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## **Parma Agrifood Research Management Knowledge Network: PARMa KN<sup>1</sup>**

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### **Abstract**

The case focuses on the proposed development of the Parma Agrifood Research Management Knowledge Network (PARMa KN). The PARMa KN is intended to be a global network of leading professionals drawn from academia, industry, and the public sector. The proposal is for the group to be funded by the City of Parma and corporate, foundation, and individual donors. Its main objective would be to build value for society through the development of cutting-edge research, educational programs, and service activities for firms in the food and agribusiness sector. It is hoped that the new foundation will bring international expertise to food and agribusiness firms in Parma to help them to expand and remain globally competitive.

**Keywords:** consulting, trade association, industry association, SWOT, industry research

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### **IAMA Agribusiness Case 11.3**

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<sup>1</sup> This case was prepared for the Student Case Competition, XVII Annual IAMA World Forum and Symposium in Parma, Italy in June 2007 by Francesco Braga and Gregory A. Baker. The blind review of the case was coordinated by S. Andrew Starbird, a past Editor of the IFAMR.

## **Introduction**

Bernardo Ricci sat in the Executive Director's chair of the newly formed Parma Agrifood Research Management Knowledge Network (PARMa Knowledge Network or PARMa KN). Much had been accomplished in getting agreement from the organization's major donors (the City of Parma and several corporate, foundation, and individual donors) to fund the foundation. However, Ricci was taking the helm of a new organization with only a skeleton of a plan. Many of the activities in the areas of research, education, and services had been spelled out in the initial agreement. Ricci's job would be to clarify and provide more depth to the objectives and to develop a planning document to cover all aspects of the new foundation. He ran through a mental checklist of some of the key decisions that lay ahead: engage stakeholders, refine the foundation's objectives, develop an organizational structure, determine how the various activities would be financed.

He flipped on his computer and went to work. Ricci began by reviewing background documents on Parma covering economic data, the importance of traditional high value-added agri-food activities, the many challenges facing the province's economy, and the proposed scope and characteristics of PARMa KN, which he was charged with organizing and directing in an effective and sustainable manner.

## **Profile of the Province of Parma<sup>2</sup>**

### *Geography*

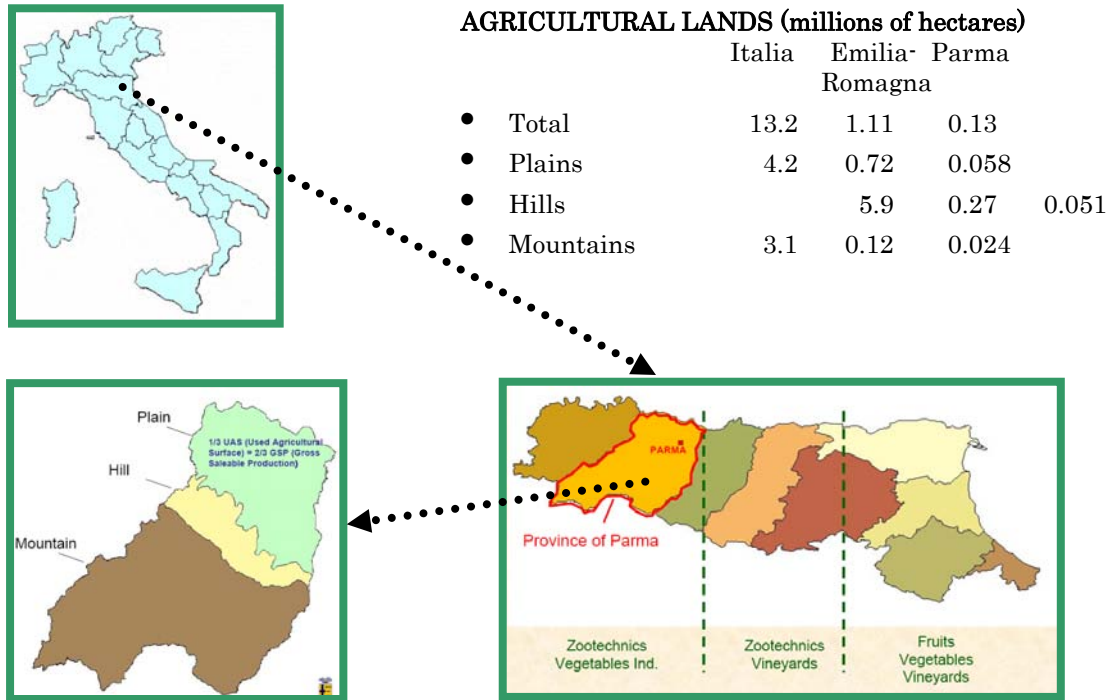
The province of Parma is situated in the Emilia-Romagna region of northern Italy. Its northern boundary is formed by the Po River, the largest river in Italy. It is favorably positioned, between three large urban areas. Bologna is approximately 60 km to the east, Milan, is about 80 km to the northwest, and Florence is about 120 km to the southeast. Parma has easy access to the Mediterranean Sea through the port of La Spezia, which is 1 hour south of Parma. The city benefits from close proximity to the highway and rail network connecting Italy to Northern Europe.

