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Food Safety and Quality Assurance Key Drivers of Competitiveness

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Abstract

Under an institutional and organizational collapsed environment caused by Argentine cracked economical and political situation, farmers and producers are forced to add value through technological innovation designs in order to be competitive at the international market. Food safety and Quality Assurance systems appear as key drivers of competitiveness. Three emerging models are comparatively analyzed, evaluating real agribusiness that are developing HACCP, Quality & Origin Protocol and ISO 9001 Quality Management. As a result, the different level of success and impact of those agribusinesses immersed in the aforementioned external constraints and no less precarious internal limitations based on cultural, technological and financial limitations are uncertain and variable.

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1. Problem Statement

The last three years have been problematic for Argentine agribusinesses given that the economical crisis of December 2002 has strongly affected them; however, it forced farmers and processors to look for new alternatives. Instead of domestic market, export appears as an advantageous opportunity because of disparity in the dollar / peso rate, among others. On the other hand, to be competitive at the

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international level requires building competitive advantages linking quality and origin and/or food safety and quality assurance management as key drivers of agribusiness.

In the food chain, the development of food safety is mandatory while quality assurance is voluntary. It is not the same to implement food safety such as: GMP , SSOP , HACCP and/or others, that assures the consumption of food is safe, than to implement quality assurance such as: ISO 9000 Standards, total quality management or continues improvement, which are quality assurance systems satisfying customers' implicit and explicit expectations . By all means, to the food industry, food safety is a pathway to quality management, and both are essential technological innovations for competitiveness.

In the domestic market, the perception of the needs of food safety and quality assurance -as strategy of competitiveness by the Small and Medium Sized Food Industry- is recent. This requirement has been promoted by the globalization process, new markets penetration, exports increasing, consumers' satisfaction, and by world-wide dissemination, as competitive advantages and, in some cases, as para-technical barriers.

The current situation in Argentina related to food safety shows that just 35 beef slaughterhouses, 12 poultry, eggs and hunting products industries, and 300 fishing -factory vessels, have been GMP and HACCP audited and approved by the Argentine National Inspection Services, the European Union, and the United States. Those statistics point out an increase since more than three years ago HACCP approvals in the Argentine food industry were not more than 20. The scenario of quality assurance is less optimistic because only 15% of the 450 ISO certified industries belong to a food industry sector.

That proves in despite of sharing the same institutional and organizational frame, new technological designs emerge from that uncertain economic scenario, allowing a realistic study of the effectiveness and efficiency of Argentine agribusinesses and its new and potential alternatives.

At the time of deciding any new technological system, the restrictions and obstacles are common to most medium and small sized food industries around the world, including human, economical and technological resources deficiency:

- ✓ "…inadequate basic hygiene,
- ✓ inadequate infrastructure and facilities
- ✓ financial limits,
- ✓ lack of knowledge of the business
- ✓ lack of skill and information,

- ✓ restrictions of human resources (inadequate training, limited number of personnel),
- ✓ deficiency of positive attitude on the part of the industry,
- ✓ deficient client's knowledge and consumer
- ✓ lack of effective education and training programs and
- ✓ poor communication…"[1]

The Argentine medium & small sized industries are not the exception. The cases under study are introducing technological designs as food safety and quality assurance systems–with third party or self certification- generating new business underneath of both a chaotic domestic market and a competitive international one.

The three experiences selected for this comparative analysis are confronting the aforementioned obstacles at different organizational levels and in different technological models. They are developing:

- ✓ GMP and HACCP in the lamb slaughterhouse,
- ✓ Green Beef Quality Protocol – Good Cattle Practices and Traceability-, in the Cattle Farms, Quality Management -ISO 9001/2000 Standard- in Private Port (Grain & Cereal Reception –Quality Homogenization – Identity Preservation - Ship Load) Service.

