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Samspil mellem salg, konstruktion og produktion

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Brief summary of the PhD report by Frank Gertsen, submitted 1989.

Achieved Scientific Results

The problem Area

The problem area of the project is divided into a practical, theoretical, and methodological problem.

The practical problem or starting point of the project is how industrial enterprises through development of a cross functional cooperation are able to become more efficient to develop the products and to convert this into producible and saleable products which meet the customer's demand and the product requirements.

It is supposed that a large part of the practical problems by making the product development more efficient and transform it into producible and saleable products arise in the interfaces between the function areas sale/marketing, construction/product development and production/production preparation. The problems focused are barriers to the interaction process between the function areas which are necessary for adapting the running process and for developing the saleable and producible products which meet the surroundings needs and product requirement together with the fact that they create a basis for development of technical integration in connection with these tasks.

The main activities/tasks about which the interaction processes have been examined are primarily:

- product development
- mutual adaption between product possibilities and production apparatus (production possibilities) during the product development and the running process.
- mutual adaption between the product possibilities and the customer's/user's demands or other external demands/needs (product requirements) during the product development and the running process.
- mutual adaption between the production apparatus (possibilities of production) and the customer's/user's demand or other external demand/need (product requirements) during the product development and the running process.

In an illustrative model showing the interplay between sales, production and construction the activities are intuit in connection with product development and adaption of the running process as a mutual adaption process between the three parts contrary to a traditional interpretation of the fact that the activities are done sequentially from one department to another.

The methodological problem was to succeed in finding which of the methods as regards research could be used to throw light on and eventually be a supplement to the posed problems together with an estimate of the methods. The primary methodological problem in this project was therefore to work out which of the methods were able to produce data and knowledge which would make it possible to map out barriers for interaction between the function areas and to explain the arise of these barriers and how they develop.

The project is reported in four partial reports.

- A method report - deals with the practical and the methodological problem.
- A case report - deals with the practical and the methodological problem.
- A supplement report bibliography - documentation of the system of literature registration together with a bibliographical summary of literature which is relevant to the project.
- Achieved scientific results (the present report).

The methodology report

The methodology report deals with the methodological problem of the project from the philosophic to the concrete level of the accomplishment.

Passage 1.0 is the introduction in which the key model mentioned below of the starting point and of the examination design of the project is presented.

Passage 2.0 "the draft of the examination" describes in greater detail the problems dealt with in the examination. A theoretical framework is developed and the project is delimited 1) empirically to one enterprise 2) as regards the point of view to a cross-disciplinary point of view where a great importance is attached to organization sociology 3) through definition: Interaction is defined broad (generalized) like the interaction processes whose character depend on the level of the point of view adopted and the barriers as circumstances which prevent or reduce the interaction.

Passage 3.0 "fundamental theories" discusses a number of fundamental theories in the light of a discussion of the theory of science. The passage lead to a description of the project solver's understanding of the organization.

In passage 4.0 "design of the case study method" the methodological choice of a qualitative method based on interviews and the choice of enterprise are discussed. The collection and analysis of the data are discussed, described and certified.

In passage 5.0 "an estimate of the method of the case study" a summary of the estimate of the method is carried out in the light of a number of criteria for valuation.

The case report

The report is build up of seven main sections together with an appendix and a supplement.

The appendix is primarily a profound study of the description and analysis whereas the supplement is rough material.

In passage 1.0 the examination concept of the project is discussed shortly together with the treated problems, methods/conceptions, and the contents of the report.

Passage 2.0 is a description of the case enterprise UNIK. I have tried to make a brief and neutral description which forms a framework in which the reader is able to place his own opinion and the later chapters.