The province of Parma is flat in the north, hilly in the center, and mountainous in the south (figure 1). The availability of agricultural land in the province of Parma is shrinking and land values have increased, reflecting increasing urbanization (table 1). Figure 1 provides some descriptive data on agricultural land in the province.

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<sup>2</sup> All statistical information in this section, unless otherwise noted, was from the following publication, Parma in Cifre, (camera di Commercio, 2005), published by the Parma Chamber of Commerce.

## Parma and its Agricultural Lands



**Figure 1<sup>a</sup>.** Descriptive data on Agricultural Land in the Parma area.

**Source:** Province of Parma and other public sources, modified.

**Table 1:** Indicative average land values, Euros/Hectare, Province of Parma, 2006<sup>b</sup>

Vineyards, DOC	€60,000 - 65,000
Nursery products	€50,000 - 57,000
Cash crops and forage	€40,000 - 55,000
Vegetables	€40,000 - 55,000
Cash crops, hills and mountain areas	€9,000 - 21,000
Forests	€4,000 - 6,500
Fallow (hills and mountain area)	€5,500

**Source:** Commissione Valori Agricoli Medi (2007).

<sup>a</sup>At the end of the first quarter of 2007, 1€(Euro) was worth approximately US\$1.32; 1 hectare is approximately 2.5 acres.

<sup>b</sup> DOC stands for Denominazione di Origine Controllata, the Controlled Designation of Origin, as set out in Law 164, of Feb 10, 1992.

## People

Approximately 400,000 people live in the province of Parma, with 150,000 living in the city of Parma itself. The citizens of Parma and its province are blessed with an excellent quality of life, high average incomes, low unemployment, and many rich cultural traditions. Parmigiani, the citizens of Parma, are proud and fond of their traditions, in both the cultural and culinary fields. The Teatro Regio is one of the icons of Italian Opera; Parma, after all, is the home of Giuseppe Verdi and Arturo Toscanini. Parma is also home to Prosciutto di Parma and Parmigiano Reggiano; both have been produced here and the neighboring area for the last millennium or so. Today they represent two of the cornerstones of Italian agri-food production and exports. Despite its rather limited size, the province of Parma accounts for 40% of the Italian production of Prosciutto di Parma and 30% of the Italian production of Parmigiano Reggiano.

## Business

Striking as it may seem, given its economic importance, only about 6,000 people are employed in agricultural production, corresponding to 3% of the province's total workforce. Total agricultural production is valued at approximately €500 million, approximately 1/3 from crops, mostly cereals, and 2/3 from livestock products, mostly dairy. The province is a net importer of agricultural commodities, including, wheat, pork, and fluid milk, with imports of approximately €80 million in 2004. It is a net exporter of processed food, approximately €300 million 2004, and food industry equipment, approximately €250 million in the same year. Table 2 summarizes some key company and employment data for the agribusiness sector.