The common purpose of those agribusinesses' leaders is to develop strategic and competitive advantages based on food safety and quality assurance. The management recognized the need of leading a cultural change inside the organization –in the human resources area- and found out that the technological approach, as a common goal, would drive it. They chose those new designs as a pathway to accomplish the workforce commitment with a precise objective.

2. Objective

The main objective of the paper is to make a comparative analysis of three cases under study. Agribusinesses developing new technological models are focused on the evaluation of food safety and quality assurance systems related to strategic and competitive advantages. The result of that analysis allows also evaluating impacts on the food chain under the light of the agribusinesses' new vision and values. External limitations and internal restraints are expected as a result of the complex economical scenario and precarious strategic alliances under which those agribusinesses are inserted.

3. Procedures

[1] Motarjemi, Y and Käferstein, F. Food Safety, Hazard Analysis and Critical Control Point and the Increase in Foodborne Diseases: A paradox? Food Control, 1999, 10:325-333.

The procedure is based on the description of three cases in order to evaluate: a) different levels and stages of food safety and quality assurance approaches as key drivers to strategic and competitive advantages and b) management and human resources' new perspective and cultural change and how it introduces change in farm and industry.

- ✓ The first case of study is the lamb agribusiness in Patagonia. A group of sheep farmers of Southern Patagonia constituted Estancias de Patagonia – trademark, a new type of company producing, processing and exporting carcasses and cuts to Europe. The farmers also self-constituted the shareholders of Patagonia Sur slaughterhouse, which is processing sheep from Patagonia. They settled a strategic alliance with the provincial government –owner of the slaughterhouse and the plant manager – responsible for the concession. This slaughterhouse is implementing GMP and HACCP in order to meet the terms of the European Union requirements to keep the current market and to increase the exports volume of Estancias de Patagonia's farmers.

- ✓ The second case is on beef agribusiness, located in the "pampas," an important cattle area in Buenos Aires hinterland called "Cuenca del Salado". This case is about creating network of certified cattle suppliers-- a consortium of origin and quality assurance--that meets organic and natural meat attributes. The group of farmers is developing good cattle practices (GCP), including features such as: genetic, animal reproduction, natural grass feed, handling, and animal health and welfare, all under the Product and Process's Quality Protocol. They also are developing traceability starting with individual identification and a database network. The system might need a third party certification.

- ✓ The last case is grain and cereal stocking and ship loading, private port service at Terminal Quequen, located in Buenos Aires Province. The process of the service includes reception, storage, and quality homogenization, identity preservation (IP) and ship load. Historically, it was a government-run organization and after privatization, it became a private company. The involved actors are shareholders owning the plant and a manager with private sector management's skill, managing the plant. Because of the incomes and the complex interaction between workers with different background, the manager's decision is to implement the strategic plan and ISO 9001/2000 with the main purpose of transforming the "human resources" in "social Capital" like competitive assets, by means of ISO's certification.

3.1. Food Safety - Self-control Program

“Estancias de Patagonia SA" is a group of farmers from Santa Cruz, Patagonia´s trademark, and through a strategic alliance they become the shareholders of the Slaughterhouse “Patagonia Sur” where their sheep and lambs are processed. Provincial Government owns the plant, and it had been given in concession to a contractor who also is the manager. The farmers-government-manager partnership is important in the light of decision making. Meaning that all the partners decided to implement GMP and HACCP in the slaughterhouse to meet the European Union requirements in order to keep the current market and increase the volume of its exports to the European Union, the United States and Japan.

The partners bet on food safety system with the main purpose of adding value to their products, as first step, and planning ISO 9001(vs 2000) certification, as a next step. Although aware that they are a sort of collective strategy (farmers, industry management and government) with a win-win relationship and common interest, not all of them have deeply understood the main purpose. Thus, they decided starting with a technological model that would provoke the cultural crash and the ensuing change.

