This chapter presented the construction of a set of three market approaches which could be a suitable market approach for the route-to-market for PURAC FCC and the complementary spray system. Suitable options for the individual aspects of the market approaches have been combined in three steps. First, three suitable types of offerings have been identified. Next, these offering were combined with an appropriate complement product strategy. Third, the three offering and CPS combinations have been linked with suitable spray system suppliers. This resulted in three market approach combinations: stand-alone product using separate selling, product bundling through collaborating with multiple spray system suppliers, and service through an OEM-buy with a supplier of total plant hygienic solutions. These market approaches have been translated into the separate selling, product bundling and OEM buy market approaches, which have presented into more detail, including an overview of different characteristics of these approaches.

4 Selection of market approach

The selection of the recommended market approach is the second phase of the determination of the route-to-market of Table 1 and it is the second step defining of the suitable market approach. From the set constructed market approaches of the previous chapter, the recommended market approach for the current situation will be selected in this chapter. First, the suitability of the characteristics of the market approaches are reviewed and scored using findings from the market research, interviews and meeting. The market approach with the highest scoring will be selected as the most suitable and will be further presented.

4.1 Scorings on of market approach characteristics

The characteristics of the market approaches for the meat companies and Corbion have been scored using the following scale: --, -, -/+, +, ++, in which -- is not preferred and ++ is highly preferred. The scorings of all consequences is given in Table 4. The explanation of these scores will be presented in the remainder of this section.

Table 4: Scoring of market approach consequences for the meat companies and for Corbion.

	Separate selling	Product bundling	OEM buy
Meat company selection criteria			
Added value for meat company	++	+	+
Service level	-/+	-/+	++
Initial investment in spray system	--	++	++
Pre-financing of spray system	--	++	++
Transactions costs	++	--	--
Preferred outcomes Corbion			
Close relationship with meat company	++	++	--
Lock-in of meat company	--	++	--
Ensuring proper application method	--	++	++

4.1.1 Added value

The added value to the meat company covers the added value of the offered market approach besides the added value of the usage of PURAC FCC. For instance, the added value of the separate selling market approach for the meat company is that this market approach will result in the lowest total costs. A main finding from the market research and interviews was that meat companies are very cost conscience. Therefore, the separate selling market approaches will be highly preferred for resulting in the lowest costs. The other two market approaches offer convenience in combination with pre-financing of the spray system, but are slightly more expensive. These market approaches are therefore expected to be preferred, but less than the separate selling strategy.

4.1.2 Service level

The service level represents the added service delivered with the offering. In the interviews, it was stated that the service of capital intensive goods are performed by the suppliers of these goods or by the meat companies themselves. With respect to raw material, there is often no service required. The OEM buy market approach delivers such a high degree of service, as this is the core value of this proposition. This will be highly preferred by the meat companies. In the other market approaches, the added service is very low. When needed, service on the spray system will be performed by the spray system supplier or by the meat company itself. This is the same as the current service provision of the meat companies, according to the interviews, so the low degree of service does not have to be an issue.

4.1.3 Initial investment

The initial investment for the spray system indicates whether the meat company has to invest in a spray system when procuring such a system. The market research, interviews and meetings indicated the high importance of costs and the preference of meat companies to divide these costs over a certain time. Therefore, the separate selling market approach scores very low on this aspect, while the other two market approaches score high.

4.1.4 Pre-financing

The pre-financing of the spray system, in which the supplier of the spray system will allow the meat company to pay back the system in parts during a given period, is in line with the initial investment of the spray system. If no initial investment is required, the spray system will pre-financed by the supplier of this system. The market research, interviews and meetings showed that meat companies prefer the option of pre-financing, because this prevents high costs at one moment in time. Therefore, the separate selling market approach scores low on this aspect, and the other two market approach score high.

4.1.5 Transaction costs

The transaction costs represent the costs due to the communication and coordination between Corbion and the spray system supplier, which will be included in the price of PURAC FCC. The separate selling market approach does not result in these costs, leading to a high preference for this market approach on this aspect. The product bundling will have the highest transaction costs, due to the multiple spray system supplier. However, although the costs are relatively high, it is expected that these costs will be low with respect to the product costs, as a product bundling strategy is a loose type of partnership in this case. Still, with respect to this aspects, the product bundling market approach will be less preferred. The OEM buy will have medium transaction costs due to some coordination between the service supplier and Corbion.

4.1.6 Close relationship customer

For Corbion, a close relationship with the customer was preferred, as stated in Appendix E. Therefore, selling direct to the meat company is preferred over selling via an extra party. Therefore, the OEM buy market approach scores low on this aspect, while the other two market approach have a higher score.

4.1.7 Lock-in customer

The interviews and meetings also indicated a preference of locking in the meat company by Corbion to prevent easily switching. This lock-in in only obtained through the product bundling market approach, because the meat company cannot switch between supplier as long as the spray system is not paid back for. In the OEM buy market approach, the meat company cannot easily switch between service providers, but the service providers can easily switch between lactic acid suppliers. Therefore, the customer lock-in is low in this market approach. The customer lock-in is also low for the separate selling market approach, as the meat companies are not prevented to switch.

4.1.8 Ensure proper application method

Finally, ensuring the proper application method for PURAC FCC is of importance, as the the interviews and meetings indicated the importance of convincing the meat company that the financial benefits of the combination of PURAC FCC with a spray system are worth the investment in this spray system. In the separate selling market approach, the meat companies can decide for themselves which application method (through a washing machine of a spray machine) to use. Because most meat companies already own a washing machine, they will prefer this application option. However, the option leads to very high costs for proper meat decontamination (€ 0,64 per carcass). Therefore, meat companies will be inclined to reject lactic acid for meat decontamination! Offering PURAC FCC in combination with the proper system eliminates this problem and is therefore highly preferred by Corbion. In the case of the OEM buy market approach, this responsibility is held by the service provider, and it is assumed that this party will know the proper application methods.

Given the scores of the market approach characteristics, it can clearly be seen that the product bundling approach has the highest score. Thus, this market approach is selected as the most suitable from the three market approaches. The main advantage of this approach over the other approaches is that it is financially preferred by the meat company due to pre-financing of the spray system, and it is preferred by Corbion due to the customer lock-in, close customer relationship and the proper application method is ensured. This market approach will be further configured and explained for Corbion and PURAC FCC.

4.2 Recommended market approach

The previous section showed that offering PURAC FCC in combination with a spray system as a bundle would be the most suitable market approach of the route-to-market. In this, several loose partnerships with spray system supplier will be formed. The price of the spray system will be combined with the price of the lactic acid and will be paid back for by the meat company in two years. After this time, the machine will be property of the meat company and the meat company can then buy PURAC FCC separately. In the following section, this market approach will be further configured for the current case. This presentation will include the number of suppliers, types of partnerships, suitable suppliers per market, critical conditions for supplier selection, pre-financing and other aspects.

4.2.1 Multiple suppliers

PURAC FCC should be bundled with spray systems from several suppliers. Firstly, this is recommended because meat companies often have a preferred supplier, and will thus not easily buy their equipment at another supplier. Secondly, because meat companies have these preferred

suppliers, partnering up with these suppliers will ease the market access. Thirdly, by partnering up with multiple suppliers, Corbion can 'lock out' lactic acid competitors from collaborating with these suppliers. Partnering up with multiple suppliers is suitable in this case, as there is only a small set of suppliers.

4.2.2 Type of partnerships

Because PURAC FCC should be offered as a bundle using multiple suppliers, it is essential that these partnerships are relatively loose in order to keep transaction costs low. As there is no need for co-development, the required degree of control is relatively low and both companies are already established, a formal agreement between the two parties should be sufficient. With the formal contract, the partnership can be coordinated, while keeping transaction costs low. In this partnership, it is further recommended to co-market the product bundle. This will be further discussed in the introduction plans.

4.2.3 Critical conditions supplier selection

There are two critical conditions for the suitability of the spray system supplier. First, the supplier has to be already present in the meat processing market, as meat companies often have a preferred supplier. Secondly, the spray system should be suitable for the usage of PURAC FCC for carcass or pieces of meat decontamination or should be adapted by the spray system supplier to be suitable. For instance, if a spray system consists of a type of material that cannot withstand lactic acid, than this spray system will be deteriorated within few months. In this case, the spray system should be made from another material, or is not suitable for lactic acid application.

4.2.4 Suitable suppliers

Both markets differ with respect to the type of meat companies and thus also with respect to the market players, resulting is different suitable partners bundle the products with. Therefore, the suitable partners per market will be separately discussed.

4.2.4.1 European market for carcass decontamination

For the EU market, the product bundling market approach would require to bundle the lactic acid with a supplier of carcass decontamination cabinets, carcass washing cabinets or a general spray equipment supplier. These supplier are already present in the (beef) slaughtering market and their decontamination cabinets (especially the washing cabinets) should be made suitable for using PURAC FCC.

4.2.4.2 United States market for pieces of meat decontamination

For the US market, bundling with a supplier would be suitable if this supplier can offer a spray system or meat processing equipment. Again, only these type of suppliers are suitable because they are already present in the meat processing market.

4.2.5 Core businesses

When offering PURAC FCC in combination with a spray system, it is essential that both parties focus on their core business. Of course, clear communication regarding requirements for matching products is essential, but Corbion should not invest time and resources in making sure the spray equipment is suitable for applying PURAC FCC, as this is the task of the spray system supplier. Likewise, the spray system supplier should not invest time in adapting PURAC FCC, as this is Corbion's

responsibility. Therefore, defining the responsibilities of both parties beforehand is strongly recommended.

4.2.6 Maintenance and service of the spray system

In line with this notion of not mixing the core businesses, it that the spray system supplier should be responsible for maintenance service of the spray system. Also, in case of defects, the spray system supplier should be responsible to act on this.

4.2.7 Pre-financing

In this market approach, the spray systems is pre-financed and paid back for in 2 years. This pre-financing results is extra costs, in the form of interest. This interest will have to be included in the price of the spray system. Also, the construction of how pre-financing the spray system should be defined when partnering up. There are several constructions possible for the pre-financing of the spray systems, like pre-financing by both parties or by one party, Corbion or the other supplier. When both parties are involved in the pre-financing, the financial risk is shared. However, the spray system is not part of the core business or responsibilities of Corbion, so including Corbion in the pre-financing is questionable. On the other hand, as this construction aids Corbion in selling their product, is can be considered fair that they should share a piece of the risk. This consideration will have to be sorted together with the other supplier.

4.2.8 Time

With respect to the time element of the offering, to time periods can be distinguished. The first two years, the two products will be offered to a meat company. During these years, the meat company will pay a fixed price per month for the spray system, on top of the costs for the lactic acid. After these initial two years, the spray system will become property of the meat company. Now, the meat company will only have demand for the lactic acid. Although meat companies often use preferred suppliers, they are also very cost conscience. As a result, they often compare several suppliers with respect to what they offer and at which price. If switching costs are low, which is the case in this situation, they will choose the cheapest supplier. Therefore, Corbion should set the price PURAC FCC at a competitive price.

4.3 Conclusion

In this chapter, the constructed set of market approaches for route-to-market have been scored on several characteristics such as added value, service level, initial investment, pre-financing and customer relationship and lock-in. This scoring resulted in the highest score for the product bundling market approach, which was thus selected as the recommended market approach for PURAC FCC. This recommended market approach has been further elaborated with respect to types of partnership and suppliers, crucial conditions for partner selection, pre-financing and timing.

The recommended market approach forms the first part of the route-to-market of PURAC FCC. Now that the dependency of PURAC FCC on the complementary product is managed through this product bundling market approach, an introduction strategy for the product bundle can be defined. For this definition of the introduction strategy, first the template for the selection of the appropriate introduction strategy will be constructed. After this construction, this template will be validated and applied for the current offer, resulting in the introduction strategies. The next chapter will therefore present the construction of the template.

5 Template construction

The construction of the launch strategy template is the third phase of the determination of the route-to-market of Table 1 and it is the first step defining of the suitable introduction plan. For the construction of the LST, the academic literature on new product introduction strategies and their relationship with new product success is combined into a set of three general introduction strategies, namely the New & Radical, Improve & Grow and Incremental & Establish strategy. Each strategy differs with respect to the strategic and tactical launch decisions and is therefore suitable in different situations. The introduction strategies have been used to generate a template, named the "Launch Strategy Template" (LST), in which it can be determined what the most suitable introduction strategy is, given the strategic introduction aspects. The constructed Launch Strategy Template, which is given in the corresponding Excel file "The Launch Strategy Template", is presented with respect to its content and design. In the following sections, the importance of a proper introduction strategy is explained, after which the conceptual framework of the set of launch strategies is presented. Next, the constructed set of introduction strategies is discussed. Finally, the LST is presented and its working is explained.

5.1 Conceptual framework

A new product introduction, or launch, is defined as a combination of decisions and activities necessary to present a product to its target market and start generating sales of this new product (Hultink et al., 1997). It consists of two types of launch decisions, strategic and tactical. The strategic decision concern the decision made in the earlier stages of the new product development process and are costly to change in later stages. These decisions focus on the *what, where, when* and *why* of the product to be introduced. The strategic launch variables can be divided into three groups describing the product, market and overall firm strategy (Hultink, Griffin, Robben, & Hart, 1998), in which the product strategy consist of product related decisions, such as product newness and advantage, the market strategy consist of market related decisions, such as market stage and growth, and the firm strategy consist of introduction decisions with respect to the firm, such as the introduction objective and innovation strategy.

The tactical decisions are decided upon later in the product development process, and are less costly to change in later stages. They concern the marketing mix elements, which can be divided into four groups: product, price, promotion and distribution. The strategic decisions influence the tactical decisions and together, they influence new product success.

New product success is the extent to which the new product performance is perceived to meet previously set performance goals. This product performance can be grouped into various dimensions, for instance overall performance, performance with respect to the customer, financial performance and technical performance. The strategic decisions influence the tactical decisions, and both types of decisions influence product performance (Hultink et al., 1998). Figure 9 illustrates these relationships between the strategic and tactical launch decisions and the product performance.

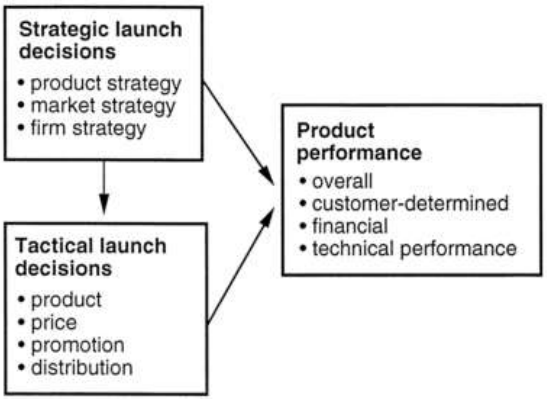

Figure 9: The relationship of launch decisions and product performance (Source: Hultink et al., 1998)

5.2 Configurations related to successful new product launches

Although several authors stress that an introduction strategy is of importance for the success of a new product, there is little literature available giving a comprehensive overview of new product launches strategies and their relationship with new product success. This is partly due to the fact that the research regarding launch strategies is scattered and partly due to the fact that the launch strategy is often only a part of the aspects under examination (Easingwood et al., 2006). Still, there are a few articles with an extended set of launch strategies. Also, there are several articles available giving insights on partial configurations of launch strategies. In the next sections, first the holistic launch configurations used in this report will be discussed, followed by the used partial configurations.

5.2.1 Holistic configurations

An overview of the strategic and tactical decisions regarding new product introductions and their impact on new product performance is presented by Hultink et al., (1998). By combining several linked strategic and tactical launch decisions, three general launch strategies, frequently used by managers, are presented: Innovative new products, Offensive improvements and Defensive additions, which are shown in Table 5 with respect to their strategic and tactical launch decisions and their overall success ratio.

Table 5: Typology of launch strategies and their performance (Source: Hultink et al, 1998)

Launch decisions	Innovative new products	Offensive improvements	Defensive additions
Strategic			
Innovativeness	More innovative	More innovative	Equally/less innovative
Newness	Completely new	Improvements	Additions to line
PLC stage	Introduction stage	Maturity stage	Growth/Maturity stage
Number of competitors		0	> 4
NPD driver	Technology driven	Mix market/technology	Mainly market
Objectives	Foothold in new market	Barriers for competition	Expanding product range Barriers for competition Increase penetration Lower costs possible Capitalize on existing market
Tactical			
Branding	New brand		Brand extensions
Product assortment	Broader	Broader	Equal/Smaller
Distribution channels	New	Current	Both new and current
Distribution expenditures	Less	More	Same
Price level	Higher	Higher	Equal/Lower
Pricing strategy	Skimming	Skimming	Penetration/Other
Communication channels		Customer promotion TV advertising	Customer promotion Salesforce promotion
Overall success ratio*	55.7%	71,5%	52,7%

* significant at p < 0,0001

For the high-tech market, a set of five different launch strategies are distinguished with respect to market preparation, targeting & positioning and launch execution by Easingwood et al., (2006). These five strategies are presented in Table 6. However, it should be noted that these five strategies are more concerned with the strategic orientation of a product launch, rather than focused on the product characteristics.

Table 6: Launch strategies and their marketing tactics (Source: Easingwood et al., 2006)

Launch strategy	Description	Objective	Marketing tactics
Alliances	Working close with other players	Launching product with complementary technology	Form strategic alliances Create unique distribution channels Focus on channel partners Exploit tactical alliances Use reference sites
Targeted low risk	Lower the customer's perceived risk of adoption	Reduce risk of adoption	Emphasize low risk Offer different versions targeted at different buyers Use opinion leaders Have trial programs Cultivate a winner image
Low-Price/OEM	Focus on a low price and on supplying OEM's	Attractive price-to-performance ratio	Supply to OEMs to incorporate in other products Create unique distribution channels Target high-value users Emphasize low price
Broad-Based Market Preparation	Emphasize early-stage tactics of market preparation	Generate a broad market	Supply to OEMs to incorporate in other products Provide clear product information to the market Educate the market to understand new uses
Niche Technological Superiority	Focus on the superior technological advantage, aimed a well-defined niches	Develop superior product for targeted niche	Emphasize technology superiority Concentrate on niches

Guiltinan (1999) presents an overview of how launch tactics influence demand outcomes (shown in Table 7). Although this overview does not present a set of concrete launch strategies, it does give a comprehensive overview of the effect of launch tactics, from which one can determine when to apply which launch tactic.

Table 7: Influence of launch tactics on demand outcomes (Source:. Crawford, 1987; Guiltinan, 1999)

Tactic	Effective for
Promotion	
Advertising	Stimulate awareness/knowledge
Coupons	Reinforce awareness (especial when relative advantage is low)
Publicity	New and controversial products with high perceived risk
Sampling	Learn product advantage via usage Improve word of mouth Target opinion leaders
Reference test site	Stimulate "sampling" experience Reference for potential buyers
Sales & distribution	
Shows and demonstrations	Clarify relative product advantage Decrease uncertainty about usage or performance
Technical support	Reduce incompatibility in usage process Support customization
Distribution structure	Existing channels: leverage customer familiarity New channels: reach new target markets Indirect channels: support assortment and availability Direct channels: support detailed selling etc, when relative advantage is high
Intensity of coverage	Reduce risk of usage with use of high availability and service
Distribution Incentives	Stimulate availability with high margins for low newness products Stimulate selling effort with price incentives
Pricing	
Introductory pricing	Skimming: in case of high relative advantage and compatibility Penetration: encouraging early adopters and speed of adoption
Price administration	Reduce risk when relative advantages are low Enhance compatibility
Product	
Assortment breadth	Introduce new categories if relative advantage is high Facilitate customization
Branding	Facilitate positive associations Enhance compatibility Gain trade acceptance Enhance trail of low risk products Dual branding or new brands in case of product has much more quality level
Timing	
Product deletion	Faster deletion in case of high margins and strong relative advantage Slow deletion in case of high switching costs
Pre-announcing	Help establish reputation in case of high relative advantage Builds acceptance, allow more time to learn about technology

In the research of Hultink & Schoormans (1995), a launch strategy consists of four attributes: pricing strategy, product assortment strategy, promotion strategy and competitive advantage. An overview of which attribute to use in certain circumstances is given in Table 8. However, one question arising from this research, is why the marketing tactics of place or distribution are not discussed in this article. From other research, it was found that distribution has a large effect of new product performance (Ataman 2008), so one would expect this attribute to be included in the set of attributes of this study.

Table 8: Overview of preferred strategy per attribute. (Source:. Hultink & Schoormans, 1995)

Attribute	Strategy	Use in the case of
Price	Penetration	Really new products, like breakthrough and new lines
	Skimming	Reformulated products
Product assortment	Low breath	High-tech products, unless products are well-differentiated and targeted to different market segments
	High breath	Target is to acquire a high market share
Promotion	Push	High-tech products, when educating the customers by dealers is important
	Pull	Awareness is of importance for new product

5.2.2 Partial configurations

Besides the above stated configurations, there is an amount of literature regarding partial launch strategies. For instance, Chiesa & Frattini, (2011) explains that there are two ways in which commercialization decisions can influence consumers acceptance for a new high-tech product, namely by ensuring a proper support from the adoption network and by influencing the post-purchase attitude of early adopters of the new product, so that the word-of-mouth concerning the new product will be positive. For radical innovations, it was found that a negative post-purchase attitude is especially an important determinant for market failure.

Especially for high-tech products, the timing of a new product should be just right, as the window of opportunity is often small, resulting in firms having only one shot at a proper launch. One way to extend the window of opportunity, is by preannouncing the new product. When preannouncing a product, a company promises to its stakeholders to bring a new product of service to the market Herm (2013). However, it should be noted that if a company cannot deliver on this promise, and delays the product launch, it is expected that the customers loses trust, even in the case of high brand commitment.

Next, Hultink (1998) distinguishes four introduction strategies based on the pricing and promotion strategy: rapid-skimming (high prices, high advertising), slow-skimming (high prices, low advertising), rapid-penetration (low prices, high advertising) and slow-penetration (low prices, low advertising). In this, a skimming strategy is preferred when there is a high expected demand, market attractiveness, low price elasticity, long product life cycle, small potential market and a high product price supports the image of the product. On the other side, a penetration strategy is preferred when expected demand and market attractiveness are low, price elasticity is high, a large potential market, short product life cycle and when a high price does not support the products image. The decisions to use low or high advertising depend on the degree of how much the customer is familiar with the product. For a radical new product, a high degree of advertising will be preferred, while a low degree of advertising is preferred for a line extension.

Kerin et al., (2006), discusses the relationship between the product life cycle and the marketing mix, which is also shown in Table 9. From this, it can be seen that for or different product life cycle stages, a different marketing objective and implementation of the marketing mix elements is required.

Table 9: The relationship between the marketing mix and the product life cycle (Kerin et al., 2006)

Product life cycle stage	Introduction	Growth	Maturity
Marketing objective	Gain awareness	Stress differentiation	Maintain brand loyalty
Product	One	More versions	Full product line
Price	Skimming or penetration	Gain market share	Defend market share
Promotion	Inform, educate	Stress points of difference	Reminder oriented
Place	Limited	More outlets	Maximum outlets

5.2.3 Reflection on configurations

The above stated literature shows that a product launch strategy complements on the chances of a product succeeding of failing. Although it is stated that one strategy performs better than another with respect to product sales or profit, it should be noted that product sales and success is not only depended on the introduction strategy. As an example, it is found that incremental innovations are often more successful than radical innovations (Hultink & Schoormans, 1995). So, when an incremental innovative product is introduced, the changes of success are higher than when a radical innovative product is introduced, regardless of the used product launch strategy.

Based on the fact that incremental innovations are often more successful than radical innovations, it could be tempting for a company to only introduce incremental innovations. This is, however, not advisable. First, if a radical innovation is a success, the financial performance of the product often exceeds substantially that of an incremental innovation (Hultink, 1998). Secondly, if only incremental innovations are introduced and no new market opportunities are explored, it is likely that when the current market is declining, the firm will not be able to enter other markets anymore.

After this presentation of configurations of launch strategies and their relationship to new product performance and success, it is relevant to examine what determines whether a new product is a success or not. Therefore, the following chapter will explain the most used success measures with respect to new product introductions.

5.2.4 Success measures for new product introductions

In order to determine whether a product is a success or a failure when launching this product, there should be a set of success measures. Luckily, there are many performance measures available in the literature. Table 10 gives an overview of common cited success measures. From this, it can be seen that there is a great overlap in success measures in the literature.