**Table 2.** Number of companies and employees, Parma province, by sector

	<b>Total</b>
Food Industry, number of companies, 2004:	1412
Meat processing and meat based products	375
Dairy and dairy products	363
Pastry, bakery products, desserts	340
Other food industry	349
Food Industry, number of employees, 2001	15,500
Manufacturing of food processing equipment, number of companies, 2004	779
Manufacturing of food processing equipment, number of employees, 2001	8,500

**Source:** Research department, Parma Chamber of Commerce, as reported in Parma in Cifre 2005 (Camera di Commercio, 2005).

In recent years, the province of Parma has been undergoing a process of geographical concentration and specialization in agricultural production, with increasing vertical integration of the supply chain and the consequent growth of

research, promotion, and regional development services and initiatives. This process has led to the birth of many service companies, a significant innovation in a region with a tradition in manufacturing and agriculture.

The economic activity in Parma may be described by its strong entrepreneurial dynamism, its many small and medium-sized enterprises, the use of advanced technologies and its strong heritage in agri-food businesses. The population density of more than 1 person/hectare and the positive provincial trade balance data highlight how Parma has been able to grow and prosper by specializing in adding value to agricultural commodities and by exporting high value-added, traditional agri-food products that are known the world over.

As of 2000, there were 11,000 farms in the province. The average farm is relatively small, approximately 15 hectares in the flatland and less than 9 hectares in the mountain area. However, the average farm size is growing, particularly in the flatlands with increases of 39% between 1990 and 2000 and 63% between 1980 and 2000. The number of farms decreased by 40% and 53% in the 1990-2000 and 1980-2000 time frames, respectively. Success factors to the region's agriculture include fertile ground, access to abundant irrigation water, centuries of tradition, and the value system of its rural population.

In 2004, the province of Parma was home to 46,000 companies, most of them small and medium-sized. Parma is also home to Barilla, the largest pasta maker in the world, and Parmalat, one of the largest dairy companies in Italy, which is currently undergoing reorganization following recent financial difficulties. Tourism is another important economic activity, and its importance is growing thanks to the many opportunities provided by the cultural and food traditions of the region. Parma also has a thriving university, the University of Parma, with approximately 20,000 students and several specialized research centers that are either privately or public funded.

### *Exports*

Parma's economy has undergone a significant process of internationalization. Key non-EU export markets are the US, Switzerland, and Japan. Food and agribusiness companies account for 50% of total exports from the region (23% food, 27% processing equipment). While food products are exported to high-income countries, such as France, Germany, UK, US, and Japan), food processing equipment (bottling lines, food preservation equipment, and meat and dairy processing equipment have a wider market that includes developing countries, such as Brazil and China, as well as countries developing their food production capabilities, such as Eastern European countries.

### *Other Food-related Organizations*

The European Food Safety Authority, founded in 2002, moved its headquarters to Parma from Brussels in 2005. Parma is also home to important international food fairs. The Cibus International Food Exhibition competes with Sial in Paris and Anuga in Cologne. CibusTEC is the most important fair in the food processing and packaging industry. In recent years there have been a growing number of research centers, such as the SSICA (Experimental Station for the Canned Food Industry) that have located in Parma.

### **Challenges Faced by the Food and Agribusiness Industry in Parma**

Despite the success of its high-quality food and agribusiness industry, Parma faces many challenges in maintaining its competitiveness and exploiting new opportunities. Many of these challenges are not unique to Parma, rather they are similar to those faced by other major food producing regions of the world seeking to secure their social, environmental, and economic sustainability. Some of the key challenges, in no particular order, include:

- securing the availability of flexible and competitive financing for new ventures;
- developing proper succession planning for family businesses;
- supporting and improving the effectiveness of international marketing strategies;
- effectively complying with the plethora of diverse regulations in foreign markets;
- securing compliance with EU food safety, traceability, labeling, and other regulations;
- developing effective and cost competitive currency risk management strategies;
- meeting increasingly stringent environmental quality regulations;
- managing human resource issues, including providing training to support industry competitiveness and to effectively deal with increasing government regulations;
- securing viable and vibrant new product development pipelines;
- coping domestically, and increasingly in export markets, with imitation products from lower cost producing areas; and
- securing access to and implementation of new research findings.

