

# Intelligent information deriving using network panel data management system in marketing research

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## Abstract

A variety of research surveys have been conducted to make the right decisions, to offer insights into necessary changes, and to find new opportunities. The most of them, however, perform just one-time analysis (i.e. cross-sectional analysis) and the intelligent use of accumulated survey researches have hardly been investigated so far. In this study, we propose a very effective marketing research system called the network panel data management system (NPDMS). To compare the different questionnaires, NPDMS transforms all different survey form into the standard form consisting of common mandatory questions. NPDMS finds the most similar marketing research survey and panel among different marketing researches and performs the longitudinal study of loyal/disloyal customer groups. In this study, we developed a web-based NPDMS and demonstrated its effectiveness through its application to research survey data of a Korean research company.

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## 1. Introduction

Today, products are more complex and more customized. A short time-to-market for a new product and short product life cycle become critical factors in fierce competition. The ability to obtain market feedback has been more important than ever, as corporate decision makers must make quick and agile, yet well-informed and accurate business decisions. Furthermore, today has competitive and complex market environment with the various products/services, the caprice of customers and the cost of making a mistake. Therefore, marketing research has been more often requested to research service provider by a variety

of firms which have to focus on these changes of customers and market environments to survive in global market.

Recent marketing researches have been performed to identify problems of products/services, segment the customers according to their attitudes, feeling, tendencies or other information, and build efficient strategies. However, recent marketing research has still had some problems for the good use as follows:

1. *Very few integrated studies which combines longitudinal studies as well as cross-sectional studies:* Most marketing researches have focused on only cross-sectional studies or only longitudinal studies. The former is the research study to identify the details of a specific product/service (Leefflang & Wittink, 2002; Santhanam & Guimaraes, 1995). The latter is a correlational research study that involves observations of the same items over long periods of time and accordingly tracks the change of research result.

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2. *Using the only simple socio-demographic (SD) information for designing quota and questionnaires, etc., in the marketing research:* Marketing research providers have used sampling frame consisting of simple SD information from previous marketing research results when they conduct new marketing research survey or build new marketing strategies. The accumulated respondent group from various and repetitive market researches have the relation between them: however, the accumulated data of many market researches has not been sufficiently used.
3. *Nonstandardized questionnaires:* Survey questionnaires have been performed on nonstandard type because a number of various services/products have different focuses on marketing strategies irrespectively. Standardization is needed for the actively use between various and repetitive market researches. ISO20252 has the purpose of this international standard for market, opinion and social research to unify the criteria of the work procedures, establish level of requirements of the service provision (ISO 20252, 2006).

In this study, we propose a network panel data management system (NPDMS) for intelligent information deriving in marketing research. Unlike general meaning of panel, we define the panel as the respondents answering an online/off-line questionnaire for a service/product in this study. In general, panel means the group of selected research participants who have agreed to provide information at specified intervals over an extended period of time.

Network panel in our study means networked panel information that is used for mutual assistance or support in all marketing researches.

To compare different questionnaires in different marketing researches, NPDMS standardizes survey results based on common mandatory questions (refer to Fig. 1 and Table 1) and finds the most similar panel among different marketing researches. It gives the research providers recommendation about more qualified respondents in quota sampling of

a new marketing research. NPDMS also tracks the pattern changes of loyal/disloyal customer groups through the longitudinal study of them.

We have organized this paper as follows. The literature review in the area of marketing information management system is discussed in Section 2. In Section 3, we present a network panel data management system (NPDMS) and its basic modules. In Section 4, we apply NPDMS to the marketing research in South Korea. Finally, we make conclusions in Section 5.

## 2. Literature review

A marketing information system (MKIS) was defined as a structure consisting of people, equipment, and procedures to gather, sort, analyze, evaluate, and distribute needed, timely, and accurate information to marketing decision makers (Kotler, 1997). Kotler’s definition provided a specific decision support system (DSS) and an ad hoc DSS. The former was a semi-continuous system that managed data of a specific product/service to constant customers (i.e. traditional panel) and that provided recurring decision making support to its users, while ad hoc DSS was developed for limited use on a specific problem sometimes one-time. However, its unchangeable panel might give bias to users.

Bush presented nearly identical models of marketing information systems which showed relationships between managerial tasks, uses of the MKIS, MKIS information development and decisions in the marketing environment (Burns & Bush, 2000). It illustrated only the functions of distinct components but did not identify the relation of a variety of product/services.

Even though marketing management support systems (Wierenga & van Bruggen, 1997) developed a classification of marketing problem-solving models through intelligent data mining methods (Marketing Expert Systems, Marketing Neural Nets, etc.), it did not analyze at more than two time periods.

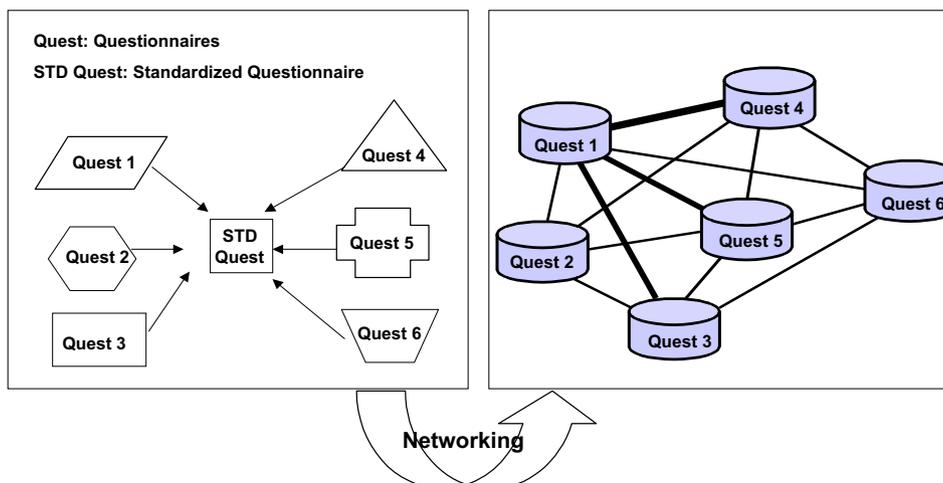


Fig. 1. Standardization and Networking of multiple questionnaires.

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