

FIPS,
An Innovative IT Application to Support the Fashion Purchase Function:
the Case of a European Department Store Chain

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This paper introduces a strategic information system (SIS) run by a large European department store chain in order to support the buying process. The "Fashion Information and Planning System" (FIPS) is an SIS, which comprises the FIPS modules "Fashion Information System" and "Purchase Planning and Control". FIPS is characterized by its inextricableness in other IT applications of the corporation as a result of established interfaces; it is integrated in AAA's warehouse management as well as financial planning.

In order to understand the strategic benefits of FIPS, its organizational impact is addressed from three perspectives: it is shown how FIPS leads to innovative business procedures, shifts functions and competencies within the company, and changes the role of IT for the corporation. Additionally, the paper discusses the benefits and strengths of the FIPS system, which has already become indispensable for the daily work of the purchasing managers. Finally, the article identifies potential design improvements and discusses further development perspectives of the system.

1. The Company

As one of the largest department store chains in Europe, AAA runs more than 100 stores of different sizes, mainly located in downtown areas. With roughly 65,000 employees, AAA is a typical multicategory retailer characterized by value pricing, wide assortments of goods, and offering both brand name and private label merchandize. During the business year 1992/93, AAA increased its retail turnover by almost 7 % to almost US \$ 6 billion, thus exceeding the overall growth in the European department store market. Altogether, AAA made a profit of US \$ 85 million in 1992/93. During 1992, AAA increased its total store space by approximately 1 %, in line with an increase of productivity by almost 2 %; stocks in the stores turned 3.7 times (compared to 3.9 times in the previous year) [AAA's Annual Report 1992].

2. Trends in the Industry

2.1. Trends in Retailing

Department stores represent the retailing channel which is at the highest risk in the nineties. The market share of European department stores compared to other retail forms has slightly decreased by about 1 % between 1988 and 1993, and is expected to further decrease in 1995. Assortments that are too broad, a lack of focus, and too many store types have lowered turnover and profit in the industry. Spending on "department store relevant goods" went down, especially in clothing and footwear [Consulting interviews].

2.2. Trends in the Fashion Industry

An important trend in the industry is backward integration, i.e. the merging of retailing with functions originally performed by manufacturers. In the traditional business, the retailer simply buys and sells products; the manufacturer or importer performs the design function, the branding function, the physical distribution of product stores, and makes the commitment to manufacture products for inventory. In many cases, the actual manufacturing is done by a domestic subcontractor or by an overseas factory. Recently however, retailers have increasingly integrated backwards and taken over some of the manufacturers' functions. They put their store label on designer and brand name merchandize instead of, or alongside, the brand label. The design and inventory commitments are still handled by the manufacturer [see also Szyperski; Klein, 1993].

3. Context of FIPS

FIPS ("Fashion Information and Planning System") is a strategic information system (SIS) embedded in an overall new merchandizing system, thus in line with a new integrated logistics concept for staple and fashion goods. The logistics concept has evolved over time and focusses on the centralization of purchase power as well as on streamlining the physical distribution of goods.

In its current state, the new integrated concept describes a state-of-the art logistics approach which would not be operational without targeted IT applications significantly increasing the decision capabilities of the central buyers. Meanwhile, the new logistics concept was the basis for the design and implementation of new planning and control tools and the resulting changes in the spread of decision competencies within the organization.

3.1. The New Business and Logistics Concept

Staple versus Fashion Goods

AAA handles several categories of goods that have different purchasing and distribution processes. The discrepancies between the two main groups in terms of turnover, staple and fashion goods, are briefly discussed to illustrate the unique requirements in the fashion business.

Staple goods are a continuous part of the assortment. Normally, each item is repurchased without any changes from the same vendor at a certain predefined inventory level. Only after long periods of time is the item replaced by a different model or taken out of the assortment. Most hard goods are staple goods, but also certain textiles (e.g. socks, underwear, certain home textiles like towels) belong to this group.