Many of these issues represent a particular challenge for Parma's smaller firms. These small and medium-sized businesses are typically family-run firms with a traditional emphasis on production excellence and relatively unsophisticated business processes. In some cases, the owner's adherence to tradition may serve as a barrier to obtaining modern support services. While Parma's traditional agri-food excellence is sound, it must actively develop innovative solutions to adapt to a business environment that is increasingly complex and international if it is to maintain market share and profitability.

## SWOT Analyses for Key Agribusiness Sectors

In 2006, the Province of Parma undertook a study to highlight the future opportunities and threats facing the agricultural economy of the region. This study highlighted four industries, Parma Reggiano, Prosciutto di Parma, Processing Tomatoes, and Tourism and Quality Chains. The SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for these four sectors is highlighted in the following four figures (figures 2-5). Additionally, a SWOT analysis for the food equipment manufacturing sector provided by SPIP is included below (figure 6).

<p><u>Strengths</u></p> <ul style="list-style-type: none"> <li>• High product quality</li> <li>• High productivity of dairy farms, growing concentration</li> <li>• Geographic concentration of production area</li> <li>• Unique traditional supply chain</li> <li>• Worldwide quality image</li> </ul>	<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> <li>• Marketing practices are outdated</li> <li>• Fragmented production: 223 dairies and 1632 farms</li> <li>• Large number of single-product smaller dairies, smaller farms</li> <li>• Conflicting marketing mix between producers, trade, and retail</li> <li>• Environmental regulation is an obstacle to further concentration</li> <li>• Difficulty in promoting marketing innovation at farm level</li> <li>• Most farms and dairies are single product: milk accounts for more than 90% of their production</li> </ul>
<p><u>Opportunities</u></p> <ul style="list-style-type: none"> <li>• Develop innovative, shorter marketing channels</li> <li>• Dairies: diversify production</li> <li>• Dairies: consolidation and rationalization, in particular for marketing</li> <li>• Pursue opportunities for organic certification and segmentation</li> </ul>	<p><u>Threats</u></p> <ul style="list-style-type: none"> <li>• Dairy farmers are aging</li> <li>• Farms: concentration of production in areas with higher environmental risks</li> <li>• Increasing focus on animal welfare and pollution</li> <li>• Increased regulatory pressure requiring new professional skills (e.g.: HACCP)</li> </ul>

**Figure 2.** SWOT Analysis for Parmigiano Reggiano Industry

Source: Province of Parma (2006), modified.

<p><u>Strengths</u></p> <ul style="list-style-type: none"> <li>• Market leader</li> <li>• Meat of high, certified quality</li> <li>• Good animal welfare measures</li> <li>• New packaging opportunities</li> <li>• Synergies in the agri-food district</li> </ul>	<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> <li>• High production costs</li> <li>• Poor supply chain cooperation to coordinate supplies</li> <li>• Bargaining power of retailers</li> <li>• Single-product firms</li> <li>• Meat quality still variable</li> <li>• Worsening consumer perception</li> </ul>
<p><u>Opportunities</u></p> <ul style="list-style-type: none"> <li>• Consumers demands higher quality</li> <li>• Value-added products from different pork cuts</li> <li>• Export markets</li> <li>• Biogas and energy production</li> </ul>	<p><u>Threats</u></p> <ul style="list-style-type: none"> <li>• Increased production of generics in same geographical area</li> <li>• Water pollution issues</li> <li>• Higher production costs at farm level</li> </ul>

**Figure 3.** SWOT Analysis for Prosciutto di Parma Industry

Source: Province of Parma (2006), modified.

