SVEA -

A user driven and data driven

system development method

by

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SVEA - which in Swedish stands for "Strukturerad **VE**rksamhetsinriktad **A**rbetsmodell" can be translated to a "Structured Business Oriented Methodology".

The **main strength of SVEA** is speed in development resulting in higher quality EDP-systems.
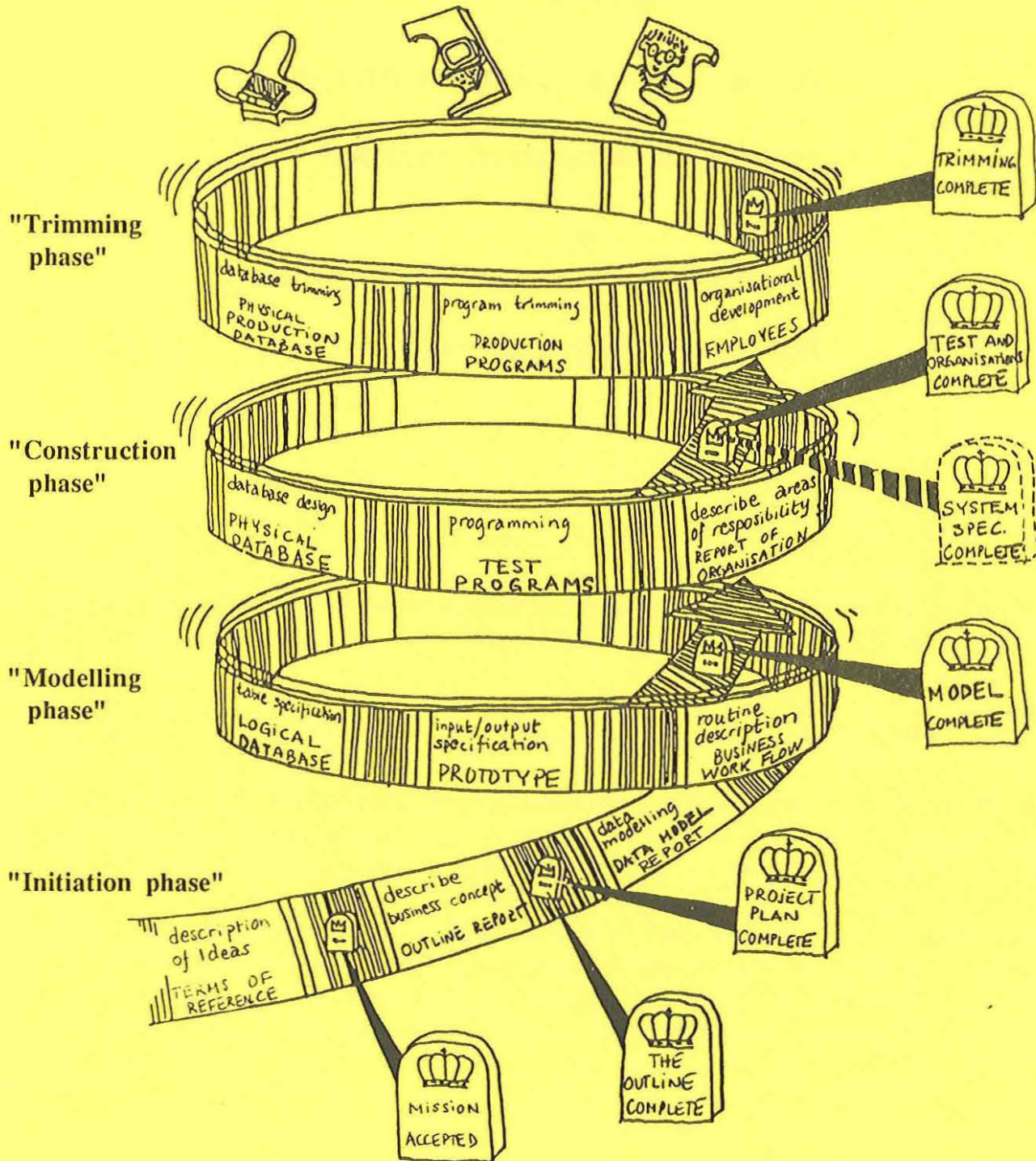
By **user driven** we mean a method where users take active part in the development. The essence of the working method is seminars, where the users knowledge of their business is transformed into business models describing the data, the routines (both manual an computerized) and the organisation.

By **data driven** we mean a method, where the data definitions and the data structures build a stable foundation for both databases and programs. The method builds on the philosophy that the basic data structure in a company is stable while the information requirements and the organisation will frequently undergo changes. It is therefore important that databases and EDP-systems can comply with changes.