Fashion goods usually can be purchased only once. Repurchases of the same items are rare exceptions. Therefore, the assortment is characterized by continuous changes among different product categories, colors, materials, and cuts. Especially the lower price levels, relevant to a department store like AAA, are bought in low-wage countries. Since vendors in these countries manufacture only according to orders, and due to the time-consuming transportation, it is necessary to purchase early before the actual season. Articles coming from the Far East for the winter season must be ordered in August of the previous year, while fashion purchases in Europe for the winter season are usually placed in January or February. To reduce the purchase risk, only part of a season's fashion goods are ordered at early points in time. After the first sales in the season, trends have to be recognized and converted into short-term orders to be placed in Europe.¹ The challenge is to quickly and reliably foresee these trends.

Other complexity-adding characteristics of fashion goods are sales price reductions as the season proceeds. Caused by these apparent changes of the assortment, apparel can only be planned and controlled according to price categories. Due to the uniqueness of fashion goods, purchases cannot be based on previous figures of certain items.

Overall Concept for Fashion Goods

Traditionally, AAA, like most department stores, purchased fashion goods decentrally in almost each store to be as close as possible to the customer. This approach resulted in high coordination efforts and ignored any potential synergies with respect to buying power, transportation, and skills. In 1986, AAA started to change its buying organization. The number of buying employees was drastically reduced, and most activities became central buyers' responsibilities. Stores are divided into eight regions; for each department and region there is one regional buyer. The division of rights and responsibilities between central and regional buyers depends mostly on the central buyer and the business environment.

3.2. The "New Merchandizing System"

The newly designed business and logistics concept is backed by an integrated system approach, the "New Merchandizing System", covering the different phases of the concept

System Goals

AAA aims to achieve the following main goals with the "New Merchandizing System":

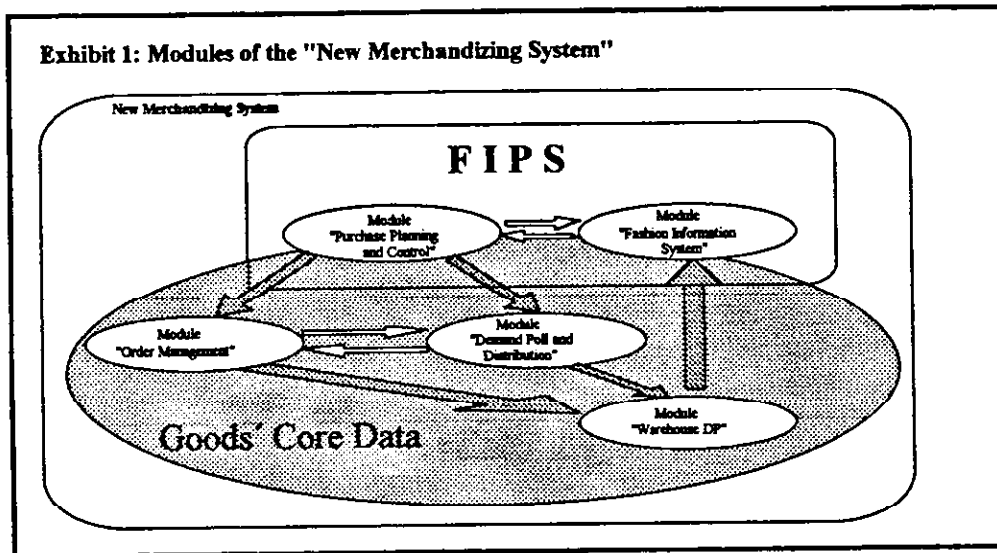
- Releasing department managers from non sales-oriented activities to concentrate on selling,
- Generating processing- and storage capacities for increased business scope,
- Benefitting from additional sales opportunities by offering complete and up-to-date assortments,

¹ Additionally, some standard goods are stored at the vendor's or wholesaler's facilities to be available within 48 hours. A predefined set of rules to manage these short-term reorders, known as "Quick Response Service", has been developed by the apparel industry.