<p><u>Strengths</u></p> <p>Farm level</p> <ul style="list-style-type: none"> <li>• Integrated production, younger farmers, open to innovation</li> <li>• Highly specialized, good, efficient aggregation of supply</li> <li>• Good scientific support for innovation of varieties and cultural practices</li> </ul> <p>Processing industry</p> <ul style="list-style-type: none"> <li>• Larger companies, efficient and competitive worldwide</li> <li>• Local dedicated scientific support</li> </ul>	<p><u>Weaknesses</u></p> <p>Farm level</p> <ul style="list-style-type: none"> <li>• High land cost</li> <li>• Difficult to program crop production levels to meet industry's demand</li> <li>• Dependence on subsidies and some smaller operations</li> <li>• Limited participation in further processing</li> </ul> <p>Processing industry</p> <ul style="list-style-type: none"> <li>• Seasonality of single-product firms</li> <li>• Poor logistics infrastructure</li> <li>• Environmental concerns</li> <li>• Some smaller firms</li> </ul>
<p><u>Opportunities</u></p> <p>Farm level</p> <ul style="list-style-type: none"> <li>• Modernization and consolidation of smaller farms</li> <li>• New varieties</li> <li>• Investment to lower cost of production</li> </ul> <p>Processing Industry</p> <ul style="list-style-type: none"> <li>• Improved logistics</li> <li>• Diversify production, develop higher value-added products</li> <li>• Better collection, elaboration and use of information to support decision-making</li> </ul>	<p><u>Threats</u></p> <p>Farm level</p> <ul style="list-style-type: none"> <li>• Drop in production with a reduction in subsidies</li> </ul> <p>Processing Industry</p> <ul style="list-style-type: none"> <li>• International competition: Mediterranean countries, China</li> <li>• Reduced availability of domestic supplies</li> </ul>

**Figure 4. SWOT Analysis for Processing Tomato Industry**

Source: Province of Parma (2006), modified.

<p><u>Strengths</u></p> <ul style="list-style-type: none"> <li>• Three thematic roads: wines, culatello, mushrooms</li> <li>• Many smaller niches of excellence</li> <li>• Growth in the areas of teaching farms and processing firms</li> </ul>	<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> <li>• Still amateurish, poor marketing, poor communication, infighting, disorganized</li> <li>• Lack of recognized quality and labeling standards for products, and standards for teaching farms and processing firms</li> <li>• Aging farm population</li> </ul>
<p><u>Opportunities</u></p> <ul style="list-style-type: none"> <li>• Parma has great touristic appeal</li> <li>• New interest among larger segments of population</li> <li>• Possible higher level of organized tourism demand (e.g. corporate events, retreats)</li> </ul>	<p><u>Threats</u></p> <ul style="list-style-type: none"> <li>• New health and environmental regulations</li> <li>• Safety standards</li> <li>• Difficult to coordinate with tourism industry and other local establishments</li> </ul>

**Figure 5. SWOT Analysis for Culinary Tourism**

Source: Province of Parma (2006), modified.



<p><u>Strengths</u></p> <ul style="list-style-type: none"> <li>• Many small and medium-sized firms, flexible and responsive</li> <li>• Benefits from quality reputation of region</li> <li>• Many local processing firms that process locally grown crops</li> </ul>	<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> <li>• High cost area, particularly for labor, land, utilities</li> <li>• Aging workforce</li> <li>• Lack of well-trained workers</li> </ul>
<p><u>Opportunities</u></p> <ul style="list-style-type: none"> <li>• Increase use of technology and electronics in equipment</li> <li>• Export markets, particularly developing countries and Eastern Europe</li> </ul>	<p><u>Threats</u></p> <ul style="list-style-type: none"> <li>• Possible loss of local commodities that drive innovation</li> <li>• Increased difficulty in attracting affordable qualified labor</li> <li>• Possible loss of export sales to manufacturers in lower cost regions</li> </ul>