A prerequisite for high quality system development using a CASE tool is that a systems development method is firmly embedded in the organisation. It is important that analysts do not hide behind a tool and expect the tool to do all the communication for them.
SVEA is a method which focuses on the user. SVEA facilitates the interaction and communication with the users securing a thorough analysis of business requirements.

The SVEA model

"Trimming phase"

database trimming
PHYSICAL PRODUCTION DATABASE
program trimming
PRODUCTION PROGRAMS
organisational development
EMPLOYEES

TRIMMING COMPLETE

"Construction phase"

database design
PHYSICAL DATABASE
programming
TEST PROGRAMS
describe areas of resposibility
REPORT OF ORGANISATION

TEST AND ORGANISATION COMPLETE

SYSTEM SPEC. COMPLETE

"Modelling phase"

table specification
LOGICAL DATABASE
input/output specification
PROTOTYPE
routine description
BUSINESS WORK FLOW

MODEL COMPLETE

"Initiation phase"

data modelling
DATA MODEL REPORT
describe business concept
OUTLINE REPORT
description of Ideas
TERMS OF REFERENCE

PROJECT PLAN COMPLETE

MISSION ACCEPTED

THE OUTLINE COMPLETE

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Change of roles

By tradition all work to define system requirements and system specifications have been run by EDP-experts. Too quickly and too early the solutions have been described in technical terms causing problems for the user to understand whether the system is reflecting his business or not. In SVEA logical models of data and business work flows are created and then transferred to technical solutions.

The role of the EDP-expert has shifted from interviewing the users, to becoming consultant/advisor guiding the users in describing their business and specify their system requirements.
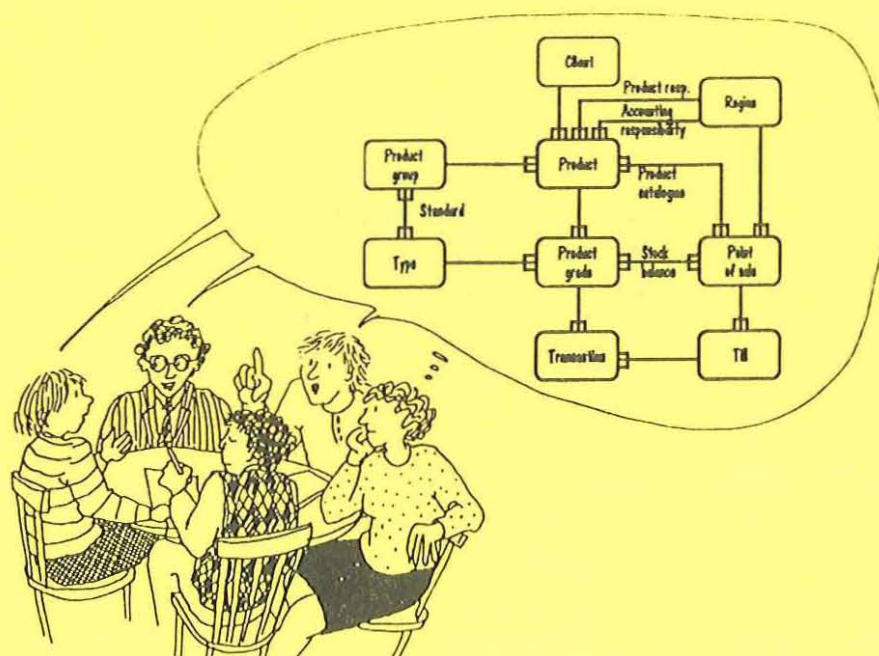

Expert solutions are replaced ....   *.....by user solutions with expert support*

To achieve this change we need simple models and working methods supporting an open and creative discussion between the project members.

But still the models must be stringent and unambiguous; which means that a model should only be possible to interpret in one way.

Systems development according to SVEA can briefly be described as

The Initiation Phase consisting of ...

The Outline step

This step can be described as an intensive pre-study.

The main purpose is to find the scope of the project by defining goals, restrictions, problems and alternative solutions.The major part of the work takes place during a two day seminar attended by users from the part of the business involved in the intended project.The work and discussions are stimulated by a couple of easy-to-use tools and the result is documented in a report.

The seminar must be well prepared and followed-up. The total Outline step takes two to eight weeks depending on project size and complexity.

The data modelling

This is a two day seminar-activity involving users in describing the structure of data in the business. As earlier mentioned SVEA is a data-driven method giving high priority to data and the information resource in the business. The description technique in the data model is stringent giving the EDP-expert an exact model of how data should be stored in the the database. To create a stable high-quality data model is, however, not always an easy task. There are two main reasons for this.

