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Industry Strategic Planning and Coordination: The Case of the Texas Vegetable Industry

Charles R. Hall and Conrad Lyford

The produce industry in Texas is currently faced with several issues that can potentially negatively effect fruit and vegetable industry participants. To combat these issues producers and other industry participants recently developed a task force to lead the produce industry through a detailed strategic planning process. This task force used a *Framework for Industry Strategic Planning and Coordination (ISPC)* developed by Lyford et al. as a model to guide its strategic planning efforts. Using this framework the task force was able to highlight the most significant issues affecting the industry and develop specific strategies and implementation plans to resolve these issues. This case study illustrates the application of ISPC and tests the overall usefulness of the framework.

Industry strategic planning and coordination (ISPC) is a relatively new innovative approach that has substantial potential to improve the performance of commodity industries. In this approach firms and industry organizations within an industry come together to plan strategically selected coordinated actions to improve the industry's competitiveness and economic viability. In this article a framework is presented that is intended to be of use to practitioners of ISPC. Potential users include industry leaders, managers of firms and support organizations in an industry who might consider using ISPC, and university faculty who work closely with industries.[1]

This case study uses the Texas vegetable industry to test empirically an ISPC conceptual framework that has been previously developed by fellow researchers and discussed in the literature (primarily in the *Journal of Food Distribution Research*).[2] It is designed to be useful to practitioners of ISPC in a wide variety of agricultural-industry contexts. This ISPC framework was developed using existing frameworks of firm strategic management and a number of other areas in management and agricultural economics that gave valuable insights into the industry setting. However, the empirical evaluation of the framework had been limited by geographic area and the researchers involved.[3]

This new case study using the ISPC framework includes new researchers, new products, and a geographically different industry. If this application is shown to be useful and effective the expected general relevance, applicability, or usefulness of the framework to a wide variety of industry contexts is broadened. As such, this case serves as a basis to assess, revise, improve, and further develop the ISPC framework as it evolves based upon the empirical experience. Case study experiences provide empirical information on how to address practically a number of issues that were identified generally in the framework through empirical knowledge. The main goals of this paper's are to describe and test the ISPC framework and to illustrate ISPC in a case study of the Texas vegetable industry.

The ISPC Framework and Case Study Methodology

Industries face a highly complex, specific situation that is changing dynamically as the firm, industry, and environment evolve. This complex, dynamic setting strains conventional economic approaches to theory building. Conventional economic-theory approaches often focus on isolating a few key variables of interest from the many real complexities of competition. Economic models have not been able to embody the full complexity of the many economic factors and competition that industries and firms face and are limited to rela-

[1] Others who have used industry strategic planning approaches include the Ohio Dairy Industry Forum and the Ohio Pork Producers Council.

[2] Industry-wide strategic planning is a relatively new research area within the agribusiness strategic management literature. Seminal works include Lyford et al. and Ricks et al. Case study research offers a valuable method for refining the planning framework since many agribusiness industry situations differ by commodity and/or region.

[3] These industries were the Michigan apple and tart cherry industries that work closely with a similar set of researchers.

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tively abstract situations such as where small groups of firms approximate the assumptions of a particular model. The results of these models are further highly influenced by assumptions that often are quite different from the real-world complexities of dynamic and competitive business firms and industries.

Frameworks are especially valuable and useful for explaining real-world economic behavior. For example, the well known framework developed by Porter (1979) focuses upon relating the effects of a complex industry environment on a firm's strategic management and potential future profitability in an industry. Frameworks seek to encompass the many variables and complexities that surround the competition and economic setting of the real world. An important part of the theory in each framework is the selection and organization of particular variables. Porter (1994) notes that "as long as the building of frameworks is based upon in-depth empirical research, it has the potential not only to inform practice[4] but to spur the development of more rigorous theory" (p. 429).

We used the Texas vegetable industry case to evaluate an ISPC framework that comprises four phases: (1) process initiation, (2) strategic planning, (3) strategy implementation and coordination, and (4) strategy review and re-evaluation. A key issue is the effectiveness of the framework's application in recent industry-wide planning efforts in the Texas vegetable industry. The overall goal was to demonstrate that a process that follows the ISPC framework can be effective at developing and implementing industry strategy. If the framework can be shown to be effective in the Texas vegetable industry ISPC effort, this provides additional evidence that it is useful.

Case Study Methodology

One of the more recent developments is the use of the case study approach as an effective research tool. A case-study research approach is particularly useful in understanding, evaluating, and testing theories about complex, real-world economic phenomena that are difficult or impossible to study with standard quantitative research approaches (Sterns, Schweikhardt, and Peterson). ISPC is relatively new, and while it potentially has important economic outcomes it would be difficult to study using standard quantitative tools such as econometrics, so a case-study approach was selected.

Case-study research typically involves selecting a case or cases that represent various events. The ISPC framework was developed after in-depth case-study research into the methods and approaches followed by the ISPC efforts in the Michigan apple and tart cherry industries. The approach in this article sought to apply the framework to ISPC efforts in the Texas vegetable industry. The key overall question in this case study was whether or not the framework provided an effective guide to ISPC efforts in the industry.

