



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Total Systems: Completing the Concept

by

Jarvis L. Cain
Professor of Agricultural and Resource Economics
University of Maryland
College Park, MD

Abstract

The total food industry system in the United States is visualized as a nationwide network linking major market area components (products, consumption and structure) to major systems components (e.g. information systems, financial structure, transport and legal-regulatory) for the major market areas of the country. Emphasis is placed on identification and measurement of the linkages and relationships between and among this myriad of system components. A cooperative national effort is urged to model the system for measurement and evaluation of current and future food systems.

Introduction

This is the final paper in a three part series. The first, "*Food Industry Management: Preparing for Total Systems*,"¹ emphasized the individual firm and what management could do to get ready for the emerging dramatic changes in the total system. The second, "*Market Area: Preparing for Total Systems*,"² analyzed the major components of total systems using the market area concept as a point of focus. This final paper will combine additional components with a network of market areas to complete the concept of "Total Systems."

Total Systems Objective

As the final step in the total system process is contemplated, it would be useful to repeat an overall objective. It is: "to provide adequate supplies of safe, nutritious food and food products with desired service levels at prices that reflect true value to the United States consumer, at a minimum total resource cost." As in all systems analyses, early identification of the sys-

tem's purpose and constraints is extremely important.

Components Added to the Market Area Concept

In order to move from the concept of market area to total systems, one must link together a large number of market areas into some sort of network and add to the major market area components (products, consumption and structure) the following list of major systems components and more:

1. Information systems
2. Packaging, logistics and transport
3. Legal-regulatory
4. Financial
5. Advertising and promotion
6. Equipment and technology
7. Research, educational and consulting
8. Export-import
9. Wide variety of supporting supplies and services.

Actually, this list of systems components was present, to some degree, in the market area, but was not discussed so that the concept of the market area could be documented first.

Total Food Industry System

When the 250-300 major market areas and many more minor ones in the country are added to the major components thus far identified, it doesn't take long before the mind starts to "boggle." Even though it would be useful to be able to get some meaningful measurement of the current total food industry system and of the ones to come, how can this possibly be done on a practical basis? Can this seemingly infinite number of variables be reduced to a manageable number of "Key Performance Indicators" so that

a nation can effectively "manage" its Total Food Industry System from both an operational and policy point of view?

The answer to this lengthy and complex question is, yes. But it will be neither easy, quick, nor cheap!!

Judicious sampling will allow for the study of representative markets, products, customers and institutional structures and reduce the data load from unimaginable to manageable. The most difficult and costly aspect of this endeavor will be to specify the linkages and the relationships between all the components of the total system. This has never been done before and will provide many challenges for those who work on this portion of the project. Also, in the operational aspect of the modeling, the more peripheral components of the system can be reduced to fundamental performance criteria, further simplifying the data handling process.

The Tasks At Hand

There are three major tasks at hand to provide the nation with meaningful analytical tools and data to "manage" and study the total food industry system and potential changes.

First of all, every aspect of the total food industry system must be specified. This must be done so that (1) the pertinent parameters of the system can be established; (2) the linkages and relationships among the many components can be identified and measured; and (3) methods to extract representative data from the total can be identified and perfected.

Second, a working model of the total food industry system must be specified, constructed and tested as being representative of the complete system.

Third, the working model must be used and perfected in the "management of the system" and for the analysis of potential changes.

How to Do?

At this point in the process, it is "Back to Basics." The following must be completed: (1) *specify* all components in the total system, (2) identify all the *linkages* between the many components of the total system and (3) quantify the working *relationships* between and among all the components of the total system.

There is a lot of "back-breaking" thoroughly "unglamorous" work to be done--a siz-

able portion of which has been completed or started. A lot of creative and imaginative work is needed to complete this project as well. This is especially true in the area of building the working model and applying it to the "real total food industry system."

Support for the Project

It is difficult to imagine that a nation as rich and powerful as the United States of America would not have the completion of the total system objective listed on page (1) at the top of a list of nationwide priorities. Because the current system provides above average nutrition, variety and quality for a minor portion of disposable income, it is easy to be lulled into a false sense of security. However, the total cost of our food system is not known--subsidies, tax relief, environmental costs and societal costs are not included. The "minimum total resource cost" caveat at the end of the objective could really change the picture.

It would be in the public interest to study the food industry from the total system perspective. This may not be best for selected special interests. With the advocacy system of government, he/she with the most effective advocate chooses the direction of the nation.

Will the voices of the general interest ever be loud enough to get a recognized, funded National Coordinating Group put together to complete the total food industry system project? To this question, the author must sadly answer, "I don't know," for the moment.

However, the very pressures that brought forward the issue of total systems and are carrying it today, may very well be strong enough to provide support for the total food industry systems project and its successful completion.

The challenge is known! Most of the obstacles are known! A way must be found.

Endnotes

- [1] "Food Industry Management: Preparing for Total Systems," J. L. Cain, *Journal of Food Distribution Research*, Vol. 17, No. 2, 1986.
- [2] "Market Area: Preparing for Total Systems," J. L. Cain, *Journal of Food Distribution Research*, Vol. 18, No. 2, 1987.