The Design and Implementation of Hazard Analysis and Critical Control Point System (HACCP) Proposal is a part of previous project called “Lamb from Patagonia, Santa Cruz, Denomination of Origin.” It was financially supported by the Provincial Government and technically assisted by the university in 2000/2001. The university with the co-ordination of the National Inspection Service (government financing University assistance) assists this new proposal, based on HACCP Design 2002. The contractor financially supports all the investment and expenditures related to implementation of the self-control program.

“Patagonia Sur” annual outcome is around 150,000 sheep and lambs. However, the factory slaughters hares from May to August, the most profitable activity, lamb processing, starts in December and ends by April. The plant has almost 200 employees, 40 of which are permanent and the rest are temporary. This is a key issue since HACCP needs trained personnel and on account of workers’ transitory condition, training must be made earlier every year.

The Good Manufacture Practices and Sanitation Standard Operative Procedures are the food hygiene and correct manipulation prerequisites required in both domestic and international markets. Those prerequisites have been essential to process safe food for human consumption. They also are useful tools to the design of slaughterhouses and the operative processes of safe food.

The HACCP System is founded on those prerequisites and consequently has become worldwide food safety’s synonymous, being to both industry and governments required standards. The HACCP provides systematic and proactive evaluation of

food safety because it defines potential hazards: biological, chemical and physical, which can jeopardize consumer's health.

A successful HACCP Plan means a settled and proved system by SENASA, a national or international third party certification and approval by the inspection services of the United States and/or the European Union. Currently, SENASA is also requiring not only HACCP (by June of 2003), but also the ISO 9001 rule's certification by 2005. It is offering a stable institutional framework to those who have invested in food safety and would have to invest in quality assurance.

3.1.1 Introducing HACCP System: Phase of Application

The process of implementation began with a first inspection and evaluation audit, driven by SENASA, to define the current situation and the following methodology. Many hygienic and sanitary hazards were found in the process, caused by inadequate and old infrastructure dating back more than 30 years, low employees' competence and serious cross contamination difficulties due to operative process flow.

The implementation selected method was the progressive one taking into account slaughterhouse's features, manager and employees' availability, and SENASA and different countries' mandatory specifications and requirements. This method has allowed initiating activities simultaneously knowing HACCP plan requires many investments that must be decided by the manager.

In order to develop process performance, the process's critical limits are listed and defined, such as: temperature, time, and pH, among others, respecting its parameter range, allowing the process to be under control. Because there is no microbiological standard reference in the world, it is required to register the meat packer data at least for more of 3 years and to analyze the trend in order to define the factory standard.

Once the Critical Control Points (CCP) are agreed, they must be constantly measured through analysis and/or visual observations, which are verified in normal conditions, assuring the process can be maintained and that it is realistic. The statistical methodology is used to verify that the process stays under control in those conditions. During the verification, it is also demonstrated whether the process is able to reach the defined control criteria (critical limit).

As a result, the manager encouraged his supervisors to search for hygiene and cross contamination due to failure of infrastructure and incorrect manipulation focusing on the plant flow, the operative process and the product. Major investment was made and changes introduced since this process started but there are still many

infrastructure repairs, hardware and software innovations, and technical changes pending.

3.1.2 Phase of Human Resources Structural Changes

One of the most common causes of process failures is the lack of commitment, which can be only driven by the leader. For that reason it is necessary to focus on training and dissemination as the adequate tools to provoke motivation and increase competence as well. By all means, training was highlighted from the beginning, even though it has continued through the whole process. The shareholders have attended dissemination meetings because at the moment of decision making their awareness of the HACCP needs is very important.

As HACCP principles require, HACCP team members were decided. The tem consists of interdisciplinary experts from Buenos Aires University, Estancias de Patagonia SA, manager plant, veterinary plant, a SENASA inspector (placed in the industry), and it is supported by SENASA (experts). The veterinary plant will manage the quality program, and will be responsible for keeping the HACCP updated and permanently reviewed.