Several specific methods were used to follow the appropriate methodology for case-study research (Yin; Kennedy). On a basic level it is important to ensure the accuracy of information by using multiple sources of information (triangulation). In the case study of the Texas vegetable industry, three main sources of information were used in developing the case. One source of information was from the author's participant-observation of the activities of the Texas vegetable industry ISPC process. This included attending meetings of the ISPC group as well as developing informational analyses based upon the priorities and suggestions of the group. A second source of information was the minutes of the ISPC group's meeting that established a written record of key discussion points and decisions made in the meetings. A third source of evidence was interviews and discussions with key informants. Overall, the case study and conclusions were reviewed by key informants who suggested that the conclusions drawn appear to be reliable.

Two additional approaches have been suggested by Yin for appropriate case study methods: internal validity and external validity.

Internal Validity

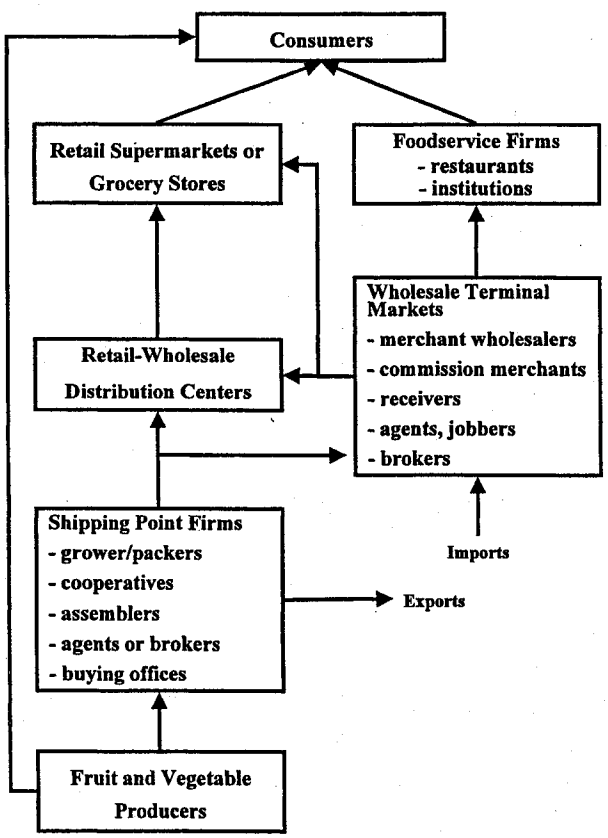
Internal validity focuses on establishing a causal relationship where the framework provides an effective guide to ISPC efforts. A test of the framework's internal validity focuses on the fact that the framework is designed to effectively guide ISPC processes. This means the framework prescribes that certain actions should be accomplished in specific ways. However, it is likely that in specific situations the actual practice—i.e., what is

actually done in an ISPC process—will not entirely parallel or follow the prescribed actions of the framework. In those situations it is possible to evaluate the effectiveness of specific elements of the framework in which actual practice diverged from the framework's set of prescribed actions. If divergence from framework results in undesirable outcomes for the ISPC process, this helps confirm the internal validity of the framework. However, if there are no undesirable outcomes this would suggest that the framework could be usefully modified based upon this new information.

External Validity

External validity involves demonstrating the set of situations to which a study's findings can be generalized. A key issue is the generalizeability of the ISPC framework is to situations beyond the case studies where it has been tested. Results would be generalizable to a particular population if the results were obtained from a sample which was expected to represent a particular population. As such, the generalizeability obtained through case studies is generalizable not through statistical generalization such as "representative sampling," since there often are unique characteristics in the particular case studied, but rather through analytic generalization rather. The findings can be generalizable in terms of theory testing. This means that the Texas vegetable-industry case may provide more evidence of the external validity of the ISPC framework by confirming the effectiveness of the framework in another setting or case study environment.

Figure 1. The Fruit and Vegetable Marketing System.



Source: Hall (1993).

Background of the Texas Vegetable Industry

Texas has historically ranked third, behind Florida and California, in total U.S. vegetable and melon production. However, according the 1998 Vegetable Summary Texas dropped to a distant fourth. Data also show that a steady decline in overall vegetable acreage has occurred over the past 50 years. Some, but not all, of the decline can be attributed to increased yields per acre resulting from improved genetics and cultural practices. However, the yield increase for most crops (such as tomatoes and spinach) over time has not been of the magnitude to offset the overall decline in acreage.

In the past, the early markets enjoyed by Texas producers and the resulting prices associated with these markets enabled the industry to survive and sometimes thrive. However, these early-market advantages have been slowly eroded to the point that many Texas producers are now suffering financial stress (see Figure 1 for a graphical presentation of industry structure). Symptoms of this stress can be difficult to detect, but most recent evidence of its existence comes in the form of the declining acreage mentioned earlier, reduced profitability at all levels of the vegetable value chain (grower and shipper alike), and even the elimination (bankruptcy) of some industry firms. In addition, grower/shippers contend that price levels have been at or below break-even at the variable cost level, with little revenue remaining for replacing/maintaining fixed assets.