- Improving purchase prices through greater importation,
- Lowering sales price reductions by adjusting purchases to correspond better to market requirements and by flexibly adapting predefined distribution lists,
- More cost-efficient handling of goods in the regional warehouses.

Main Modules

The "New Merchandizing System" consists of four operational modules and the integrated SIS "FIPS" (see Exhibit 1); together they cover the whole process from receiving goods to delivering them to the stores. To illustrate the interlocking of the modules within the system, each module is described below.



Module "Goods' Core Data"

The module "Goods' Core Data" was started in 1989 to provide common core data for staple and fashion goods since many departments purchase and sell both. It was introduced in 1991 for all fashion departments, and one year later for most staple ones. The main advantages of the new structure can be summarized as follows:

- Larger number of order positions per article group,
- Easy aggregation of order positions to articles,
- Automatic placement of core data,
- Only deliverable sizes in the system,
- Order positions valid until the last piece is sold,
- Instantaneous availability of logistical data to control the warehouses, and
- Automatic request of selected statistics and reports by establishing the core data.

Module "Order Management"

The module "Order Management" allows orders from most of the world, uniquely differentiated by goods' core data, to be placed directly into the system. All orders can be copied into the merchandizing module "Demand Poll / Distribution", thus significantly reducing redundant data input. In return, goods' core data and incoming volumes can be extracted from "Demand Poll / Distribution" into the order management module. Several reports, e.g. on order- and delivery dates, current inventory orders per week, orders without valid goods' core data, order inconsistencies, or cancellations, are run automatically and provided to the users.

Module "Demand Poll / Distribution"

The module "Demand Poll / Distribution" serves three main functions: (a) it provides an IT-supported poll of demand in the stores which is then transferred to the order management; (b) it can be used with temporary goods' core data, and is therefore applicable during early stages of determining the demand and sample preselections; and (c) it allows for the distribution of "pre-sales" to the stores. The distribution of volumes can be managed during on-line dialogs according to different criteria, such as "store-group" or "pre-defined distribution lists".

Module "Warehouse-DP"

The module "Warehouse-DP" controls the flow of goods in different warehouses: two main central warehouses, six large distribution centers, three regional centers for fashion, a storage facility for special sales goods or promotions, and an additional storage facility for eye-glasses. Characteristics of the application are: time-critical procedures, high transaction volumes, and the integration of several automated operational systems. The application supports the development, automatic updating and optimization of transportation and warehouse strategies for various categories of goods.

4. FIPS - the "Fashion Information and Planning System"

FIPS is designed as the strategic module of the "New Merchandizing System"; it consists of the module "Fashion Information System" and the module "Purchase Planning and Control".

4.1. FIPS Modules

"Fashion Information System"

The "Fashion Information System" is integrated into an overall information system for staple and fashion goods. It covers all information regarding sales, inventory, and sales price reductions in the stores, and ensures high data consistency (comparable data on all different hierarchical levels), fast and flexible data availability, and easy and secure data input. Standard reports are optimized based on (insufficient) user surveys, resulting in a large amount of information provided in these formats. Additionally, users can request special reports from the IT-User Support Group.

"Purchase Planning and Control"

In spite of all difficulties due to fashion trends, the planning of a season's assortment is crucial. Every six months, AAA's central buyers apply the FIPS module "Purchase Planning and Control" to plan the volumes of inventory, sales, and demand on the basis of various categories of goods. Purchase planning is integrated into the warehouse planning and AAA's planning of financial data, transferring volumes into turnover, gross margins, and profits.