The team meets periodically and area supervisors are permanently called up to work on the HACCP plan with the purpose of making them aware of their essential role of managing personnel. The supervisors' main responsibility is to make workers aware of manipulating high-risk food. Employees unaware of the importance of cleanness, hygiene, and right manipulation cannot be blamed for jeopardizing food safety and consequently, consumers' health. However, the person responsible for leading the change is the manager who must show commitment through daily decision and behavior.

So far, the motivation and awareness of all involved workers has been apparently positive since the manager started making the recommended investments and working on the process hygienic basic problems. Meanwhile, the HACCP team had meetings with all technical areas in order to keep them motivated and committed.

3.1.3 Impact of the self- control system

During the process, the external context changed and the original requirements increased as a result of the European Union visit to Argentine meat industry. Fulfilling specifications requires deeper changes and more investment. In the last months the activities were carried out according to the planned agenda; however, delays have already appeared as a result of delayed investment and workers manipulation changes.

"Patagonia Sur" had all the expected obstacles related to insufficient basic hygiene, low personnel competence, financial scarcity, old infrastructure and facilities, and poor communication. About the strategic alliance, the partners have been acting without assuming their duties, which was neither helping nor supporting HACCP implementation. Still worse, the contractor did not comply with the minimal signed contract with both the government and the shareholders. The shareholders never visited the slaughterhouse until some problems showed up. At the beginning, the veterinary Plant was working without empowerment and SENASA inspector was neither controlling nor demanding minimal regulation requirements.

Those technical and financial limitations and partners' behavior impacted in the employees' commitment and motivation. Consequently, the HACCP success has been jeopardized, and reviewing minimal requirements has been the main cause of the delayed agenda.

Under those circumstances, there were also positive impacts. The first was to make evident all the emerging problems both technologic and operative -based on infrastructure complications- making the partners aware of those limitations and driving them to make the necessary decisions on investing.

The second HACCP positive impact was also to bring out the complexity of the strategic alliance. It forced the partners to review their own duty, demanding shareholders, management and the local SENASA inspector to meet the terms of the original agreement. As long as those internal constraints are not faced and solved, the new model will fail, not being a genuine competitive advantage at all.

3.2. Green Beef Quality Protocol – Self Certification Model

The proposal "Pampas del Salado" introduces a paradigmatic change aimed at the construction of a new strategy in the business of cattle and beef in Argentina. This is a unique "Pilot Project" which defines a new model planned to go from calf region "Pampas del Salado" to the entire livestock of the "Pampas Argentina." This is a leading case involves more than 300 farmers from 11 municipalities, almost 200 thousand hectares and more than 65,000 animals, compared to the larger number of Argentine livestock, nearing 50 million head.

The institutional framework must protect property rights in order to allow the use of the geographical area name as denomination of origin. Also, the law must provide a stable and secure platform in order to make the competitive advantages sustainable in the long run. Organizational innovation consolidates the coordination of collective action and strategic alliance based on the significant asset involved. The technological aspect is related to the three quality protocols formulated, enabling different attributes of quality, origin and required traceability in order to add value to one of the most remarkable Argentine products.

The main objective starts joining the collective action of cattle dealers around the origin and quality protocols: green beef , grain beef and eco-beef . This strategy aims at increasing negotiation ability in the cattle sector in order to influence the beef business. The idea is to collect local data creating local knowledge with global impact, and a farmers' network managing information and knowledge through COPRODER, a regional group of municipalities, in order to become a self-certified farmers network.

The network is built through registers that collect local data, such as information of origin and quality of the cattle and beef. The registers convert this information in valuable knowledge to consumers in any market. That is the core of the added value in information and knowledge for consumers. That is also the key to negotiation strengths in farmers' hands.

As this model is a collective strategy among farmers and processors, with the coordination and support of provincial and local governments, the first phase of the project has been financially supported by the government and assisted by experts of the Buenos Aires University during 2001 and 2002's first semester. The second phase, the 2002 second semester, counted on financial support of local government and the same technical assistance, although caravans purchase for individual identification was afforded by the farmers. By all means, the roles in this collective strategy have been functional and dynamic. It also proves that, slowly but progressively, those roles are going toward the farmers since they are not only the owners of the business but also the beneficiaries of the gains.