Treating the symptoms of this stress offers little relief from the stress itself. It has taken many years for this situation to progress to the current stage and only a long-run, carefully considered strategic plan of attack has the promise of saving the indus-

try from a continuing pattern of decline. Undoubtedly, the most logical plan of attack would begin with a thorough examination of the stress itself. What factors or circumstances led to its existence? In no particular order, the nature of the stress can be described as follows:

- **Limited Value-Added Investments:** While participants in the fruit and vegetable industry have done a good job discussing the need for value-added products and/or markets only a select few firms have aggressively explored this avenue. In general, niche-marketing strategies have given way to volume-based marketing strategies.
- **Small Volumes Increasingly Lack Economies of Scales:** Over time the number of fruit and vegetable commodities grown in the state has declined. As little as a decade ago, the number of commodities grown in Texas almost double what it is now. This has reduced the state's ability to supply mixed loads on a consistent basis.
- **Increased Competition from Mexico:** NAFTA has now been in place for several years. Many participants in the Texas fruit and vegetable industry were somewhat complacent when NAFTA was implemented because many of the acres planted in Mexico were financed with U.S. capital and grown using U.S. technology and in some cases using U.S. managerial expertise. Implementation of NAFTA exacerbated the problem of overlapping marketing seasons. For example, Texas producers—particularly those in the Rio Grande Valley—built their reputation on "early season availability," but much of their competitive advantage is being eroded as more Mexican-produced vegetables and melons find their way into the marketplace.
- **Slow Technology Adoption:** Traditionally, new-technology adoption rates by Texas grower/shippers have been slower than those of other major production regions in the country. Examples of some of these slowly adopted new technologies include drip irrigation/plastic mulch technology, EDI capabilities, ECR (efficient consumer response) relationships with retailers, post-harvest handling and packaging technologies, the Internet, email capabilities, etc.
- **Increasing Industry Concentration:** The industry is becoming more and more concentrated (because of attrition, merger, and acquisition activity), with only a handful of major shippers remaining. The competitive environment continues to put increasing pressure on these remaining firms.
- **Uncoordinated Marketing Efforts:** There traditionally has been a lack of coordination of marketing/promotion activities regarding Texas produce. Even when promotional programs were in place funds were insufficient to develop and implement a national campaign. For example, the effectiveness of one program, *TexFresh* was "evaluated" and the decision was made in the early 1990s to discontinue the program in favor of "production-related research."
- **Decreasing Market Windows:** The length of time in which Texas-grown produce is offered in the marketplace has diminished due to the fact that several firms that historically operated subsidiaries in other parts of the state have opted to close down those facilities.
- **Poor Quality Perception by Customers:** The perception of Texas produce in the minds of buyers has often been inconsistent—in terms of quality, volume, delivery, and pricing.
- **Poorly Planned Selling Strategies:** In too many instances Texas firms have been their own worst enemy. Prices have been slashed to break-even levels too quickly, even in times of strong market demand. Little or no coordination has existed along the vertical supply chain (grower-shipper-wholesaler-retailer) to ensure that prices remain at a profitable level. There seems instead to have been a mentality that storage (cooling) facilities must be cleared when inventories reach certain "nervous" levels.
- **Variable and Extreme Weather Conditions:** Weather has been a constant problem for producers and shippers. Drought, floods, water quality, and disease and insect pressures have been at above average levels in the last 4 or 5 years. Mother Nature simply has not cooperated.
- **Increasing Costs Caused by Worker-Related Legislation:** Federal and state governments have increased worker-related legislation, which may be good for workers safety but is more expensive for the producers' bottom line. As a percentage of total costs, labor costs are higher today than they were a mere decade ago.

These are not new problems for vegetable producers and shippers. Virtually every year, they have to face at least one of these problems. However, their effects tend to be synergistic—when two or more of these factors are experienced at the same

time, the combined effect is much more financially stressful than if each were experienced independently (Hall 1997; Rutledge 1998).

The aforementioned problems occurring in the Texas vegetable industry are too complex (and require the efforts of many players) for any one grower to solve on his or her own. If progress is to be made a key part must be accomplished on a collective and cooperative basis in selected areas. The participants in the Texas industry have traditionally been very individualistic; any effort to bring about change and progress on a collective basis would indeed be challenging. However, the intense financial stress experienced by the industry provided the perfect environment for such discussions of collective action to occur.

The Industry Strategic Planning & Coordination (ISPC) Model

Because of the many rapid changes affecting agribusinesses today, strategic management and strategic planning have become valuable tools necessary to the survival of individual firms. However, commodity-oriented firms may not be able to achieve their desired goals (profits) by utilizing strategic planning alone or individually. In certain instances it is necessary for an entire industry to implement a strategic planning process as a whole. To facilitate this process, the ISPC model has been put forth (Lyford et. al. and Woods et. al.).

The framework, depicted in Figure 2 and Table 1, consists of four phases, each with distinctive properties. The first phase is *Process Initiation* and it comprises five steps. The first step involves industry leaders articulating the need for Industry Strategic Planning and Coordination (ISPC). The second step involves forming a group of individuals considered the core of the industry to lead the ISPC process. The ISPC group decides the remaining aspects of this phase. The last three steps of this phase are developing a common set of objectives, deciding how to pay for the planning efforts, and arranging for staff support.

Figure 2. Framework for Industry Strategic Planning and Coordination.