Table 10: Common cited success measures

Category	Success measure	Reference
Customer acceptance		Crawford & Di Benedetto (2011), Griffin & Page (1993)
	Customer acceptance	Ataman et al., (2008), Chang & Park (2013), Chiesa & Frattini (2011), Crawford & Di Benedetto, (2011), Griffin & Page (1993), Hultink & Robben (1999)
	Customer satisfaction	Crawford & Di Benedetto, (2011), Griffin & Page (1993)
	Early market survival	Frattini et al. (2013)
	Market share	Crawford & Di Benedetto, (2011), Griffin & Page (1993), Hultink & Robben (1999)
	Market potential	Ataman et al., (2008)
	Market penetration	Easingwood et al. (2006), Ingenbleek, Frambach, & Verhallen (2013), Talke & Snelders (2013)
	Revenue	Crawford & Di Benedetto, (2011)
	Revenue growth	Griffin & Page (1993), Hultink & Robben (1999)
	Sales	Crawford (1987), Crawford & Di Benedetto (2011), Hultink & Robben (1999)
Product level performance		Crawford & Di Benedetto (2011), Griffin & Page (1993), Hultink & Robben (1999)
	Competitive advantage	Crawford (1987)
	Competitive reaction	Debruyne et al. (2002)
	Development costs	Crawford & Di Benedetto, (2011), Griffin & Page (1993)
	Diversity of market offerings	Crawford (1987)
	Launch on time	Crawford & Di Benedetto, (2011), Griffin & Page (1993)
	Product performance	Crawford & Di Benedetto, (2011), Di Benedetto (1999), Griffin & Page (1993)
	Product quality	Crawford & Di Benedetto, (2011), Di Benedetto (1999), Griffin & Page (1993)
	Protection of a market position	Crawford (1987)
	Speed to market	Griffin & Page (1993)
	Technical uniqueness	Crawford (1987)
Financial performance		Cooper (1984), Griffin & Page (1993)
	Break-even time	Crawford & Di Benedetto, (2011), Griffin & Page (1993)
	IRR/ROI	Crawford & Di Benedetto, (2011), Griffin & Page (1993)
	Margin	Crawford & Di Benedetto, (2011), Griffin & Page (1993)
	Profitability	Crawford (1987), Crawford & Di Benedetto, (2011), Di Benedetto (1999), Griffin & Page (1993)
Other	Success rate	Cooper (1984)
	Market impact	Cooper (1984)
	Nonfinancial measures	Crawford & Di Benedetto, (2011)

Meeting previous set market/sales/performance/other goals is also often mentioned, but for the sake of clarity and because this is quite logical, this is not covered in the above stated table.

Also, Griffin & Page (1996) developed an overview of the most useful success measures per project strategy. In this, the success measures depends on the degree of innovativeness of the new product

to be introduced. These success measures were also grouped into three groups: customer, financial and performance measures.

With this literature review on new product introduction strategy configurations and success measures, a new extended set of introduction strategies had been constructed. This set will be detailed presented in the next chapter.

5.3 Constructed set of launch strategies

The presented set of new product introduction configurations has been combined into one set of three general introduction strategies, which are applicable in different situations. These introduction strategies are displayed in Table 11. The first introduction strategy is the Radical & New strategy, which is suitable for really new products with a high product advantage, launched in new markets by innovating firms and in which the tactical launch aspects focus on gaining product awareness, using new brands, a low assortment breath, new distribution channels, clearly communicating the product characteristics to the target market. The second introduction strategy, the Improve & Grow strategy, is preferred in the case of product improvements and repositionings, launched in a growing market by firms seeking to increase their market share, and in which the tactical aspects aim to stress differentiation, using brand extensions, a medium assortment breath, using established distribution channels. The third launch strategy is the Incremental & Establish strategy, which is appropriate in the case of incremental innovations like revisions or cost reductions, which are launched in a mature market with the objective to further fill the market, and of which the tactical aspect focus on maintaining customer loyalty, using brand extensions, intensive distribution, reminding the customer to buy the product.

Table 11: Strategic and tactical introduction decisions and their relationship with the three new introduction strategies

Theme	Decisions	Radical & New	Improve & Grow	Incremental & Establish
Strategic decisions				
Product strategy	Product innovativeness	Radical	Radical	Incremental
	Product newness	New to the world products New product lines	Additions to existing product line Repositioning's	Revisions / improvements to existing products Cost reductions
	Product advantage	Never seen before	Performance improvement	Incremental improvement
	Product compatibility	Low	Medium	High
Market strategy	Product Life Cycle stage	Introduction	Growth	Maturity
	Number of competitors	0	between 1 and 4	> 4
	Market growth rate	< 5%	> 5%	< 5%
Firm strategy	Introduction objective	Get foothold in new market Use new technology	Anticipate on emerging segment Increase market penetration Put up barriers for competitors	Capitalize on existing market Expand product range Improve/contain company image Increase market penetration Lower costs Put up barriers for competitors Respond to seasonal cycle Use excess capacity
	New Product Development Driver	Technology driven	Mix of market and technology driven	Market driven
	Targeting strategy	Niche	Selective	Mass-market
	Innovation Strategy	Innovator	Follower	Cost Reducer
Tactical Decisions				
	Marketing objective	Gain awareness	Stress differentiation	Maintain brand loyalty
Product	Brand	New Brand	Brand extension	Brand extension
	Assortment breath	Low	Medium	High
	Timing	Pre-announce		
	Complementary services	Ensure proper support		
Distribution	Density	Exclusive	Selective	Intensive
	Channels	New Less Direct	Current Same Indirect	Current More Indirect
	Expenditures	Less	More	Same
Promotion	Objective	Clearly communicate product characteristics Inform Educate, generate positive word-of-mouth	Stress points of difference	Reminder oriented
	Strategy	Push	Mix push-pull	Pull
	Promotional mix	Advertising Personal selling Public relations Sales promotions Direct marketing	Advertising Personal selling	Advertising Sales promotions
	Expenditures	High	High	Low

The pricing strategy is not part of the three main strategies, but is an independent sub strategy, which can be combined with all strategies. There are two presented pricing strategies, shown in

Table 12. A skimming strategy is preferred when the product is positioned as being superior to others and a penetration strategy in case the aim is to increase market penetration as fast as possible.

Table 12: Strategic and tactical aspects of the pricing strategies (Source: Hultink et al., 1998 and Guiltinan, 1999)

	Skimming	Penetration
Strategic aspects		
Introduction objective	Position product as superior	Increase market penetration
Expected demand	High	Low
Market attractiveness	High	Low
Does a high price support the products image?	Yes	No
Price elasticity	Low	High
Potential market	Small	Large
Product life cycle	Long	Short
Tactical aspects		
Initial price	Higher	Lower
Price decrease	Quick	Slow

Another sub strategy is the strategic incentive (based on Easingwood et al., 2006) of the product introduction. The strategic incentive differs from the introduction objective in that it addresses the strategic aim of the introduction, while the introduction objective focusses on the tactical part. The strategic incentive influences the marketing focus, as shown in Table 13.

Table 13: Strategic launch incentives and marketing focus (Based on Easingwood et al., 2006)

Strategic launch incentive	Marketing focus
Launching product with complementary technology	Form strategic alliances Create unique distribution channels Focus on channel partners Exploit tactical alliances Use reference sites
Reduce risk of adoption	Emphasize low risk Offer different versions targeted at different buyers Use opinion leaders Have trial programs Cultivate a winner image
Attractive price-to-performance ratio	Supply to OEMs to incorporate in other products Create unique distribution channels Target high-value users Emphasize low price
Generate a broad market	Supply to OEMs to incorporate in other products Provide clear product information to the market Educate the market to understand new uses
Develop superior product for targeted niche	Emphasize technology superiority Concentrate on niches

When launching a new product, the success of the product can be determined using an extensive set of product success measures. As a part of the new set of introduction strategies, a recommendation

of which success measures would be most suitable is given, based on the success measures by Griffin & Page (1996), which are shown in Figure 10.

Figure 10: Most useful success measures for different kind of products (Griffin & Page, 1996)

As this figure showed, these success measure depend on the product newness. Therefore, in new set of introductions strategies, the recommended success measures also depend on the product newness.

5.4 The Launch Strategy Template

With the developed new set of introduction strategies from the previous section, the actual LST has been constructed. The construction and design of the LST will be discussed by presenting a detailed presentation of the questionnaire, weights and recommendations of the LST, as shown in the corresponding Excel file and Appendix H. Also, the terms of use of the LST will be addressed.

The presented LST in Appendix H and in the actual working file has been randomly filled in for illustration purposes. The given answers, weights, results and recommendations are thus an example. Also, all working cells are displayed for clarity. The cells with a grey background are 'normally' hidden.

5.4.1 Questionnaire

The questionnaire, which is shown in Appendix H and the LST, tab "Questionnaire", Table A, contains questions divided over three themes: product strategy, market strategy and firm strategy. These questions are constructed by using the stated relationship of the strategic launch decisions with the three launch strategies, as stated in Table 7, and the strategic decisions of the two sub strategies, as stated in Table 12 and Table 13. For a proper explanation and functioning of the LST, these modules are viewed as separate. Although these sub strategies are independent of the three main introduction strategies, they are logically incorporated in the LST. In the following sections, each theme of the questionnaire will be discussed. After this, the calculations of the questionnaire are presented.

When discussing the questions, the number of the corresponding question in the LST will be denoted by stating the question number between brackets, for instance (Q 3.1).

5.4.1.1 Product strategy

The product strategy group consist of five questions, addressing the product innovativeness, newness, advantage and compatibility. Also, based on the product characteristics, the pricing strategy can be determined. The design of five questions regarding product strategy are discussed in the next sections.

The product innovativeness (Q 1.1) has been determined using the main differences between a radical and incremental innovation. Each row has been translated into a question, in which one should choose which of the two sentences applies the most. Next, the product newness (Q 1.2) is determined with the use of two questions, one concerning the degree to which the new product is new to the company (Q 1.2a) and one concerning the degree to which the product is new to the market (Q1.2b). For both questions, one can choose to anwers “High”, “Medium” or “Low”. Then, the product advantage (Q 1.3) is considered. There is a high product advantage when the answer is “Never seen before”, medium advantage when “Performance improvement” and low in the case of “Incremental improvement”. Following, the product compatibility is asked (Q 1.4), in which one can answer “High”, “Medium” or “Low”.

5.4.1.2 Market strategy

After the product strategy, the market strategy is considered, using three questions regarding the product life cycle, number of competitors and the market growth rate. The first question, regarding the product life cycle stage (Q 2.1), can be answer with “Introduction”, “Growth” or “Maturity”. As discussed, the decline stage of the product life cycle is not included. The second question, concerning number of competitors (Q 2.2), determines whether there are no, a few or a lot of competitors in the market. As discussed, the boundary between a few and a lot competitors is set on 4 market competitors. Thirdly, the market growth (Q 2.3) is assessed, which focusses on whether the market grows slowly or fast. As indicated, the boundary between a low and fast growing market is set on a market growth of 5% per year.

5.4.1.3 Firm strategy

The firm strategy consists of five questions regarding discussed firm characteristics of the product launch. First, the introduction objective (Q 3.1) is addressed. As discussed, each objective is related to a strategy. However, it is likely that a firm has multiple introduction objectives, besides from generating profit. Therefore, it is possible to give one or two answers to this questions. To prevent that to many answers are given, resulting in scoring for all strategies, at most two answers are allowed, which also corresponds with the minimal numbers of answers related to a strategy. The second questions concerns the strategic incentive (Q 3.2) of the launch, which is strategy independent and therefore forms a separate module in the LST. One can choose from five answers, which each result in different recommendations for the marketing focus. Next, the new product development driver (Q 3.3) is assessed, which can be driven by technology, market of a combination of the two. The following question on the targeting strategy (Q 3.4) addresses whether one focusses on a niche, selective part of the market or the mass-market. Then, the innovation strategy is asked (Q 3.5), in which one can be an innovator, follower or cost reducer. Finally, the most appropriate pricing strategy is determined (Q 3.6) using the differences of the strategic aspects between a skimming and penetration strategy, as stated in Table 12. The seven differences in this table have been converted into sus questions, of which each answer contributes to one of the pricing strategies.

5.4.1.4 Calculations

The LST questionnaire contains, besides the questions and answers, also several calculations. When selecting an answer, by inserting an "X" in the blue cell to the left of the selected answer in Table A, the weight of that answers (displayed in the column "Weight"), will be added to too the corresponding strategy, in the column "R&N", "I&G" and "I&E" (note that these are the abbreviations of the three introduction strategies). The explanation of the weight will be discussed separately. The separate scoring of the three introduction strategies are summed in the last row of the table, leading to a total score per strategy. These total scores will be further used in the results and recommendations.

The column "Sub calculations" allows for calculations of the scoring of the product innovativeness (Q 1.1) and pricing strategies (Q 3.6). In these columns, the scoring with respect to the product innovativeness or pricing strategy is calculated based on the given answers of the sus questions. These sub-scorings are summed per subject and further used in the results and recommendations. Note that, like with the product innovativeness, no weights are used here and each aspect is therefore considered as equal of importance.

The columns "Comments" and "Count" contains a counting mechanism to prevent the user from giving to many answers. Each question can only be given one answers, with the exception of the multiple choice questions. If the user does give too much answers, the LST will note this and indicate that there are too much answers is the comment section. If this comment is displayed, the whole model will also not give any results or recommendations, as these would not be valid.

5.4.2 Weights

When determining the launch strategies, some strategic decisions will be more relevant, or influential than others (Chui 2006). For instance, based on the reoccurrence of the relationship between product innovativeness and which strategy to use in the academic literature, it is expected that product innovativeness is of high importance for selecting the product launch strategy. Although the literature on new product introduction presents several views on which configurations are preferred in which situation, it states little on the weight of the situational factors. Also, the relative importance of each launch decisions is not general for all firms, but rather situational dependent. Therefore, one cannot make a static rule on the importance of the launch decisions. Instead, the importance, or weight, of each launch decision will be calculated using an adapted version of the Analytic Hierarchy Process (AHP) by Saaty (2004).

In the traditional AHP pair-wise comparisons is used, in which the comparative importance of two criteria is shown. In this, a matrix is created in which the relative importance of one objective over another is filled in. This relative importance is scaled from 1 to 9, in which 1 represents equal importance of objective *i* and *j*, and 9 represents that objective *i* is absolutely more important than objective *j*. It is assumed that if objective *i* scores *x* over objective *j*, than objective j scores $\frac{1}{x}$ over objective *i* with respect to its importance.

In the LST, the strategic launch decisions related to the introduction strategies are assigned a weight. The two separate modules do not need a weight, because they are not related to the launch strategies. The weight are calculated in the LST, tab "Weighting", and are also presented in Appendix

H, Table B, C and D. In Table C, the objectives comparison values can be filled in, of which the legend is shown in Table B. In Table C, the relative importance scale has been adjusted, in order to make automatic weight calculations possible. One can only fill in the lower diagonal of the objective comparison matrix (the blue cells), so the upper diagonal will be calculated based on the lower diagonal. When one would use the traditional scaling, than values between $\frac{1}{9}$ and 9 would have to be filled in, which is expected to lead to confusion, mistakes and wrong objective weights. Therefore, the scaling has been adjusted to a scale from 1 to 9, in which 1 represents that objective *i* is absolutely less important that objective *j*, and 9 represents that objective *i* is absolutely more important than objective *j*. So, the new score in which both objectives are of equal importance is 5. Also, it is now assumed that if objective *i* scores *x* over objective *j*, than objective j scores $10 - x$ over objective *i* with respect to its importance. Due to these changes, the weight calculation differs from traditional AHP, but principals of the weight calculation used in the AHP can still be applied.

After the objectives comparison values have been filled in in Table C, the weights of each objective is calculated in Table D. These weights are calculated as follows:

$$Objective\ weight\ cel\ (i,j) = \frac{relative\ importance\ score\ objective\ (i,j)}{Sum\ of\ scores\ column\ j} \quad (1)$$

Each weight is a number between 0 and 1, and the total of the weights in each column is 1. Finally, the weights are averaged for each objective *i* (column "Average"). The sum of these averages should also be equal to 1. These averages are incorporated in Table A (column "Weights") of the questionnaire of the LST, in which each weight is shown after each question.

5.4.3 Results and recommendations

In the tab "Result & recommendations" of the Excel file, the results of the calculations of the scoring with respect to the strategies, product innovativeness, product newness and pricing strategies are displayed. Based on these results, recommendations are given regarding the tactical aspects of the introduction strategies, the marketing focus, success measures and if applicable, some extra recommendations. In this section, first the calculation of the results will be discussed. After this, the construction of the recommendations is explained.

5.4.3.1 Results

The results of the questionnaire give insights with respect to the scoring for each strategy, the product innovativeness, the product newness and the scoring for the pricing strategies and are shown in Appendix H, Table E, F, G and H, and will be individually explained in this section.

First, the product innovativeness is shown in Table E. As discussed, the product innovativeness is calculated using question derived from the main differences between radical and incremental innovations (Q 1.1). The answers to these questions are therefore related to the product innovativeness and can be translated into scorings with respect to this innovativeness. The scoring for the product innovativeness represents the percentage of the given answers which corresponds to a level of product innovativeness. These scores are also shown in figure A. Based on the highest score, the product innovativeness is determined. In this, product innovativeness is considered to be a discrete variable, so a product can be radical or incremental innovation, not a combination of the two. Also note that for determining the product innovativeness, weights are not used. So, each

aspect of the product innovativeness is considered to be of equal importance. Next, the scoring with respect to product innovativeness is further taken into account in calculating the scores with respect to the introduction strategy.

Then, Table F shows the product newness. As discussed, the product newness can be determined by combining the degree to which the new product is new to the company with the degree the product is new to the market (Q 1.2), as shown in Figure 10 . However, in this figure, there are three dimensions for both the new-to-the-market axis and the new-to-the-firm axis, leading to a grid with 9 cells, while there are only 6 types of products, and not every product type falls precisely in a cells. Therefore, Figure 10 has been converted into Table 14. The product newness displayed in Table F is also further used to calculate the scoring with respect to the launch strategies.

Table 14: Product types based on product newness

		New to the market		
		Low	Medium	High
New to the company	High	New to the firm products	New to the firm products	New to the world products
	Medium	Improvements and revisions to existing products	Additions to existing product lines	Additions to existing product lines
	Low	Cost reductions	Repositioning's	Repositioning's

Table G shows the scores with respect to the two pricing strategies. As discussed, the scoring on the pricing strategies are calculated in Table A, and are also shown in figure B. The strategy with the highest score is selected as the most appropriate pricing strategy.

Table H displays the scores of the introduction strategies. The total scores are calculated in Table A, as the sum of the individual scores. This total score is then used to calculate the percentage score of each strategy, which is done by dividing the individual total strategy score by the sum of the three total scores. This percentage score for each strategy represents the percentage of the given answers which corresponds to that strategy. For instance, when scoring 45% for the Radical & News strategy, this means that the answers of the questionnaire are for 45% in correspondence to the Radical & News strategy. These scores are also shown in the pie diagram of Figure C. The introduction strategy with the highest score is selected as the most suitable strategy and will be presented in the recommendation section.

5.4.3.2 Recommendations

Based on the above discussed results, the LST gives recommendations on which strategy is most suitable to use, which tactics correspond with this strategy, which strategic focus would be preferred and which success measures are advised. These aspects are also shown in Table I, J and K, using Table L, M and N as a reference. The last three tables are 'normally' hidden, but are currently shown for clarity of the working of the LST.

First, the recommended introduction strategy is presented, which is determined by selecting the introduction with the highest score from Table H.

Second, the Table I presents the tactical launch decisions corresponding with the recommended introduction strategy. As shown in Table 7, each introduction strategy employs the launch tactics in a different way. Table 11 has been incorporated in the LST as Table L. When the recommended introduction strategy is selected, the LST automatically 'look up' the corresponding set of launch tactics in Table L and presents these in Table I.

Table J then presents the strategic marketing focus, as discussed by Easingwood et al., (2006). These launch tactics are more concerned with the marketing aim and other marketing activities, and are strategy independent. Therefore, they are presented in a separate table. Table 13 has been added in the LST as Table M. In the questionnaire one can select what the strategic incentive of the introduction is (Q 3.2). The chosen incentive is then 'looked up' by the LST in Table M, after which the corresponding marketing aims are presented in Table J.

Finally, Table K gives an overview of recommended success measures, as stated by Griffin & Page, (1996) and also shown in Table 15. Table 15 has also been added to the LST as Table N. After the product newness has been established, the LST 'looks up' the success measures corresponding to the type of product newness in Table N, and presents these in Table K, resulting in an overview of the most appropriate success measures to use.

Table 15: Recommended success measures

	First customer measure	Second customer measure	Financial measure	Performance measure
New to the world product	Customer acceptance	Customer satisfaction	Profit goals & IRR/ROI	Competitive advantage
New product line	Revenue or satisfaction	Market share	Met profit goal	Competitive advantage
Addition to existing product lines	Market share	Revenue growth or satisfaction or acceptance	Met profit goal	Competitive advantage
Revision/Improvement to existing products	Customer satisfaction	Market share of revenue growth	Met profit goal	Competitive advantage
Repositioning	Customer acceptance	Satisfaction or share	Met profit goal	Competitive advantage
Cost reduction	Customer satisfaction	Acceptance or revenue	Met profit goals	Performance or quality

5.4.4 Terms of use

Now that the LST is explained, the assumptions of the LST are presented. These assumptions should be kept in mind when using the LST, as violation of these assumptions could influence the validity of the outcomes of the LST.

- It is assumed that there are no correlations between the different launch strategies other than the stated relationships in the literature overview.
- The three strategies are mutual exclusive, meaning that when applying one strategy, another strategy cannot be applied. It is probable than combining elements of the three strategies could be desirable due to situational factors, but this cannot be done by the LST.

- The answer most corresponding to the situation should be selected in the case that no answer fully covers the situation.
- It is not obligatory to answer all questions, because the LST is very elaborate and the questions are interrelated (for instance in the case of a radical new product, the product will probably have a high product advantage). However, if one doesn't answer a question, this should be taken into account by the adjusting the weighting.
- It is not obligatory to use the objective weights. If desirable, the use of the weighting can be turned off by filling in the number 5 in each blue cell of Table C.
- All mentioned recommendations from the LST are based on academic literature, and should thus be viewed as recommendations. Due to situational or other factors, the recommended launch strategy could not be the most appropriate strategy from the three. Therefore, it is important to use once own common sense when using the LST.
- The LST does not differentiate between must-do and should-do tactics, all tactics are considered equal of importance. However, it was found that several marketing mix elements had different effect on growth and market potential. However, because this overview was not complete and dependent on strategic decisions, it was not incorporated in the LST.

5.5 Conclusion

The goal of this chapter was to examine how one can determine a proper new product introduction strategy, based on the strategic aspects of this product. First, the importance of a proper introduction strategy has been addressed using several sources from the academic literature.

Next, the relationship between new product introductions and new product performance was analyzed. In this, several sets of holistic and partial configurations related to new product success have been discussed, in which strategic and tactical aspects and their relationship with product success were presented. Also, often used success measures for new product introductions have been presented, in which customer acceptance, product performance and financial performance were found to be often mentioned.

The configurations were then combined into a set of three launch strategies, namely the Radical & New, the Improve & Grow and the Incremental & Establish strategy, of which the complete set of strategic, tactical launch aspects and recommended success measures has been discussed. The Radical & New strategy, is suitable for really new products with a high product advantage, launched in new markets by innovating firms and in which the tactical launch aspects focus on gaining product awareness, using new brands, a low assortment breath, new distribution channels, clearly communicating the product characteristics to the target market. The Improve & Grow strategy is preferred in the case of product improvements and repositionings, launched in a growing market by firms seeking to increase their market share, and in which the tactical aspects aim to stress differentiation, using brand extensions, a medium assortment breath, using established distribution channels. The Incremental & Establish strategy is appropriate in the case of incremental innovations like revisions or cost reductions, which are launched in a mature market with the objective to further fill the market, and of which the tactical aspect focus on maintaining customer loyalty, using brand extensions, intensive distribution, reminding the customer to buy the product. The pricing strategy and the strategic focus are included as two separate sub strategies, as sub strategy can be applied with each introduction strategy. There are two presented pricing strategies, skimming and

penetration, in which a skimming strategy is preferred when the product is positioned as being superior to others and a penetration strategy in case the aim is to increase market penetration as fast as possible.

With these three strategies, the actual Launch Strategy Template (LST) has been constructed in the corresponding Excel file and appendix C. In the LST, the strategic launch decisions serve as input, and the recommended launch strategy, including tactical launch decisions, strategic focus and recommended success measures as output for the LST. The result of this chapter is therefore the LST, which can be used to determine a suitable launch strategy for a new product.

Before this template is applied for the product bundle of PURAC FCC with a spray system, the LST will be validated and customized for Corbion. This validation will be presented in the next chapter.

6 Template validation

The validation of the launch strategy template is the fourth phase of the determination of the route-to-market of Table 1 and it is the second step defining of the suitable introduction plan. This validation is performed using information on two previous new product introduction. One case concerns a new clean label meat preservation product which is considered to be a radical new product. This product, called Verdad, reduces the complexity of meat labels, while still ensuring food safety. Verdad will further be adressed as the radical new product. The other case is about a Low Cost in Use products, which is viewed as an incremental new product. This product, called Opti.Form Ace, is used to increase the shelf life of meat, while reducing the costs on shelf life ingredients. Opti.Form Ace will be further addressed as the incremental new product. For these two cases, the input of the questionnaire and weighting is shown in Appendix I. During the validations, the set of constructed introduction strategies of Table 11, which is the base of the LST, have been adapted. The adaption will also be performed on the original LST. This chapter will first present the validation of the strategic launch decisions, followed by tactical launch decisions. A presentation of the customized set of introduction strategies will be given before concluding this chapter.

6.1 Strategic launch decisions

The first validation step is to compare the actual and expected strategic launch decisions. These decisions are presented in two parts. The first part presents the validation of the product, market and firm strategy. The second part gives the validation of the pricing strategy. The pricing strategy is presented separately, as this is also a separate part of the set of introduction strategies. It should also be noted that the strategic incentive (Q 3.2 in the LST) is not validated in this section, as this concerns a separate part of the set of introduction strategies, in which recommendations are given based on one question. Therefore, this can only be validated with respect to its recommendations.