First, data is normally not well defined and consistent in the business. Two persons mean different things by the same term, i e order could mean customer order, production order or purchase order. It is also very common that the same data, i e customer is identified differently from user to user.

The second reason is that data and the information resource are very abstract in its nature and therefore difficult to describe and define.

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The data modelling seminar starts with a 3 hour education of users including a group task. The remaining part of the seminar (12 hours) is intensively used to create the data model for the business concerned.

To increase quality and stimulate discussion the participants are divided into two well balanced groups of 5 to 7 persons in each group. The two groups work individually for one hour and then their results are compared to reach one common data model. The groups are separated again, and the work goes on step by step...
The seminar are guided by two experienced analysts.

Data modelling also includes creation of tables to which the various data elements are allocated according to fixed rules. This process is called normalization and is developed by the English mathematician Ted Codd, giving high stringency to the model.

The rule of thumb is that data should be placed in the table where it is dependent on
    the key
    the whole key
    and nothing but the key.

As we will see these tables are essential in the SVEA model.


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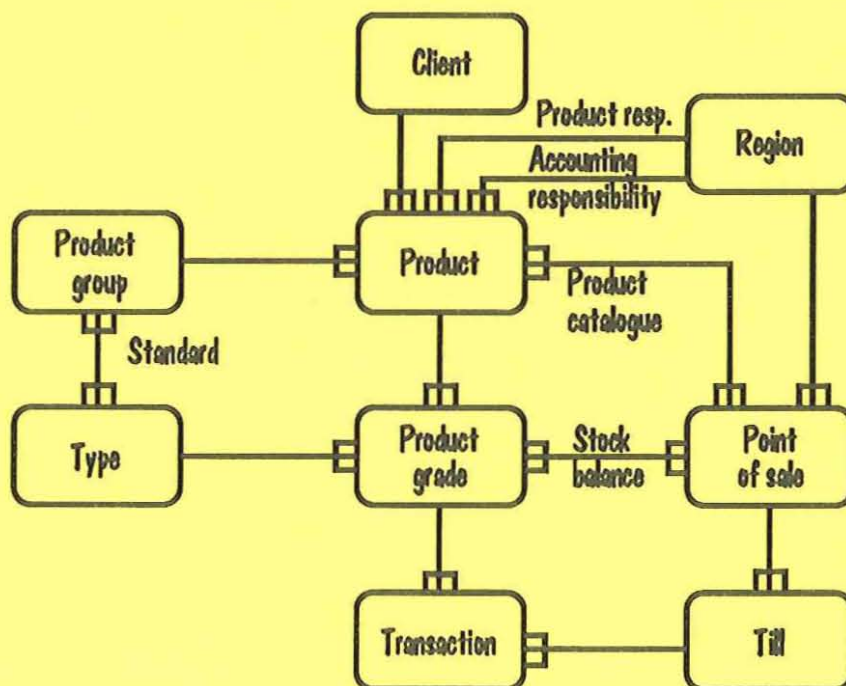
The Modelling Phase consisting of...

The Routine Description

Now we concentrate on illustrating the future "business work flow" and describe activities, documents, responsibilities etc. Here we describe how the EDP-system should cooperate with manual routines. It is also useful to describe the dialog at the terminal.

It is of the utmost importance to realise that a computer system cannot guarantee a success by itself if the present routines in the organisation are poor. However if the "work-flow" in the organisation is reviewed together with the new functions of the computer system we stand a much higher chance of success.
The users are of course actively involved in describing the status today and discussing and analysing future routines. Also here the essence of the analysis takes place in seminars, in this situation we invite 5-6 users to each session.