4.2. FIPS Operation and Use

The large number of data transactions - up to 800 data requests access approximately 250 different applications every second - signifies that data transmission is a challenge that requires further optimization. A central buyer uses the system for three main decision categories: purchases of regular assortment items, purchases for special promotions (approximately 60 % of turnover in AAA's fashion retailing), and sales price reductions. The assumption of a maximum of 100 sales price reductions, 50 "promotion purchases", and twenty "regular assortment purchases" per month seems to be conservative. For those approximately 170 decisions per month, a central buyer at AAA receives, reads and analyzes about 280,000 information items.²

A department manager's daily routines focus on a different set of decision categories, namely sales price reductions, synchronization of incoming goods and sales, and placement of goods (successful items are placed in the front row). The respective figures for a department manager in an "excellent" store are about 460,000 pieces of information for approximately 120 decisions (20 sales price reductions, 50 synchronization decisions, and 50 special placements) and his additional information needs. Digesting this information is time-consuming. On the average, 35 central buyers responsible for fashion goods spend about 4,200 hours per year reading and analyzing the reports which they have requested. Sixty regional buyers need about 7,200 hours per year to go through the information, and approximately 900 department managers require 87,300 hours per year.³

4.3. FIPS Cost

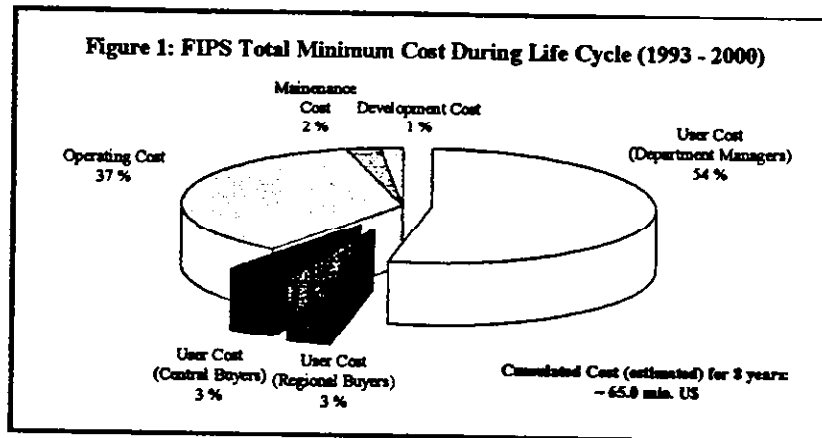
The estimated cost for FIPS is shown in Figure 1. Due to extended project schedules and steadily increasing functional requirements, the development cost has significantly risen to almost US \$ 900,000. However, considering that the estimated life cycle cost of the system will reach US \$ 65 million until the year 2000, development cost accounts for less than 2 %.⁴

² A piece of information in this context refers to one field or cell in a report (rows times columns).

³ Nevertheless, several central and regional buyers still use their intuition regarding fashion trends and generally question the value of a computerized decision support tool for fashion purchases.

⁴ The figures for the total "New Merchandizing System", which accounts for more than 30 % of the total DP costs, amount to US \$ 18 million development cost per year, and US \$ 65 million operational cost per year. Precise cost figures for the total FIPS are currently not available. However, the given figures raise the same issue of user and life cycle cost.

The major part of the cost is caused by the system users. Divided into the three groups "central buyers", "regional buyers", and "department managers", users account for US \$ 37 million until the year 2000, i.e. for about 60 % of the total cost. The more data are fed into the system, the more reports users request, and the more the system is used. To improve this situation, AAA has discussed (a) reducing the use of the system in terms of hours per day or reports available, (b) limiting the access for certain decision makers (e.g. department managers), and (c) targeting FIPS further towards different hierarchical levels and thus providing appropriate levels of data aggregation and decision support. The system provides the basis for passing the purchase responsibility and decision competence for most fashion goods to the central and partially to the regional buyers. Nevertheless, the department managers are trying to defend their terrain, arguing that they still need to buy "short-term" goods up to a certain financial limit to suit customer demands. Consequently, as long as purchase responsibilities are not fully centralized or regionalized, the roughly 40 department managers in many of the more than 100 stores request the same data as the buyers need for purchasing goods.