6.1.1 Product, market and firm strategy

The applied introduction strategies of the two validation cases are displayed in

Table 16. These two cases have been compared with each other and the constructed strategies of Table 11. The radical new product is compared with the Radical & New introduction strategy and the incremental new product is compared with the Improve & Grow strategy. These two strategies were the recommended introduction strategies when applying the questionnaire and weights in the LST. The Incremental & Establish strategy can thus not be validated or adapted. This introduction strategy will remain part of the set of introduction strategies, with the note that it is not validated or customized. Also, this strategy will remain in the LST. However, if this strategy would be found to be most suitable, the LST will indicate that this strategy is not validated and customized for Corbion.

The results of the comparison are also given in the last column of Table 16. There are no results given if the differences between the applied strategies match the differences between the constructed strategies.

Table 16: Comparison of the strategic introduction decisions of the applied introduction strategies of the two validation cases

Theme	Decision	Radical new product	Incremental new product	Notes when comparing with Table 11
	Introduction strategy*	Radical & New	Improve & Grow	
Product strategy	Product innovativeness	Radical	Incremental[1]	[1] Radical expected
Product strategy	Product newness	New to the world product	Addition to existing product line	
Product strategy	Product advantage	Never seen before	Performance improvement	
Product strategy	Product compatibility	Medium [2]	High [3]	[2] Low expected [3] Medium expected
Market strategy	Product life cycle stage	Introduction[4]	Introduction[4,5]	[4] Equal values [5] Growth expected
Market strategy	Number of competitors	Between 0 and 4[6,7]	Between 0 and 4[6]	[6] Equal values [7] 0 expected
Market strategy	Market growth rate	> 5%[8]	< 5%[9]	[8] <5% expected [9] >5% expected
Firm strategy	Introduction objective	Expand product range[10] Put up barriers for competitors[10]	Capitalize on existing market[10] Put up barriers for competitors	[10] Other objectives expected
Firm strategy	New Product Development Driver	Market driven[11]	Mix of technology and market driven	[11] Technology driven expected
Firm strategy	Targeting strategy	Selective[12,13]	Selective[12]	[12] Equal values [13] Niche expected
Firm strategy	Innovation strategy	Technological innovator[14]	Technological innovator[14,15]	[14] Equal values [15] Follower expected

* Based on similarities of the strategic and tactical aspects similarities with the set of introduction strategies.

The results from the comparison showed that there can be two types of validation issues. First, the value of a strategic launch decision can be equal for both validation cases. This implicates that the strategic decision is not a relevant selection criteria for the introduction strategies, as the value of this criteria is the same for both strategies. The second validation issue occurs when the value of the applied strategic decision does not correspond with the expected value of this decision in the constructed strategies. Both types of issues have been further investigated and adapted if required. This examination is presented in the remainder of this section, in which the numbering of the notes of Table 16 is followed.

6.1.1.1 Product innovativeness

Note 1 indicates that a radical product innovativeness is expected from the Improve & Grow strategy, but the product is an incremental product. This discrepancy can be explained by the fact that the product innovativeness can be either radical or incremental, but the Improve & Grow strategy is suitable for products between these two extremes. The Improve & Grow strategy is the middle strategy between the radical and incremental product introduction strategies. For the adapted set of introduction strategies, the product innovativeness of the Improve & Grow strategy will be altered to "Incremental"

6.1.1.2 Product compatibility

The differences indicated by note 2 and 3 are caused by the relative scale of this launch decision. The scaling of this launch decision will be altered as follows. The Radical & New strategy will be suitable for products with a low to medium compatibility and the Improve & Grow for medium to high compatibility.

6.1.1.3 Product life cycle stage

The next strategic decisions with an equal value for both cases is the product life cycle stage (note 4 and 5). The expected reason for this similarity is that the corresponding question in the LST (Q2.1) is not properly defined. Q 2.1 asks the product life cycle phase of the product, while it should asks the product life cycle phase of the market. Any newly introduced product will be in the introduction phase of the product life cycle, while the market can be in another phase. For instance, when launching a cost reduction, this product will be in its introduction phase, while the market will be in the maturity phase. The fact that the incremental validation case concerns a product which is an addition to a product line (and thus medium new to the market according to Table 14), which is introduced in a market which is growing more than 5% with the objective to capitalize on an existing market indicates that the market is in its growth phase. Therefore, the introduction strategies will not be altered with respect to this strategic launch decision. Instead, Q 2.1 in the LST will be altered from "In which phase of the product life cycle is the product?" to " In which phase of the product life cycle is the market?"

6.1.1.4 Number of competitors

Note 6 and 7 show that the number of competitors is the same for both cases. This is due to the fact that Corbion always operates in markets with a few other competitors. Worldwide, there are only a few other companies who offer the same as Corbion. The number of competitors will therefore often be the same for Corbion's markets. Because the value for this decision will be the same for most product introductions, it could be stated that this decisions is not a relevant criteria in determining the suitable introduction strategy. Therefore, this decision is deleted from the constructed set of introduction strategies.

6.1.1.5 Market growth rate

Note 8 and 9 show that the actual market growth rate are opposite from the expected market growth rates. This difference could be due to a misconception of the market growth rate with the potential market growth rate. The first focusses on how much the market has actually grown, while the latter focusses on how much the market can still grow in the future. Therefore, the question regarding this decision (Q 2.3) will be altered from "What is the market growth rate?" to "What was the average, annual market growth rate the last 3 years?". The number of years is selected to be 3 because it is expected that this will give enough historical information.

6.1.1.6 Introduction objectives

Note 10 shows that a set of other introduction objective are given than expected. The indicated introduction objectives are perceived to be in line with the suitability of the introduction strategies. Therefore, these set of actual introduction objectives will be added to the corresponding strategies.

6.1.1.7 New product development driver

Note 11 shows that the new product development driver can be market driven, while a technology driven development driver is expected. This implicates that a radical new product can both be technology or market driven, or both. This indicates that the new product development driver is not an appropriate decision criteria in the current case. Therefore, it will be removed from the constructed introduction strategies and the LST.

6.1.1.8 Targeting strategy

With respect to the targeting strategy, Corbion targets a selective part of the market in both cases (note 12 and 13). The results from the meetings showed that for some incremental products, for which the market is considered to be mature, Corbion will target the mass market. Otherwise, they will focus their marketing of a selective part of the market, such as strategic customers. Therefore, the targeting strategy is set on "Selective" for the Radical & New strategy and on "Selective or Mass" for the Improve & Grow strategy in the constructed set. Also, in the LST questionnaire, when answering "Selective" in Q 3.4, the weight of this answer will be added to the total scores of both the Radical & New and the Improve & Grow strategies.

6.1.1.9 Innovation strategy

The innovation strategy of Corbion is in both cases to be a technological innovator (note 14 and 15). The fact that this is the same for both types of innovations can be explained by the fact that an innovation strategy is a strategic direction of a company, and thus the same for a whole set of new product introductions. A company that has a technological innovation strategy is more likely to introduce radical innovations, making the Radical & New strategy more suitable. Therefore, this aspect will not be altered in the interim improved LST.

Now that the validation issues of the product, market and firm strategics have been discussed, the pricing strategy will be further analyzed. This will be presented in the next section.

6.1.2 Pricing strategy

The pricing strategy is a separate part of the constructed set of introduction strategies, as it could not be properly combined with the introduction strategies. In line with this is the notion that the pricing strategies cannot be related with the product innovativeness. So, both pricing strategies can be suitable for both types of products. However, the strategic decisions of pricing strategies from the validation cases can still be compared, which is shown in Table 17. This table shows that Corbion has applied a penetration strategy in both cases. It should be noted, that Corbion indicated that they applied a penetration strategy, but the tactical aspects of these two applied strategies differ. This will be further discussed later on. For now, it is stated that a penetration strategy should be used when the introduction objective is to increase the market penetration and speed to market, while a skimming strategy should be employed when the introduction objective is to position the product as superior.

Table 17: Comparison of the strategic introduction decisions with respect to the pricing of the applied introduction strategies of the two cases

Decisions	Radical new product	Incremental new product
Pricing strategy*	Penetration	Penetration
Introduction objective	Increase market penetration and speed to market	Position the product as superior
Expected demand	High	High
Market attractiveness for competitors	High	High
High price supports the product image	No	No
Price elasticity	High	High
Size of potential market	Large	Large
Product life cycle	Long	Long

*** As indicated by Corbion, the tactical aspects of these applied pricing strategies differ.**

Table 17 also shows that all decisions criteria for a pricing strategy have the same values, with exception of the introduction objective. In fact, the six aspects with equal value result in an equal scoring for the suitability of the two pricing strategies. Therefore, the decisive factor in determining the suitable pricing strategy is the introduction objective. Therefore, it is stated that the selection of the pricing strategy can be solely based on this introduction objective. So, all other aspects will be deleted form the constructed strategies and the LST. Due to this, displaying the pricing strategy scores has become obsolete, as these scores now depend on one question. Therefore, the pricing strategy scores are no longer displayed in the results section.

Now that the strategic aspects have been validated, the tactical aspects will be further examined. This validation will be discussed in the next section.

6.2 Tactical launch decisions

The launch tactics consist of the marketing mix, the strategic focus and the recommended success measures. They form the recommendations from the LST and can be similar for both introduction strategies. Therefore, the tactical launch decisions are not validated by comparing the two validation cases. Instead, the applied launch tactics have been compared with the recommended launch tactics of the corresponding introduction strategies. Also, tactical difference were also compared between the two validation cases. These comparisons will be presented in the following sections.

6.2.1 Marketing mix

The recommended marketing mix presents the product, distribution, promotion and pricing of the new product. The first three elements will be presented first, followed by the price. As earlier stated, the price does not depend on the product innovativeness and is therefore a separate part of the introduction strategy.

6.2.1.1 Product, distribution and promotion

The applied marketing mix of the radical and incremental new product is compared with the recommended marketing mix in Table 18 and Table 19. When comparing the applied introduction strategies with the recommended strategies, it can be seen that there is a significant overlap between the two. This indicates that the constructed introduction strategies are accurate. This also indicates that the relationship between the strategic and tactical launch decisions is correct.

Table 18: Comparison of applied and recommended introduction strategies for the radical new product, in which the Radical & New introduction strategy is recommended

Theme	Tactical aspect	Applied	Recommended
	Marketing objective	Gain awareness	Gain awareness
Product	Brandings strategy	New Brand	New Brand
	Product assortment breath	Low	Low
	Timing	No pre-announcing[16]	Pre-announce[16]
	Complementary services	Ensure proper support	Ensure proper support
Distribution	Distribution density	Selective[17]	Exclusive[17]
	Channels	Current[18] Direct	New[18] Direct
	Distribution expenditures	Same[19]	Less[19]
Promotion	Promotional objective	Clearly communicate product characteristics, inform, educate, generate positive word-of-mouth	Clearly communicate product characteristics, inform, educate, generate positive word-of-mouth
	Promotion strategy	Push	Push
	Promotional means	Advertising Personal selling	Advertising Personal selling Public relations[20] Sales promotions Direct marketing
	Promotion expenditures	Low[21]	High[21]

Table 19: Comparison of used and recommended introduction strategies for an incremental new product

Theme	Tactical aspect	Applied	LST recommendation
	Introduction strategy	Improve & Grow	Improve & Grow
	Marketing objective	Stress differentiation	Stress differentiation
Product	Brandings strategy	Brand extension	Brand extension
	Product assortment breath	Medium	Medium
	Timing	No pre-announcing[22]	No pre-announcing[22]
	Complementary services	Ensure proper support[23]	No ensuring of proper support[23]
Distribution	Distribution density	Selective	Selective
	Distribution channels	Current Direct[24]	Current Indirect[24]
	Distribution costs	Same[25]	More[25]
Promotion	Promotional objective	Clearly communicate product characteristics, inform, educate, generate positive word-of-mouth[26]	Stress point of difference[26]
	Promotion strategy	Mix of push and pull	Mix of push and pull
	Promotional means	Advertising Personal selling	Advertising Personal selling
	Promotion costs	Low[27]	High[27]

*** Based on similarities of the tactical aspects with the set of introduction strategies.**

Table 18 and Table 19 also show several differences, which will be further discussed in the next sections.

6.2.1.1.1 Timing

Note 16 and 22 shows that pre-announcing a new product never applied, although it is recommended for a radical new product. The previous chapter discussed that pre-announcing is recommended in high-tech industries when there is a small window of opportunity (Herm, 2013). This is for Corbion and their markets not the case. Therefore, a new product does not have to be pre-announced by Corbion. This tactical launch decision will thus be deleted from the introduction strategies and LST.

6.2.1.1.2 Ensuring proper support

Note 22 indicates that ensuring of proper support is applied, even when not recommended. Even more, ensuring proper support is applied in both cases. Therefore, this recommendation will be added to the Improve & Growth strategy.

6.2.1.1.3 Distribution density

The difference in distribution density of note 17 is already explained in the previous section on the targeting strategy. Corbion focuses their marketing often on a selective part of the market. Sometimes, in the case of a mature market, the mass market is targeted. Therefore, the recommended exclusive distribution density will be altered in a selective density for the Radical & Growth strategy.

6.2.1.1.4 Channels

Note 18 shows that current distribution channels are used in both cases, even though new channels are recommended. However, if Corbion launches a radical new product in a market in which they are already present, using current channels would be preferred. Therefore, both new and current channels can be used for radical new products. This will be adapted in the introduction strategies and LST.

Also, Corbion uses direct channels in both cases (note 24). This is also indicated in the meeting report. Corbion supplies directly to most customers, which is common practice is this industry. Therefore, the introduction strategies and LST will recommend direct channels in both cases.

6.2.1.1.5 Distribution and promotion expenditures

The difference between the distribution and promotion expenditures (note 19, 21, 25 and 27) can be explained by the fact that these costs are measured on a relative scale. Therefore, it is likely that the perception of these costs is not in line with the perceived height of the cost from the literature. Therefore, these relative costs will be deleted in the constructed introduction strategies and the LST.

6.2.1.1.6 Promotional objectives

Note 26 shows that Corbion should stress their points of differences when introducing an incremental new product. Instead, Corbion applies the same promotional objective as for a radical new product. Stressing the differences between an incremental new product and its competitors is however still of importance, because these differences will be the differences on which the customer decides which product to adopt. Therefore, this is not altered.

6.2.1.1.7 Promotional means

Note 20 represents the promotional means. Corbion always uses advertising and personal selling as promotional elements, as these are considered to be effective in the markets in which they operate. Other promotional elements, such as public relations, sales promotions and direct marketing are not suitable due to the market characteristics. This is also expected for the markets of PURAC FCC. Therefore, these three promotional elements are removed for the introduction strategies and LST.

After these product, distribution and promotion elements have been examined, the price aspects of the marketing mix is assessed. This assessment is presented in the next section.

6.2.1.2 Price

The applied price tactics of the radical and incremental new product is compared with the recommended price tactics in Table 20 and Table 21. These two tables show that the applied and recommended pricing strategies match, but the tactical aspects of these strategies differ. In fact, the applied initial aspects are the opposite of what is recommended and the applied price decrease is always slow.

The introduction strategies and LST will not be altered with respect to the price tactics, as it is assumed that the recommended price tactics are academically proven to be valid and Corbion could learn from this. Instead, the original recommendations will be given, based on the introduction objective. Although these recommendations could not be applicable for Corbion, it is assumed that they will be viewed as recommendation.

Table 20: Comparison of used and recommended tactical aspects of the pricing strategy for a radical new product

Tactical aspect	Applied	Recommended
Pricing strategy	Penetration*	Penetration
Initial price	High	Low
Price decrease	Slow	Slow

*** Based on the introduction objective**

Table 21: Comparison of used and recommended tactical aspects of the pricing strategy for an incremental new product

Tactical aspect	Applied	LST recommendation
Pricing strategy	Skimming*	Skimming
Initial price	Low	High
Price decrease	Slow	Quick

*** Based on the introduction objective**

6.2.2 Strategic focus

Next, the applied strategic focus is compared with the recommended focus. This comparison in given in

Table 22 and Table 23. These tables show that there is a significant discrepancy between the applied and recommended strategic focus. Again, it is assumed that the recommended strategic focus is valid and Corbion could thus learn from it. Therefore, these recommendations are not adapted in the introduction strategies and LST.

Table 22: Applied and recommended focus for radical new product.

	Applied	Recommended
Strategic focus	Niche Technological Superiority*	Form alliance
Actions	Concentrate on niches	Form strategic alliances
	Educate the market to understand new uses	Create unique distribution channels
	Emphasize technology superiority	Focus on channel partners
		Exploit tactical alliances
		Use reference sites

* derived from actions

Table 23: Applied and recommended focus for incremental new product.

	Applied	Recommended
Strategic focus	Niche Technological Superiority*	Low-Price/OEM
Actions	Concentrate on niches	Supply to OEMs to incorporate in other products
	Educate the market to understand new uses	Create unique distribution channels
	Emphasize low price	Target high-value users
		Emphasize low price

* derived from actions

6.2.3 Recommended success measures

Finally, the applied and recommended success measures are compared in Table 24 and Table 25. The recommended success measures are based on the type of new product. Again, these tables show little similarities between the applied and recommended success measures. The recommended success measures will thus not be changed in the introduction strategies and LST, as these could give Corbion new insights.

Table 24: Applied and recommended success measures for radical new product with new-to-the-world product newness.

	Applied	Recommended
Success measure	Revenue	Customer acceptance
	Revenue growth	Customer satisfaction
		Profit goals & IRR/ROI
		Competitive advantage

Table 25: Applied and recommended success measures for radical new product with Addition to existing product lines product newness.

	Applied	Recommended
Success measure	Revenue	Market share
	Revenue growth	Revenue growth or satisfaction or acceptance
		Met profit goal
		Competitive advantage

6.3 Customized strategies and LST

After the discussed validation and alterations, the customized introduction strategies for Corbion are given in Table 26 through Table 28.

Table 26: Validated strategic and tactical introduction decisions and their relationship with the three new introduction strategies

Theme	Decisions	Radical & New	Improve & Grow	Incremental & Establish*
Strategic decisions				
Product strategy	Product innovativeness	Radical	Incremental	Incremental
	Product newness	New to the world products New product lines	Additions to existing product line Repositioning's	Revisions / improvements to existing products Cost reductions
	Product advantage	Never seen before	Performance improvement	Incremental improvement
	Product compatibility	Low – Medium	Medium - High	High
Market strategy	Product Life Cycle stage	Introduction	Growth	Maturity
	Historical market growth rate	< 5%	> 5%	< 5%
Firm strategy	Introduction objective	Expand product range Get foothold in new market Put up barriers for competitors Use new technology	Anticipate on emerging segment Capitalize on existing market Increase market penetration Put up barriers for competitors	Capitalize on existing market Expand product range Improve/contain company image Increase market penetration Lower costs Put up barriers for competitors Respond to seasonal cycle Use excess capacity
	Targeting strategy	Selective	Selective – Mass market	Mass market
	Innovation Strategy	Innovator	Follower	Cost Reducer
Tactical Decisions				
	Marketing objective	Gain awareness	Stress differentiation	Maintain brand loyalty
Product	Brand	New Brand	Brand extension	Brand extension
	Assortment breath	Low	Medium	High
	Complementary services	Ensure proper support	Ensure proper support	
Distribution	Density	Selective	Selective	Intensive
	Channels	New or current Direct	Current Direct	Current Indirect
Promotion	Objective	Clearly communicate product characteristics Inform Educate, generate positive word-of-mouth	Stress points of difference	Reminder oriented
	Strategy	Push	Mix push-pull	Pull
	Promotional mix	Advertising Personal selling	Advertising Personal selling	Advertising Sales promotions

*** Not validated and customized for Corbion**

Table 27: Validated strategic and tactical aspects of the pricing strategies

	Skimming	Penetration
Strategic aspects		
Introduction objective	Position product as superior	Increase market penetration
Tactical aspects		
Initial price	Higher	Lower
Price decrease	Quick	Slow

Table 28: Validated strategic launch incentives and marketing focus

Strategic launch incentive	Marketing focus
Launching product with complementary technology	Form strategic alliances Create unique distribution channels Focus on channel partners Exploit tactical alliances Use reference sites
Reduce risk of adoption	Emphasize low risk Offer different versions targeted at different buyers Use opinion leaders Have trial programs Cultivate a winner image
Attractive price-to-performance ratio	Supply to OEMs to incorporate in other products Create unique distribution channels Target high-value users Emphasize low price
Generate a broad market	Supply to OEMs to incorporate in other products Provide clear product information to the market Educate the market to understand new uses
Develop superior product for targeted niche	Emphasize technology superiority Concentrate on niches

Table 29: Validated success measures

	New to the world product	New product line	Addition to existing product lines	Revision/Improvement to existing products	Repositioning	Cost reduction
First customer measure	Customer acceptance	Revenue or satisfaction	Market share	Customer satisfaction	Customer acceptance	Customer satisfaction
Second customer measure	Customer satisfaction	Market share	Revenue growth or satisfaction or acceptance	Market share of revenue growth	Satisfaction or share	Acceptance or revenue
Financial measure	Profit goals & IRR/ROI	Met profit goal	Met profit goal	Met profit goal	Met profit goal	Met profit goals
Performance measure	Competitive advantage	Competitive advantage	Competitive advantage	Competitive advantage	Competitive advantage	Performance or quality

The validated, customized LST is also presented in Appendix J. Note that this LST is already filled in for the offer which has been defined in the market approach.

6.4 Conclusion

In this section, the constructed set of introduction strategies and the original LST has been validated using data on two previous new product introductions of Corbion. These two cases included a radical new product and an incremental new product. First, the strategic launch decision have been validated by comparing the values of these launch decisions between the cases and by comparing

them with the expected value given in the constructed strategies. Several validation issues arose, which have been individually discussed. If required, the introduction strategies and LST were adapted to match the current situation of Corbion. Second, the tactical launch decisions have been validated by comparing the applied with the recommended launch tactics. Differences between these launch tactics have been further investigated and adapted if needed. The result of this validation is a set of introduction strategies and LST which is customized for Corbion. This customized LST will be applied in the next chapter to determine the suitable introduction strategy for the offer of PURAC FCC in combination with a spray system.

7 Applying the LST

The application of the launch strategy template is the fifth phase of the determination of the route-to-market of Table 1 and it is the second step defining of the suitable introduction plan.

The improved LST has been filled in for the offering of PURAC FCC in combination with a spray system, as this was the recommended offer for of the strategic market approach to partner up with several spray system suppliers. This combination of PURAC FCC with a spray system will be further referred to as the offering or offer. The following chapter will present the filling in of the LST questionnaire, including the motivation for the answers, followed by the results and recommendations of the LST.

7.1 Filling in the LST

The filled in LST questionnaires regarding the product, market and firm characteristics and the weights of these characteristics are shown in Appendix J. The motivation for these answers is given in Appendix K. A summary of the values of the strategic launch decisions is also given in Table 30. These answers are the combination of the filled in questionnaire by the category manager of the meat and culinary division of Corbion and the market and business analysis for both the EU and US market. As the answers for both markets are the same, they are presented together.

Table 30: Values of the strategic launch decisions for the offering of PURAC FCC in combination with a spray system

Theme	Decisions	Value for PURAC FCC with spray system
Strategic decisions		
Product strategy	Product innovativeness	Radical new innovation
	Product newness	Addition to existing product line
	Product advantage	Never seen before
	Product compatibility	High
Market strategy	Product Life Cycle stage	Introduction
	Market growth rate	< 5%
Firm strategy	Introduction objective	Get foothold in new market Increase market penetration
	New Product Development Driver	Technology driven
	Targeting strategy	Selective
	Innovation Strategy	Innovator
Other strategic launch decisions		
	Strategic incentive	Reduce risk of adoption
	Introduction objective	Increase market penetration and speed to market

The results and recommendations of the filled in LST are displayed in Appendix J and are further discussed in the next sections.

7.2 Results of the LST

Based on the given answers and weights of the previous section, the LST has calculated results with respect to the scoring for the product innovativeness, product newness and introduction strategies

for both markets. These results will also be presented in the following section. Because the filling in of the LST was the same for both markets, the results are also the same for both markets.

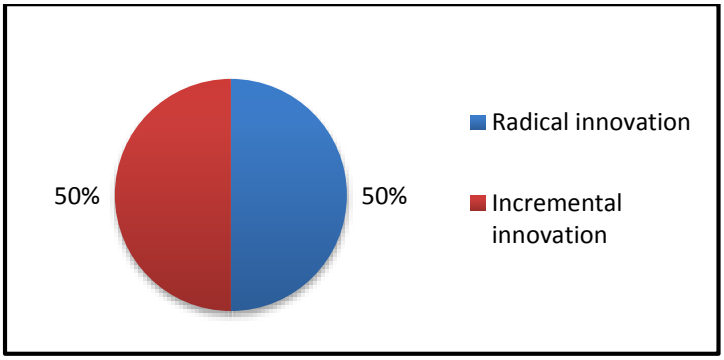

Figure 11: Product innovativeness scoring

The product innovativeness scoring is shown in Figure 11. From this, it can be seen that the offering of combining the spray machine with the lactic acid both radical and incremental of nature. It a really new offering, but the separate product are not that new. However, the innovativeness spectrum only distinguishes between a radical and an incremental innovation.

Based on the newness of the offering to the company and to the market, the LST indicates that this offering would be categorized as being an addition to existing lines. Indeed, lactic acid is currently already being sold by Corbion for other applications. However, lactic acid is relatively new for the meat decontamination market.

