CHAPTER 3: CROSS-CULTURAL RISK COMPARISON FRAMEWORK

Introduction

Recognizing the difficulties in reaching consensus in international trade solely on the basis of science, the National Research Council (NRC) held a conference in January 1999 to examine the role of economics, politics, and sociology in impacting regulatory decisions affecting human health. Sheila Jasanoff prepared a paper to instigate discussions in this area. In her paper Jasanoff noted that increased reliance on science has failed to eliminate the different national approaches to risk regulation. (Jasanoff, January 1999). She indicated that specific national policies for managing health, safety, and environmental risks continue to deviate even when they are based on the same bodies of scientific information. Jasanoff found major shortfalls in the rational choice theories currently used to explain variations in risk regulation, stating that the existing cross-national differences appear to contradict the widely held assumptions that there is greater convergence in risk regulation when countries are exposed to similar scientific risk information. In reality, the complete opposite is true as despite having similar risk information, national governments tend to make very different regulatory decisions.

Cross-cultural interpretations of science become crucial in defining the specific OLFs impacting national regulatory policies. This chapter will initially present various theoretical approaches aimed at explaining the existing differences in the key areas of risk regulation. The chapter will selectively apply these theories to the *listeria* example to shed light on why the U.S. and France approach pathogen regulation in such different ways when confronted with the same type of scientific risk data. The chapter will assess the extent to which the existing approaches are useful in explaining the current differences in *listeria* regulation and will identify areas where further explanations may be needed.

Analysis of Cultural Frameworks Used in Cross-Cultural Comparisons

Jasanoff identifies five key dimensions of risk regulation where national governments tend to most often diverge. (Jasanoff, 1999). First, countries differ in their *style of decision-making* manifested in the degree to which the public is allowed to participate in the regulatory process, *i.e.* open access v. limited access to the policy process. Second, there are differences in the types of limits, or the *nature of standards* imposed on harmful substances, *i.e.* regulatory or

voluntary standards. Third, there are differences in *risk perception*, or *framing* defined by the degree of fear or dread attributed to a particular risk. Fourth, decision-makes diverge on the *forms of expertise* used as the basis for establishing risk regulation policies, *i.e.* experts removed from policy-making or experts within the bureaucracy. Finally, countries also differ in their choice of *acceptable evidence* used in risk regulation, *i.e.* quantitative data v. qualitative judgements.

Jasanoff asserts that to understand the basis for the existing cultural variations in risk regulation, it is essential to supplement the theories of rational choice with cultural interpretations of science. She presents three different types of cultural explanations which she refers to as "structural", "functional", and "interpretive", stating that each can be successfully used to explain certain aspects of the national regulatory process. First, the structural approach assumes that the ways in which power is formally divided in society profoundly influences public perceptions of security, and channels governmental action in certain directions. Structural explanations are linked to the specification of the basic units of analysis that make up certain parts or elements of the system, or certain relational characteristics that arise from the location and interaction among individual persons, *(i.e.* parent-child), the complex patterning of role relationships into institutional form *(i.e.* market, family, educational structure), and stratified relations among persons along lines of wealth, power, and prestige. (Smelser, 1988).

In her previous works, Jasanoff relied on structural analysis to examine how political divisions of power tend to influence risk regulation. (Jasanoff, 1990), (Jasanoff, 1993). She used structural explanations to compare the existing differences in the stringency and rigidity of safety standards, attributing more stringent standards to a government where regulatory functions are completely separate from those of food production. (Jasanoff, 1999). For instance, as FDA's sole responsibility is to establish acceptable levels of food safety to protect consumers from harmful risks, it will often choose the zero tolerance as the acceptable safety threshold. Jasanoff also attributed the differences in public access to decision-making to variations in political arrangements and institutional divisions of power. (Jasanoff, 1999). For instance in the U.S. where power is divided among the three branches, there are a number of legal provision that encourage the public to openly participate in decision-making through public comments on

administrative rulemaking and through the appeals and litigation in the Federal courts. (Jasanoff, 1990).

Second, the interpretive approach focuses on the need of societies to make sense and meaning of their collective experience, taking into account changes in knowledge and human understanding produced though science and technology. (Jasanoff, 1999). In her previous works, Jasanoff also relied on structural analysis to account for cross-cultural differences in the types of expertise and data used in decision-making. Jasanoff noted that in a society like the U.S., where there is open access to the decision-making process, regulators prefer to enhance their credibility in the political arena by reaching for the support of experts who have no apparent vested interest in a political issue.