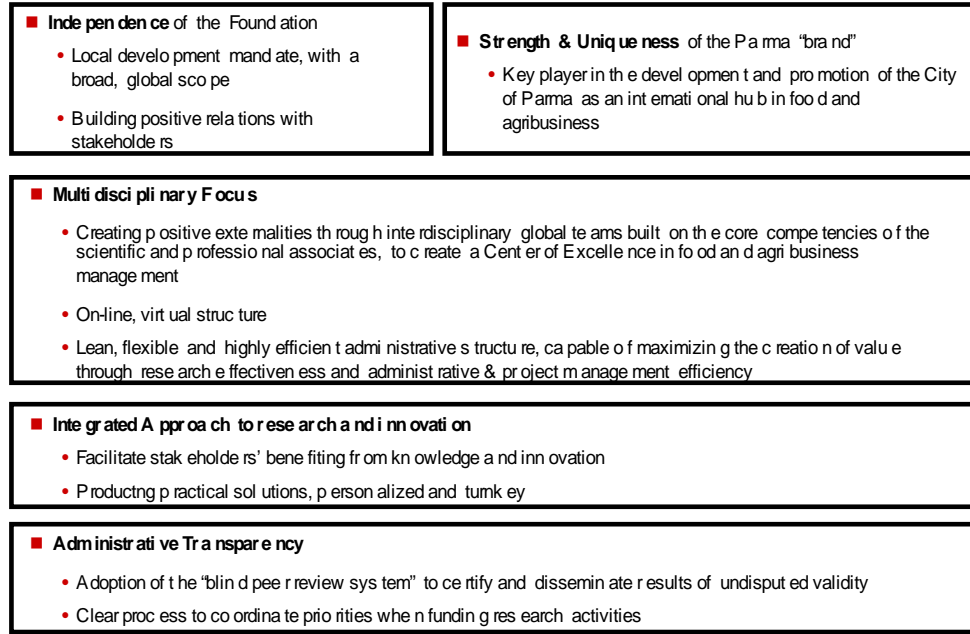
**Figure 6. SWOT Analysis for Food Equipment Manufacturing Industry**  
 Source: SPIP (2007), modified.

## The Parma Agrifood Research Management Knowledge Network, PARMa KN

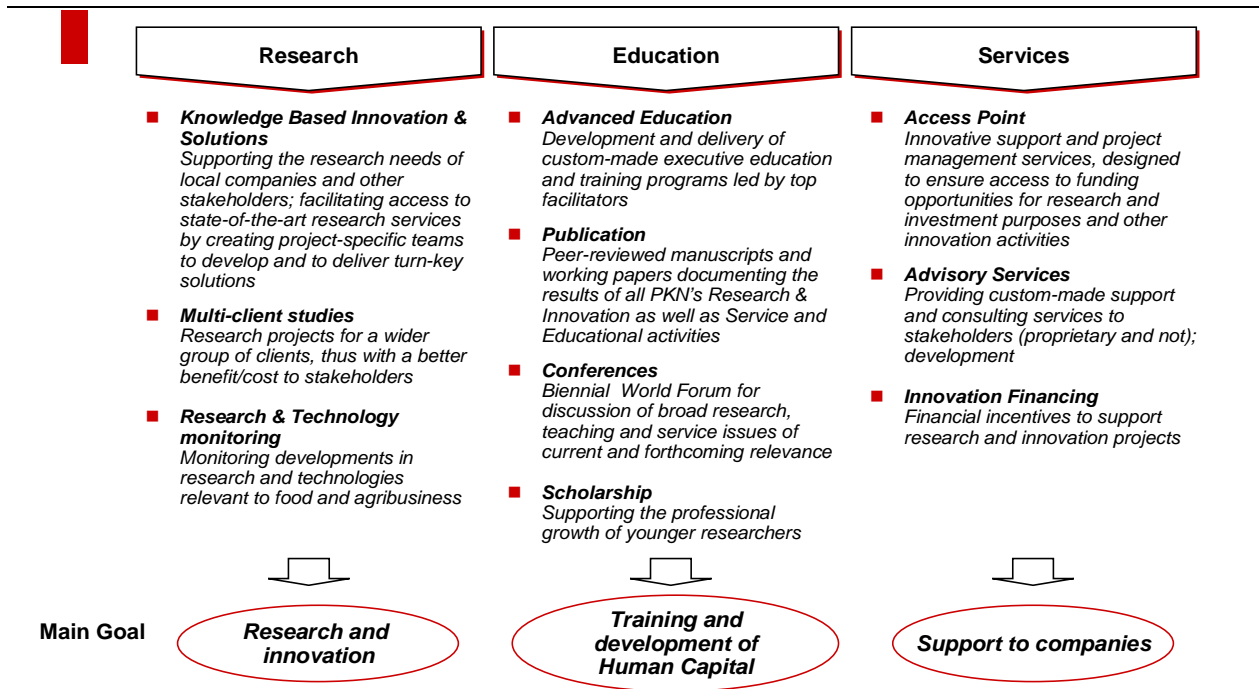
The PARMa KN is proposed as a global network of leading professionals drawn from academia, industry, and the public sector. Funded by the City of Parma and corporate, foundation, and individual donors, its main objective is to build value for society through the development of cutting-edge research, educational programs, and service activities for firms in the food and agribusiness sector. It is hoped that the new foundation will bring international expertise to food and agribusiness firms in Parma to help them to expand and remain globally competitive. This is viewed as being especially important for small and medium-sized businesses.