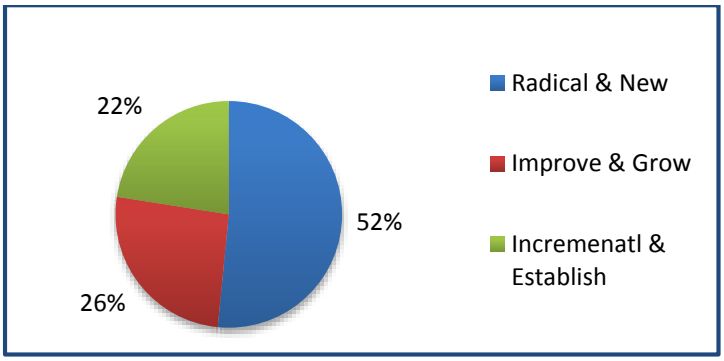

Figure 12: Strategy scores

Finally, the LST shows the scores of the three introduction strategies, in Figure 12. From this, it can be seen that the Radical & New strategy has the highest scoring by far. This is in line with the fact that the offering of the a spray machine and lactic acid is really new, in a new market. With these results, the LST has selected the most suitable introduction tactics, strategic focus and success measures.

7.3 Recommendations of the LST

Based on the results of the previous section, the LST has selected the most suitable introduction strategy, and has given recommendations on the tactical launch aspects, the strategic focus of the introduction strategy and the recommended success measures. Because the input for the LST was the same for both markets, results and recommendations are also the same both markets. These

recommendations are also given in Table 31, which will be further discussed in the remainder of this section.

Table 31: Recommendations for the tactical launch decisions for the offering of PURAC FCC in combination with a spray system

Theme	Decision	Recommendation
Tactical recommendations		
	Marketing objective	Gain awareness
Product	Brand	New Brand
	Assortment breath	Low
	Complementary services	Ensure proper support
Distribution	Density	Selective
	Channels	New or current Direct
Promotion	Objective	Clearly communicate product characteristics Inform Educate, generate positive word-of-mouth
	Strategy	Push
	Promotional mix	Advertising Personal selling
Price	Strategy	Penetration
	Initial price	Low
	Price decrease	Slow
Other recommendations		
Strategic focus	Preferred strategy	Targeted low risk
	Actions	Emphasize low risk Offer different versions targeted at different buyers Use opinion leaders Have trial programs Cultivate a winner image
	Success measures	Market share Revenue growth or satisfaction or acceptance Met profit goal Competitive advantage

The tactical recommendation show that the main marketing objective should be to gain awareness for the offering, in which a new brand should be used, using new, direct channels, clearly communicating the product characteristics, and applying a penetration pricing strategy, in which the initial price is relatively low and remains stable over time.

The recommended strategic focus is to apply a targeted low risk strategy. The low risk of adoption should be emphasized to the target customers. In this, it is recommended to offer different versions for different buyers. This can be translated to offer the combination of a spray system and lactic acid with different suppliers. As meat companies often have a preferred supplier with respect to their meat processing equipment, it is recommended for Corbion to try to partner up with different suppliers of spray systems. Other recommendations include opinion leaders and offering a trail program. However, offering a trail program is not considered to be suitable in this situation, as the offer includes a capital intensive good, which is the spray machine.

Finally, the LST recommends which success measures to use. As the offering is categorized as being an addition to existing product lines, the customer success measures should focus on gaining market share, customer acceptance and revenue growth. Furthermore, the meeting a set profit goal and gaining a competitive advantage include the recommended success measures.

7.4 Conclusion

In this section, the usage of the LST for the determination of the product bundle of PURAC FCC with a spray system has been presented. First, the filled in questionnaire and weight, and the motivation of the answers of the questionnaire has been presented. Based on this input, the validated LST has calculated the results with respect to the innovativeness of the product, the type of newness and the scores of the strategies. The strategy with the highest score was selected as the most suitable introduction strategy for the current offering of PURAC FCC, which is the Radical & New strategy. Based on this strategy, the LST has presented a set of tactical launch recommendations, which has been shortly discussed. With these recommendations given by the LST, the introduction plan for the offering can be constructed. This will be done in the next chapter.

8 Introduction plans

The construction of the introduction plans is the sixth and final phase of the determination of the route-to-market of Table 1 and it is the fourth step of defining the suitable introduction plan. With the recommendations of the LST, an introduction plan for both markets has been constructed. Because the recommendations for both markets are the same, one general introduction plan will be presented. However, because there are some differences between the two markets, nuances between the introduction plan of the EU and US markets will be given if applicable.

The route-to-market for both markets is through offering a product bundle of PURAC FCC in combination with a carcass decontamination spray system, in which several loose partnerships with multiple suppliers of these spray systems will be established. For this offering, the product, distribution, promotion, price, strategic focus and success measures will be presented in the next sections.

8.1 Objective

The marketing objective of this offering is to gain awareness. According to the interviews, meat companies are currently not aware of the usage of lactic acid for carcass decontamination and its advantages. Therefore, the whole introduction plans should aim to create this awareness and convince the meat companies to start using PURAC FCC. The advantages of this offering over the offering of the competitors should thus be emphasized.

Also, the financial aspects of the offer should be highlighted, as the market research and interviews showed that meat companies are very cost conscience. The first financial aspects which should be clearly presented are the pre-financing of the spray system. Due to this pre-financing, meat companies will have a lower risk when adopting this offer. The second financial aspect to be highlighted is the need for using the proper application method. The findings from the meetings showed that the costs of applying PURAC FCC through a washing machine exceed those of applying it through a spray system, even if an investment in the spray system is required (Appendix E). Therefore, the financial advantages of the offer will be a convincing argument for meat companies.

8.2 Product

As discussed in the market approach, for the EU market PURAC FCC will be bundled with a carcass decontamination cabinet, washing cabinet or general spray system. For the US market, it will be bundled with a general spray system or food spray machine. The combined offering is new and never seen before. The LST recommends to use a new brand, with a low assortment, for this offering. However, because this offer will be introduced by partnering up with multiple suppliers of carcass decontamination systems, using new brands for each offering from a different supplier would lead to a large set of brands, and thus a broad assortment. Using multiple brand for almost the same offering will probably also confuse the meat companies. Instead, a co-branding strategy can be applied, in which Corbion and the spray system supplier pair their brands for branding the new offering. This will be perceived as a new brand, while keeping the product assortment small and clear.

8.3 Distribution

With respect to the distribution, the LST recommends to use selective distribution using new, direct and current channels. For the current introduction, this results into distribution direct to the

customer, in which strategic customers will be targeted. Using direct channels is also most suitable because the offering will be configured per customer with respect to the pre-financing and the market approach of the spray equipment. Therefore, indirect distribution is not suitable.

Although the customers will be new for Corbion, they will not be new for the supplier of the spray system, as this supplier is already present in the market. Therefore, these already established distribution channels could be employed to reach the meat companies.

8.4 Promotion

The LST recommends a promotion strategy aim to clearly communicate the product characteristics and advantages, and to create positive word-of-mouth. Also, the business research indicated the importance of convincing the meat company that the financial benefits of the combination of PURAC FCC with a spray system are worth the investment in this spray system. Therefore, this should be clearly communicated to the meat companies. Also, as indicated in the interviews, the expected reduction in meat waste and the resulting decreasing in cost of meat should be emphasized. In this, a push strategy should be employed using advertising and personal selling.

The aim to communicate the product characteristics and advantages clearly should be used in both markets. However, a combination of a push and pull strategy would be more suitable for convincing the meat companies to adopt the offer. This promotion strategy and the other promotion aspects differs per market, and will thus be presented per market.

8.4.1 EU market

For the EU market, the promotion should be targeted at three parties in the meat processing supply chain, the slaughterhouses, food processors and retailers, as shown in Figure 13.

Figure 13: Supply and targeted promotion for the EU meat supply chain.

The promotions should be targeted at the slaughterhouses, as they are the target customer. Next, the promotion should be aimed at the retailers, as they have a large power over the meat supply chain. In the business research, it was shown that slaughterhouses prefer a market pull strategy, in which a retailer demands the usage for a new technology , as the slaughterhouses will be able to increases the price of the meat due to this new technology. In the case of a technology push strategy, the retailer will not willing in pay a higher price for the new treatment. Therefore, it is of high importance that both the slaughterhouses and the retailers are aware of the advantages of PURAC FCC. Also, most European countries have a few retailers dominating the market. If these retailer demand that the slaughterhouses adopt carcass decontamination treatments with PURAC FCC, a large set of slaughterhouses will be inclined to adopt this treatment. Finally, the meat processors and packers should be targeted as they should be aware of PURAC FCC for carcass decontamination,

because they could become a target market in the future and because they are the link between the slaughterhouse and the retailer.

The European meat market is characterized as highly fragmented. Therefore, targeting all customers would require a large amount of time, and would probably be ineffective. Instead, the strategic customers should be identified and targeted. These strategic customers are the large slaughterhouses, of which an overview is given in the market research (Table 35). Also, the innovating slaughterhouse, who will be more inclined to adopt a new technology should be targeted. Furthermore, cooperations of slaughterhouses could be part of the strategic customers. Once these strategic customers have adopted the offer, smaller, waiting slaughterhouses will be probably more inclined to follow their example and also adopt the new technology. Finally, the lists of all section I and II slaughterhouses in the EU-27 could be used to identify strategic customers and regions.

Besides targeting the strategic customers, strategic regions could be identified and targeted. The market research shows that Austria, Germany and Italy have a large number of slaughterhouses compared to other EU-27 countries. However, this concerns the number of beef slaughterhouses, not their sizes! If Corbion would want to identify strategic regions, this should be further investigated.

As stated, advertising and personal selling are the recommended promotional elements. This advertising could be done meat industry specific magazines etc. Personal selling could be done by approaching prospective customers, presenting the offer and aiming to convince the meat company of adopt the offer.

8.4.2 US market

The promotion of US market is different than the promotion of the EU market, as the meat supply chain in different between the two markets. In the US market, one company often controls several steps of the US meat supply chain, as shown in Figure 14. Therefore, these companies should be targeted as being a slaughterhouse and food processors and packer. As in the EU market, the retailer should also be targeted, because they can demand for the meat to be decontaminated using PURAC FCC.

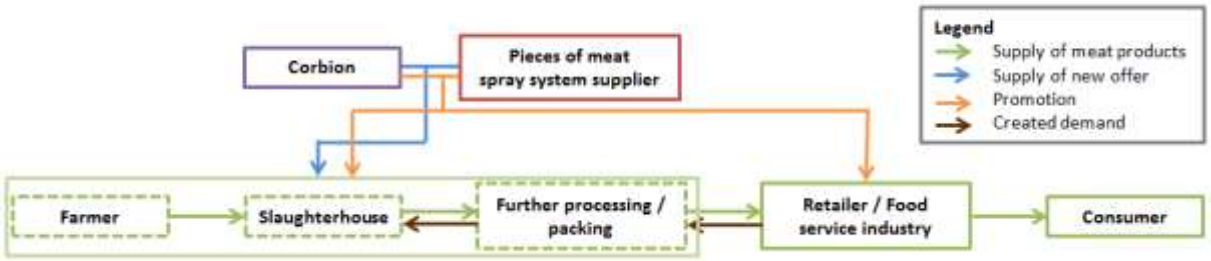

Figure 14: Supply and targeted promotion for the larger market players of the US meat supply chain.

The US meat market is less fragmented than the EU market, as a few companies dominate the market (shown in Figure 24). These companies from the strategic customers for the US market. Once these strategic customers have adopted the offer, the smaller, waiting food processors will be probably more inclined to follow their example and also adopt the new technology.

For the US market, advertising and personal selling are also the recommended promotional elements. These promotional elements can be employed the same way as for the EU market, through industry specific magazines etc. and directly approaching the prospected customers.

8.5 Price

The LST recommends a penetration strategy for the new offer, in which the initial price should be relatively low and stable over time. However, because the offer is new, never seen before and unique, Corbion could ask more than when to two products would be sold separately. Also, because the spray system is paid back for over a period of time, resulting in a lower risk for the meat company, the price can be higher than for the stand alone products. Furthermore, the spray system is pre-financed, leading to interest costs which should be taken into account. Finally, when there is a high uncertainty with respect to which price to ask, Corbion prefers to set the price relatively high. In the case that the market accepts this high price, this would lead to a higher profit. If the market does not accept this price, the price can be lowered. When setting the initial price to low, this would lead to a lower profit and the price cannot be increased later. The initial price level should however, not be too high, as meat companies are very cost conscience. So, although a penetration strategy is recommended, the initial price could be set relatively higher.

The exact price of the offering cannot be determined in this report, as this is dependent on the costs of the spray system. In this, the total life cycle costs (including initial investment costs, maintenance costs and disposal costs) and depreciation for a spray system are relevant. Also, the interest rate and transaction costs of the partnership should be taken into account.

After the two years of paying back the spray installation, this installation becomes property of the property of the slaughterhouse, after which the slaughterhouse will only require lactic acid, as the maintenance of the spray system is not Corbion's responsibility. Now, the price for PURAC FCC should be relatively low, in order to prevent the slaughterhouses from switching to other suppliers of lactic acid.

8.6 Strategic focus

Strategically, the focus of the introduction should be to emphasize a low risk. This can be done by offer different versions targeted at different buyers, use opinion leaders, have trial programs and cultivate a winner image. In the current situation, instead of offering different versions, the offering should be customized with respect to the type of machine, amount of PURAC FCC per time period, the financial aspects and length of the contract. The strategic customers could be motivated to function as an opinion leader. If they adopt the offering and are content with it, smaller companies would perhaps follow their example. A trial program is not advised, as it is take backs are not offered in this industry. Cultivation a winner image can be achieved by having a proper reputation, partnering up with suppliers with a good reputation and position the offer as superior.

8.7 Success measures

For this offer, the success measures should focus on gaining market share and customer acceptance. With respect to the financial aspects, a realistic profit goal should be set. Also, the competitive advantage of the offering should be taken into account, to determine the performance. The exact realization of these goals should be set by the marketing department of Corbion.

8.8 Conclusion

This chapter presented the introduction plans for PURAC FCC as a product bundle with a spray system. The recommendations of the LST has been further elaborated for the EU and US market. In this, the marketing objective, marketing mix, strategic focus and recommended success measures are presented. An important part of the marketing mix is the promotion aspect, because the product advantages and financial consequences of these advantages should be clearly communicated to the meat companies and the retailers they sell to.

9 Conclusion

This master thesis aimed to answer the question what the most appropriate route-to-market is for Corbion's product PURAC FCC in the EU carcass and US pieces of meat surface treatment market in order to improve the chance of product success. The importance of this study is indicated by the dependency of the product success of PURAC FCC on a complementary product, a spray system. Due to this interdependency, PURAC FCC cannot be launched as a stand-alone product. Instead, it should first be defined how to manage the dependency of the product success of PURAC FCC on the complement product, which has been done by defining a market approach in which this dependency is managed. This market approach combined what to offer (a stand-alone product, a bundle of products or a service), using which complement product strategy (do nothing, buy and resell, forming a partnership of making it yourself) and with which supplier. Given this market approach, the introduction plans for PURAC FCC for the EU and US market has been determined.

9.1 Empirical Findings

Empirically, this research focused on two levels. First, the market approach for the route-to-market for managing the interdependency of PURAC FCC with a spray system has been defined. This definition has been performed by first constructing a set of suitable market approaches which covered what to offer, through which strategy and with which suppliers. The constructed set consisted of three market approaches: (1) selling the products separately, (2) bundle products with other suppliers through a partnership or (3) sell to a service integrator though an OEM-buy construction.

After scoring various characteristics of these three market approaches, the product bundling market approach was found to be most suitable due to two reasons. First, this market approach was financially most attractive due to the low initial investment and pre-financing. Second, the preferences of Corbion to establish a close relationship with the customer, lock them in, and ensure the proper application methods was most in line with this market approach.

After the product bundling approach was selected, it has been further operationalized based on insights from the market research, interviews and (in)formal meetings. The products will be bundled through several loose partnerships with suppliers of spray systems. The spray system will be pre-financed and paid back for in two years maximal. The price of the spray system will be spread over this period and will be combined with the costs for PURAC FCC. After the spray system is paid back for, the meat company can buy PURAC FCC directly from Corbion. For the EU marker, loose partnerships should be realized with several suppliers of carcass decontamination cabinets, carcass washing cabinets or general spray systems. For the US market, these partnership should be with suppliers of general spray systems or food processing equipment. An essential criterion when selecting suitable suppliers of spray systems is that these suppliers are already present in the meat industry and that they can configure their spray system to be compatible with PURAC FCC.

The second level of the empirical findings focused on the determination of an appropriate launch strategy for the bundled products. From the academic literature on holistic and partial new product introduction strategies, a set of three holistic introduction strategies has been constructed. These three strategies are the Radical & New, Improve & Grow and the Incremental & Establish strategy. All three strategies consist of strategic and tactical launch aspects. The Radical & New strategy is

suitable for really new products for which awareness should be created. The Improve & Grow strategy is preferred in the case of product improvements for which differentiation should be stressed. The Incremental & Establish strategy is appropriate in the case of incremental improvements to maintain customer loyalty. Besides this set, the pricing strategy, skimming or penetration, and the strategic focus are included as two separate sub strategies, as these are compatible with all three introduction strategies. These strategies have been used to create the Launch Strategy Template (LST), an Excel tool which recommends and introduction strategy and its the tactical launch decisions, based on the strategic launch decisions.

The LST has been validated and customized for Corbion using two historical new product introduction cases with different levels of new product innovativeness. In this validation, the Radical & New and Improve & Grow strategies had a significant amount of overlap with these two validation cases. The differences between the applied and recommended launch strategies and tactics have been further explored and used to adapt the LST when needed. The result was a Corbion specific LST which combined the theory on launch strategies and tactics with Corbion's common introduction practices. This customized LST enables Corbion to determine a suitable, complete introduction plan for their new products.

The Corbion specific LST has been filled in for the product bundle of PURAC FCC in combination with a spray system to design the appropriate launch strategy and tactics. The results show that the Radical & New strategy is most suitable. In this strategy it is recommended to create awareness for this new offering, use a low product assortment, distribute the product through new and current channels, clearly communicate the product advantages. Other recommendations included to set a low(er) product price, aim to reduce the perceived risk and use market share and customer acceptance as success measures.

This recommended strategy has been further operationalized into an introduction plan for PURAC FCC in the EU and US markets. The recommended launch plan has been combined with the findings from the market research and the case study, resulting in two tailored introduction plans. There are two aspects in these plans which should be highlighted. First, stressing the financial advantage of the combined offer is a main goal of the introduction plans, as this advantage is of high importance for the targeted meat companies, as they are very cost conscience. Second, in order to increase the chances of adoption, the promotion should not focus solely on the meat companies who will use the PURAC FCC and the spray system, but also on other companies in the supply chain, including the meat processors and retailers, as these companies have a power position over the whole meat supply chain and will thus have an influence on the adoption of the offer.

9.2 Theoretical implications

There are several theoretical implications resulting from this research. First, this research contributes to the current literature. Although the existing literature on new product introductions is extensive, there is a lack of general, holistic introduction strategies. Instead, there are multiple partial strategies, focusing on one or two aspects of a product launch. This research adds a set of holistic product introduction strategies to the existing theories. These holistic sets can be customized for different companies and markets, and are thus applicable in various situations.

Secondly, this report has created insights in the influence of a complementary product when introducing a new product. If there would have been no dependency on a complementary product for the current introduction case, the construction of a suitable market approach would not have been performed. Instead, this report would only have focused on constructing, validating and filling in the LST. In this case, the recommended strategy would likely not have been the Radical & New strategy, but the Improve & Grow strategy, as the stand-alone product would be a less radical innovation and an addition to the current product lines. This influence of a complementary product on the suitability of an introduction strategy is unfortunately lacking in the current new product introduction literature.

Next, the current research has shown that the theoretical framework of the LST accurately captured the common practice of Corbion when introducing a new product quite accurate. However, differences exist between the recommendations from the literature and common practices within Corbion. The most apparent discrepancy between literature and practice, is the perceived importance of the market characteristics. In the original LST, the market strategy is covered by three questions which is the lowest number of decision criteria of the three themes (product, market and firm). After customizing the LST for Corbion, the market strategy had only two decision criteria, the stage of the product life cycle and the market growth rate which likely are highly correlated. These criteria are probably also highly correlated with other decision criteria, such as product innovativeness, product newness and product advantage. This correlation could be high to such an extent that the two market strategy criteria could be deleted from the LST, without decreasing its reliability. This implies that the market characteristics have a low impact when determining the introduction strategy. This is opposite to the perceived importance of the market characteristics by Corbion's marketing department. From Corbion's point of view, an introduction strategy is determined based on market size and price uncertainties (Appendix E). So in this case, the market strategy has a large impact on the selection of the introduction strategy.

9.3 Management implications

The results of this research should enable Corbion to further develop the route-to-market for PURAC FCC. The constructed market approaches and introduction plan should form a basis from which Corbion can implement the proposed recommendations.

9.3.1 Implementing the route-to-market

These results can be added to the new product development model of Corbion. The market approach should be part of the early stage of the new product development process and the execution of the introduction strategy should be part of the launch phase. The market approach consists of establishing partnership with the suppliers of the spray systems. Corbion should asses the suitability of the different spray system suppliers. When screening spray system supplier for a potential partnership, the following must-meet criteria should be taken into account:

- Whether the spray system supplier is already present in the market.
- Whether the spray system can be used in combination with PURAC FCC.
- Whether the spray system supplier is willing to partner up with Corbion.

Besides these must-meet criteria, there are also criteria which would be nice if they are met, but this is optional. These would-be-nice-if criteria include:

- Whether Corbion has previously collaborated with this partner.
- Whether this partner is present in both markets the EU and US market.
- Whether this partner is also present in other geographical meat processing markets.

Finally, before entering the market, the partnerships with the spray system suppliers should be clearly defined. The elements of this clearly defined partnership include the following:

- Maintenance and failure service provided by the spray system supplier.
- A clearly defined financial construction for the pre-financing of the spray system.
- Both PURAC FCC and the spray system should be properly configured to be suitable for meat decontamination.
- Clear defined division of responsibilities of both parties.
- A proper support system for the new offer should be ensured.

The execution of the proposed introduction plans is (the main) part of the launch phase of the new product development process. This execution should be performed by the marketing department in collaboration with the marketing department of spray system suppliers. In this, the developed introduction plans should be further operationalized. By using the constructed introduction plans as a base and combining it with the marketing expertise of Corbion and the spray system supplier, the final introduction plan can be developed and executed. According to Kerin et al., (2005), these final plans should include:

- Further operationalization of the marketing mix.
- Construction of the budget, including estimates of revenues, expenses and profits.
- Define Definition of characteristics and timing of product, price, promotion and place actions.
- Development of detailed plans to execute the marketing program.

After these aspects have been covered, the introduction plan can be implemented. In this, the following actions should be performed according to Kerin et al., (2005):

- Obtain the required resources.
- Develop schedules.
- Execute introduction plan.
- Assign responsibilities and deadlines.
- Construct marketing research reports on sales, awareness and effectiveness.

Besides the implementation of the constructed route-to-market and the introduction of PURAC FCC, this research also has other management implications for Corbion. These will be presented in the next section.

9.3.2 Other management implications

Although the main implication for Corbion is to operationalize the constructed route-to-market, other implications include the usability of the market approach and the application of the LST for other products. These implications will be presented in this section.

The applied methodology of the construction and selections of the suitable market approaches are not only relevant in the current case, but could also be applied in other situations where there is a dependency on a complementary product. Also, the customized LST could be applied in various other situations. The LST was found to be an effective tool for the determination of a suitable introduction strategy and should therefore also be applied for other new product introductions of Corbion, or other companies.

Furthermore, the LST not only determines a suitable introduction strategy, it also provides recommendations for the complete set of launch tactics. The LST has given extra recommendations for the launch tactics which were normally not applied by Corbion. Corbion should consider whether these launch tactics should be adopted in their standard set of introduction tactics.

9.4 Limitations and future research

Although this research is extensive, there are some limitations. On a general level, this case study is performed at one company and concerns one product. Therefore, the findings cannot be generalized. However, as discussed in the methodology, this case study does contribute to the theoretical knowledge on new product introductions.

Second, the list of selection criteria of the market approach could be lacking relevant criteria. The current research focusses on what to offer, how to offer and with whom to offer the complementary product. These three parts of the market approach could have more suitable options, or other aspects could also be relevant. This could be further investigated in future research.

Also, the recommended route-to-market has not been empirically evaluated. So although it is suggested that a product bundling market approach and Radical & New introduction strategy is suitable, this suitability is not further assessed. This suitability should be further investigated in future research.

Then, the validation of the LST is based on only two previous introductions. This number is too low for a complete, reliable validation. Future research could therefore focus on validating and applying the LST further within Corbion, between other companies and other industries. These other industries should also include the business-to-consumer industry, as the current research focused solely on the business-to-business industry. Also, the validation and application of the LST in the service industry could be covered in future research. Besides extending the LST to other industries, it should also be further investigated if the LST should be extended with other relevant introduction aspects such as order of market entry or type of industry.

Furthermore, the LST could not be validated for other introduction cases in which there was a complementary product or in which a partnership was recommended. Instead, the LST has been validated using introductions of stand-alone products. Therefore, the actual suitability of the

recommended introduction strategy for the current offer with the complementary product cannot be guaranteed and is a potential research area for future research.