The operating cost of about US \$ 24 million until the year 2000 stems from two main sources: (a) the high number of data transactions per day and the corresponding data base storing and manipulating costs, and (b) the growing data communication expenses for the dialogs between the headquarters and the stores. The comparatively small budget for FIPS' maintenance and user support (US \$ 1.5 million until 2000) originates mainly from the IT-User Support Group.

4.4. FIPS Benefits

In staple as well as fashion departments, the number of goods' core data per department or article group has increased from 250 to 10,000, a figure which could not be managed without adequate IT applications. FIPS significantly increases the manageable range of products, and thus helps improve AAA's competitive position.

Lower sales price reductions, reduced inventory, more complete assortments in the stores and consequently higher turnover seem to have improved decision making. The realization of the new business and logistics concept would not have been possible without an appropriate system. Its modularity and the reconfigurability allow for an increased flexibility. FIPS can be adapted rather quickly to the rapidly changing business needs, and thus helps improve the market position of a large department store chain like AAA.

5. Organizational Impact based on FIPS

FIPS has considerable impact on the user organization and increases the strategic importance of IT for AAA's business on several levels: it changes (a) the business processes underlying the purchasing and sales functions, (b) the patterns of function distribution within the corporation, and (c) the role of AAA's IT-User Support Group.

5.1. New Business Processes Underlying the Purchase Function

FIPS supports adjusting the pattern of purchasing decisions to new business needs by improving the link between different functional processes within AAA and between AAA and its suppliers. Mainly due to the pressure to provide low-price items and stable prices, pre-orders are increasingly placed abroad, whereas late orders during the seasons are placed mainly in Europe. The long time-span between ordering and payment on the one hand, and sale of the goods on the other hand, however, increases economic and decision risks: additional working capital is

used and the danger of a misjudgment of fashion trends increases. Given the changed planning horizon for buying decisions, AAA faces a trade-off between a longer planning period and faster fashion cycles.

5.2. Strengthening Purchase versus Sales Function

FIPS causes a shift of purchase functions between different positions in the company. Traditionally, purchases were placed both centrally and decentrally. FIPS shifts buying competencies gradually to the headquarters, and thus leads to an increasingly centralized purchasing function. This centralization can be justified by

- Economies of scale in ordering goods by bundling buying volumes,
- Complete, better controlled assortments in the stores and thus increased turnover and performance,
- Improved purchase planning and automatic allocation of goods to stores reducing the necessary stock, and thus increasing AAA's cashflow, and
- More efficient flow of goods to stores by store-specific shipping scheduling.

5.3. Changing Role of the IT-User Support Group

For a company of AAA's size, appropriate data gathering in the stores, data processing and storage, and the meaningful output of lists and reports constitute difficult tasks. While the pure gathering of data is a question of implementing advanced scanner or chip-card technologies, the challenge of intelligent data aggregation cannot be solved by technical means only. The growing amount of data available has changed the capabilities required from the users. A necessary core ability is the knowledge to extract relevant information from the daily produced data for making purchasing decisions. The IT-User Support Group has to increase their efforts to train the purchasing staff to use the system efficiently and effectively. Furthermore, they collect, analyze, weigh, and integrate the various user requests for system changes, adaptations, and add-ons.

6. Potential Improvements

The integration between FIPS and the other modules of the "New Merchandizing System" provides a technical platform to enhance the integration between business processes and their IS backbones. Nevertheless, price category reports and the level of detail of gathered information provide opportunities for further improvement.

Price categories include regular goods, sales promotions, and sales price reductions. Due to high-price reductions sales seem to be higher in low-price categories (which then include the originally higher priced goods). Therefore, the central buyer purchases increasing volumes of goods in the low price ranges, "ignoring" profit-decreasing price reductions.

For many fashion goods, labels with size and color information are too expensive. In these cases, even after having scanned the sold items, the central buyer does not know if there are sizes or colors missing in some stores. Therefore, he is unable to restock the store adequately. On the other hand, in some cases detailed data are gathered although customers hardly seem to differentiate to such a degree.