> The credibility of policy-related science of course, is hardest to maintain in a cultural context where the social concerns underlying the choice of research problems and the selection of basic paradigms are most open to public view. This is the case in the U.S. where law and tradition have continued to keep the communication lines among regulators, scientists, and the public unusually free. In countries where the scientific advisory system is more closed and self contained, the interrelationships have fewer reasons to question the authoritativeness of expert opinions. (Jasanoff, 1986, 39).

Jasanoff attributed the need for quantitative risk data in risk regulation to an open decision-making style, stating that when regulators find their decisions questioned it is to their advantage to present the most complete and concise risk data to substantiate their claims. Quantitative risk data that is laden with scientific uncertainty, becomes significantly less convincing in the court of law.

In their attempts to reduce risk uncertainty, U.S. regulators continue to pursue the development of analytical methods that can better capture the existing risk uncertainties as they attempt to add validity to the decision-making process.

> Reducing scientific uncertainty to mathematical terms offers decision-makers a means of rationalizing actions that might otherwise seem insupportably arbitrary and subjective. Evidence translated into quantitative terms appears to speak for itself rather than through a distorting filter of political interpretation. (Jasanoff, 1990, 44).

Jasanoff stated that in a society like the U.S. where regulators are constantly questioned by either the courts or the public, quantitative data appears to transcend politics by supporting the underlying judgement of technical experts. Quantitative data also adds an appearance of

objectivity in decision-making that is more difficult to achieve from purely qualitative judgements. (Jasanoff, in Mayo and Hollander, 1991).

Third, the cultural discourse theory which Jasanoff refers to as the "functionalist" approach demonstrates how certain beliefs about nature and society are encountered in some commonly recurring clusters that appear to correlate with certain forms of social organization. (Jasanoff, 1999). Cultural discourse theory directly stems from the works of Talcott Parsons who brought the structural-functional approach to its most developed form. (Smelser, 1988). First, Parsons included the exigencies of both society and its individual members as functional categories. Second, he stressed the importance of the patterned expectations that define the proper behavior of the individuals playing certain roles in society. Last, Parsons aimed to understand the processes that underlie the dynamics of structural behavior and ascertain the exact "functions" to which socially structured activities are oriented. His works reflected several theoretical contributions to cultural discourse, including the linkage of certain values and ideologies to society's structural arrangements, the mobilization of society's resources used to attain collective goals, the society's need to adapt to its external environment in order to attain these goals, and society's interest to minimize conflict to maintain internal stability.

Anthropologists, including Michael Thompson, Steve Rayner, and Mary Douglas, built on Parsons' structural-functionalist concept by developing a cultural discourse framework that identified the values and beliefs of distinct social groups, linking them to particular decision-making preferences. Under this framework, the individual is presented as an active participant in the decision-making process who perceives risk-related information based on his/her acceptance or rejection of certain organizational imperatives. Rayner referred to the *grid/group* methodology originated to identify the different types of social arrangements. (Rayner, 1992). The *group* variable represents the degree of social incorporation of the individual in a social unit. For instance, where group is weak, social networks are weak and interactions with the same people tend to be infrequent. Alternatively, where the group variable is strong, groups interact frequently with other members, promoting values of solidarity as opposed to the competitiveness found in the weak group. The *grid* variable is defined by the measure of the constraining classifications that are placed on members of various social groupings. Low-grid indicates an

egalitarian type of interaction where no one is prevented from participating in social and/or political activities. A high grid-state of participation is where access to social activities is somehow constrained by those in power.

Douglas (1982), Thompson (1994), and Rayner (1992) applied the grid/group analysis to define the ordering elements of the following social organizations: 1) hierarchies/ bureaucracies; 2) markets; 3) egalitarian groups; and 4) stratified individuals. Hierarchies exhibit high group/high grid, indicating a high level of social interactions among group members as well as high constraints placed on social participation by those in power. Markets exhibit low group/low grid, indicating a high degree of both individualism and competition among group members. Egalitarian organizations, or public interest groups reflect low grid/high group ranking, indicating a high degree of social interaction and open access to all social activities to its group members. Finally, stratified individuals reflect a low group/high grid ranking, suggesting that there are few interactions among group members and high constraints placed on social interaction among the participants.