3.2.1. Introducing Green Beef Protocol: Phase of Application

After of almost three years of the project development, important advances have been made. The farmers are in charge of handling the information through the Network of local Registries. Although the Network is coordinated by Pampas del Salado Regional Consortium and it is carried out through:

- ✓ Collective action
- ✓ Origin and traceability
- ✓ The quality of cattle and beef: Good Cattle Practices

That set is enclosed under the quality protocol "Green Beef". The university quality meat laboratory has been working on the standardization of the "green beef: grass feeding" protocol. The lab is carrying out the objective and measurable demonstration of both product and process' quality and has developed a sampling methodology. Standardization is about selecting representative farms and identified animals, as well as finding out and objectively demonstrating the relationship

among Argentine beef quality attributes with agro-environmental conditions and handling.

So far, the Green Beef protocol governs 11 municipalities--COPRODER and British and Continental breeds--according to quality standards and other issues regarding performance. These issues involve handling, animal health, weight and age of slaughter, high standards and grades of carcasses (good cattle practices), animal welfare and others.

Traceability is now supported by the National Administration through regulations (years 2002 and 2003) that have been passed as a consequence of European Union recommendations and that are very helpful to provide a safe environment for this leading case.

Traceability starts with animal individual identification and gathering data such as farmers' register number and animal date of birth. Nowadays, calves have been identified and registered, and are going to be certified taking the data out of local and regional registries.

The definitive Quality Protocol, "green beef," has not been finished yet, due to the fact that lab is still collecting and analyzing data and also because some issues are still under farmer discussion. Quality and traceability are going to be demonstrated and audited using both the parameters/standards and the data objectively measured and recorded on the field.

So far, the farmers have settled individual identification, bought the caravans and adjusted the quality protocol in order to certify, at least, calf origin and quality attributes before selling and moving them to another farm.

3.2.2 Phase of Human Resources Structural Changes

A group of mayors from different municipalities agreed that cattle growing in natural conditions would be one of the main regional projects. Eleven mayors and rural association members met in order to develop this proposal and in spite of the discrepancy of interests. They agreed that this project was going to be the most realistic for the region.

The facts show that the internal organizational aspect is difficult to accomplish and is particularly difficult in this case, because of the involved actors: 300 farmers, provincial and 11 municipal governments, technicians from the university, COPRODER and the rural associations. These organizations make collective action very complex.

Farmers and processors were coordinated by rural associations, supported by municipal and provincial governments, and technically assisted by professionals. They had many meetings before finding the most suitable organizations that meet a common interest and make it possible to have collective actions. The decision making goes bottom up -from farmers to representatives of local commissions and the regional consortium- in that order. Those meetings, conferences and workshops were the common place where all participants exchanged knowledge and expertise, ideas and opinions, in order to reach the fitting quality protocol and to develop an appropriate traceability procedure.

Dissemination among farmers was done in the middle of enormous difficulties such as the most severe floods of the Province of Buenos Aires, the reappearance of foot and mouth disease, the spectacular reduction of the real estate prices, and the political and economic crisis of the years 2001 and 2002. That very unfavourable situation trigger farmer awareness of being the only ones responsible for adding value to their products, building competitive advantages and improving their negotiation capability in the cattle business.

So far, the group of cattle dealers are willing to appropriate the project, and they are strongly convinced of their leadership in the continuity of the process. Besides, farmers are also aware that either success or failure is under their own responsibility. Now, they are in charge.

3.2.3. Impact of the self-certification model

Regarding the European Union and shortly others new countries traceability will be required. It is a fact that the entire livestock in Argentina will be affected. The national government is strongly supporting the project, given that both the Agricultural Secretariat and the National Inspection Service (SENASA) adopted regulations making traceability mandatory for exports. This is a significant institutional decision offering an adequate framework to the leading case, since new and fair rules of the game will run the whole business. Furthermore, cattle dealers of the Pampa del Salado are already organized and they can take advantage of this to export.