Next, although the recommendation of the LST are extensive, not all relevant aspects of a new product introduction are covered by it. For instance, the power of companies in the supply over this supply chain cannot in so included in the LST. In the current case, these companies hold a key role in the success of the new product. If they decide not to adopt the new product, the changes of product success will probably drop significantly. Also, the recommendations of the LST are relative. If a higher price is recommended, it is not stated what this price should be, so it will still be unclear which exact price would be suitable. Future research could give insights in the completeness of the LST and could extend the LST.

Also, the correlation between decision criteria is not taken into account in this research. If the correlations between all strategic decisions criteria are high, a lower number of decision criteria would still lead to a reliable choice of the suitable introduction strategy. Future research could give more insights in these correlations.

Furthermore, the suitability of the different spray systems in combination with PURAC FCC is not further explored. Although this suitability is assumed, it could be further investigated.

Finally, the suppliers of the spray system are not further included in the research. Therefore, it is unclear whether they are willing to partner up with Corbion and how they would prefer this partnership. This should be investigated in future research.

9.5 Wrap up

To summarize, the key take away of research is: Don't let the success of a PURAC FCC depend on another product or party. Manage this dependency by bundling the two products and introduce this offer as a really new thing.

Appendix A: References

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Used websites

Name	Website
General	
Euromonitor	http://www.euromonitor.com
FAO	http://www.fao.org/home/en/
Mintel	http://www.mintel.com
Proquest	https://www.proquest.com
Purac	http://www.purac.com
Sciencedirect	http://www.sciencedirect.com
Scopus	http://www.scopus.com
Wiley	http://www.wiley.com
Financial figures	
2 Sisters Food Group	http://www.2sfg.com/
ConAgra Foods Inc.	http://www.conagrafoods.com/
Danish Crown	http://www.danishcrown.com/
HK Scan	http://www.ldc.fr/
Hormel Food Corp	http://www.hormelfoods.com/
LDC	http://www.ldc.fr/
Maple Leaf Foods, Inc.	http://www.mapleleaffoods.com/
Smithfield Foods Inc	http://www.smithfieldfoods.com/
Sysco Corp	http://www.sysco.com/
Terrena	http://www.terrena.fr/
The Hillshire Brands Co	http://www.hillshirebrands.com/
Tyson food, Inc.	http://www.tyson.com/
Vion	http://www.vionfoodgroup.com/nl/
Westfleisch	http://www.westfleisch.de/
Spray system suppliers	
Anro Spray Solutions	http://www.anro.eu/
Approved Design Ltd	http://www.adluk.net/
APV (Invensys Companies)	http://www.spx.com/en/apv/
B.R.E.	http://www.br-e.be/
Baader	www.baader.com/en/index.html
BikroCorp	http://www.birkocorp.com/equipment/harvest/
CEMSAN	http://cemsanmakina.com/en
Couédic Madoré Équipement	http://www.couedic-madore.com/en-GB/index.html
Daanen Import-Export b.v.	http://www.daanenpoultry.nl/
Dan Mar Co	http://www.danmarco.net/
Diversey	http://www.diversey.com/
Ecolab	http://www.ecolab.com/
Food Processing Equipment	http://www.fpe.net.au/home.html
Heat & control	http://www.heatandcontrol.com/
Inox Meccanica	http://www.inoxmeccanica.it/eng_index.htm
J&W Service	http://www.jwservice.nl/index.html
Jarvis Products Corporation	http://www.jarvisproducts.com/
LeFiell Company	http://lefiellco.com/meat.html
Marel	http://www.marel.com
METALQUIMIA	http://en.metalquimia.com/

Name	Website
Meyn	https://www.meyn.com/
MPS meat processing systems	http://www.mps-group.nl/en/
Nordson EFD	http://www.nordson.com/en-us/divisions/efd/pages/default.aspx
Saturn Spraying Systems Ltd	www.saturnspraying.com/
Schroder	http://www.schroeder-maschinen.de/en/home.html
Sebax	http://meatindustry.tops.pl/?page_id=447
Sono-Tek Corporation	http://www.sono-tek.com/
Spray Dyanmics	http://spraydynamics.com/meatpoultry/index.htm
Spraying systems Co	www.spray.com/
Spraymasters systems	http://www.spraymastertech.com/
Transnational Agri Projects B.V.	http://www.transnationalagri.nl/
W R Cary Engineering, Inc	http://www.wrcary.com/
WMR	http://watermr.com/

Appendix B: Market analysis

Although PURAC FCC is used for meat surface decontamination, obtaining proper numbers on the usage of any substance for meat surface decontamination by any company is not possible. However, the market in which the potential customers (i.e. slaughterhouses and meat processors) operate can be analyzed. Therefore, this market analysis will focus on the market of animal slaughtering and meat processing.

As indicated in the research outline, this research focusses on two markets, the European market for carcass decontamination and the United States market for pieces of meat decontamination. For the European market of beef carcass decontamination (will be further referred to as the EU market), the main customers are the slaughterhouses in which beef is processed. The product will be used to decontaminate the carcasses of these animals, and therefore, the demand for PURAC FCC will not only depend on the market size of slaughterhouses in the EU but also on the demand for beef. Due to regulations, carcass decontamination of pork and poultry is not (yet) approved by European law. However, the figures on pork and poultry will be presented, as these could be useful for if carcass decontamination of pork and poultry is allowed in the future.

The second market is the packaged meat pieces market of the United States (will be further referred to as the US market), in which the main customers are the meat processors of beef, pork and poultry. In the meat supply chain, the slaughtering of livestock and further processing of meat is often done in different plants due to regulations, with the exception of poultry. The demand for PURAC FCC can be derived from the market size of the meat processors and the total demand for beef, pig and poultry.

This market analysis is structured as follows. First, both markets are defined. Next, the European market for carcass decontamination is presented, in which the market characteristics and trends, the number of slaughterings and an overview of the major European slaughterhouses is presented. Following, the United States meat processing market is explained, in which the market characteristics and trends, production and the major market players are given. Finally, a financial overview of both markets is given.

Definitions and scope

As stated, this market research explores the EU market and the US market. However, before presenting these markets, it should be clearly defined of which types of companies they consist, which types of species are included, which regions are meant and which time horizon is used. These aspects will therefore be presented in the following section.

Types of companies

The general meat supply chain is shown in Figure 15, from which the difference between a slaughterhouse and a (further) food processor can be seen. A slaughterhouse converts livestock into (partial) carcasses, which are further processed and / or packaged by a meat processor.

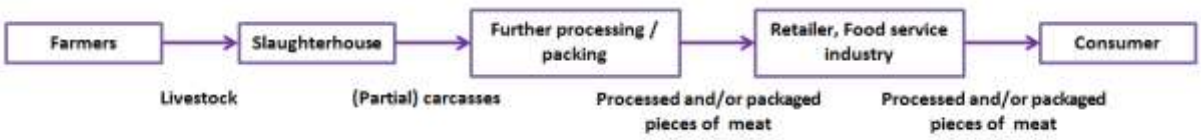


Figure 15: The meat supply chain

The EU market consists of the companies which decontaminate whole, half or quarter carcasses of beef, pig or poultry. Thus, this market concerns the beef, pig and poultry slaughterhouses in Europe.

The US market focusses on meat processors and meat packers, as they are the one who can decontaminate the pieces of meat before packaging. In the United States, the larger meat companies have vertical integrated their business, leading to them controlling the whole supply chain from farm to packaging.

Species

Currently, only the decontamination of beef carcasses is allowed in Europe. However, it is possible that carcass decontamination of pig and chicken will be allowed in the future. Therefore, these species are also included in this analysis.

The species have different names when going through the slaughtering process. Before slaughtering, the used databases give numbers regarding cattle, pig and chicken. After slaughtering, during production, the used databases refer to beef, pork and poultry numbers. The types of species and meats are further defined in Table 32.

Table 32: Definitions of species and types of meat. (Source: FAO, 1994)

Name	Includes
Cattle	Bovine animals
Pig	Domestic or wild pigs
Chicken	Farmed birds including chicken, turkey, duck, geese, guinea fowl and quail
Beef	Meat of bovine animals
Pork	Meat from pigs, excluding butcher fat and bones
Poultry	Meat from farmed birds

Although the types of species are defined as stated in Table 32, some databases use other definitions with respect to the types of species and meats. In this case, this will be indicated.

Regions

The EU market covers the slaughterhouses in the EU27, which consists of Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland, Italy, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia and the United Kingdom.

The US market focusses on the food processing plants within the 50 states of the United States.

Time scope

The time scope of this analysis is from 2008 until the present. However, most databases currently have data until 2012 or 2013. Although there is enough data available before 2008, this data is considered to be outdated. Also, it is expected that a timeframe of five years will give a sufficient view on both industries. Also, the EU-27 is established in 2008. Before this data, the EU consisted of less countries. Therefore, analyzing the EU before 2008 could lead to a distorted image of the industry.

Now that the markets have been defined, they can be presented, which will be done in the remainder of this appendix.

European carcass decontamination market

Market characteristics and trends[1]

The European meat processing industry is characterized as being a highly fragmented, capital intensive and complex industry with low profit margins. It is a specialist business and risky for the unprepared. Over the last past years, the pressure on the margins of processors has increased. In 2009 and 2011, the EU meat consumption fell due to higher prices and tight meat supplies. This also leads to consumer trading down on meat consumption to cheaper types of meats. Finally, price wars by retailers have a big impact on the margins of meat processors. The margin of meat processors is further under pressure due to an increase of the price of meat in combination with retailers demanding a lower price.

Retailers have an increasing power and influence on the supply chain. In this, they concentrate on buying for the lowest cost. Therefore, sustainable and secure supply is a major strategic issue. In most EU countries, there are a few retailers covering the majority of the market, which is also shown in figure Figure 16. These retailers have a large bargaining position with respect to their suppliers, and thus the rest of the supply chain.

Figure 16: Food market share of the top five food retail companies in EU, 2010. Source: Gira, (2012).

Furthermore, the industry is concentrating but most companies remain national, as cross-border merge and acquisitions are complicated due to local preferences by the suppliers and consumers. Realizing internationalization in the EU is difficult because procurement is localized as private farmers prefer to deal with local slaughterhouses and retailers favor the local firms as this discourages large processors from countervailing power. It is expected that internationalization will

[1] Source: Gira (2012)

take place, but this will take time. Currently, some Irish firms and Vion are one of a few international operators in beef. Also, due to different cultures, there are only few multi-species companies with red meat and poultry.

The larger market players are attempting to realize international synergies, but this is challenging due to localized procurement, the preference of retailers on the local, medium sized firms, the highly operational nature of the meat business in which short-term decisions making to prioritized over long-term strategic developments, the low margin and intense local competition.

Other trends include a slowly further concentration of the industry, forward integration into secondary cutting, further processing and retail packing plants. Furthermore, the intra-EU meat trade is increasing, driven by price and local differences between supply and demand.

Because the market is perceived as capital intensive, complex and of high risk, a high level of serverization is recommended. Serverization is also advised because a small investment in a service will probably be favored over a onetime big investment in a product by the slaughterhouses.

Number of slaughters

The number of slaughtering in the European market is shown in Table 33. This table shows that between 2008 and 2012, the number of cattle and pig slaughter has decreased, while the number of chicken slaughter has increased. This can be explained by the economic crisis of 2008, which lead to an increase in demand in cheaper (chicken) meat. However, this change in slaughter is relatively small per year. From this, it can be stated that the EU slaughter market is in a mature stage.

Table 33: EU-27 Slaughter (in 1000 heads) (Source: Corbion Purac, 2014)

	2008	2009	2010	2011	2012	% change '08-'12
Cattle	28,914	28,517	28,683	28,380	27,076	-6%
Pig	255,399	249,971	255,236	259,027	252,895	-1%
Chicken	5,974,054	6,220,259	6,237,105	6,335,654	6,472,112	8%

Table 33 also shows that there is a substantial market potential for the usage of PURAC FCC for carcass decontamination. Sadly, lactic acid (and thus PURAC FCC) is only allowed on beef carcasses. However, it is expected that in the future, this will also be approved for pig and chicken carcasses. These two species also form a substantial potential market. It should be noted, however, that because of size differences between a beef, pig and chicken carcass, more lactic acid will be required for a beef carcass than for a pig of chicken carcass.

Slaughterhouses

Almost every EU country offers a complete list of establishments handling, preparing or producing products from animal origin which are Regulation (EC) No 853/2004 approved[2]. Of this, the master

[2] An overview of all lists and more information can be found on:
http://ec.europa.eu/food/food/biosafety/establishments/list_en.htm

lists consists of 16 sections. For this research, only establishments of section I and II are relevant, which are defined as follows:

- SECTION I: Meat of domestic ungulates (cattle, calves, sheep, goats, pigs, bison, water buffalo and horses).
- SECTION II: Meat from poultry (farmed birds including chicken, turkey, duck, geese, guinea fowl, quail) and lagomorphs (rabbits, hares and rodents).

Using the separate list of establishments per country, an overview of the total number of approved slaughterhouses in the EU-27 in 2014 has been constructed, which is shown in Table 34. It should be noted that the section I and II slaughterhouses also include non-cattle, pig or chicken slaughterhouses. Some countries include a the species handled in the slaughterhouses, but because not every country provides this distinction, this has not been further taken into account.

Table 34: EU-27 Regulation (EC) No 853/2004 approved slaughterhouses in 2014 (Source: European commission, 2014).

Country	Number of SH section I	Percentage of total	Number of SH section II	Percentage of total
Austria	3467	25%	44	2%
Belgium	115	1%	83	3%
Bulgaria	-	-	-	-
Cyprus	-	-	-	-
Czech Republic*	221	2%	33	1%
Germany	5127	37%	280	10%
Denmark*	108	1%	11	0%
Estonia	50	0%	3	0%
Greece*	138	1%	40	1%
Spain	593	4%	216	8%
Finland	63	0%	17	1%
France**	261	2%	1005	37%
Croatia	175	1%	42	2%
Hungary	-	-	-	-
Ireland	42	0%	7	0%
Italy	1622	12%	209	8%
Lithuania	75	1%	11	0%
Luxembourg	3	0%	1	0%
Latvia	55	0%	1	0%
Malta	2	0%	6	0%
Netherlands	200	1%	33	1%
Poland	772	6%	462	17%
Portugal	125	1%	46	2%
Romania	161	1%	40	1%
Sweden	118	1%	31	1%
Slovenia	50	0%	7	0%
Slovakia	87	1%	7	0%
United Kingdom	275	2%	95	3%
- England	208	1%	78	3%
- Northern Ireland	14	0%	6	0%
- Scotland	31	0%	7	0%
- Wales	22	0%	4	0%
Total	13,905	100%	2,730	100%

* Number of fresh meat slaughterhouses and number of fresh poultry meat slaughterhouses
** Includes slaughterhouses and farm slaughterhouses
Empty cells indicate that the information was not available.

From Table 34, it can be seen that there are a relative high number of section I slaughterhouses in Austria, Germany and Italy. Germany, France and Poland have a relative high number of section II slaughterhouses. However, these figures do not state anything concerning the average size or production of the slaughterhouses. Most EU slaughterhouses often concern small scale, local operating slaughterhouses (Food Chain Evaluation Consortium (FCEC) , 2007). It is, however,

interesting to explore the major market players. This will therefore be presented in the following section.

Major market players

In this overview of the major EU-27 meat players, first a general overview is presented. Next, the major players with respect to each specie (beef, pork, poultry) are presented.

General

The European beef and pork processing market is highly fragmented, with national oriented firms and no genuinely multi-national players. The top slaughterhouses are very large, but the rest of the market are mainly small scale, locally operating plants. The poultry market is less fragmented, with 75% of production in hands of the 5 biggest players in some countries. However, these firms are still national oriented.

The top 15 meat companies of the EU 27 in 2010/11 according to Gira (2012) are displayed in Figure 17. In this, the net total production of the three species is depicted, expressed in CWE (Carcass weight equivalent), which is a measurement of livestock production, in which the weight of meat products is expressed in terms of the weight of a dressed carcass and includes inedible parts such as bones (Agrimoney.com, 2014).

The 15 companies from Figure 18 have a 12.1 million tons meat volume and hold 28% of the market share of the EU-27 GNProduction. This is an increase of 22% in production from 9.9 million tons in 2005/06 and a total market share of 23%. Furthermore, the top 100 firms have 23.6 million tons combined meat volume and represent 54% of the EU-27 GNProduction. Also, most of the top companies are pig meat or beef processors, rarely poultry. When combining this figure with Table 34, it can also be concluded that the market has a few very large players, followed by a large number of smaller companies, indicating the high level of market fragmentation.

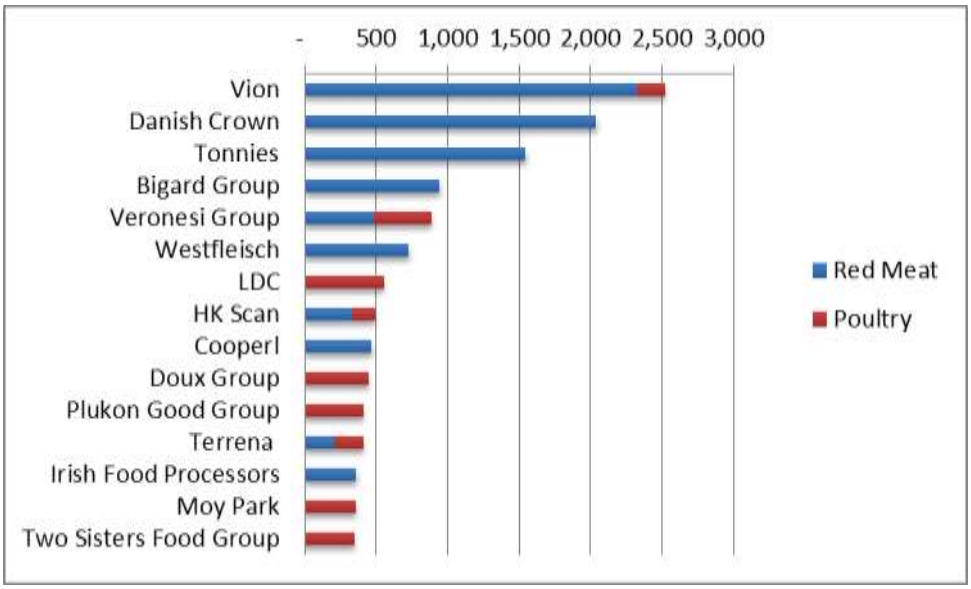


Figure 17: Total meat production of 15 largest meat companies in EU-27 in 2010/11 (in '000 cwe) (Source: Gira, 2012).

Of the 15 largest companies of Figure 18, the turnover and the number of section 1 and 2 slaughterhouses are displayed in Table 35. In this, the number of slaughterhouses refer to the number of slaughterhouses in the corresponding country. This has been done because there are more than 54 list (two per country) of EU-27 slaughterhouses, so searching for all companies in every list would not lead to a large increase in insights given the required time. Also, as previously stated, most meat companies operate on a national level. Therefore, it is expected that the overview of Table 35 will be sufficient. Also, it is not stated whether there is an overlap between the two types of slaughterhouses, so whether there are slaughterhouses who both process meat and poultry. Generally speaking, there are few multi-specie companies with both red meat and poultry, due to cultural differences.

Table 35: Largest 15 EU meat companies, their turnover (source: Gira, 2012) and number of slaughterhouses according to Regulation (EC) No 853/2004 of the corresponding country.

	Name	Country	Turnover (Million euro)	Number of SH's section I	Number of SH's section II
1	Vion	NL	€ 8,870	5	0
2	Danish Crown	DK	€ 6,069	12	0
3	Tonnies	DE	€ 4,300	1	1
4	Bigard Group	FR	€ 4,200	8	0
5	Veronesi Group	IT	€ 1,800	1	1
6	Westfleisch	DE	€ 1,930	5	0
7	LDC	FR	€ 2,555	0	6
8	HK Scan	FI	€ 2,114	5	1
9	Cooperl	FR	€ 1,700	0	0
10	Doux Group	FR	€ 1,406	0	3
11	Plukon Good Group	NL		0	3
12	Terrena	FR	€ 3,871	0	0
13	Irish Food Processors	IE	€ 1,756	0	0
14	Moy Park	UK		0	4
15	Two Sisters Food Group	UK		2	17

Note: when indicating that there are 0 slaughterhouses, this means that no entry matching the name was found in that country.

From Table 35, it can be seen that almost every company has multiple slaughterhouses, indicating that there are no 'super-size' slaughterhouses covering a whole country, but instead there are several slaughterhouses operating on a more local level. This is also in line with the fact that meat farmers prefer working with local slaughterhouses.

Now that the slaughterhouses on a general level have been explored, the largest market players per species will be presented.

Beef

The total beef & veal production of the 15 largest beef companies of the EU-27 in 2010/11 is presented in Figure 18. These 15 companies hold 36% of the EU-27 production market share (up from 30% in 2006), indicating the high degree of fragmentation in the market.

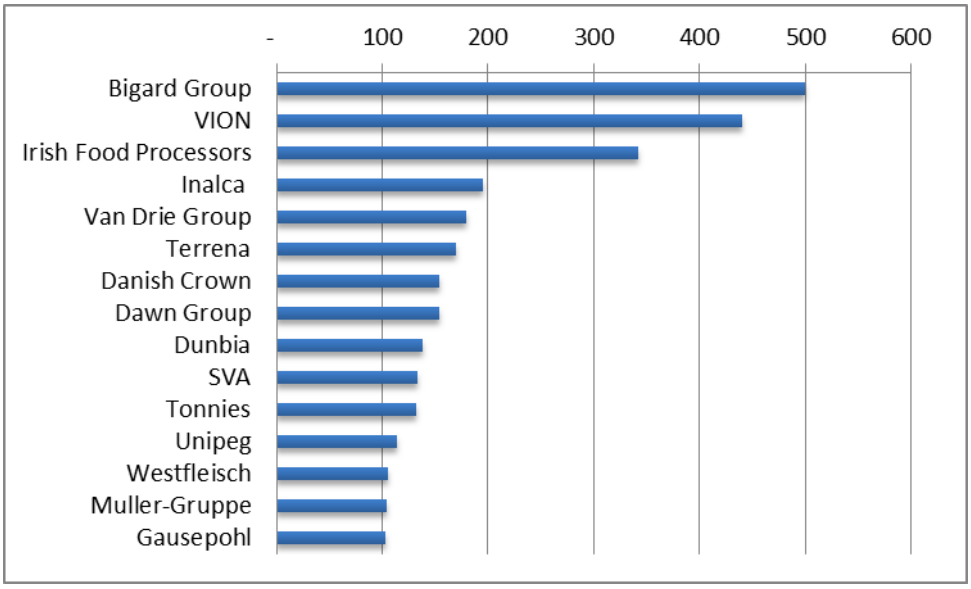


Figure 18: Total beef & veal production of the 15 largest beef companies in the EU-27 in 2010/11 (in '000 cwe) (Source: Gira, 2012).

Pig

The total pigmeat production of the 15 largest pigmeat companies of the EU-27 in 2010/11 is presented in Figure 19. These 15 companies hold 37% of the EU-27 production market share (up from 34% in 2006), also indicating the high degree of fragmentation in the market.

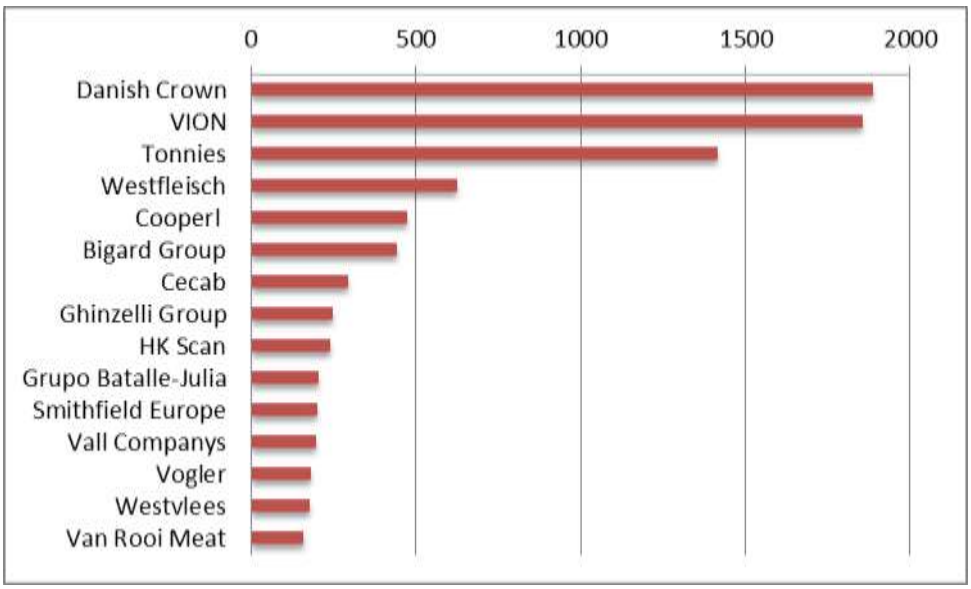


Figure 19: Total pigmeat production of the 15 largest pigmeat companies in the EU-27 in 2010/11 (in '000 cwe) (Source: Gira, 2012).

Poultry

The total poultry production of the 15 largest beef companies of the EU 27 in 2010/11 is presented in Figure 20. These 15 companies hold 38% of the EU 27 production market share (down from 51% in 2006), also indicating the high degree of fragmentation in the market.