Cultural discourse theory assumes that each of these mentioned organizational entities approach risk regulation from a different point of view, or "myth". (Thompson and Rayner, 1994). One of these perspectives then emerges as the dominant, or hegemonic myth in a particular debate, forcing the interested participants to shape their arguments accordingly or drop out of the debate completely. Bureaucracies identify with the *perverse/tolerant* myth which assumes that the fragile state of nature can be addressed through appropriate management strategies aimed at increasing resource sustainability. Markets uphold the *benign* view of nature which suggests that the environment is favorable unless there is a pricing problem that causes market failure, in which case an appropriate strategy would be to foster appropriate investment and development activities aimed at correcting the problem. Public interest groups identify with the *ephemeral myth* of nature, perceiving the environment to be in a highly fragile state. These groups oppose any activity which would disproportionately place the more vulnerable individuals at risk. Finally, stratified individuals uphold the *capricious*, or fatalistic view of nature, assuming that there is no hope of improvement, despite society's best efforts.

Rayner (1992) attempted to reconcile the influences of the social organization with those

arising from group function, or self-interest. The rows of Table A consist of the three social organizations in declining order from hierarchy to equality. The columns indicate the broad organizational functions ordered from the specific goal of environmental protection to the broader issue of economic development. The table includes examples of the type of organization that correspond to each of the nine cells, including a prediction of its reasoning style (reductionist, pragmatic, or holistic) and its interpretation of prudence (choice of the precautionary principle or the proof-first principle).

Table A - Interaction of Organizational Function and Structure in Framing Uncertainty

Structure	**Function**		
	Environmental Protection	Social/political Regulation	Economic Development
Hierarchy	• Reductionist style • Precautionary principle e.g., federal and state environmental regulators	• Reductionist style • Proof-first principle e.g., courts, public utility commissions	• Reductionist style • Proof-first principle e.g., federal and state energy and commerce departments
Market	• Pragmatic style • Precautionary principle e.g., environmental entrepreneurs, energy service companies	• Pragmatic style • Mixed prudence e.g., federal and state legislators	• Pragmatic style • Proof-first principle e.g., utilities, manufacturing companies
Collective	• Holistic style • Precautionary principle e.g. grassroots environmental groups	• Holistic style • Precautionary principle e.g., town meetings	• Holistic style • Mixed prudence e.g., alternative economic think tanks

Source: Redrawn from Rayner in Krimsky and Golding, 1992, 110.

The prediction of reasoning style varies consistently with culture and is unaffected by

function. Conversely, the interpretation of prudence does depend on the interaction of culture and the extent to which the goals of a particular social organization are dominated by the specific function. Rayner relies on the interpretation of prudence to explain the existing differences in the regulation of chlorofluroacrbons (CFCs) and carbon dioxide CO_2 emissions. He notes how in 1985, the European Community (EC), dominated by a bureaucracy with a self-interest in economic development, took a proof-first approach to international proposals to ban all CFCs in aerosols. In contrast, the U.S., governed by an environmental protection self-interest, strongly supported the proposed ban. In the case of CO_2 emission reductions the opposite was true as the economic self-interest of select U.S. interest groups demanded proof prior to action, favoring a ban on individually manufactured CFCs rather than on all emissions.

Application of the Existing Explanations to the *Listeria* Case:

The existing studies in cross-cultural comparisons have relied on either the structural approach or the cultural discourse theory to explain the existing differences in risk perception and in preferences for certain risk management strategies. An approach that selectively relies on these explanations to explain the existing differences in the U.S. and French perception of *listeria* risks and their approach to controlling the deadly pathogen. Recognizing that these explanations may not be adequate in explaining all the existing differences in risk regulation, there are elements that these classifications identify which can potentially shed light on why the U.S. and France choose to control *listeria* risks in such different ways even though they are exposed to similar risk assessment data.

Table B compares the key aspects of *listeria* regulation in U.S. and France along the five dimension identified by Jasanoff as being the most relevant in understanding the divergences in *listeria* regulation. The discussion that follows compares pathogen regulation in both countries along each of the dimensions, illuminating major differences in regulatory policies.