Once that first experience is consolidated, it is possible to move on to the next goal, developing the denominations-of-origin strategy in order to create competitive advantages for the entire Argentine beef business. The proposed pathway will be extending from the calves of Pampa del Salado to the young bulls of the Pampa Argentina.

Taking into account that many farmers are involved, many opposite interests coexists, and current businesses are being affected, this project is the most difficult to achieve of the three projects analyzed. The change of paradigm is not only

responsibility of the farmers, it is the responsibility of politicians, technicians, and the rest of the actors involved of the beef chain.

The collective strategy is very strong and very fragile at the same time. Reaching a consensus among farmers has been a very tough task, and it has not finished yet. This leading case is founded on institutional, organizational, and technological changes affecting the Argentine beef business, and not all of the involved actors are willing to take sides.

This is also a very ambitious project that, sooner or later, will affect many consolidated interests and informal business. However, since many farmers are involved, the opponents will be restrained to do so openly. Furthermore, this pilot experience involves almost 65,000 animals against a cattle business that involves almost 50 million head, meaning there is a long way to go.

3.3. Implementation Of Strategic Plan And ISO 9001 (VS 2000)

Terminal Quequen S.A. (TQ) is a private port located in Buenos Aires and its agribusiness operations include reception, storage, quality homogenization, blending and identity preservation (IP), and ship load services. Terminal Quequen is implementing ISO 9001/2000 with the main purpose of transforming the "human resources" in "social Capital" as competitive assets by means of ISO's certification.

TQ was born as a private company ten years ago, after 20 years of being a government-run organization (National Grain Board). The private company was run by a government manager until the last year when a grain business experienced manager took charge of the position. Plant value is estimated to be about $ 20 million US. Since the privatisation almost $12 million US were invested from company profits.

The company manages 160,000 tons, mainly in maize and wheat operations. The loading activity is concentrated from December to March for wheat and from April to May for maize and it manages almost 80 vessels of 20 thousand ton capacity each and around 50 thousand trucks.

Argentina's unfavourable economic situation (2001 and 2002) makes the company invest in human resources as an attractive alternative to add value and competitiveness of very low cost rather than to investing in either technology or other matters. Furthermore, since unemployment rose by 20%, and 50% of the Argentine population lives in poverty; the management can not afford any confrontation with neither the labor union nor with the government.

Instead, the general manager chose to implement a new technological model in order to make the needed paradigm change from inside. The challenge to the

management is to convert this "workforce in human capital" which means converting it in dynamic and competitive assets. Additionally, this process allows thorough inner research of the company technical and human resource problems.

The management is very confident about the construction of competitive advantages through the strategic plan and ISO certification. Hence, this would put the company in a better position compared to their domestic and international competitors, being Quality Management ISO standard a remarkable marketing tool, at least in this business. Certainly, the general manager's conviction is that the company has an innovating profile since new ideas and proposals are evaluated constantly.

3.3.1. Introducing ISO 9001 (vs. 2000): Phase of Application

The evaluation reported prescriptive recommendations evidencing the differences detected between the real operation of the organization and the demanded operation in the ISO 9001 requirements. The diagnostic evaluation essentially aimed at evaluating the approach used in the definition of methodologies for different processes, remaining for a later step a stricter evaluation of the implantation degree and effectiveness.

The management gets involved with the development, implementation, maintenance and continuous improvement of the Quality System. The involvement is demonstrated through the following aspects: assuring that all workers of Terminal Quequén S.A. understand that the company's high-priorities are there for the satisfaction of:

- ✓ Client requirements,
- ✓ Internal rules requirements,
- ✓ Expectations of the shareholders, and
- ✓ Maintenance of an appropriate worksite environment.

All the processes of Terminal Quequén S.A. were made to fit in the previous requests. The management issues and spreads Quality Policy like an explicit commitment to the values mentioned, and assures the objective is aligned with the Policy of effective Quality.