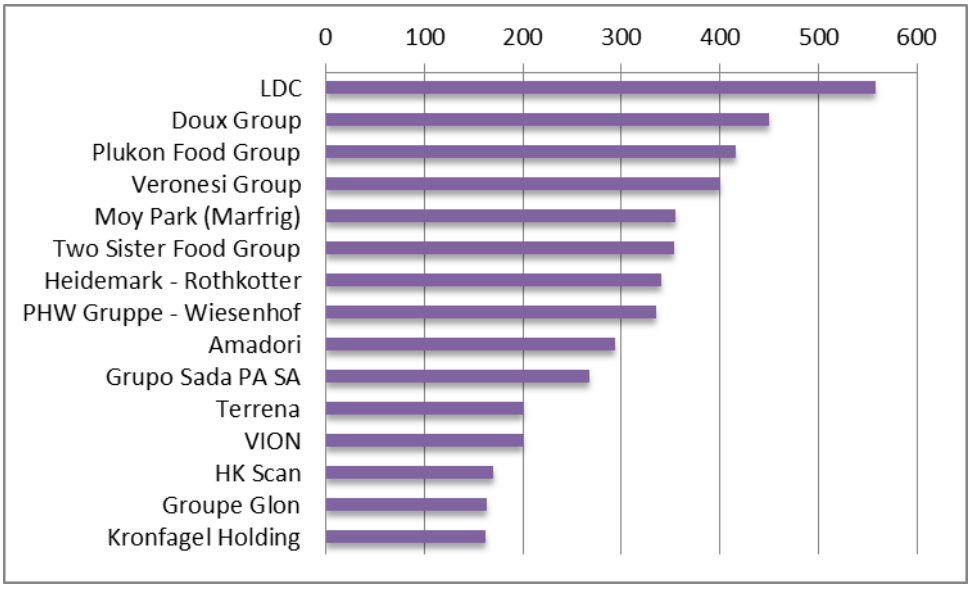


Figure 20: Total poultry production of the 15 largest poultry companies in the EU-27 in 2010/11 (in '000 cwe) (Source: Gira, 2012).

When comparing the largest market players with respect to the different species, most of these companies are big is (almost) every specie. It is expected, when the medium and smaller market players would be further investigated, that this overlap in species will no longer be the case.

United States market for decontamination of pieces of meat

The US market of meat processing is very different to the European market of meat slaughtering. While the European market is highly fragmented, the US market contains a few major players who cover the great majority of the market. In the following section, the US market for processed meat will be presented. In this, first the market characteristics and trends will be presented. Next, the meat production will be discussed, followed by an overview of the major market players.

It should be noted that, although food processors are the target market for PURAC FCC, the following overview focusses on meat processing, not on the current usage of lactic acid (or any other substance) for meat decontamination. However, from these figures, the market characteristics of the meat decontamination market can be derived.

Market characteristics and trends[3]

The American food processing industry is a mature sector following demographic trends, such as population and income. Food processing companies generate revenue through the sales of food to a large group of customers, such as supermarkets, hypermarkets, local stores, restaurants, caterings and other food processors further down the supply chain.

Food stocks are suitable for conservative investors with low tolerances for share-price volatility, because the food sector has delivered consistently positive investment returns. Food companies are

[3] Source: (Abdou, 2014)

furthermore considered as a "safe harbor" for investments due to defensive characteristics such as stable growth, ample interest coverage and solid balance sheets.

Although food is considered to be a basic need, the demand depends mainly on population growth and income. Companies attempt to further penetrate the market through strong branding and strategic positioning of their offerings. The demand for different kind of foods is also dependent on trends, such as portable, easy to prepare of more healthy foods. Another growth drivers is the expansion into new geographical markets. This can be very challenging though, due to cultural difference with respect to regional cuisines and tastes.

Cost considerations are of highly importance for food processors. The ability to control costs and leverage fixed expenses have a great impact on success. The industry has suffered margin pressure, at times, due to higher input costs due to higher prices for ingredients and fuel (used for power and distribution). In this case, value-added producers, with strong brands and better positioning, can pass these price increasing through to their customers.

Size is also of high importance. Distribution costs are often considered to be (nearly) fixed. Due to this, and increase in sales to almost to the same increase in net profit. Also, processors with an large brand portfolio can realize economies of scale and a wide product portfolio also leads to a higher bargaining position with respect to major retail customers. Small food processors could profit from the industry consolidation, as they are potential takeover options.

Mintel (2014) presented food safety as the highest manufacturing priorities for 2014, followed by cost control. The importance of food safety has increased due some issues with food safety in the last past years. The decontamination of packaged pieces of meat can therefore be considered to be a proper extra food safety intervention in the meat processing process.

Mintel (2014) also indicated that growth in the red meat and pork market is undermined due to a decrease in the consumption of red meat and pork, because these types of meat as perceived as too expensive and that other types of meat have a better value.

The US retailers hold a relatively lower market share than the EU retailers, which is also shown in Figure 21. Here, the top five retailers account for 46% of the total supermarket sales. So these retailers have a lower bargaining power of the supply chain. However, although the market shares of these retailers is lower than the market shares of the EU retailers, the market size of the US retailers is significantly larger.

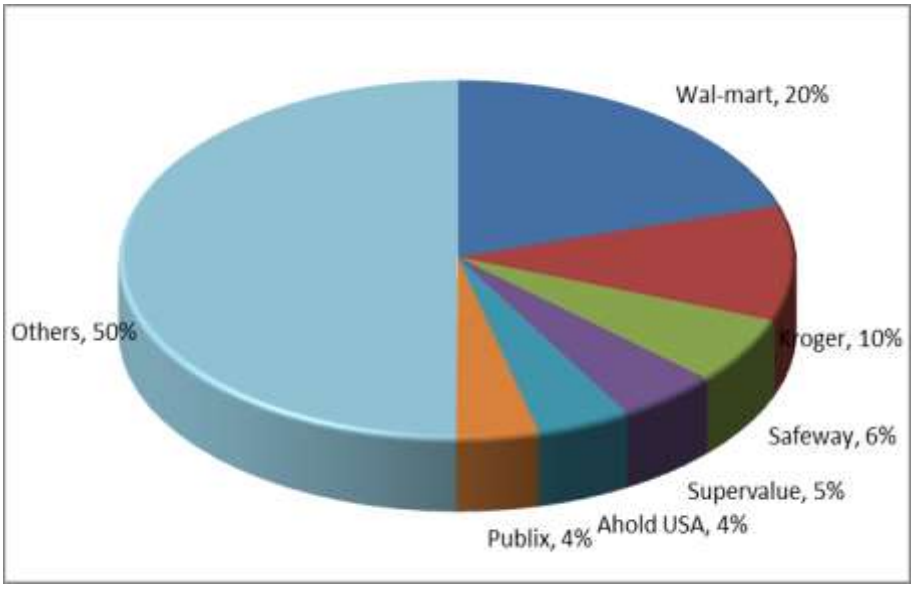


Figure 21: US supermarket sales 2012 (Source: Sterling marketing, 2012).

Production

The production of beef, pork and poultry in the US is shown in Table 36 From, it can be seen that the US production of fresh meat remained (almost) constant, indicating that the meta processing market can be viewed as a mature market. However, it should be noted that, it is assumed that the produced meat can be viewed as being processed to pieces of meat and is suitable for decontamination using lactic acid.

Table 36: US production (in Tonnes CWE)(Source: Corbion Purac, 2014)

	2008	2009	2010	2011	2012	% change '08-'12
Beef	12,162,996	11,891,054	12,045,884	11,983,154	11,848,818	-3%
Pork	10,598,980	10,441,850	10,185,874	10,330,904	10,555,102	0%
Poultry	19,592,386	18,686,427	19,310,420	19,511,886	19,516,903	0%

Major market players

The US market of meat processing is very consolidated, a few companies hold the majority of the market share. In this section, first a general overview will be given, followed by an overview per specie (beef, pork and poultry).

9.5.1.1 General

When exploring the largest market players regardless of which types of meat they offer, it can be seen that a few companies cover the majority of the market. Figure 22 shows the division of the 2013 sales of the 100 largest US meat processors. As this figure shows, the six largest meat processors generate more than 50% of the annual sales. Figure 23 shows the number of processing plants of the 15 meat processing companies with the most processing plants. If this figure would include the 100 largest meat companies, than the tail of a few companies with a large set of plants and a large set of companies with a few plants would become even more clear.

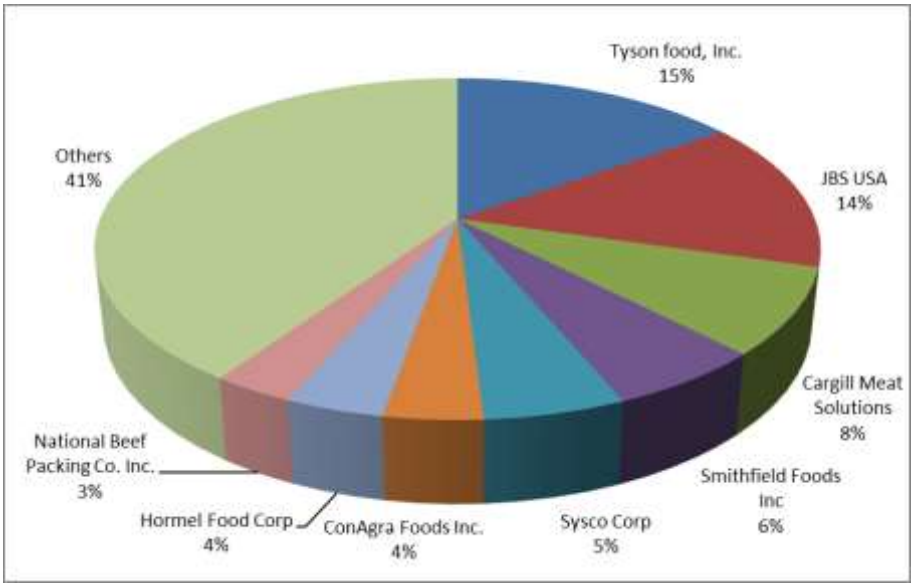


Figure 22: Division of annual sales of the 100 largest US meat processors of 2013 (Source: Meat&Poultry, 2013)

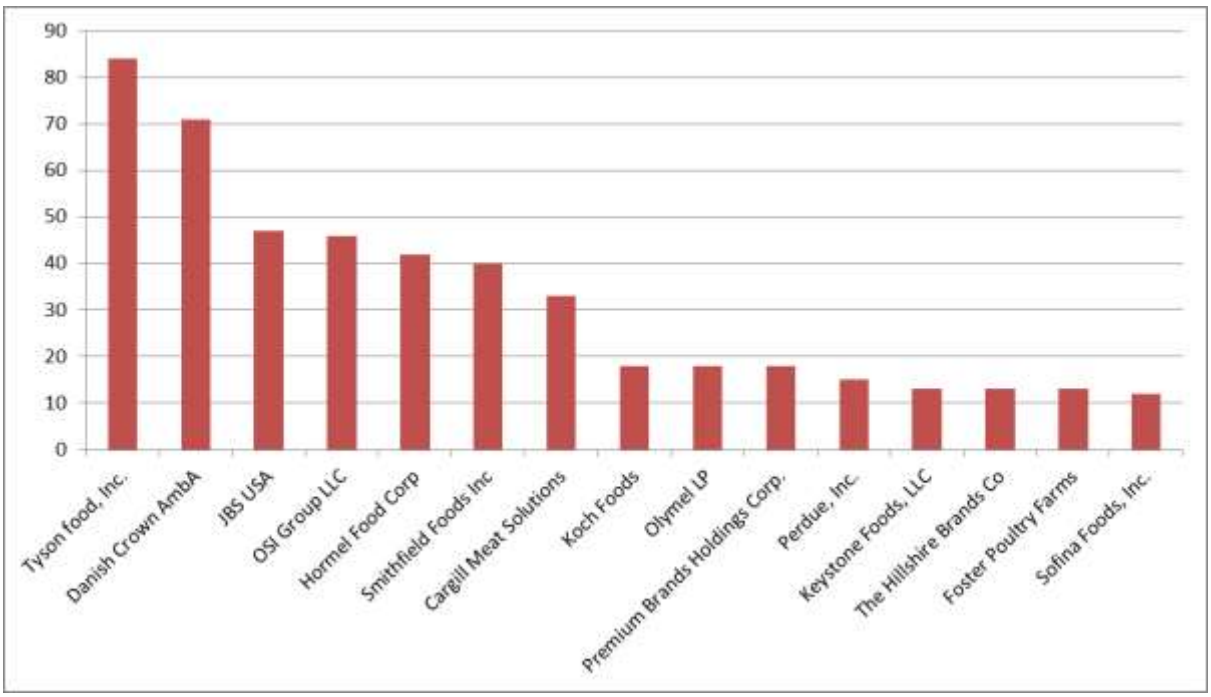


Figure 23: Number of processing plants of the 15 US meat processors with the highest number of meat processing plants of 2013 (Source: Meat&Poultry, 2013)

Fact that the US market of meat processors and packers is dominated by a few major players is also shown in Figure 24. In this figure, the cumulative market share of the largest meat processors and packers are depicted. As this shows, 80% of the total market share for beef, pork or poultry is in hands of the 5, 7 and 11 largest companies respectively, which represent 17%, 13% and 31% of all market players provided in this research.

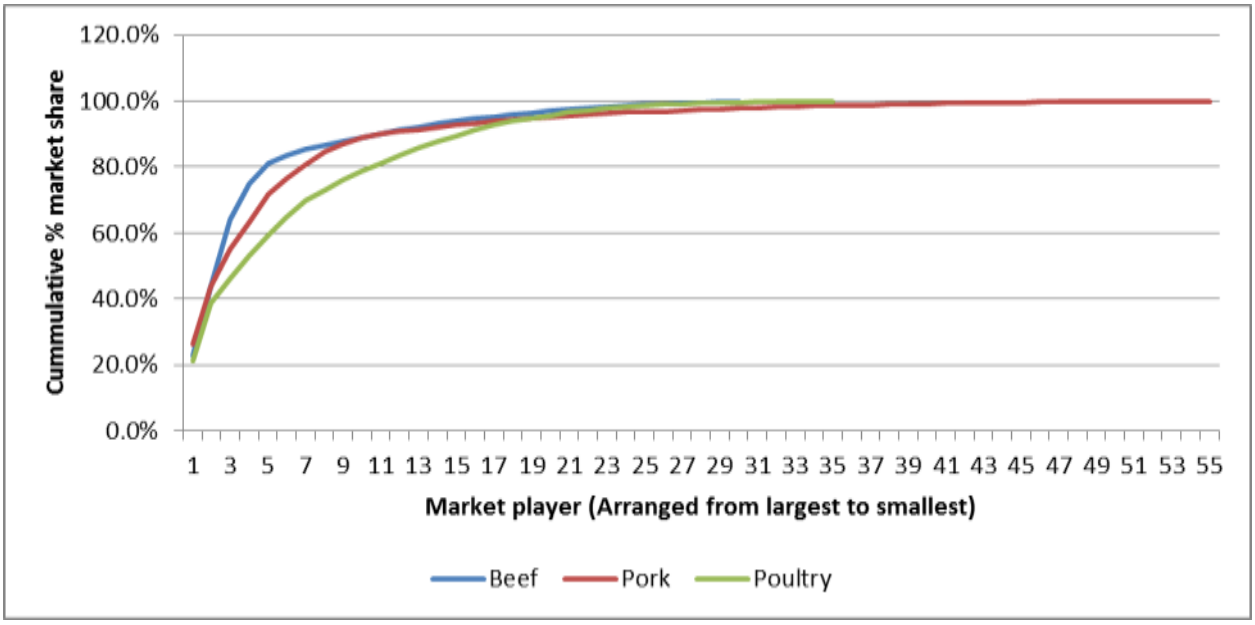


Figure 24: Concentration of US beef, pork and poultry market processors and packers.

9.5.1.2 Beef

A list of the top 30 beef packers is given in Appendix C, Table 38. Based on this, the top US beef packers and their market share is presented in Figure 25. In this figure, it should be noted that the market share is determined based on daily slaughter capacity. However, capacity is not equal to production or sales! An market segmentation based on production or sales is however, not available.

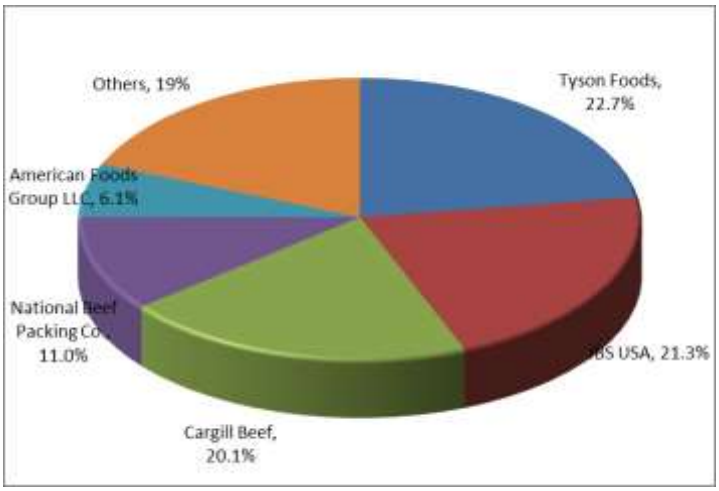


Figure 25: Top US beef packers, weekly % of daily slaughter capacity (heads) (Source: Cattle Buyer's Weekly, 2013)

9.5.1.3 Pig

A list of the top 30 pig meat processors is given in Appendix C, Table 39. Based on this, the top US pig meat processors and their market share is presented in Figure 26. In this figure, the market share is also determined using the capacity of the meat processors, which is not equal to the actual production or sales. A market segmentation based on production or sales is also, not available.

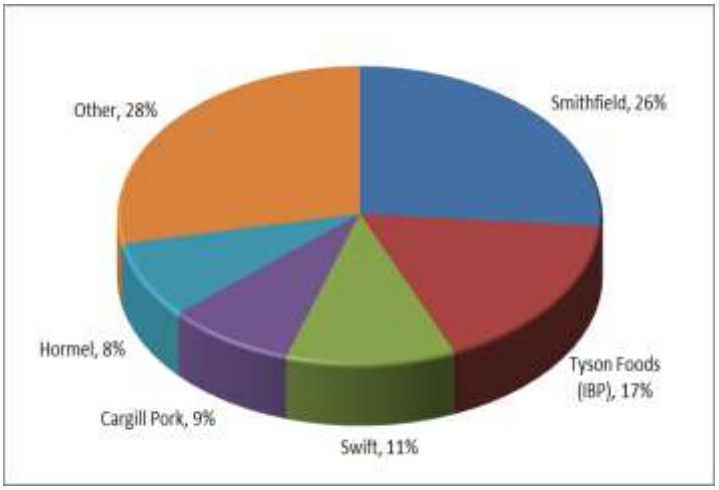


Figure 26: Estimated daily US Pork Slaughter capacity (Source: Pork checkoff, 2013)

9.5.1.4 Poultry

A list of the top 30 broiler companies is given in Appendix C, Table 40. Based on this, the top US broiler companies and their market share is presented in Figure 27. The market share is this figure is based on the production of ready-to-cook poultry meat.

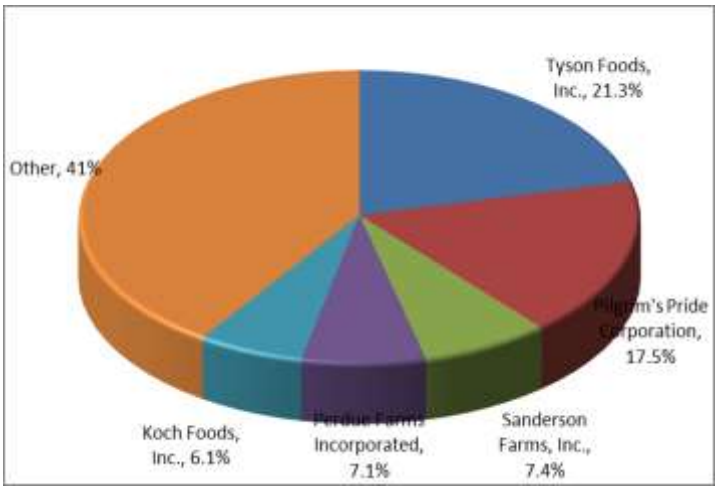


Figure 27: Top US broiler companies (Source: Watt Global Media, 2013)

Financial figures

Table 37 shows the net turnover, gross and net profit and the gross and net profit margins of the 15 largest EU and US meat companies which published this information. In this table, the average gross and net profit of 2013 were 12.3% and 3.0% respectively. However, in this table, the gross profit margins of both year of Vion and LDC are extremely high (more than 1,5 times the standard deviation from the average). Also, the net profit margin of ConAgraFood Inc. are relatively high (also more than 1,5 times the standard deviation from the average).When excluding these 'outliers', the average gross and net profit of 2013 become 6.7% and 2.3% respectively**.** This table therefore proves the low margins in the EU and US meat industry.

Table 37: Top EU and US meat companies financial figures of 2012 and 2013 (Source: company websites).

Rank	Name	Net turnover 2013	Net turnover 2012	Gross profit 2013	Gross profit 2012	Net profit 2013	Net profit 2012	Gross profit margin 2013	Gross profit margin 2012	Net profit margin 2013	Net profit margin 2012
EU-27											
1	Vion	€ 7.033	€ 9.620	€ 2.800	€ 3.118	€ 519	€ (830)	39,8%	32,4%	7,4%	-8,6%
2	Danish Crown*	€ 7.791	€ 7.563	€ 980	€ 983	€ 212	€ 232	12,6%	13,0%	2,7%	3,1%
6	Westfleisch	€ -	€ 2.475	€ -	€ 268	€ -	€ -		10,8%		0,0%
7	LDC	€ 2.923.145	€ 2.774.352	€ 1.340.460	€ 1.296.558	€ 61.134	€ 56.675	45,9%	46,7%	2,1%	2,0%
8	HK Scan	€ 2.479	€ 2.503			€ 10	€ 18	0,0%	0,0%	0,4%	0,7%
12	Terrena	€ 4.668	€ 4.446	€ 13	€ 5	€ 17	€ 11	0,3%	0,1%	0,4%	0,2%
15	2 Sisters Food Group**	€ 2.884	€ 2.339	€ 92	€ 108	€ (34)	£ 42,50	3,2%	4,6%	-1,2%	1,8%
US											
1	Tyson food, Inc.	€ 34.374	€ 33.055	€ 1.375	€ 1.286	€ 778	$ 576	4,0%	3,9%	2,3%	1,7%
4	Smithfield Foods Inc ***	€ 13.221	€ 13.094	€ 519	€ 723	€ 184	$ 361	3,9%	5,5%	1,4%	2,8%
5	Sysco Corp****	€ 44.411	€ 42.381	€ 1.658	€ 1.891	€ 992	$ 1.122	3,7%	4,5%	2,2%	2,6%
6	ConAgra Foods Inc.	€ 15.491	€ 13.368	€ 3.560	€ 2.813	€ 1.841	$ 1.600	23,0%	21,0%	11,9%	12,0%
7	Hormel Food Corp*****	€ 8.752	€ 8.231	€ 1.413	€ 1.332	€ 526	$ 500	16,1%	16,2%	6,0%	6,1%
11	The Hillshire Brands Co****	€ 3.920	€ 3.985	€ 297	€ 76	€ 184	$ (20)	7,6%	1,9%	4,7%	-0,5%
12	Maple Leaf Foods, Inc.	€ 4.406	€ 4.552	€ (12)	€ 172	€ (59)	$ 42	-0,3%	3,8%	-1,3%	0,9%

* Financial year from 1 October to 29 September
** Result of Boparan Holdings Limited, the holding company for 2 Sisters Food Group
*** Fiscal year from 1 May - 30 April
**** Fiscal year from 1 July - 31 June
***** Fiscal year from 1 November - 31 October

Conclusion

This chapter presented an extended market analysis of the European carcass decontamination market and the United States pieces of meat decontamination market. Due to the fact that proper numbers on carcass and pieces of meat decontamination are not possible to obtain, the focus of this analysis is on the companies who would use PURAC FCC for meat surface decontamination. Therefore, the markets European slaughterhouses and United States food processors have been analyzed. From this analysis, the main findings per geographic market will be summed.

The European market of slaughterhouses is characterized as a highly fragmented industry, with a few large, national companies and numerous small, local slaughterhouses. It is a capital intensive and complex industry. The profit margins are low, with increasing pressure on margins due to increasing meat prices and pressure from retailers on the whole supply chain. The number of slaughterings remained fairly stable the last years, indicating a mature market.

The United States market for pieces of meat decontamination is a low fragmented market, with a few large players who hold a large market share. The main priorities are food safety and cost considerations. Production of meat has remained fairly stable the last years, indicating a mature market.