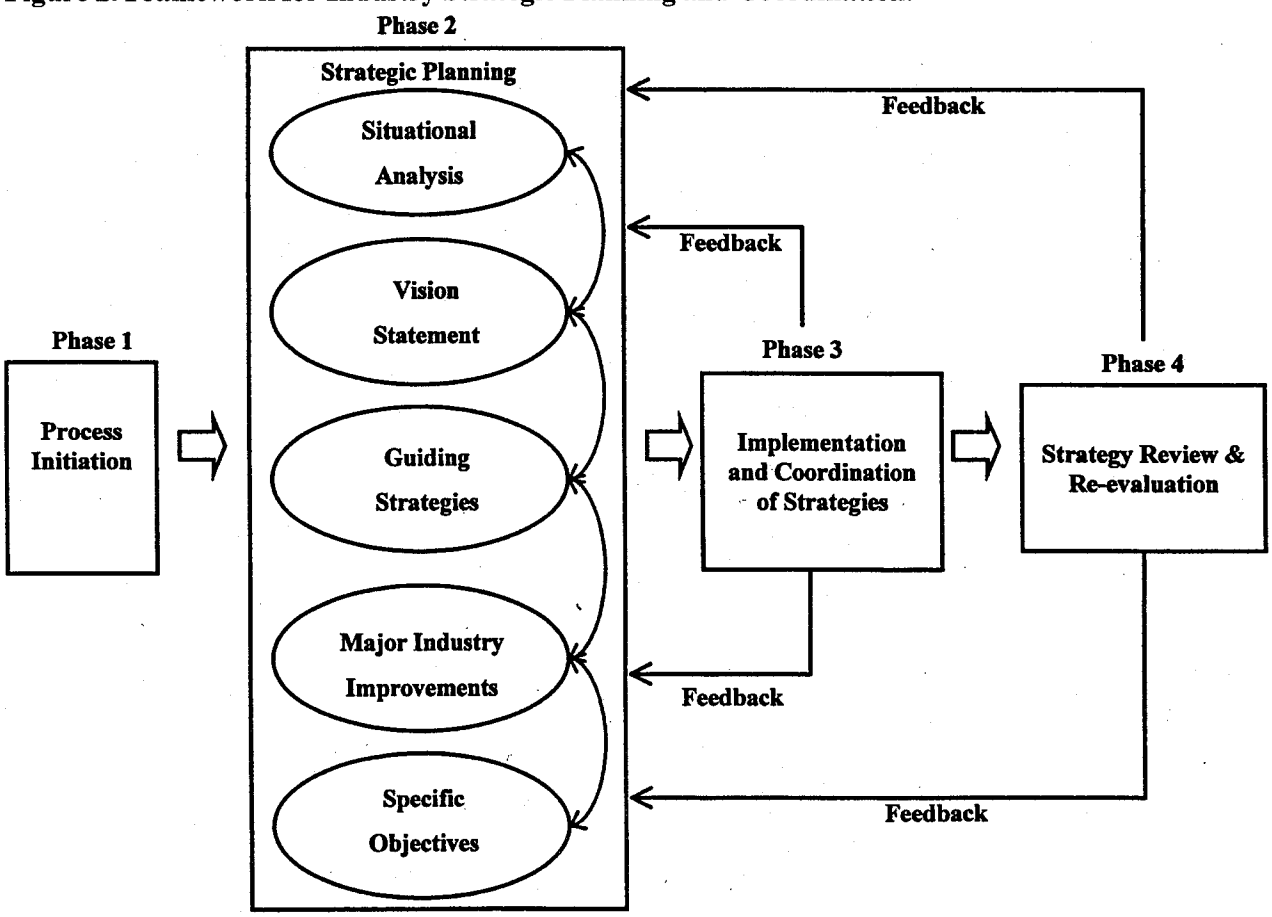


Table 1. Phases of the ISPC Framework and Their General Purpose.

PHASE	PURPOSE
Phase 1: Process Initiation	*Begin an ISPC Process in an Industry*
• Articulation of an Industry Need for ISPC • Formation of an ISPC Leadership Group • Selection of a Set of Common Objectives • Method to Pay the Costs of the ISPC Process • Provision of Staff Support for the Process	
Phase 2: Strategic Planning	*Go Through a Process Where the Strategies Which Will Most Likely Improve Industry Performance are Selected*

• Situational Analysis
  • Market-share Analysis
  • SWOT Analysis
  • Analysis of Major Driving Forces
  • Identification of Key Success Factors
  • Value-chain Analysis
  • Competitor Analysis
  • Transaction-cost Analysis
	Develop Relevant Analytical Insights, Shared Understandings of the Industry, Its Environment, and Relevant Factors for ISPC

• Vision Statement	*Develop Statement Defining the Industry's Future*

• Guiding Strategies
  • Growth Positioning
  • Focus on Developing Core Competencies
  • Value-based Actions
	Define the Overall Industry's Strategic Intent in Core Strategies

• Major Improvement Objectives
  • Is Industry Action Necessary?
  • Does the Objective Address a Critical Gap?
	Determine and Prioritize Key Areas Where Industry Attention Should Best be Focused

• Development of Specific Strategies
  • Strategies for Each Major Improvement Objective
  • Impact Analysis
	Select Specific Strategies that are Viewed as the Most Likely to Facilitate Needed Industry Improvement

Phase 3: Implementation and Coordination Strategies	*Develop the Necessary Method to Implement Industry Strategies Including Coordinating Actions Within the Industry*
• Develop Implementation Plans	
• Communicate the Strategy to Industry Participants	

• Provide Needed Resource for the Strategy
  • Voluntary Contributions
  • Mandatory Assessments	

• Measure Progress Within the Industry	
• Where Appropriate, Enforce the Strategy	
Phase 4: Strategy Review and Re-Evaluation	*Change Strategy in Light of Changing Circumstances*

The second and most involved phase is *Strategic Planning*. In this phase a number of tasks are undertaken:

- conducting a situational analysis
- devising a vision statement
- developing guiding strategies
- creating major improvement objectives
- deriving specific strategies for facilitating needed improvements

The situational analysis concentrates on developing an inclusive and up-to-date comprehension of the changing industry and other pertinent factors. The most important outcome of situational analysis is the recognition of the industry's current position, *i.e.* major problems, driving forces, key success factors, and a measure of the industry's performance. Effective methods for gathering the necessary information are:

- **market-share analysis**—trends of market share, market size, industry sales volume, and value of key industry market segments over time.
- **S.W.O.T. analysis**—strengths, weaknesses, opportunities, and threats.
- **value-chain analysis**—a firm should seek to understand what is valuable to buyers, costs of providing those characteristics, and sources of differentiation for the product.
- **competitor analysis**—focuses on the competitive differences between regions or the competitive differences between substitute products.
- **transaction cost analysis**—can be used to assess strategically relevant transactions and the nature of a problem in a transaction that leads to poor performance, and to identify possible alternative market structures that would improve industry performance.
- **analysis of major driving forces**—those fundamental factors that are driving the industry or causing the most important industry and market adjustments.
- **identification of key success factors**—those areas in which the industry must be develop competence.

When the situational analysis is complete the ISPC group, along with other members of the industry, come together to assess the information gathered from the situational analysis to develop the vision statement and guiding strategies. A vision statement for an industry is similar to a firm's, in that it states the pursuits the industry intends to carry out as well as the envisioned position of the industry in the future. However, a vision statement may not be necessary in the industry context, and the need for an industry vision statement has generated some disagreement. The guiding strategies are the core strategies that outline the industry's strategic intent. A common guiding strategy will include a focus on developing core competencies, growth positioning, and determining value-based actions to meet customer needs.

The next step of the *Strategic Planning* phase is determining major improvement objectives. These objectives are important in bridging the gap between a vision statement and specific strategies. These are areas that the ISPC group believes need to be addressed in the next three to five years. Their purpose is to narrow the focus to a few key areas.

The last step of the *Strategic Planning* phase is preparing specific strategies that should be taken by firms and industry organizations to improve the industry's position. The second phase can be considered the heart of the ISPC process. According to Lyford the purpose of this phase is to "go through a process where the strategies which will most likely improve industry performance are selected."

The third phase, *Implementation and Coordination of Strategies*, begins once the ISPC group has gained enough support from other members of the industry to move from planning strategies to implementing them. The ISPC group should create an implementation plan for each strategy and convey these to other members of the industry. It is important to have good communication between the ISPC group and the industry members because firms and organizations cannot implement strategies they are not aware of. They also will be less likely to implement strategies that are not considered to be in their best interest. For this reason it is important to convey the benefits of the proposed actions.

Another important part of the third phase is for the ISPC group to gather information from all those involved so a measure of progress for each strategy can be studied. It is important for the ISPC group to know if they are staying true to the guiding strategies and the vision statement. If not, some changes will need to be made. The changes need to adjust the strategies iteratively to bring them in order to achieve the desired industry objectives.

Lyford et al. suggest two ways that the provi-

sion of resources can be collected so that strategies may be carried out: voluntary contributions and mandatory assessments. The creators of the ISPC model point out that the voluntary contributions are generally much easier to implement in general; firms and industry organizations will have differing goals and itineraries, and mandatory assessments are often perceived negatively. The nature of mandatory assessments suggests that enforcement mechanisms will be in place to ensure expectations of firms and industry organizations (promotional assessments, grade regulations, packing and picking holidays, or size restrictions) are met.

This phase also provides feedback to the strategic planning phase. The purpose of this section according to Lyford et al. is to "develop the necessary method to implement industry strategies including coordinating actions within the industry."

The fourth phase is *Strategy Review and Re-evaluation.* This step is vital because industries, competitors, and the economy in general are dynamic and ever-changing. In this phase it is necessary to concentrate on ways in which strategies can be enhanced to improve their performance in the changing conditions of the industry. As the industry moves through the ISPC process it will become apparent that more actions exist that better meet these developing conditions. It will be useful to ask the following questions when conducting the review and re-evaluation phase:

- How well are current strategies working?
- What unforseen results and obstacles have surfaced?
- What new areas, including new problems and opportunities, need to be addressed?
- What additional ways are there for the industry to further develop and sustain a viable, competitive industry?

This phase provides feedback to the Strategic Planning phase as well. The purpose of this phase is to "change strategies in light of changing circumstances," according to the developers of this model.

Industry Strategic Planning & The Texas Produce Industry

Phase 1: Process Initiation

In May 1997 an industry organization called the Texas Vegetable Association (TVA) held a special meeting to discuss the plight of the Texas vegetable industry. At this meeting TVA board members visited with the Dean of Agriculture of Texas A&M University (TAMU), representatives from the Texas Agricultural Extension Service (TAEX), and the Texas Agricultural Experiment Station (TAES). The discussion centered around industry problems and how TAMU, TAEX, and TAES could assist in solving these problems. It was decided that two TAMU faculty members and two growers-shippers would develop a white paper detailing the historical perspective of the industry's concerns and what future actions could be taken; the results of this effort would be presented at the Texas Produce Convention (TPC). This paper was presented to attendees of the annual TPC during roundtable discussions. Because of the overwhelming concerns expressed at this meeting it was decided that further research was needed.

The initial meeting can be considered as the first part of the first phase—*Process Initiation*—of the ISPC process. According to Lyford et al. the ISPC process is induced by industry leaders displaying some awareness of the need for ISPC. In this case the industry leaders were not aware of the ISPC process *per se* but they were cognizant of the industry's downward trend and were interested in taking the necessary steps to reverse direction. Lyford et al. point out that often a catalyst such as the problems the vegetable industry was facing will aid in an industry gaining awareness of a need for ISPC. Given the response from other industry members at the TPC it was apparent that the needed support was there. Lyford et al. state that this general agreement within the industry is the "key output" of the process initiation phase.