Table B - Comparison of the Key Aspects of National Regulatory Systems in U.S. and France

	Style of Decision-Making	**Nature of Regulatory Standards**	**Cultural Perception of *Listeria***	**Forms of Expertise**	**Acceptable Evidence**
U.S.	Open style of decision-making where public citizens have the power to sue in the courts. Public Citizen took FDA to Court twice for not imposing the pasteurization requirement earlier. Consumer advocacy groups remain at the forefront of food safety issues.	Regulatory standards established by FDA at the zero-tolerance level for *listeria.* Stringent enforcement strategies targeting microbiological pathogens. Significant repercussions imposed on food industries for non-compliance.	Perception of dreadful *listeria* risks by fervid public interest groups. These groups continue to exert pressure on the regulators to keep a close eye on domestic food producers and are heavily opposed to the importation of foreign foods that exceed the zero tolerance standard.	Reliance on the advice of external experts to assure sufficient objectivity in decision-making. Objective technical expertise is believed to add legitimacy to the decision-making process that is prone to be convoluted by conflicting political objectives.	Preference for refinement of quantitative information to reduce existing uncertainty in the dose-response and exposure assessment stages of risk assessment. Belief that the mitigation steps proposed in the HACCP model should be based on quantitative analysis.
France	Closed decision-making style where only individuals who are chosen by government officials or are directly appointed to serve on ad hoc committees are allowed to participate in the decision-making process. Items of discussion are narrowly defined by government officials. The Courts support the decisions made by the executive branch.	*Listeria* must be absent in 25 grams of soft cheeses obtained from five random samples. Smaller dairy producers are exempted from complying with this standard.	Perception that the benefits associated with foods made from natural resources far outweigh the risks of *listeria.* Fully trust the food operators to deal with food safety and quality considerations and look to individual producers to correct any outstanding food-related concerns. Fear of bland-tasting products.	Government bureaucrats and producers serve as experts in food safety regulation. Risk management decisions are heavily intertwined with risk assessment functions. National rapid alert systems are set up by the government to inform consumers of any urgent food safety concerns.	Reliance on value judgements by government officials to make risk-related decisions. Belief that the mitigation steps implemented in the HACCP models should be based on the judgement of individual operators who are the closest to production.

Open v. Limited Public Access to the Regulatory Process

The pasteurization requirement in the U.S. directly resulted from the efforts of consumer advocates in suing FDA for not issuing the requirement a decade earlier when the risks associated with the consumption of raw milk first became apparent. (Public Citizen v. Heckler, 1985, 1987). The structural approach is useful in explaining that the decentralization of political power in the U.S. affords public interest groups the opportunity to participate in the regulatory process. The approach points to legislation such as the Freedom of Information Act (FOIA), the Federal Advisory Committee Act (FACA), and the Administrative Procedures Act (APA), which provide access to government documents and allow private citizens to sue members of the executive branch. (Jasanoff, 1990). In contrast the centralization of power in France results in close collaboration between the executive branch and the judicial system as the courts almost always uphold executive decisions. (Brickman et al, 1985).

The grid/group analysis presented under cultural discourse is also useful in comparing differences in public access to the political arena. It explains how the hierarchy of the centralized French bureaucracy (high grid) places high constraints on public access to the policy arena where only the individuals selected by the bureaucracy are allowed to participate in decision-making. Conversely, the strong influence of public interest groups in the U.S. (low grid) results in an open access to politics where everyone who is interested in the issue is allowed to equally express his/her views. The group dimension is also useful in explaining how the stronger differentiation in ideology between the hierarchy, markets, and the egalitarians, contributes to the desire for access to the policy arena where those with dissenting opinions, e.g. public interest groups, have a chance to express their views. In France, where there are fewer differences in ideology among the three social entities, the desire for public participation in the political process is not as strong.

Zero Tolerance v. Absence of *Listeria* in 25 grams of Soft Cheese

The zero tolerance regulation currently adopted for *listeria* in the U.S. is different from the guidelines adopted in France which requires the pathogen to be absent from 25 grams of soft cheeses obtained from 5 random samples. (EEC, 1992). The structural approach is

useful in explaining how the separation of regulatory functions in FDA from those of food production, contributes to the zero tolerance threshold as regulators are mainly concerned with preventing food-borne risks. Alternatively, the French Ministry of Agriculture and Fisheries (FMAF) with combined regulatory and production functions, affords greater latitude to food operators, often excluding smaller dairy producers from compliance with the 25 gram requirement. (92/40/EEC). The group's function defined by the interpretation of prudence in Table A, is useful in explaining how FDA, a bureaucracy with a regulatory self-interest, is more likely to rely on the zero tolerance standard in regulating pathogens than the FMAF, a bureaucracy with broader economic development interests that is likely to impose guidelines that are less restrictive for producers.