Appendix C: Largest US beef, pig and poultry companies

Table 38: Top 30 Beef Packers 2013. (Source: Cattle Buyer's Weekly, 2013)

	Company name	US Capacity (Heads per day)	Number of plants	2012 US Beef Sales (millions of $)	2012 US Kill (000 head)
1	Tyson Foods	28,950	7	13,755	6,864
2	JBS USA*	27,125	9	17,478	6,700
3	Cargill Beef	25,700	8	11,200	700
4	National Beef Packing Co.	14,000	3	7,481	3,675
5	American Foods Group LLC	7,800	5	3,000	1,800
6	Greater Omaha Packing Co	2,900	1	1,300	780
7	Nebraska Beef Ltd	2,400	1	750	450
8	Caviness Beef Packers Ltd	1,800	1	580	470
9	AB Foods LLC	1,500	1		400
10	FPL Food LLC	1,400	1	350	221
11	Kane Beef	1,400	1	400	285
12	Creekstone Farms Premium Beef	1,350	1	622	292
13	Central Valley Meat	1,300	1	315	240
14	Lone Star Beef Processors	1,150	1		275
15	L&H Packing	1,000	1		
16	Harris Ranch Beef Co.	910	1	470	240
17	PM Beef Holdings	900	1	302	161
18	Central Beef Industries	750	1	180	165
19	Preferred Beef Group	725	1		202
20	Brown Pakcing Co.	650	1	209	162
21	Aurora Packing Co.	630	1		120
22	American Beef Packers	550	1	131	149
23	Triple J Family Farms	550	1	110	
24	VPP Group LLC	500	1		115
25	Elkhorn Valley Packing	315	1		
26	Randolph Packing Co.	310	1		
27	Open Range Beef	275	1		
28	Manning Beef/ Bro Pak	250	1	75	65
29	Nicholas Meat Packing	250	1	66	53
30	Schenk Packing Co.	230	1	99	68
	Others	23,995	25	5,959	4,913
	Total	127,570	57	58,873	24,652

* 2012 Sales includes Australia

Table 39: Estimated daily US Pork Slaughter capacity. (Source: Pork checkoff, 2013)

	Company	Spring 2011	Spring 2012	Spring 2013
1	Smithfield	114,400	115,400	117,000
2	Tyson Foods (IBP)	76,625	76,775	76,925
3	Swift	47,000	47,000	50,000
4	Cargill Pork	39,400	37,800	37,800
5	Hormel	37,400	37,300	37,300
6	Triumph Foods	20,000	20,000	20,000
7	Seaboard Farms	19,500	19,800	19,800
8	Indiana Packing Co.	16,500	17,000	17,000
9	Hatfield Quality Meats	10,600	10,600	10,400
10	J.H Routh	4,200	8,400	9,000
11	Sioux-Preme Packing	4,200	4,500	4,500
12	Johnsonville Sausage	3,300	3,300	3,400
13	Pine Ridge Farms	3,200	3,200	3,200
14	Greenwood Packing	3,000	3,000	3,000
15	Hillshire Brands (Jimmy Dean)*	2,800	2,800	2,800
16	Pork King Packing	2,000	2,000	2,000
17	Premium Iowa Pork	2,500	2,500	3,000
18	Fisher Ham and Meat*	2,000	2,000	2,000
19	USA Pork Products	2,000	2,000	2,000
20	Abbyland Foods	2,000	2,000	2,000
21	Spectrum Meats	1,600	1,600	1,600
22	Yosemite Meats	1,500	1,500	1,500
23	Dakota Pork, Inc	1,500	1,500	1,500
24	Leidy's	1,300	1,300	1,300
25	Martin's Pork Products	1,300	1,300	1,300
26	Heritage Acres Foods	-	-	-
27	Verschoor Meats	1,200	1,200	1,200
28	Olson Meat Company	1,200	1,200	1,200
29	Bob Evans Farms	1,200	1,200	1,200
30	Vin-Lee-Rom	1,150	1,150	1,150
	Other 25 companies	11,055	9,455	9,245
	Total	435,630	438,780	444,320

Table 40: Number of slaughter processing plants and further processing plants; production numbers based on average weekly slaughter in continental US plants during 2013 (Source: Watt Global Media, 2013)

	Company	Slaughter plants	Further processing operations[1]	Million head	Million lbs. liveweight
1	Tyson Foods, Inc.	33	9/13	36.00	201.48
2	Pilgrim's Pride Corporation	25	0/9	32.88	178.32
3	Sanderson Farms, Inc.	9	0/1	8.70	66.19
4	Perdue Farms Incorporated	12	3/4	12.34	69.79
5	Koch Foods, Inc.	8	4/1	12.00	61.20
6	Wayne Farms, LLC	9	0/2	6.30	48.54
7	Mountaire Farms, Inc.	3		5.97	46.71
8	Peco Foods, Inc.	5	1/1	4.00	31.62
9	House of Raeford Farms, Inc., (Poultry Division)	5	2/0	3.43	28.84
10	Foster Farms	5	5/2	5.84	35.65
11	George's, Inc.	4	2/1	5.35	23.65
12	Keystone Foods, LLC	3	0/4	3.66	24.79
13	Case Foods, Inc.	4	1/1	2.55	19.47
14	Amick Farms, Inc./OSI Group	2		2.20	18.25
15	O.K. Industries, Inc.	2	2/1	2.90	18.50
16	Simmons Foods, Inc.	3	2/1	3.65	17.00
17	Fieldale Farms Corporation	2	3/1	2.85	17.10
18	GNP Company	2	1/0	1.87	9.46
19	Claxton Poultry Farms	1		2.05	9.67
20	Mar-Jac Poultry, Inc.	1	1/0	2.00	8.75
21	Marshall Durbin Companies	2	2/0	2.10	8.40
22	Harrison Poultry, Inc.	1		1.00	6.90
23	Allen Harim Foods, LLC	2	1/0	1.24	6.28
24	Golden-Rod Broilers, Inc.	1		1.07	4.44
25	Farmers Pride, Inc.	1		0.84	4.40
26	Holmes Foods	1	1/0	0.70	2.90
27	Miller Poultry	1		0.46	2.36
28	Gerber's Poultry	1	1/0	0.40	2.08
29	MBA Poultry, LLC	1	1/0	0.31	1.91
30	Gentry Poultry Co., Inc.	1	1/0	0.25	1.09
	Other 5 companies	4	0	0.83	4.29
	TOTALS	**154**	**47/43**	**165.74**	**980.03**

Appendix D: Overview of complement product suppliers

There are five types of suppliers: those supplying carcass decontamination cabinets, carcass washing cabinets, general spray systems, processing equipment or total plant hygienic services. Each type of supplier will be shortly presented, after which a list of these suppliers is given in Table 41.

Suppliers of decontamination cabinet and spray

These suppliers offer the decontamination spray cabinets and the sprays for in these cabinets. These suppliers are thus viewed as competitors for PURAC FCC. Because these suppliers offer their own product, it is very unlikely that they would include PURAC FCC in their assortment, as it is considered a competitor. Therefore, partnering up with these suppliers is not advised. Instead, these suppliers are viewed as competitors.

Suppliers of decontamination cabinets

This group consists of suppliers of the decontamination cabinets who do not offer a spray for these cabinets. PURAC FCC would therefore be a complement for these cabinets. This group of suppliers would be suitable for a partnership for the decontamination of carcasses of the European market.

Suppliers of carcass washing cabinets

These suppliers offer carcass washing cabinets or carcass cleaners. A washing cabinet is not the same as a decontamination cabinet. In a washing cabinet, a large amount of (heated) water is used at high pressure to remove impurities. It is not advised to include PURAC FCC in the washing solution, as this would lead to a high required amount of PURAC FCC per carcass, of which most of it would end in the waste water, leading to high costs.

However, perhaps these washing cabinets can be easily adapted to make them suitable for carcass decontamination. In the water flow an pressure can be reduced, these cabinets could be a suitable complementary product. The suitability of this option should be further explored.

Suppliers of spray systems

These suppliers offer spray installations, spray cabinets or other spray equipment. These suppliers are specialized in spray applications, they do not have market specific knowledge of the meat or carcass decontamination market. However, their current products could be used for carcass or meat decontamination, or could be used after adaption.

Processing equipment suppliers

These suppliers provide whole or partial slaughter lines, including stunning, bleeding, evisceration, cutting, mixing, tenderizing, marinating, coating and packing equipment. These supplier do not offer specific spray installations. However, perhaps it is possible to adapt for instance the marinating or coating machines in that not marinade, but PURAC FCC is applied on the pieces of meat. This option thus requires further exploring.

Total plant hygienic services

Finally, there are some suppliers who offer complete hygiene services for meat processors. These supplier offer total solutions in the form of a service, which (often) leads to customer lock in, a

steady flow of revenue and close customer relationships. When partner with one of these suppliers, an OEM CPS would probably be most suitable.

Table 41: Overview of different kind of spray system suppliers (Source: Company websites)

	Name	Description	Located in	EU	US	Beef	Pig	Poultry	Carcass	Pieces	Offered product
Suppliers of decontamination cabinet and spray											
1	BikroCorp	Specializes in automated washing and pasteurizing systems for harvesting and processing operations	Henderson, US	-	x	x	x	x	x	o	Carcass Organic Acid System After Final Wash and Cold Carcass 5% Lactic Acid Sanitizing Assembly
Suppliers of decontamination cabinets											
2	Dan Mar Co	Food safety interventions	Texas, US	-	x	x	x	o	x	x	primal spray cabinet and carcass spray cabinets
3	APV (Invensys Companies)	Designs, manufactures and markets engineered solutions and products used to process, blend, meter and transport fluids in addition to air and gas filtration and dehydration	Worldwide, including EU and US	x	x	o	o	o	x	o	Wash cabinets, valves
4	Food Processing Equipment	Source, manufacture, distribute and service the equipment demands of the food industry in Australia and New Zealand.	Australia	-	-	o			x	o	Wash cabinets
Suppliers of carcass washing cabinets or cleaners											
5	Jarvis Products Corporation	Producer of meat and poultry processing equipment	Connecticut, US	x	x	x	o	o	x	x	CV-1 Carcass Cleaner, but this is a cleaner, not a decontaminator, and its only for beef

	Name	Description	Located in	EU	US	Beef	Pig	Poultry	Carcass	Pieces	Offered product
6	MPS meat processing systems	Provider of automated slaughter lines for pigs, cattle and sheep, cutting and deboning lines, intra-logistics systems for the food industry and industrial wastewater treatment systems	US and several locations in EU	x	x	x	x	-	x	-	Carcass washing and polishing machines
7	Sebax	Manufacturer and seller of machinery for the food industry in Poland and Europe	Poland	x	x	x	x	x	x	-	Spray carcass washer for poultry, Whip and brush washers for cattle and pigs
8	W R Cary Engineering, Inc	Manufacturer of washers	Springfield US	o	x	x	x	-	x	-	Carcass washing machines
9	WMR	Production solutions to the food industry relating to Food safety issues	Overton, Nevada, US	o	x	x	x	x	x	-	Washing machines
Suppliers of spray systems											
10	Anro Spray Solutions	Spray system for multiple applications	Rotterdam, NL	x	?	-	-	-	-	-	sprayers
11	Nordson EFD	Precision fluid dispensing systems manufacturer	EU and US	x	x	o	o	o	-	o	Industrial coating equiptment
12	Saturn Spraying Systems Ltd	Food spraying technologies	UK	x	x	x	x	o	?	x	Range of spray systems
13	Sono-Tek Corporation	Ultrasonic spray / coating systems	US	x	x	o	o	o	o	x	(Customized) coating machines
14	Spray Dyanmics	Meat, Fish and Poultry Flavoring & Coating Equipment	US	?	x	x	x	x	?	x	Coating machines
15	Spraying systems Co	Full Range of Spray Solutions	US	x	x	x	x	x	x	x	

	Name	Description	Located in	EU	US	Beef	Pig	Poultry	Carcass	Pieces	Offered product
16	Heat & control	Food Processing & Packaging Equipment	EU and US	x	x	x	x	x	x	x	Coating systems http://www.heatandcontrol.com/eqmain.asp?eqid=21
Other processing equipment											
17	Approved Design Ltd	Consultancy, Design, Manufacture, Installation and Servicing of conveyor systems and special purpose machines	Walsall, England	x	x	x	x	-	?	?	Sterilizers
18	B.R.E.	Installations for reducing animal byproducts for slaughterhouses and cutting rooms	Roeselare, Belgium	x	?	?	?	?	?	?	washing machine for animal by products
19	Baader	Complete poultry processing systems	80 location over the world, HQ in Trige Denmark	x	x	-	-	x	x	x	
20	CEMSAN	Provides a complete line of products for butcheries and slaughterhouses	Turkey	x	x	x	-	-	o	o	
21	Couédic Madoré Équipement	Slaughter and processing equipment, machines and services	France	x	x	x	x	x	x	?	
22	Daanen Import-Export b.v.	Second hand slaughter equipment	Netherlands	x	x	x	x	x	?	?	
23	Inox Meccanica	Produces and build machinery for automatic meat and sausages processing, and washing maichines (to clean the equiptement)	Italy	x	o	x	x	-	-	o	Mainly washing machines

	Name	Description	Located in	EU	US	Beef	Pig	Poultry	Carcass	Pieces	Offered product
24	J&W Service	Installations and applications for the European food processing industry	Netherlands	x	-	x	x	-	?	?	
25	LeFiell Company	Manufacturers of overhead rail systems, and meat processing and slaughterhouse equipment.	US	x	x	o	o	o	?	?	
26	Marel	Provider of advanced equipment and systems for the food processing industry	Netherlands	x	x	x	x	x	o	o	
27	METALQUIMIA	Offers meat manufacturing equipment	Spain	x	x	x	x	-	?	o	
28	Meyn	Poultry processing equipment	Netherlands	x	x	-	-	x	x	x	
29	Schroder	Technology solutions for the meat processing industry	Germany	x	x	x	x	x	o	o	
30	Transnational Agri Projects B.V.	New and second hand equipment for the slaughter industry	Netherlands	x	x	x	x	x	o	o	
Cleaning services											
31	Diversey	Sustainable cleaning, sanitation and hygiene solutions	Netherlands and US	x	x	o	o	o	o	o	
32	Ecolab	Food safety programs	Switzerland (HQ), US, but also Netherlands	x	x	x	x	x	x	x	Antimicrobial food tissue treatment
33	Spraymasters systems	Pressure washing system	US	-	x	x	x	x	?	x	

Appendix E: Results from (in)formal meetings.

(Censored due to confidentiality)

Appendix F: Interview on preferences of meat processors

(Censored due to confidentiality)

Appendix G: Interview on preferences meat company VION FOOD GROUP.

(Censored due to confidentiality)

Appendix H: Original LST

Questionnaire

Table A: Launch strategy questionnaire

Theme			Question	Answer	Input	Weight	R&N	I&G	I&E	Sub calculations	Comments	Count	References
Product strategy	1.1	Product innovativeness	a. Which of the following statements is most true?	The new product explores new technology	x	0.076				1			(Hultink & Schoormans, 1995; Hultink, Griffin, Robben, & Hart, 1998)
				The new product exploits existing technology						0			
			b. Which of the following statements is most true?	There is high uncertainty	x					1			
				There is low uncertainty						0			
			c. Which of the following statements is most true?	The new product focuses on processes, products or services with unprecedented performance features	x					1			
				The new product focuses on cost or feature improvements in existing products or services, processes, marketing or business model						0			
			d. Which of the following statements is most true?	The introduction of the new product creates a dramatic change that transforms existing markets or industries, or creates new ones						0			
				The introduction of the new product improves competitiveness within current markets or industries	x					1			
				Product innovativeness score			0.076	0.076	0.000	3 1			
	1.2	Product newness	a. How new is the product for the company?	Very new	x	0.106							(Hultink et al., 1998)
				Medium new									
				Not new									
			b. How new is the product for the market?	Very new	x								
				Medium new									
				Not new									
				Product newness score			0.106	0.000	0.000				
	1.3		What is the product advantage?	Never seen before	x	0.074	0.074						(Hultink, Griffin, Hart, & Robben, 1997)
				Performance improvement				0.000					
				Incremental Improvement					0.000				
	1.4		How compatible is the product with the current market etc?	High	x	0.107			0.107				(Hultink et al., 1997)
				Medium				0.000					
				Low			0.000						
Market strategy	2.1		In which phase of the product life cycle is the product?	Introduction	x	0.093	0.093						(Hultink et al., 1998)
				Maturity				0.000					
				Growth					0.000				
	2.2		How many competitors are there?	0	x	0.103	0.103						(Hultink et al., 1998)
				between 1 and 4				0.000					
				> 4					0.000				

Table A: Launch strategy questionnaire

Theme		Question	Answer	Input	Weight	R&N	I&G	I&E	Sub calculations	Comments	Count	References
	2.3	What is the market growth rate?	< 5%	x	0.076	0.076		0.076				(Hultink et al., 1997)
			> 5%				0.000					(Hultink et al., 1997)
Firm strategy	3.1	What is the goal of the introduction? (Max. 2 answers)	Anticipate on emerging segment									(Hultink & Schoormans, 1995; Hultink et al., 1998; Hultink & Robben, 1999; Hultink, 1998)
			Capitalize on existing market	x								
			Expand product range									
			Get foothold in a new market	x								
			Improve/contain company image									
			Increase market penetration									
			Lower costs									
			Put up barriers for competitors									
			Respond to seasonal cycle									
			Use new technology									
			Use excess capacity									
			Goal score		0.109	0.109	0.000	0.109				
	3.2	What is the company's (most fitting) strategic incentive?	Launching product with complementary technology	x								(Easingwood, Moxey, & Capleton, 2006)
			Reduce risk of adoption									
			Attractive price-to-performance ratio									
			Generate a broad market									
			Develop superior product for targeted niche									
	3.3	What is the new product development driver?	Technology driven		0.086	0.000						(Hultink et al., 1998)
			Mix of market and technology driven	x			0.086					
			Market driven					0.000				
	3.4	What is the companys'stargeting strategy?	Niche		0.076	0.000						(Hultink et al., 1997)
			Selective	x			0.076					
			Mass-market					0.000				
	3.5	What is the company's innovation strategy?	Technological innovator	x	0.093	0.093						(Hultink et al., 1998)
			Fast follower				0.000					(Hultink et al., 1998)
			Cost Reducer					0.000				(Hultink & Robben, 1999)
	3.6	Pricing strategy: a. What is the introduction objective?	Position the product as superior						0			(Guiltinan, 1999)
			Increase market penetration and speed to market	x					1			
		Pricing strategy: b. Is there a high expected demand for the product?	Yes	x					1			(Hultink & Schoormans, 1995; Hultink et al., 1998)
			No						0			
		Pricing strategy: c. Is the market attractive for competitors?	Yes	x					1			
			No						0			
		Pricing strategy: d. Does a high price support the produts' image?	Yes	x					1			

Table A: Launch strategy questionnaire

Theme	Question	Answer	Input	Weight	R&N	I&G	I&E	Sub calculations	Comments	Count	References
		No						0			
	e. Is there a high or low price elasticity?	High						0			
		Low	x					1			
	f. Is there a large potential market for the product?	Yes	x					1			
		No						0			
	g. Is there a short or a long product life cycle?	Short	x					1			
		Long						0			
	Pricing strategy score							4.000 3.000			
		Total			0.564	0.238	0.185			0	

Weighting:

Table B: Pairwise comparison values (Based on Saaty, 2004)

Score	Meaning
1	Objective i is absolutely less important than j
3	Objective i is strongly less important than j
4	Objective i is weakly less important than j
5	Objective i and j are of equal importance
6	Objective i is weakly more important than j
7	Objective i is strongly more important than j
8	Objective i is very strongly more important than j
9	Objective i is absolutely more important than j

Table C: Objectives comparison - Launch strategies (Based on Saaty, 2004)

i	J	Product strategy				Market strategy			Firm strategy			
		Product innovativeness	Product newness	Product advantage	Product compatibility	Product life cycle stage	Number of competitors	Market growth rate	Introduction objective	New product development driver	Targeting strategy	Innovation strategy
Product strategy	Product innovativeness	5	5	1	3	5	5	6	3	3	9	1
	Product newness	5	5	8	4	5	5	6	2	9	9	7
	Product advantage	9	2	5	1	5	8	3	2	6	4	1
	Product compatibility	7	6	9	5	5	2	7	6	7	6	5
Market strategy	Product life cycle stage	5	5	5	5	5	5	5	5	5	5	5
	Number of competitors	5	5	2	8	5	5	6	4	5	9	7
	Market growth rate	4	4	7	3	5	4	5	3	1	6	4
Firm strategy	Introduction objective	7	8	8	4	5	6	7	5	3	4	8

	New product development driver	7	1	4	3	5	5	9	7	5	2	4
	Targeting strategy	1	1	6	4	5	1	4	6	8	5	5
	Innovation Strategy	9	3	9	5	5	3	6	2	6	5	5
Total		64	45	64	45	55	49	64	45	58	64	52

Table D: Objectives weights - Launch strategies (Based on Saaty, 2004)

i	j	Product strategy				Market strategy			Firm strategy				Average
		Product innovativeness	Product newness	Product advantage	Product compatibility	Product life cycle stage	Number of competitors	Market growth rate	Introduction objective	New product development driver	Targeting strategy	Innovation strategy	
Product strategy	Product innovativeness	0.08	0.11	0.02	0.07	0.09	0.10	0.09	0.07	0.05	0.14	0.02	0.076
	Product newness	0.08	0.11	0.13	0.09	0.09	0.10	0.09	0.04	0.16	0.14	0.13	0.106
	Product advantage	0.14	0.04	0.08	0.02	0.09	0.16	0.05	0.04	0.10	0.06	0.02	0.074
	Product compatibility	0.11	0.13	0.14	0.11	0.09	0.04	0.11	0.13	0.12	0.09	0.10	0.107
Market strategy	Product life cycle stage	0.08	0.11	0.08	0.11	0.09	0.10	0.08	0.11	0.09	0.08	0.10	0.093
	Number of competitors	0.08	0.11	0.03	0.18	0.09	0.10	0.09	0.09	0.09	0.14	0.13	0.103
	Market growth rate	0.06	0.09	0.11	0.07	0.09	0.08	0.08	0.07	0.02	0.09	0.08	0.076
Firm strategy	Introduction objective	0.11	0.18	0.13	0.09	0.09	0.12	0.11	0.11	0.05	0.06	0.15	0.109
	New product development driver	0.11	0.02	0.06	0.07	0.09	0.10	0.14	0.16	0.09	0.03	0.08	0.086
	Targeting strategy	0.02	0.02	0.09	0.09	0.09	0.02	0.06	0.13	0.14	0.08	0.10	0.076
	Innovation Strategy	0.14	0.07	0.14	0.11	0.09	0.06	0.09	0.04	0.10	0.08	0.10	0.093

Results and recommendations

Launch strategies

Results

Table E: Scoring with respect to the product innovativeness

Product innovativeness	Score
Radical innovation	75%
Incremental innovation	25%

Table F: Determination of the product newness

Product newness
New to the world product

Table G: Scoring with respect to the pricing strategies

Pricing strategy:	Score
Skimming	57%
Penetration	43%

Table H: The introduction strategies and their scores

Strategy	Score
Radical & New	57%
Improve & Grow	24%
Incremental & Establish	19%

Figure A: Product innovativeness

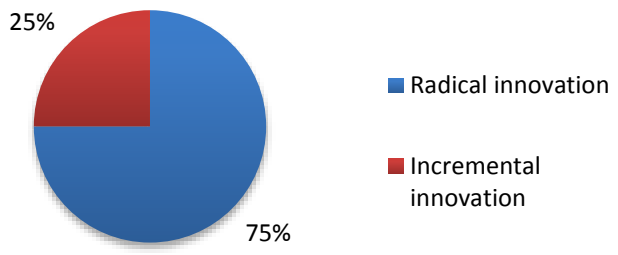


Figure B: Pricing strategy scores

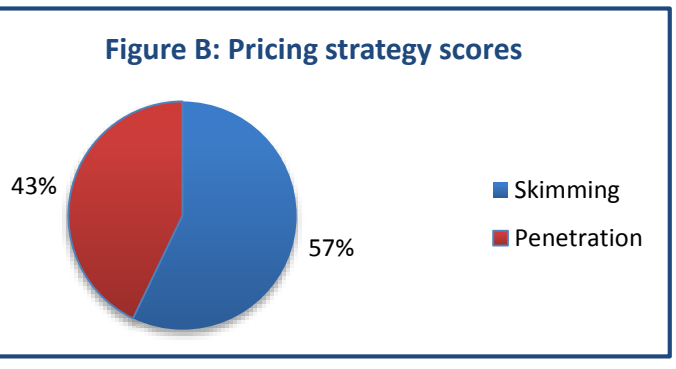
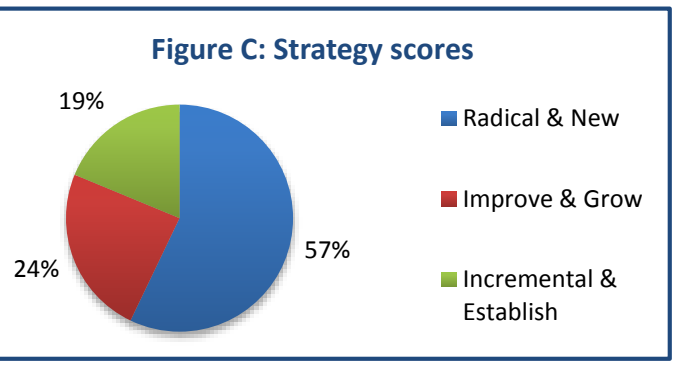


Figure C: Strategy scores



Recommendations

Based on the results, the recommended strategy is:

Radical & New strategy

Table I: Tactical decisions corresponding to the introduction strategy

Tactictal decision	Implement ation
Marketing objective	Gain awareness
Product	
Branding	New brand
Product assortment breath	Low
Timing	Pre-announce
complementary services	Ensure proper support
Distribution	
Density	Exclusive
Channels	New channels
	Less
	Direct
Expenditures	Less
Promotion	
Objective	Clearly communicate product characteristics, inform, educate, generate positive word-of-mouth
Strategy	Push
Promotional mix	Advertising, personal selling, public relations, sales promotions, direct