The organization will be organized as an independent foundation. Although funding details are still being negotiated, it is expected that the PARMa KN will start with an initial endowment of €5 million, a figure that is expected to grow to €10 over the next two years. The foundation is also expected to have a guaranteed annual income of €1 million initially, growing to €2-3 million after several years. Figures 7 and 8 describe some of the key characteristics of the proposed foundation.

The research activity will have two components - projects and publications. PARMa KN will also conduct research on a variety of topics to support the research needs of local companies and other stakeholders. PARMa KN will facilitate access to state-of-the-art research services by creating project-specific teams of international experts to provide innovations and information for the Parma food and agribusiness industry. A multi-client model will develop research projects for a group of clients to provide more cost effective access to research services. Research and Technology Monitoring will help companies understand the key developments in their sector, in order to be able to compete by employing cutting-edge technology and solutions.



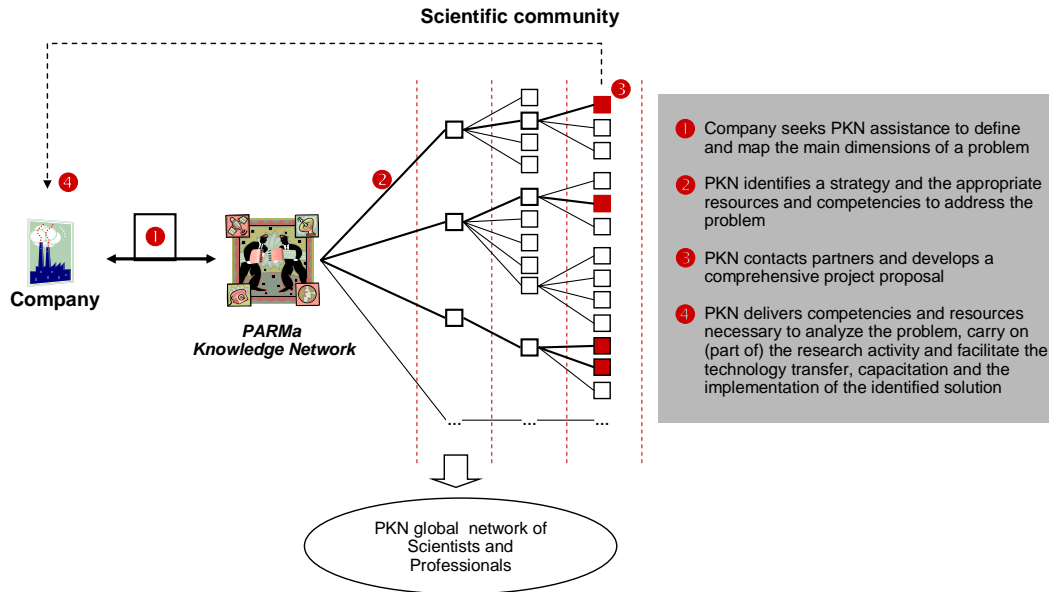
**Figure 7. PARMa KN Qualifying Points.**  
Figure 7 is provided courtesy of SPIP, modified.



