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An empirical analysis of managerial approaches to the role of inventories

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ABSTRACT

The paper aims to make the first step to the empirical investigation of managers' perception of the role of inventories in today's business. In a previous paper [Chikán, A., 2004. The new role of inventories in business: real world changes and research consequences. Paper presented at the 13th International Symposium on Inventories. International Journal of Production Economics, to appear] I have stated that there has been a gradual paradigm shift in inventory management in the last decades, due to the extensive changes in the economic and business environment. The main point is that the new paradigm assumes a far more complex role of inventories than in the traditional approach, leading to a strategic role of inventories in a triple role: as contributors to value creation, as means of flexibility and means of control. The new paradigm leads to new needs for research orientation and methodology.

The train of thoughts in the earlier conceptual paper is to be checked in practical business environment. This paper reports on a survey of 51 Hungarian companies and explores their view on inventories. The results obtained are reassuring and promising but further research is necessary.

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1. Introduction

This paper is a next step in a process of disclosing the role of inventories in management after my paper presented at the previous ISIR Symposium in 2004 (Chikán, 2004). The earlier paper was basically an essay about the changes in the business and economic environment and their consequence on inventories and their research. The conclusion of this paper has been that environmental changes have made a significant impact on the role of inventories and its perception by practitioners and academicians alike. Some logical explanations of these changes have been provided in the paper.

To explore the real approach of practitioners we have conducted a survey of 51 company managers in Hungary in the Winter of 2005/2006. When evaluating the survey results we have to consider that all these managers have

come from manufacturing companies, which may mean a special viewpoint. The methodology of the survey was the following:

- I have formulated nine questions which were directly oriented to the managers' perception and approach to inventories.
- We have connected these questions to the questionnaire used to survey manufacturing strategies and practices in the framework of International Manufacturing Strategy Survey (IMSS) (www.london.edu) and the Global Manufacturing Research Group (GMRG) (www.cibs.tamu.edu). Both surveys had been conducted several times already in many parts of the world (including Hungary) and both contain a number of questions which are related to inventories.

In such a way we have had nine questions directly related to our research focus and a set of complementary questions which could be used to the analysis and discussion of our own questions.

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The survey was originally sent to 245 companies. Then we asked them by the phone if they are willing to contribute and in case of a positive answer a student, appropriately prepared, had carried the questionnaire to the companies and explained it if it was necessary. Finally, we received 51 questionnaires, which means a response rate of 21%. The IMSS and GMRG surveys were repeated for the fourth time in Hungary, therefore there was no need for a pilot study.

In this paper I summarize some of the results of the survey. I of course evaluate first of all the nine specifically inventory-related questions but add also results obtained by using other parts of the survey. The structure of the paper is the following: first a brief conceptual background is given, based mainly on Chikán (2004). Then we go through the inventory-related questions of the survey, analysing them one by one, both the direct answers and some connected other questions of the survey.

2. Conceptual background

The following is a very brief and because of that, a simplified summary of the main thoughts in Chikán (2004). Here we concentrate on the main statements and train of thoughts, omitting most of the reasoning and discussion.

There is a rather general agreement on that the “golden age” of inventory research was in the 1950s, when the foundations were put down and the main conceptual issues were clarified. Besides a number of papers the books Whitin (1957), Arrow et al. (1958) and Scarf et al. (1963) characterize this age. The conceptual foundation of these studies were based on three pillars (see details in Chikán, 2004):

- Inventories can be handled independently of other company functions.
- The main role of inventories is to serve as a buffer to be used to smooth business processes and maintain a flexible connection between various units of the enterprise.
- The performance measure of the operation of the inventory system is the total holding, replenishment and shortage cost.

This perception of inventories has served research needs well for decades, in fact it is still a good basis for several branches of research. However, in the meantime, as a result of the fundamental changes in the economic and business environment, new characteristics of the business enterprise have emerged, four of which are crucial in changing the role of inventories:

- focus on competitiveness
- functional integration
- process orientation
- network (chain) view

These new characteristics of managing the business enterprise had fundamental effects on the role of

inventories, leading to a new paradigm of inventory management. According to this paradigm inventories have strategic importance for companies as

- contributors to value creation
- means of flexibility and
- means of control.

Research of inventories in these roles need new approaches. First of all question must be asked about the actual appearance of inventories in these roles and the approaches of management to handle them. Our research questions have been oriented to some of these questions.

3. Questions about the new paradigm

As indicated earlier I have put nine questions related to the new paradigm into the combined IMSS/GMRG questionnaire. Eight of the nine questions had to be answered using a 1–7 point Likert scale, while the answer to the ninth one could be yes or no.

Table 1 contains the nine questions together with the mean, the variance and the relative variance of the answers.

The information in Table 1 can be summarized as follows:

- (a) The survey gives an absolutely positive answer to the main question of the paradigm shift. The highest average Likert scale value belongs to the statement which calls for an integrated management of inventories in the supply chain, while the smallest average is at the option of handling inventories independently. This result is exactly what I expected based on the new paradigm.
- (b) We can consider acceptable the hypotheses on the role of inventories in competitiveness and the one on integration in vertical planning—which in this case (when our respondents were manufacturing managers) means preparing manufacturing programs.
- (c) The buffering role do not disappear—it has got scores well above the average.
- (d) Even though most of the managers at least partially agree with the strategic role of inventories, the average here is lower than expected which means that the respondent were at least hesitating when judging this role.
- (e) Cost as performance measures have got also an above-the-average value, which shows that this traditional view has not at all disappeared.
- (f) The only aspect, besides the fundamental one in point (a), which has got an evaluation under the average value (4), is the role of inventories in product line policy. I am convinced that this is to a great extent due to the fact that the respondents were manufacturing people. I am sure that a different result would have been obtained if we put this question to marketing or sales people.
- (g) It is striking how low the relative standard deviations are—showing that there is a high level of agreement among managers' opinion in the questions put.

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