Terminal Quequén S.A. defines the Client's approach as an essential strategy for operation development. This strategy is sustained and implemented through: a) knowledge of the clients' different expectations, b) the systematic translation of those expectations to requirements, considering operative availability and economical feasibility, c) the commitment to offer the service fulfilling the requirements, through parameters within the chain of clients - internal suppliers, d) satisfaction evaluation of the diverse clients, and e) implementation, control and improvement of the Quality system .

The Operative Procedure is like any cereal and grain stocking and loading company that operates blending different standards to increase product quality – homogenisation-. It also handles Identity Preservation (IP) with identification of the raw materials and products –from the farm to the vessel-. There is an electronic data program to trace all operations from truck's reception to vessel unloading.

The Administrative Procedure has insufficient software although it has planned to develop a program for the works ordered, for cost's center, and for storeroom stock. There is a supplier database and critical suppliers are chosen both by quality and price criteria.

The Preventive and Corrective Maintenance Procedure is being developed. In fact, predictive and preventive controls are a very large issue related to people safety since the plant is fifty years old. The old silos do not have temperature and humidity controls, just the new ones do. Periodic data and statistics are being organized. The company uses calibration patterns and has written a procedure of critical control equipment and instrument calibration.

Once the previous phase is complete and part of the problems aforementioned solved; the pre certification and certification will be carried out. The Pre-certification audit it is recommendable, although non-mandatory.

3.3.2. Phase of Human Resources Structural Changes

The Quality Policy assures the provision of both human and material resources for the appropriate development of the Quality System. Commitment to Quality is well-defined, also, through the effective leadership of the manager and its closest team. This leadership is based on unrestricted respect of said Quality Values - the backbone of operative management.

The company has 102 employees; most of them are from the public sector. In the opinion of private organizations, Argentine workers coming from the public sector have a culture for working inefficiently. This implies extensive conflict focused on the coexistence of two very different work site cultures, which makes the operation heavy and slow.

The modified flow chart has been a very helpful tool in reducing obstacles since it has included a definition of required position competence, personnel profiles, and training needs; and thus, responsibilities and functions remain clearly defined. Besides, it makes it possible to detect and eliminate both unnecessary and bureaucratic tasks through the writing of procedures for specific jobs.

The human resources structural change started with initial training focused on ISO introduction as a tool to bring all employees on line. Oriented and motivational workshops were arranged to make workers identify their process inefficiencies and to look for potential solutions. As a first experience, all workers were listened to and all opinions were openly discussed, counting on the fact that workers know the tasks they are supposed to perform and the possible solutions to problems as well as.

The following step was internal auditor selection and training, and preparation for the first internal audit. Part of the management and some employees were willing to be quality system internal auditors, which means self-evaluation and evaluation of other processes.

3.3.3. Quality Assurance Impacts

While the ISO 9001 (vs. 2000) requirements have been almost accomplished, the human resource structural change has not happened yet. Certainly, ISO 9001 is a very useful tool but it must be used progressively. In fact, it can be discouraging to discuss employees' overt conflicts and dissatisfaction, as management is not strongly convinced. Moreover, uncertainties and doubts are expected during the implantation process, knowing that these changes are to break old paradigms. Consequently, commitment and motivation drop and go up alternatively. Things do not occur overnight and this does not mean either failure or success, not until the process is done and has proved it may be maintained.

From the very beginning, a certain opposition and other obstacles were detected and unfortunately this was happened among managers, those closest to the general manager. That restriction comes from management's peculiar idea of not sharing knowledge and concealing information, as this means "keeping power". Still, the problem is being openly discussed, although as of yet it has not been solved.

Likewise, the company has done some benchmarking and research on problems, benefits, and competitive advantages. It has concluded that despite all the difficulties it has faced, the process is being improved, sorted out and systematized, people are getting organised and their profiles are known and fitted according to individual competence. A new annual training plan -training and performance evaluation- as well as all tools as may be useful for the company efficiency and efficacy, have been settled.