While many of the issues discussed earlier were statewide—even nationwide—in nature, it was felt that to be effective the planning efforts must be intensely focused. Since South Texas represents a majority of the vegetable production in the state, the decision was made to focus on this important region first. In early 1998 a committee composed

of industry leaders and TAMU personnel drafted a proposal entitled *"Future of the South Texas Vegetable, Melon, and Fruit Industry: Proposed South Texas Produce Task Force."* This paper revealed the underlying problems in the Texas vegetable industry and what the industry would face without taking action to combat the highlighted problems. At a subsequent meeting it was decided that the forthcoming initiative would be a joint-venture planning effort between the produce industry and the Texas A&M University System. The planning process was given the formal title of *South Texas Produce Initiative* (STPI). The ISPC group was called the *South Texas Produce Initiative Task Force* (STPITF). Those individuals who made up the Task Force were selected because of they were viewed as "key visionary, progressive leaders of the industry that would likely form an effective group to make choices, prioritization, etc. in an ISPC process." (Lyford et. al.) Upon formation of the Task Force, the second part of the Process Initiation phase was completed.

The third, fourth, and fifth parts of the Process Initiation phase were completed in the first official South Texas Produce Initiative organizational meeting. Participants of this meeting developed an objective statement which is similar to a "common set of objectives." (Lyford et. al.) It was decided that "the goal of the Task Force was to evaluate and prioritize actions that will enhance the profitability and competitiveness of the produce industry in South Texas." The scope of the Task Force was also defined by commodities, geographical region, and function. The commodities included onions, cabbage, melons (cantaloupe, honey dew, and watermelon), carrots, green peppers, cucumbers, and greens. The geographical region included a one-hour radius from the Rio Grande Valley. The functions to be studied were production and marketing of the commodities previously mentioned.

The Task Force recognized that many problems confront the produce industry in South Texas; however, they also realized that with limited time and resources they could not address all the issues. Priority was given to issues of great concern to the participants including marketing, new varieties, alternative crops, and more efficient production systems.

It was decided that funding for a coordinator (staff support) and meeting expenses would shared between TAMU and industry commodity associations. This resolved the funding issues raised in step four. This coordinator would coordinate communications, prepare information for the Task Force, organize meetings, and draft reports. This parallels the staff support that Lyford et. al. refer to as the fifth step of the first phase in the ISPC model.

This meeting also concluded that other state agencies should be included. The other agencies included the Texas Department of Agriculture, representatives from USDA-ARS, county extension agents, the TAMU Vegetable Improvement Center, the Texas Natural Resource Conservation Commission (TNRCC), and the Texas Department of Transportation. These agencies have a direct knowledge of the Texas vegetable industry and would prove to be useful in assisting in the ISPC process.

Phase 2: Strategic Planning

There were four one-day strategic planning sessions as part of the South Texas Produce Initiative. The general format was to have speakers in the morning and then use the afternoon as a brainstorming session to list issues, recommendations, and to set priorities. In the first three meetings the Situational Analysis was completed. According to the ISPC model the situational analysis is used by the ISPC group (along with other members of the industry) to develop the vision statement and guiding strategies. A vision statement for an industry is similar to a firm's in that it states the pursuits the industry intends to carry out as well as the envisioned position of the industry in the future. The guiding strategies are the core strategies that outline the industry's strategic intent. A common guiding strategy will include a focus on developing core competencies, growth positioning, and determining value-based actions to meet customer needs.

A formal vision statement was never constructed, though it was quite clear that the necessary information had been collected and the intent of the STPITF was to improve the vegetable industry so that it would remain a viable source of income and way of life for many farmers in the Lower Rio Grande Valley. Also, the STPITF never officially established a set of Guiding Strategies in the course of the process. It was understood between the members of the Task Force that the positioning goal of the industry would be to grow in terms of

vegetable and melon production, profitability, and market share. Although the guiding strategies were never officially recorded it was understood that the areas previously mentioned represented the "overall industry direction." (Lyford et al.) Because the Texas vegetable industry did not develop a formal vision statement and has had success, this suggests that a formal vision statement in an ISPC effort is not necessary and an informal awareness of group interest as discussed above may be all that is necessary. Future users of the framework may not want to develop a vision statement based on this information.

The Task Force determined at the first official STPI meeting that it was imperative that certain "goals" or objectives were crucial to the survival of the South Texas produce industry. This is fairly consistent with the ISPC model in that these "improvement objectives" (Lyford et. al.) were introduced early in the process in the STPI case. It was determined that the list below summarizes the key areas where industry attention would best be focused.

- develop better communications relating to marketing and planning decisions
- develop marketing coordination among growers and shippers resulting in a regional marketing plan
- develop a better understanding of market trends and analysis
- educate the sales force on marketing and sales techniques, particularly delivery standards
- identify and apply new technology
- work as a group to improve the industry
- address water problems faced by the industry
- develop an understanding of the transportation/distribution system to include access to international markets
- promote both private and public research that develops new varieties through modern breeding techniques that will ensure a competitive edge
- improve accessibility to the latest research and scientific information
- promote training of personnel to more efficiently operate packing sheds, fields, and the business as a whole
- develop better packaging and post-harvest handling methods
- develop a state-wide legislative initiative that will support a sustainable produce industry in Texas

The development of the final step of the Strategic Planning phase, *Prepare Specific Strategies*, was done through the course of the four Task Force meetings.