Passage 3.0 describes the analysis and the interpretation of the development of UNIK's interaction conditions for a period of three years before the end of the collection of data. The development is described by means of a number of chronological traits of the development. By this a "historical" continuously explanation of the beginning and development of the interaction barrier (compare with the theoretical problem) is given. The identified interaction barriers between the production group of the enterprise on one hand and the construction

group and the management on the other hand are of great importance. The passage shows how a number of modifications and processes of modification effect and change the interaction. The most outstanding modifications were a new manager, a new attitude towards the cooperation, a modified power structure, to give a high priority to the product development, to give a low priority to a product area, strategical changes/thinking, introduction of a computerized management of the production, a replacement/change of the construction group.

Passage 4.0 begins with a trait of development which is described in passage 3.0. It is about a strategic decision about giving a low priority to one product area (system sale). In the passage both a strategical, an actor-oriented, and a technically organized oriented explanation of the course of the decision process is given. It is postulated that the barriers of the interaction have strategical/existential consequences for the enterprise and that they influence on the outcome of the decision process. Furthermore, several connections between the characteristics of the production tasks and the demand for interaction have to be identified.

Passage 5.0 contributes elements to map out the interaction barriers and to identify the interaction during the product development process. The passage is structuralized from a ideal model of the product development process called TRIMTID (the model of the theoretical framework of the project is extended by a phased dimension of time). The barriers and interactions mentioned below were among others identified.

Passage 6.0 is mainly about interaction and barriers in that part of the production which is characterized by development (system sale).

The passage is structuralized according to the TRIM-model so that a part of the passage deals with the mutual adaption between the product requirement (mainly from sale/marketing), product possibilities (mainly from the construction/product development), and product possibilities (mainly from the production/product preparation). Interaction and a number of barriers in connection with tender and customer adaption.

English summary:

Title: Interplay between Sales, Design, and Production - Addressing Industrial Efficiency through Cross-Functional Cooperation

Introduction:

The project focuses on a comprehensive exploration of the practical, theoretical, and methodological facets of a critical problem area. Specifically, it investigates how industrial enterprises can enhance efficiency by fostering cross-functional cooperation, leading to the development of products that align with customer demands and meet product requirements.

Practical Problem Statement:

The primary practical concern is centered around the challenge of making product development more efficient and translating it into producible and marketable products. Emphasis is placed on overcoming barriers within the interfaces of sales/marketing, construction/product development, and production/production preparation. These barriers hinder the necessary interaction processes crucial for adapting ongoing processes and creating a foundation for technical integration.

Main Activities Focused On:

1. Product Development
2. Mutual adaptation between product possibilities and production apparatus
3. Mutual adaptation between product possibilities and customer/user demands
4. Mutual adaptation between production apparatus and customer/user demands

Interaction Model: An illustrative model portrays the interplay between sales, production, and design, highlighting these activities as a mutual adaptation process rather than a traditional sequential approach. The goal is to seamlessly integrate these functions for efficient product development and process adaptation.

Methodological Problem: The methodological challenge involves identifying suitable research methods to shed light on and supplement the identified problems. The primary focus is on methods capable of generating data and knowledge to uncover barriers between function areas and explain their emergence and development.

Project Reporting: The project is reported in four distinct parts:

1. Methodology Report: Addresses practical and methodological problems.
2. Case Report: Focuses on practical and methodological issues.
3. Supplement Report (Bibliography): Documents literature registration and provides a bibliographical summary relevant to the project.
4. Achieved Scientific Results: The current report detailing the outcomes.

Methodology Report Overview:

1. Introduction: Presents the key model for the project.
2. The Draft of the Examination: Develops a theoretical framework, delimits the project, and defines interaction and barriers.
3. Fundamental Theories: Discusses foundational theories and their application to the project's understanding of the organization.
4. Design of the Case Study Method: Explores the choice of a qualitative method based on interviews, discussing data collection and analysis.

5. An Estimate of the Case Study Method: Summarizes the method's evaluation in light of predefined criteria.

Case Report Structure: The report consists of seven main sections, an appendix, and a supplement. Key sections include:

1. Examination Concept and Problems
2. Description of the Case Enterprise
3. Analysis and Interpretation of Interaction Development
4. Strategic Decision-Making
5. Mapping Interaction Barriers
6. Interaction in Production Development