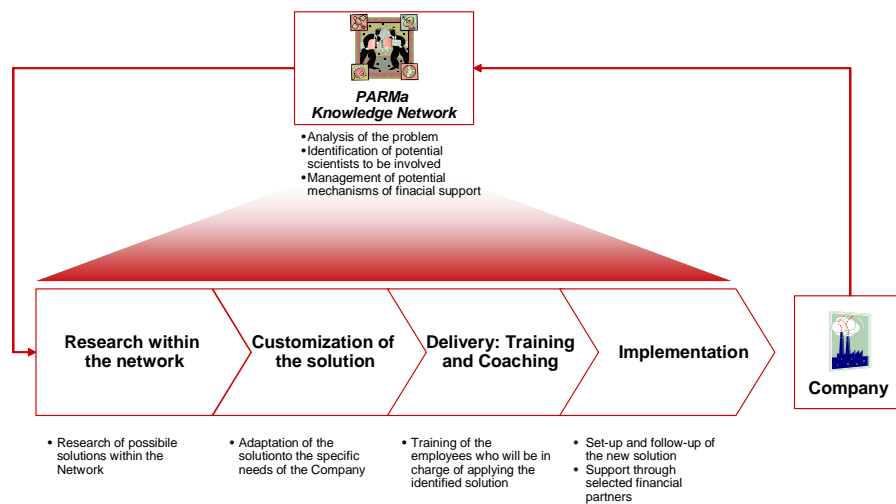
**Figure 8. PARMa KN's Research, Education and Service activities**  
Figure 8 is provided courtesy of SPIP, modified.

Research

Figures 9 and 10 illustrate the process. An example of this service would be a project to determine how radio-frequency identification (RFID) tags could be economically incorporated into artisan food products, such as high quality Prosciutto di Parma. Although such a project could be undertaken for an individual company, the size of firms in the industry would make this most suitable as a project financed by multiple clients.



**Figure 9.** Knowledge-based services: Solving Issues, Building Value  
Figure 9 is provided courtesy of SPIP, modified.



**Figure 10.** Supporting the different steps towards innovation.  
Figure 10 is provided courtesy of SPIP, modified.

## *Education*

The principal educational activity will be executive and technical educational programs. PARMa KN will develop a series of such programs designed to meet the ongoing needs of food and agribusiness firms. Custom-designed educational programs will be developed based on demand. Two types of conference activities are envisioned: one-day seminars and a world congress. One-day seminars will focus on specific topics of interest to food and agribusiness firms. The world congress will be held every other year and will include a broad range of research, educational, and service topics designed to attract a worldwide audience. Publications will focus on topics of interest to the Parma food and agribusiness industry. They will be peer-reviewed documents resulting from PARMa KN's research, education, and service activities.

## *Service*

The principal component of the service activity will be consulting services provided on a custom basis to clients. One of the unique activities of PARMa KN is "Access Point" whereby support and project management services are provided to ensure access to funding activities for research and investment purposes.

## **Case Questions**

1. As the first executive director, what additional information would you want to obtain to get the organization off to a successful start?
2. Describe in detail the planning activities that Mr. Ricci should conduct in the first six months to ensure that the PARMa KN will meet the needs of its stakeholders? Specifically,
  - Identify who the key stakeholders are and their interests;
  - Identify the key planning activities that should be undertaken, explain why they are important, how you would structure them, and describe the output;
  - Indicate what you believe are the major priorities for the organization during the first six months and justify your priorities.
3. The PARMa KN will be funded initially by the City of Parma and corporate, foundation, and individual donors. However, PARMa KN will eventually need to generate much of the revenue needed to fund its activities. How would you structure the fees associated with the various activities conducted by PARMa KN?

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