Phase 3: Implementation and Coordination of Strategies

The Task Force plans for implementing the specific strategies developed in phase 2 were developed during the fourth and final South Texas Produce Initiative Task Force meeting, in which discussion centered around the Michigan State University pilot project Generating Research and Extension to Meet Economic and Environmental Needs (GREEEN) that initiated a state-wide research and education program for horticultural crops. Other topics were prioritization of the previous recommendations and formation of a five-member Executive Committee to implement the action plans. The Task Force chose to terminate its existence at this time and turned over implementation of the Task Force recommendations to the five-member Executive Committee, whose duties included but were not limited to:

- Follow up with industry entities to implement report recommendations
- Draft and monitor an implementation timeline
- Support a statewide legislative initiative that is similar to Michigan's project GREEEN and decide which commodities to include. This will provide needed funding for research and implementation of task force recommendations. The unique aspect of the program was the broad grass-roots support which enabled MSU and the horticultural industry to successfully obtain state legislative funding. This type of effort was listed as a major objective for the Texas executive committee to investigate.

The four Task Force meetings were concluded just before the annual Texas Produce Convention (TPC) in 1998. At the TPC three Executive Committee members presented the results of the Task Force meetings to other industry participants. This was done so that it could be determined if the rest of the vegetable industry in Texas was in support

of the proposed strategies and implementation plans put forth by the STPITF. This represents the first two parts of the third phase (*development of implementation plans* and *communicating the strategies to the industry)*.

In the following months the Executive Committee devoted much of its time to the two most pressing activities that needed to be addressed: development of an onion exchange (onions are a major part of South Texas production) and establishment of industry-wide promotional efforts. While the Task Force spent considerable time studying and defining the issues, they recognized early in the process that implementing a growers' cooperative or exchange accounting for at least 85 to 90 percent of the onion acreage and where growers were loyal to the established goals would likely solve many of the onion industry's marketing problems.

Another major activity needed was industry-wide promotional campaigns to promote Texas produce through conventional newspaper and radio adds. It was decided that while the exchange was in its early stages it should seek outside help with promotions. The Executive Committee and the Texas Produce Association (TPA) reached an agreement that would allow promotional costs to be split between the two, while the TPA would bear the responsibility of coordinating the promotions.

In addition to these short-run activities the Executive Committee initiated the early development stages of an state-wide task force that would extend the South Texas planning efforts to the entire state. Over the course of the next eighteen months (1999–2000) regional meetings were held in key vegetable-producing regions of the state including the High Plains, the San Antonio Winter Garden, the Crosstimbers (central) Region, and East Texas. Recommendations from the STPITF were presented at each regional meeting and participants were provided the opportunity to add to or modify the issues and recommendations as they deemed necessary. A Statewide Task Force was initiated consisting of representatives from each region of the state and including the Executive Committee of the STPITF that started the process. This statewide task force was charged with developing a consensus plan of action that the industry would embark upon to ensure the viability of the Texas produce industry in the new millennium. This plan of action was given the title Project PLANT (Produce Leadership and Assessment of Needs for Texas).

After many meetings and deliberations during the year 2000 the Project PLANT statewide task force prioritized the industry's concerns into those that affected the industry the most and those that were most salable from a potential legislative-finding standpoint. The executive summary of this legislative initiative seeking the level of funding necessary to implement the industry's strategic plan is found in the Appendix.

Phase 4: Strategy Review and Re-evaluation

At this time the Project PLANT produce-industry initiative is being considered by the legislature and funding decisions are still several months away. Planning efforts on the part of the statewide task force members have temporarily turned into lobbying efforts. Should their lobbying efforts prove successful and funding be received at the levels requested the Texas produce industry will have numerous research, marketing, and promotional activities to review and evaluate. If their efforts are not successful, however, and funding is not received, the obvious question becomes "Has the ISPC process provided any benefit to the industry participants in and of itself?" Is the industry better off having been engaged in this process over the course of the last three years? This question becomes the focus of the authors concluding section below.

Concluding Thoughts

As a guide for ISPC the framework studied did provide effective guidance. The Texas vegetable case study did suggest a few modifications, mainly indicating that an industry vision statement is not necessary in an ISPC effort. In terms of the overall validity of the ISPC framework, task force members agree that it was effective in guiding them toward developing and implementing effective industry strategy. This suggests that the ISPC framework can usefully be applied to other industries with positive benefits.

Consensus within the Texas vegetable industry indicates this initiative has been a very successful planning effort. Those involved in the very first planning activities in South Texas as well those who

have recently joined the statewide planning effort are already noticing significant improvement in the communication, coordination, and spirit of cooperation between Texas produce growers and shippers. Whether or not legislative funding is received, they recognize that the industry has a plan and some elements of the plan may be accomplished even without the added funding. Other portions of the plan may eventually be implemented, albeit at a much slower pace. In sum, numerous benefits were exhibited, but enhanced communication was among the most important. Thus the prospects of using the model for strategic planning in other agribusiness sectors are promising.

Appendix: Project PLANT Executive Summary

One critical research area in which Texas plays a leadership role is the development of fruits and vegetables that not only help prevent such diet-related diseases as cancer, but in emerging instances, actively combat such diseases. The public health benefits of fruit and vegetable commodities are obvious; however the marketing benefits are very real, as well. The Project PLANT (Produce Leadership And Needs Assessment for Texas) initiative is an umbrella concept that merges production and marketing technologies and promises genuine advantages to the produce industry in Texas if we are willing to fund its evolution. Many producers, marketers and academicians in the state believe that Project PLANT represents the single best avenue for assuring the industry's prominence in Texas, and one of the best ways to convey substantial health benefits to all consumers.