These approaches are useful in explaining why the zero tolerance regulation adopted in U.S. is different from the less rigid safety guidelines adopted in France. However, the basis for the 25 gram specification remains unclear. For instance, one might speculate that the French government officials estimated a daily dietary dose of soft cheese consumed by an adult to be at 25 grams, and thereby decided to use that as a safety measure in limiting the levels of *listeria* in soft cheeses. There may be a variety of other explanations which can be just as effectively used in explaining the basis for the pathogen limitation.

Perception of Risks v. Nutritional Benefits Associated with Raw-Milk Cheeses

The perception of dreadful *listeria* risks associated with the consumption of cheeses made from raw milk is not shared by France as it instead chooses to focus on the nutritional benefits attributed to the product. The cultural discourse theory is primarily used here to explain how the values and beliefs of public interest groups shape the regulatory debate in the U.S. as they point to the detriments associated with the consumption of *listeria*-infested products. Upholding the *ephemeral myth* of nature presented through the lens of the cultural discourse theory, the consumer advocacy groups constantly approach FDA decision-makers about health-related concerns, urging them to be proactive in protecting the most vulnerable individuals who are not often able to protect themselves from deadly pathogen risks, such as pregnant women, infants, and the elderly. Upholding both the *perverse/tolerant* and the *benign* views of nature identified by the cultural discourse framework, the French consumers

associate the variety of cheeses produced in select French regions with product sustainability at home and economic competitiveness in the global market.[1]

Although the French are quite aware of *listeria* risks, they do not attribute the same degree of dread with the pathogen as their U.S. counterparts, instead choosing to focus on the nutritional benefits associated with the consumption of raw-milk products. However, unlike their U.S. counterparts, the French consumers are very concerned with maintaining the natural attributes of food products, and are generally opposed to foods that have undergone any type of artificial modification, such as genetically modified organisms (GMOs). (Bureau and Marette, 1999) (Jasanoff, 1999). The French remain fearful of consuming modified food products despite the U.S. claim that the occurrence of negative health consequences appears to be minimal in comparison with those infested with *listeria*. (Bureau, 1999). The French distaste for cheeses that have been subject to an intensive heat process such as pasteurization that alters their original flavor and texture, is consistent with their overall preference for natural food products such as unpasteurized soft cheeses.

The presented approach is useful in explaining how distinct values contribute to the cultural differences in the perception and regulation of *listeria* risks. For instance, the U.S. consumer advocacy groups who are primarily concerned with protecting the most vulnerable individuals from potential harm urge government officials to take every precaution in controlling deadly pathogens. To these consumer advocacy groups, the pasteurization process is a sound step in eliminating the pathogen in dairy products consumed by the unsuspecting individuals. In contrast, the French approach to the regulation of *listeria* is different from the one used in the U.S. as there are no special attempts to protect select individuals from pathogen contamination. The concerns expressed by the French consumers instead target food products that have undergone any type of modification that has altered their natural state. There may be some unique cultural factors which can illuminate the basis for the French preference for natural products despite the risk of *listeria* contamination associated with unpasteurized cheeses.

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[1]The French export cheese to participating EU Member States and Canada where unpasteurized products are considered superior in quality over their pasteurized counterparts.

Experts Removed from Politics v. Experts Directly Involved in Policy-making

The U.S. regulators justify the pasteurization requirement by relying on the advice of professionals outside the government who advocate the effectiveness of the heat process in eliminating deadly pathogens from dairy products. Conversely, the French government officials who favor other mitigation strategies, rely on the experts working for the bureaucracy to guide them in developing practices that are not excessively burdensome for the smaller dairy producers. (Mennecier, 1999). Jasanoff's interpretive approach is useful in explaining that by being constantly open to public criticism, U.S. policy-officials aim to gain the support of experts who have no direct stake in the outcome of a regulatory decision. Using carcinogens as an example, Jasanoff describes a brief period in the early 1980's where the frequent political abuses of power by EPA regulators resulted in recommendations by the National Academy of Science to separate the scientific risk assessment functions from the political context. (Jasanoff, 1986). Consequently, U.S. decision-makers proceeded to make every attempt to separate risk assessment from risk management functions.