Table L: Launch tactics for the new product introduction strategies. Source: Report table 7, Cheisa & Farttini (2011)

	Radical & New	Improve & Grow	Incremental & Establish
Marketing objective	Gain awareness	Stress differentiation	Maintain brand loyalty
Branding	New brand	Brand extension	Brand extension
Product assortment breath	Low	Medium	High
Timing	Pre-announce		
complementary services	Ensure proper support		
Distribution			
Density	Exclusive	Selective	Intensive
Channels	New channels	Current	Current
	Less	Same	More
	Direct	Indirect	Indirect
Expenditures	Less	More	Same
Promotion			
Objective	Clearly communicate product characteristics, inform, educate, generate positive word-of-mouth	Stress points of difference	Reminder oriented
Strategy	Push	Mix push-pull	Pull
Promotional mix	Advertising, personal selling, public relations, sales	Advertising, personal selling	Advertising, sales promotions

	marketing
Expenditures	High
Price	
Strategy	Skimming
Initial price	High
Price decrease	Quick

	promotions, direct marketing		
Expenditures	High	High	Low
Price			
Strategy	Skimming	Penetration	
Initial price	High	Low	
Price decrease	Quick	Slow	

Table J: Strategic focus for the introduction strategy

Preffered strategy	Alliances
Strategic focus	Form strategic alliances Create unique distribution channels Focus on channel partners Exploit tactical alliances Use reference sites

Table M: Strategic focus for the preffered strategies. Source: Easingwood (2006)

Alliances	**Targeted low risk**	**Low-Price/OEM**	**Broad-Based Market Preparation**	**Niche Technological Superiority**
Form strategic alliances	Emphasize low risk	Supply to OEMs to incorporate in other products	Supply to OEMs to incorporate in other products	Emphasize technology superiority
Create unique distribution channels	Offer different versions targeted at different buyers	Create unique distribution channels	Provide clear product information to the market	Concentrate on niches
Focus on channel partners	Use opinion leaders	Target high-value users	Educate the market to understand new uses	
Exploit tactical alliances	Have trial programs	Emphasize low price	-	-
Use reference sites	Cultivate a winner image	-	-	-

Table K: Recommended success measure

Product newness type	New to the world product
First customer measure	Customer acceptance
Second customer measure	Customer satisfaction
Financial measure	Profit goals & IRR/ROI
Performance measure	Competitive advantage

Table N: Product introduction success measures based on product newness. Source: Griffin & page (1996)

	New to the world product	New product line	Addition to existing product lines	Revision/Improvement to existing products	Repositioning	Cost reduction
First customer measure	Customer acceptance	Revenue or satisfaction	Market share	Customer satisfaction	Customer acceptance	Customer satisfaction
Second customer measure	Customer satisfaction	Market share	Revenue growth or satisfaction or acceptance	Market share of revenue growth	Satisfaction or share	Acceptance or revenue
Financial measure	Profit goals & IRR/ROI	Met profit goal	Met profit goal	Met profit goal	Met profit goal	Met profit goals
Performance measure	Competitive advantage	Competitive advantage	Competitive advantage	Competitive advantage	Competitive advantage	Performance or quality

Appendix I: Validation LST

Radical new product: Verdad

Incremental new product: Opti.Form Ace

Table 42: Filled in LST questionnaire for the validation cases, the radical (RN) and incremental (IN) new products

			Question	Answer	RN	IN
Product strategy	1.1	Product innovativeness	a. Which of the following statements is most true?	The new product explores new technology	x	
				The new product exploits existing technology		x
			b. Which of the following statements is most true?	There is high uncertainty	x	
				There is low uncertainty		x
			c. Which of the following statements is most true?	The new product focuses on processes, products or services with unprecedented performance features		
				The new product focuses on cost or feature improvements in existing products or services, processes, marketing or business model	x	x
			d. Which of the following statements is most true?	The introduction of the new product creates a dramatic change that transforms existing markets or industries, or creates new ones		
				The introduction of the new product improves competitiveness within current markets or industries	x	x
	1.2	Product newness	a. How new is the product for the company?	Very new	x	
				Medium new		x
				Not new		
			b. How new is the product for the market?	Very new	x	
				Medium new		x
				Not new		
	1.3		What is the product advantage?	Never seen before	x	
				Performance improvement		x
				Incremental Improvement		
	1.4		How compatible is the product with the current market etc?	High		x
				Medium	x	
				Low		

			Question	Answer	RN	IN
Market strategy	2.1		In which phase of the product life cycle is the product?	Introduction	x	x
				Maturity		
				Growth		
	2.2		How many competitors are there?	0		
				between 1 and 4	x	x
				> 4		
	2.3		What is the market growth rate?	< 5%		x
				> 5%	x	
Firm strategy	3.1		What is the goal of the introduction? (Max. 2 answers)	Anticipate on emerging segment		
				Capitalize on existing market		x
				Expand product range	x	
				Get foothold in a new market		
				Improve/contain company image		
				Increase market penetration		
				Lower costs		
				Put up barriers for competitors	x	x
				Respond to seasonal cycle		
				Use new technology		
				Use excess capacity		
	3.2		What is the company's (most fitting) strategic incentive?	Launching product with complementary technology	x	
				Reduce risk of adoption		
				Attractive price-to-performance ratio		x
				Generate a broad market		
				Develop superior product for targeted niche		
	3.3		What is the new product development driver?	Technology driven		
				Mix of market and technology driven		x
				Market driven	x	
	3.4		What is Corbion's targeting strategy?	Niche		
				Selective	x	x
				Mass-market		
	3.5		What is the Corbion's innovation strategy?	Technological innovator	x	x
				Fast follower		
				Cost Reducer		
	3.6	Pricing	a. What is the introduction objective?	Position the product as superior		x
				Increase market penetration and speed to market	x	

			Question	Answer	RN	IN
			b. Is there a high expected demand for the product?	Yes	x	x
				No		
			c. Is the market attractive for competitors?	Yes	x	x
				No		
			d. Does a high price support the products' image?	Yes		
				No	x	x
			e. Is there a high or low price elasticity?	High	x	x
				Low		
			f. Is there a large potential market for the product?	Yes	x	x
				No		
			g. Is there a short or a long product life cycle?	Short		
				Long	x	x
Marketing mix	4.1	Product	a. What is the branding strategy?	New brand	x	
				Brand extension		x
			b. What was the product assortment breath?	Low	x	
				Medium		x
				High		
			c. Was the product pre-announced?	Yes		
				No	x	x
			d. Was establish support for the product essential?	Yes	x	x
				No		
	4.2	Distribution	a. What was the distribution density?	Exclusive		
				Selective	x	x
				Intensive		
			b. Were new or current channels used?	New		
				Current	x	x
			c. Were direct or indirect channels used?	Direct	x	x
				Indirect		
			d. With respect to other introductions, how high were the distribution costs?	Less		
				More		
				Same	x	x
	4.3	Promotion	a. What was the main promotional objective?	Clearly communicate product characteristics, inform, educate, generate positive word-of-mouth	x	x
				Stress points of difference with respect to similar products		
				Remind the customer of the product		
			b. What was the promotion	Push	x	

			Question	Answer	RN	IN
			strategy?	Mix of push and pull		x
				Pull		
			c. Which of the following were used in the promotion of the product?	Advertising	x	x
				Personal selling	x	x
				Public relations		
				Sales promotion		
				Direct marketing		
			d. With respect to other introductions, how high were the promotion costs?	High		
				Low	x	x
	4.4	Price	a. Which pricing strategy was used?	Skimming		
				Penetration	x	x
			b. With respect to similar products, the initial price was…	High	x	
				Low		x
			c. The price decrease was…	Quick		x
				Slow	x	
	5.1		Besides the marketing mix, where there other strategic actions performed for the product introduction? (max. 3)	Concentrate on niches	x	x
				Create unique distribution channels		
				Cultivate a winner image		
				Educate the market to understand new uses	x	x
				Emphasize low 'cost-in-use'		x
				Emphasize low risk		
				Emphasize technology superiority	x	
				Exploit tactical alliances		
				Focus on channel partners		
				Form strategic alliances		
				Have trial programs		
				Offer different versions targeted at different buyers		
				Provide clear product information to the market		
				Supply to OEMs to incorporate in other products		
				Target high-value users		
				Use opinion leaders		
				Use reference sites		
	6.1		Which success measures were used? (max. 4)	Competitive advantage		
				Customer acceptance		
				Customer satisfaction		

			Question	Answer	RN	IN
				Market share		
				Met profit goal		
				Performance or quality		
				IRR/ROI		
				Revenue	x	x
				Revenue growth	x	x

Table 43: Weights input for the validation cases

On a scale from 1 to 10, in which 1 is very low and 10 is very high, how important are the following factors in the introduction of this product?		RN	IN
Product	Product innovativeness	9	3
	Product newness	9	6
	Product advantage	9	6
	Product compatibility	6	6
Market	Product life cycle stage	3	3
	Number of competitors	6	6
	Market growth rate	9	3
Firm	Introduction objective	9	6
	New product development driver	9	6
	Targeting strategy	9	9
	Innovation Strategy	9	6

Appendix J: Customized LST filled in for PURAC FCC

Questionnaire

Table A: Launch strategy questionnaire

Theme			Question	Answer	Input	Weight	R&N	I&G	I&E	Sub calculations	Comments	Count	References
Product strategy	1.1	Product innovativeness	a. Which of the following statements is most true?	The new product explores new technology		0.112				0			(Hultink & Schoormans, 1995; Hultink, Griffin, Robben, & Hart, 1998)
				The new product exploits existing technology	x					1			
			b. Which of the following statements is most true?	There is high uncertainty	x					1			
				There is low uncertainty						0			
			c. Which of the following statements is most true?	The new product focuses on processes, products or services with unprecedented performance features	x					1			
				The new product focuses on cost or feature improvements in existing products or services, processes, marketing or business model						0			
			d. Which of the following statements is most true?	The introduction of the new product creates a dramatic change that transforms existing markets or industries, or creates new ones						0			
				The introduction of the new product improves competitiveness within current markets or industries	x					1			
				Product innovativeness score			0.000	0.000	0.000	2	2		
	1.2	Product newness	a. How new is the product for the company?	Very new		0.112							(Hultink et al., 1998)
				Medium new	x								
				Not new									
			b. How new is the product for the market?	Very new	x								
				Medium new									
				Not new									
				Product newness score			0.000	0.112	0.000				
	1.3		What is the product advantage?	Never seen before	x	0.112	0.112						(Hultink, Griffin, Hart, & Robben, 1997)
				Performance improvement				0.000					
				Incremental Improvement					0.000				
	1.4		How compatible is the product with the current market etc?	High	x	0.082		0.082	0.082				(Hultink et al., 1997)
				Medium			0.000	0.000					
				Low			0.000						
Market strategy	2.1		In which phase of the product life cycle is the market?	Introduction	x	0.138	0.138						(Hultink et al., 1998)
				Growth				0.000					

Table A: Launch strategy questionnaire

Theme		Question	Answer	Input	Weight	R&N	I&G	I&E	Sub calculations	Comments	Count	References
			Maturity					0.000				
	2.2	What was the average, annual market growth rate over the last 3 years?	< 5%	x	0.082	0.082		0.082				(Hultink et al., 1997)
			> 5%				0.000					(Hultink et al., 1997)
Firm strategy	3.1	What is the goal of the introduction? (Max. 2 answers)	Anticipate on emerging segment									(Hultink & Schoormans, 1995; Hultink et al., 1998; Hultink & Robben, 1999; Hultink, 1998)
			Capitalize on existing market									
			Expand product range									
			Get foothold in a new market	x								
			Improve/contain company image									
			Increase market penetration	x								
			Lower costs									
			Put up barriers for competitors									
			Respond to seasonal cycle									
			Use new technology									
			Use excess capacity									
			Goal score		0.112	0.112	0.112	0.112				
	3.2	What is the company's (most fitting) strategic incentive?	Launching product with complementary technology									(Easingwood, Moxey, & Capleton, 2006)
			Reduce risk of adoption	x								
			Attractive price-to-performance ratio									
			Generate a broad market									
			Develop superior product for targeted niche									
	3.3	What is the companys'stargeting strategy?	Niche	x	0.138	0.138						(Hultink et al., 1997)
			Selective			0.000	0.000					
			Mass-market				0.000	0.000				
	3.4	What is the company's innovation strategy?	Technological innovator	x	0.112	0.112						(Hultink et al., 1998)
			Fast follower				0.000					(Hultink et al., 1998)
			Cost Reducer					0.000				(Hultink & Robben, 1999)
	3.5	What is the introduction objective?	Position the product as superior									(Guiltinan, 1999)
			Increase market penetration and speed to market	x								
			Total			0.444	0.223	0.194			0	

Table B: Questionnaire on the weights of the objectives

On a scale from 1 to 10, in which 1 is very low and 10 is very high, how important are the following factors when considering the new product launch strategy?		Input
Product strategy	Product innovativeness	6
	Product newness	6
	Product advantage	6
	Product compatibility	3
Market strategy	Product life cycle stage	9
	Market growth rate	3
Firm strategy	Introduction objective	6
	Targeting strategy	9
	Innovation Strategy	6

Weights

Table C: Objective differences

i	j	Product strategy				Market strategy		Firm strategy		
		Product innovativeness	Product newness	Product advantage	Product compatibility	Product life cycle stage	Market growth rate	Introduction objective	Targeting strategy	Innovation strategy
Product strategy	Product innovativeness									
	Product newness	0								
	Product advantage	0	0							
	Product compatibility	-3	-3	-3						
Market strategy	Product life cycle stage	3	3	3	6					
	Market growth rate	-3	-3	-3	0	-6				
Firm strategy	Introduction objective	0	0	0	3	-3	3			
	Targeting strategy	3	3	3	6	0	6	3		
	Innovation Strategy	0	0	0	3	-3	3	0	-3	

Table D: Pairwise comparison values (Based on Saaty, 2004)

Score	Meaning
1	Objective i is absolutely less important than j
3	Objective i is strongly less important than j
4	Objective i is weakly less important than j
5	Objective i and j are of equal importance
6	Objective i is weakly more important than j
7	Objective i is strongly more important than j
8	Objective i is very strongly more important than j
9	Objective i is absolutely more important than j

Table E: Conversion table form objective differences to comparison values

Difference	Value
-9	1
-8	1
-7	2
-6	2
-5	3
-4	3
-3	4
-2	4
-1	5
0	5
1	5
2	6
3	6
4	7
5	7
6	8
7	8
8	9
9	9

Table F: Objectives comparison (Based on Saaty, 2004)

i	j	Product strategy				Market strategy		Firm strategy		
		Product innovativeness	Product newness	Product advantage	Product compatibility	Product life cycle stage	Market growth rate	Introduction objective	Targeting strategy	Innovation strategy
Product strategy	Product innovativeness	5	5	5	6	4	6	5	4	5
	Product newness	5	5	5	6	4	6	5	4	5
	Product advantage	5	5	5	6	4	6	5	4	5
	Product compatibility	4	4	4	5	2	5	4	2	4
Market strategy	Product life cycle stage	6	6	6	8	5	8	6	5	6
	Market growth rate	4	4	4	5	2	5	4	2	4
Firm strategy	Introduction objective	5	5	5	6	4	6	5	4	5
	Targeting strategy	6	6	6	8	5	8	6	5	6
	Innovation Strategy	5	5	5	6	4	6	5	4	5
Total		45	45	45	56	34	56	45	34	45

Table G: Objectives weights - Launch strategies (Based on Saaty, 2004)

i	j	Product strategy				Market strategy		Firm strategy			Average
		Product innovativeness	Product newness	Product advantage	Product compatibility	Product life cycle stage	Market growth rate	Introduction objective	Targeting strategy	Innovation strategy	
Product strategy	Product innovativeness	0.11	0.11	0.11	0.11	0.12	0.11	0.11	0.12	0.11	0.112
	Product newness	0.11	0.11	0.11	0.11	0.12	0.11	0.11	0.12	0.11	0.112
	Product advantage	0.11	0.11	0.11	0.11	0.12	0.11	0.11	0.12	0.11	0.112
	Product compatibility	0.09	0.09	0.09	0.09	0.06	0.09	0.09	0.06	0.09	0.082
Market strategy	Product life cycle stage	0.13	0.13	0.13	0.14	0.15	0.14	0.13	0.15	0.13	0.138
	Market growth rate	0.09	0.09	0.09	0.09	0.06	0.09	0.09	0.06	0.09	0.082
Firm strategy	Introduction objective	0.11	0.11	0.11	0.11	0.12	0.11	0.11	0.12	0.11	0.112
	Targeting strategy	0.13	0.13	0.13	0.14	0.15	0.14	0.13	0.15	0.13	0.138
	Innovation Strategy	0.11	0.11	0.11	0.11	0.12	0.11	0.11	0.12	0.11	0.112

Results and recommendations

Results

Table H: Scoring with respect to the product innovativeness

Product innovativeness	Score
Radical innovation	50%
Incremental innovation	50%

Table I: Determination of the product newness

Product newness
Addition to existing product lines

Table J: The introduction strategies and their scores

Strategy	Score
Radical & New	52%
Improve & Grow	26%
Incremenatl & Establish	23%

Figure A: Product innovativeness

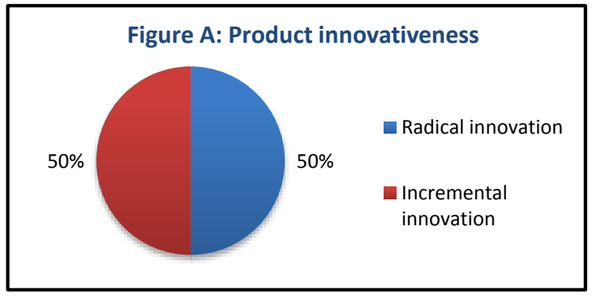
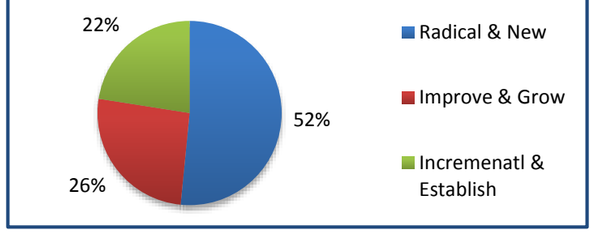


Figure B: Strategy scores



Recommendations

Based on the results, the recommended strategy is:

Radical & New strategy

Table K: Tactical decisions corresponding to the introduction strategy

Tactictal decision	Implementation
Marketing objective	Gain awareness
Product	
Branding	New brand
Product assortment breath	Low
complementary services	Ensure proper support
Distribution	
Density	Selective
Channels	New or current channels Direct
Promotion	
Objective	Clearly communicate product characteristics, inform, educate, generate positive word-of-mouth
Strategy	Push
Promotional mix	Advertising, personal selling
Price	
Strategy	Penetration
Initial price	Low
Price decrease	Slow

Table N: Launch tactics for the new product introduction strategies. Source: Report table 7, Cheisa & Farttini (2011)

	Radical & New	Improve & Grow	Incremental & Establish
Marketing objective	Gain awareness	Stress differentiation	Maintain brand loyalty
Branding	New brand	Brand extension	Brand extension
Product assortment breath	Low	Medium	High
complementary services	Ensure proper support	Ensure proper support	
Distribution			
Density	Selective	Selective	Intensive
Channels	New or current channels Direct	Current Direct	Current Indirect
Promotion			
Objective	Clearly communicate product characteristics, inform, educate, generate positive word-of-mouth	Stress points of difference	Reminder oriented
Strategy	Push	Mix push-pull	Pull
Promotional mix	Advertising, personal selling	Advertising, personal selling	Advertising, sales promotions
Price			
Strategy	Skimming	Penetration	
Initial price	High	Low	
Price decrease	Quick	Slow	

Table L: Strategic focus for the introduction strategy

Preffered strategy	Targeted low risk
Strategic focus	Emphasize low risk Offer different versions targeted at different buyers Use opinion leaders Have trial programs Cultivate a winner image

Table O: Strategic focus for the preffered strategies. Source: Easingwood (2006)

Alliances	Targeted low risk	Low-Price/OEM	Broad-Based Market Preparation	Niche Technological Superiority
Form strategic alliances	Emphasize low risk	Supply to OEMs to incorporate in other products	Supply to OEMs to incorporate in other products	Emphasize technology superiority
Create unique distribution channels	Offer different versions targeted at different buyers	Create unique distribution channels	Provide clear product information to the market	Concentrate on niches
Focus on channel partners	Use opinion leaders	Target high-value users	Educate the market to understand new uses	
Exploit tactical alliances	Have trial programs	Emphasize low price	-	-
Use reference sites	Cultivate a winner image	-	-	-

Table M: Recommended success measure

Product newness type	Addition to existing product lines
First customer measure	Market share
Second customer measure	Revenue growth or satisfaction or acceptance
Financial measure	Met profit goal
Performance measure	Competitive advantage

Table Q: Product introduction success measures based on product newness. Source: Griffin & page (1996)

	New to the world product	New product line	Addition to existing product lines	Revision/Improvement to existing products	Repositioning	Cost reduction
First customer measure	Customer acceptance	Revenue or satisfaction	Market share	Customer satisfaction	Customer acceptance	Customer satisfaction
Second customer measure	Customer satisfaction	Market share	Revenue growth or satisfaction or acceptance	Market share of revenue growth	Satisfaction or share	Acceptance or revenue
Financial measure	Profit goals & IRR/ROI	Met profit goal	Met profit goal	Met profit goal	Met profit goal	Met profit goals
Performance measure	Competitive advantage	Competitive advantage	Competitive advantage	Competitive advantage	Competitive advantage	Performance or quality

Appendix K: Motivation answers LST for PURAC FCC with spray system

Table 44: Answers and motivation for these answers for the offering of PURAC FCC in combination with a spray system

		Answer	Motivation
Product strategy			
1.1	a	The new product exploits existing technology	Although the combined offer of a spray machine and lactic acid for this machine is new, there is no new technology in this offer, as both spray equipment and lactic acid are already used for other applications in other markets.
	b	There is high uncertainty	There is high uncertainty, especially with respect to the adoption of the offer. The market and business research indicated that meat companies are cost conscience, risk avoidant and waiting. Therefore, these meat companies have to be strongly convinced before adopting the offer. Another aspect of the risk is the partnership with a spray system supplier. This partnership has to be well managed for a success for offer to the meat companies. Therefore, it is stated that there is a high uncertainty.
	c	The new product focuses on processes, products or services with unprecedented performance features	The offer is very new to the market and results in a significant increase in yield per carcass, food safety and shelf life.
	d	The introduction of the new product improves competitiveness within current markets or industries	The offer will give Corbion a high competitive position, as this offer is very different to other offers in the market. However, this offer does not result in a dramatic market change, although it is likely that competitors will copy the idea and bring similar offers to the market.
1.2	a	The product is medium new for the company.	Corbion is already offering lactic acid for other applications. However, offering a product in combination with the complementary product through a partnership with another party is new to Corbion. Therefore, the offering is medium new.
	b	The product is very new to the market.	Currently, lactic acid and a spray machine are offered separately to the market, as are most other equipment and raw materials. Offering the two as a product bundle is very new to the meat processing market.
1.3		The product advantage is that it is never seen before.	As discussed, this offer is new to the market and has several advantages over offering the two products separately, like minimal risk due to pre-financing. Also, the usage of lactic acid for meat decontamination results in better meat quality, as earlier indicated.
1.4		The product is high compatible with the current market.	The spray system is configured for spraying lactic acid in the meat processing process in this offer. Therefore, it can easily be added to the current meat processing line.
Market strategy			

		Answer	Motivation
2.1		The market is in the introduction phase of the product life cycle.	Meat decontamination using lactic acid is allowed since 2013 in the EU and most meat companies are not using it currently. For the US market, lactic acid application for pieces of meat is also in the early market stage, as most meat processors do not use it.
2.2		The average, annual market growth rate is less than 5% in the last 3 years.	As most meat companies have not adopted the use of lactic acid for meat decontamination and the market is still emerging, the market growth rate is also still very low.
Firm strategy			
3.1		The goal of the introduction is to get a foothold in the new market and to increase market penetration.	The meat decontamination market is currently emerging and thus very new. Also, Corbion is not present in this market. The goal is also to increase market penetration, in order to gain a large market share of this market.
3.2		The strategic incentive is to reduce the risk of adoption.	One could expect that the strategic incentive is to launch a product with a complementary product, but this is already taken into account in de offer. Because this offer already contains the complementary product, the complementary product does not have to be taken into account again. Instead, the incentive is to reduce the risk of adoption, as meat companies are characterized as being risk avoidant and awaiting. Through offering the products as a bundle including pre-financing, the costs of the product offering are spread out and product compatibility is ensured, reducing the risk of adoption and improving the chances of market success.
3.3		The targeting strategy is to focus on a niche of the market.	For the EU market, this will be the decontamination of beef carcasses, thus focusing on beef slaughterhouses. For the US market, the focus is on the decontamination of pieces of meat, thus focusing on the food processors and packers.
3.4		The innovation strategy is to be an technological innovator.	Corbion wants to offer a unique bundle of products, differentiating itself from the competitors.
3.5		The introduction objective is to increase market penetration and speed to market.	Corbion aims to get a foothold in a new market and penetrate this market as quick as possible.