Scientists at Texas A&M and elsewhere have recently documented that existing fruit and vegetable varieties vary considerable in levels of naturally occurring compounds that are known to provide disease preventing properties. It has also been shown that through breeding these varieties can be improved; that is, they are more uniform and higher in these beneficial compounds. It has also been shown that, through selection, new cultivars can be developed that have even higher levels.

It has also been shown that new fruit and vegetable varieties can be developed containing other compounds which are very important to improving our disease resistance as we consume them in our diets. A good example is increasing the levels of carotene in carrots, plus adding the genes for anthocyanins (e.g. the 'BetaSweet' carrot) and now we are adding lycopene to the carrot. The same is being done with peppers, tomatoes, grapefruit, peaches, plums, potatoes, sweet potatoes, melons and onions and can be expanded to other crops if funding is provided.

These crops will provide a much healthier diet, particularly for children and the elderly, even if they are not aware of the benefits. This is extremely important for these consumer segments as they do not typically buy supplements. It has been estimated that preventing one case of cancer or heart disease can save $200,000 dollars in treatment costs and then existing treatments may not insure saving the patient. Therefore, each person who benefits from improved food for health greatly reduces the cost in money, suffering, and cost in terms of lost productivity to the individual and their family. Food undoubtedly represents the best delivery system for disease fighting compounds naturally found in food plants. In addition to benefitting from direct consumption of these improved fruits and vegetables, they can be used for natural supplements and natural food colorings which will also take the place of the present synthesized forms.

These plants will not only aid in disease prevention, but will create new markets for value added products, which in many cases will be product which does not meet fresh market quality based on size, shape, etc. This research and the educating of consumers is therefore, very important for consumers in Texas and worldwide and will have a major impact on increased value and total sales for Texas produce growers and shippers. It will bring great credibility to participating institutions and scientists and will help insure future funding from other granting sources. It will also serve as a model for others to follow and insure more improvements in the future.

However, in order to realize these benefits, adequate amounts of these important fruits and vegetables must be available to consumers. In the last decade, the Texas produce industry has slowly lost market share to producers in other parts of the U.S. and Mexico. The industry has historically ranked a close third in terms of total U.S. vegetable and melon production, but by 1999, Texas has dropped to a distant fifth, behind California, Florida, Geor-

gia and Washington. Rank has dramatically fallen in the production of citrus, honeydew melons, tomatoes, onions, potatoes, sweet corn and carrots.

To reverse the decline in the Texas produce industry, a substantial investment in research, new technology, and educational efforts is needed and more effective state and regional marketing programs must be devised. The overall goal of the PLANT initiative is to focus, coordinate, and be accountable for resources used to create, sustain and increase economic opportunities for Texas through a viable and competitive produce industry and to advance environmentally sound agriculture while ensuring food quality and safety for consumers. Priority areas of the PLANT legislative initiative and the annual budget request are:

Food for Health Programs - *Designing foods for health that will be nutritious, safe, and contain uniform high levels of natural compounds known to aid in the prevention of diet-related diseases.* ($2,000,000 annually)

Research and Management Programs - *Improving research and management programs that increase economic and environmental sustainability.* ($1,510,000 annually)

Marketing Programs - *Improving Texas economic growth through competitive marketing programs that increase coordination and emphasize marketing promotion and market development.* ($980,000 annually)

As the new programs and techniques outlined by the PLANT initiative are implemented by growers and processors, the state will experience many direct and indirect benefits from more profitable, improved and sustainable produce-related agribusiness industries, creating new job and business opportunities and expanding the state's economy. Agriculture contributes more than $45 billion to the Texas economy when all aspects of production, processing and retail operations are considered.

Every county in the state benefits from produce-related agriculture. The Texas produce industry includes an amazingly diverse array of crops. There are several dozen different varieties of produce-related commodities produced in the state and an infinite number of potential value-added products associated with them.

PLANT will also allow university research and extension agencies to create and support new programs to benefit consumers, the produce industry, and in turn, the entire state. The produce industry currently contributes a significant amount ($1.9 million per year) for research , education, and for various promotional programs and the industry is prepared to increase their support of such a bold move forward. Indeed, they realize their future depends on a research and educational program similar to those already implemented in California, Florida, Georgia and other states, and as envisioned in Project PLANT. Though this program augments and complements existing research and educational outreach projects, it is an entirely new concept. PLANT is a partnership between universities, state government, commodity groups, food processors and manufacturers, and most importantly, consumers.

At the heart of PLANT is the ability to solve grower and processor problems rapidly though the development of a fully integrated, seamless connection between academia and industry. This will ensure that no barriers exist between research results and their implementation.

In sum, the program will serve to provide the aforementioned benefits by (a) improving research and management programs that increase economic and environmental sustainability; (b) improving Texas economic growth through competitive marketing programs that increase coordination and emphasize marketing promotion and market development; and (c) designing foods for health that will be nutritious, safe, and contain uniform high levels of natural compounds known to aid in the prevention of diet-related diseases. Capitalizing on the opportunities in Texas' produce-related industries offers tremendous potential to create more new jobs and add significantly more economic value-added impact to the state's economy.

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