The interpretive approach alternatively explains how the insulation of the French officials from public criticism does not provide the same incentive to separate scientific risk assessment functions from those of risk management. (Mennecier, 1999). The French consumers are generally comfortable with the risk-related decisions made by government officials and rarely are private citizen suspicious of such decision-makers to the point of wanting to sue them. (Bureau and Marette, 1999). The French bureaucrats making the regulatory decisions related to food safety, are also trained in various scientific disciplines, e.g. veterinarians, biologists, etc. Consequently, in conducting scientific risk assessments needed to make risk-related decisions, the French bureaucrats often rely on this expertise as they are not as determined as their U.S. counterparts to separate the technical analysis from the political context.

The interpretive approach is useful in explaining the difference in the reliance on the advice of experts completely removed from the policy process, in comparison with that of professionals who work directly for the bureaucracy. However, further explanation is needed to understand the paternal nature of the risk mitigation strategies implemented by the French

government officials to protect the consumers from pathogen risks. Similar to the way a parent aims to protect the child from potential danger, the French bureaucrats perceive it as their duty to look after their citizens' well-being and protect them from the potential resulting from the consumption of pathogen infested foods. A case in point is the establishment of a nation-wide alert system used by several of the French ministries to control food-borne outbreaks as soon as they occur. Collaborating closely with each other, the Ministries of Agriculture, Public Health, and Economics, closely monitor the source of the food-borne illness, and then immediately alert the citizens of the contaminated food products that they should avoid. (Mennecier, 1999) (Jacquet et al, 1992). There may be some other historical or cultural factors which establish the basis for the government's extremely protective attitude toward private citizens.

Decisions Based on Quantitative Data v. Decisions Based on Value Judgements

The preference exhibited by U.S. decision-makes to rely on quantitative data in dealing with risk uncertainty is not shared by the French officials, who instead prefer to rely on value judgements in such instances. (Jasanoff, 1999). The scientifically-based HACCP model required by the U.S. officials is a departure from a more flexible system preferred by the French officials who look to individual producers to develop pathogen mitigation strategies in accordance with individual production needs. The interpretive approach attributes the existing differences to the national decision-making style, suggesting that to sufficiently convince the public, the U.S. regulators prefer to rely on hard data that would eliminate any possible objections to pasteurization. Alternatively, since the French government officials are not subject to the same degree of public scrutiny, they choose to rely more on their value judgements in dealing with risk uncertainties.

The interpretive approach is useful in explaining the distinct preferences for the use of quantitative data in the U.S. and the qualitative judgements in France. The approach does not explain the basis for the selective use of the precautionary principle by the French officials. The principle assumes that any damage to the environment should be avoided in advance, thereby urging policy-makers to proceed with the highest degree of caution when confronted with gaps in scientific risk assessments. (Jasanoff, 1999). An example of such caution is

evident in the French fear of genetically modified food products. (Jasanoff, 1999), (Bureau and Marette, 1999). It is not fully clear why the French officials choose to implement the precautionary principle in the case of biotechnology, but choose not to rely on the pasteurization step as an added precaution in controlling *listeria*. It is likely that there are some other cultural considerations, e.g. political and economic factors that are case specific that influence the reliance on the precautionary principle by the French government officials.

Conclusion

The approaches defined by the structural and cultural discourse theories are useful in explaining the underlying basis for the existing differences in risk regulation that cannot be as effectively addressed by rational choice theories. The presented approaches are initially useful in comparing the political structures and organizational values that define the OLFs in U.S. and France. When combined, the approaches are useful in identifying the different ways that the two countries are predisposed to perceiving *listeria* risks and controlling its presence in dairy products. Upon applying the existing approaches to the *listeria* example, there are some unique considerations which warrant further investigation, such as the basis for the 25 gram specification in France, the reasons that the French fear GMOs but are not afraid of the pathogens found in cheeses made from raw-milk, the paternal nature of pathogen control strategies adopted by the French officials, and the decision of the French government to not rely on pasteurization as an added precaution in controlling *listeria*. This leads one to conclude that in addition to defining the OLFs in accordance with the classifications presented under the three approaches, they should also be examined on a case-specific basis, taking into account the unique historical, political, economic, and cultural considerations impacting the regulation of a particular product.