In summary, all those internal movements, changes and worries are avenues leading to Quality Assurance and the satisfaction of shareholders, employees, management and clients.

4. Results & Conclusions

Society at large and, above all, the agribusinesses were affected as a result of Argentina's economic and political collapse. Agribusiness executives were forced to look for new alternatives in the international market since the domestic market was offering neither the possibility to increase incomes nor a certain environment. On the other hand, international competitor level showed that in order to be competitive it was necessary to add value for the creation of competitive advantages. Technological innovation such as food safety and quality assurance seemed to be the right strategy, as key drivers for competitiveness. As a result, the local agribusiness is going through external constraints -due to institutional, organizational and technological limitations- all the way to internal restrictions caused by cultural, technological and financial insufficiency.

Being competitive not only entails facing the organizational and technological unbalances, compared to international competitors, but also requires a safe institutional platform. An unstable institutional scenario with unclear and changing rules of the game and informal contracts is not a healthy framework for any innovative design, permanently threatening any effort and achievement.

Organizations fail to provide the necessary framework for the development of new designs, forcing transactions to operate in an informal economy . Then, real innovation requires a transparent business culture and dependence on an institutional and organisational frame to provide a formal structure .

The leading cases described show that building competitiveness is to be accomplished from the process of technological approach, taking into account that Food Safety is a road to Quality Assurance and both are keys to building competitive advantages.

In the internal context, the situation is no less complex since partnerships in the three cases mean collective action based on a common vision and values. The delayed implementation of the proposals is also a consequence of internal organization issues based on the required cultural change. Cultural change may take years but, despite the delays, it is expected that these leading cases will succeed in the long run.

Limitations and restraints are part of the analysis as they emerge from the complex economic scenario and from the precarious strategic alliances in which those agribusinesses are inserted. Poor interrelationships among share holders, ambiguous rules of the game and low commitment have been the emerging facts of that collective action . In this context, it was pretty obvious that different levels of implementation and different impacts on human resources' expected change were to be found.

Particularly, in the HACCP model, the external context changed due to the enhancement of the original requirements as a result of European Union more demanding standards. The HACCP positive impact was that it brought out the complexity and uncertainty of the collective strategy and that it made both shareholders and management and SENASA's inspector review their lack of responsibilities and low commitment. The HACCP system also made evident all the failures -both technological and operative- in the process. Consequently, all partners are now trying to work out those obstacles.

The impact of the self-certification model of "Pampa del Salado" confirmed and made publicly evident that there are contrasting interests at stake, above all, in the many current informal cattle and beef businesses. As this is an ambitious project, representing 0.13 % of the total Argentine cattle business, the proposal of extending the calves of Pampa del Salado to the entire Argentine beef business, will take more time and more farmer involvement. However, the pilot project could help to introduce institutional, organizational, and technological changes in the Argentine beef business. The change of paradigm is not only the farmers' and processors' duty but also the duty of politicians, technicians, and of the other stakeholders involved. Internally, the partners to this collective action will have to keep working on the issues that have already come forward and focus on reinforcing their commitment.

In spite of ISO 9001 implantation being almost accomplished, the human resource structural change has not yet been reached. It is expected that operative management opposition will dwindle as a consequence of both the natural implantation process and a strong leadership. At the same time, the rest of the workers are making the service more efficient and doing the necessary efforts to achieve client satisfaction. After all of the tackled difficulties, the process is becoming more efficient and effective and the satisfaction of shareholder, employee, management and client expectations that is Quality Assurance -which is one of the company's concerns- is on its way.

Although the leading cases are undergoing institutional and organizational scenarios of external instability and are internally precarious, their essential strength is having a clear goal and well defined objectives. The certainty of going step by step allows both moving forward and expectation of success, all the warnings having been given. By next June 2003, there will be new developments in some of the innovation models discussed. The outcomes thereof will be further discussed at that time.

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