Another issue is the appropriate number of different systems, i.e. the degree of customization to meet specific business needs, daily routines, and personal preferences. On the one hand, each system should be as specific as possible to meet the business needs of certain decision makers, e.g. central buyers for fashion goods. On the other hand, common development-, eventually hardware-, maintenance- and support costs trigger the idea of an integrated system for the whole department store chain. AAA started out with nine separate systems, and is about to integrate the system for staple goods into the more advanced one for fashion goods.

7. Further Development Opportunities

7.1. Extension of Scale

The scale of the system relates to the frequency and the volume at which transactions are handled. An increase in FIPS' scale can rise from three main sources: (a) additional workload from mergers and acquisitions, (b) extension of AAA's geographical scope of business activities, and (c) increase in the range of products (numbers of articles listed in the system) due to a further integration of AAA's nine current merchandizing systems.

7.2. Extension of Scope

The dimension of scope relates to the functional range the system can perform. Again, three extensions can be differentiated: (a) additional functionalities regarding the currently performed tasks, (b) backward integration (already discussed under 2.2), and (c) forward integration.

Additional Functionalities Regarding Currently Performed Tasks

User propositions for additional features include system support for budget-based planning and the preparation of promotions, automatic updating of vendor accounts, and proactive advertising impact control. Moreover, FIPS tracks sales and follows up on the productivity per product group.⁵ However, in spite of the huge availability of data, the system does not also allow for detailed reviews of line and item profitability with vendors. Furthermore, the system does not yet support the transfer of any order information to the stores. Each month, letters are sent to inform department managers what they can expect.

Forward Integration

Forward integration could occur within AAA's business system and beyond the company's borders. In the first instance, it would include specialized marketing and market research functions in the system. The system provides a large data base for retrieving selected information for various marketing purposes. However, the challenge remains to have the "right" questions in order to get valid results from the data. Forward integration beyond AAA would most likely be based on technical advancements in the fields of telecommunications or multimedia, or on the integration of the internal and external value chains. Therefore, several technical advancements will foster AAA's extensions of scope.

On-line connections with offices abroad have already been established, while those with vendors are still in the planning stage. The introduction of Electronic Data Interchange (EDI) with vendors will decrease the cost per transaction by avoiding media disruptions, and will further improve the integration of warehouse logistics, transportation and administration. On the other hand, it will limit flexibility and needs considerable up-front investments from AAA.

7.3. Future Challenges

FIPS will also face challenges which stem from AAA's corporate strategy. AAA has already acquired a large mail-order company and is currently preparing a merger with another large department store chain. Whether and, if so, how FIPS can support those different growth strategies, still needs to be investigated. The gap between the desirability to combine AAA's FIPS with the SIS of the acquired corporation(s) and the technical feasibility of such a system merger has to be bridged if AAA wants to take full advantage of the potentials created by its merger and acquisition decisions.

8. Outlook

Having assessed the strengths and weaknesses as well as the opportunities and risks of FIPS, and realizing the technical, financial and political constraints to the system's development, top-management is aware of several opportunities to further improve and develop the system. The CIO says,

"The new technologies (relational data bases, data communication) and the new system will provide important options for future solutions to business challenges: On-line dialogs and graphic interfaces will make information more easily accessible and readable. Menu-driven applications will allow users to determine themselves what their reports should look like. Direct data exchange with vendors will lead to even faster and more differentiated reactions to market requirements. Finally, the customer will be able to access the information, to check assortments, specific items and their sales locations, as well as to place specific orders."

References

- AAA's Annual Report 1992
- [Szyferski; Klein, 1993] Norbert Szyferski; Stefan Klein: Informationslogistik und virtuelle Organisationen, in: Die Betriebswirtschaft, No. 2, Vol. 53, pp. 187 - 208.
- [Consulting interviews] Numerous interviews of AAA's top-management and local staff during a consulting project.

⁵ The latter is extremely complex since prices can differ from store to store and from day to day.