The "routine description method" has its origin in Norway. The combination of a few easy-to-learn symbols, reprinted on note-pads (easy to attach and move on the white board), makes the description both simple and effective.
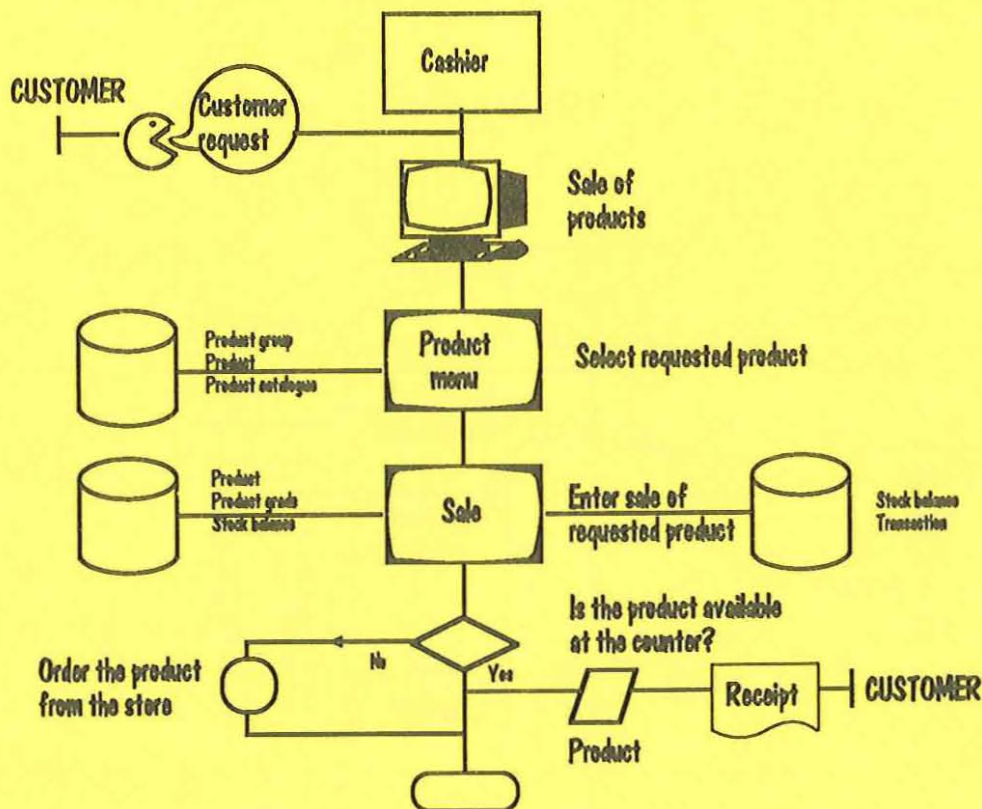
In each routine the required data is allocated to the table concerned. These tables are exactly the same tables as earlier described in the data model. If a table is missing we simply add the required table in the data model.

As these tables already are described the routine description process is much easier and much more stringent. The routine description is **data driven**!

We now have tables from the data model and tables from the routine description. An important step to reach high quality is to verify that these tables are identical.

We may find out that a table is missing in the data model. Or the opposite that a table in the data model is not used or that is has not any routine to handle it.
Another important purpose of this verification is to complete the tables. From the data modelling seminar we have identified most tables, but not necessarily all data in each table.

Input and Output Specification

Now all screens and reports identified in the description of routines must be described in detail. These descriptions clarify input/output data in the various screens/ reports together with processing rules. Here we also specify frequencies for accessing screens/tables and our requirements for response times.

Table Specification

After establishment of tables in the data model we have to complete all tables with data. The documentation from the routine descriptions together with the specifications of reports and screen layouts are required to complete the tables. Another important activity is to standardize all data names and to enter relevant information about data elements into a data dictionary.
Before creating a table it is important to coordinate/check with existing tables in the business. We should not create a new table if an existing table can be used.

Prototyping

SVEA strongly supports prototyping. In the Modelling phase of SVEA it is recommended that a prototyping tool is used to clarify the system functions. In the routine description step the dialogue at the terminal is described in an simple way. But it is still only a model. By using a prototyping tool it is possible to give the user an early real-life-picture of how the system will work after implementation. It is easy to adjust the prototype, if the user find out in the simulation that something is wrong or can be improved.

Easier to describe.....

......and to react

However, it is important to stress that it is a prototype, and not the final system. For some application the remaining work after prototyping will be insignificant. In other applications a lot of work concerning security, backup, response times, programming and database design still remains to be done.

The Construction Phase

Now the physical databases will be designed, programs will be specified/coded/tested and suggested changes in the organisation will be outlined in detail. The way the work in this phase is developed will very much depend of the computer environment.

The Trimming Phase

Here the final trimming of the database, program/system and organisation takes place before the system is implemented.

Acquisition of application packages

In most companies the backlog in system development is several years long and tends to increase. One way to reduce the backlog is to purchase system packages for standard applications and instead concentrating the in house resources on developing the EDP-systems most critical to the business. When choosing the best package on the market the normal way is to study the dialogue and the reports produced in the package.

The most important factor is however often overlooked i e the database and the data definitions. To adapt and change the dialogues and reports are an easy and cheap task compared to the change of data structure or data definitions.

The best way to make this analysis is to compare your own data model with the data model describing the database in the package.

Experience of the SVEA model

Several investigations state mistakes discovered early in the development process are easy to correct, early mistakes discovered late are however very expensive.

Interviews with experienced user of the SVEA model (mostly in large companies) can be summarized as followed:-

* SVEA has an advantage in stressing high quality in the early definition phases.
* SVEA promotes agreement and commitment from and between users
* SVEA is outstanding in its simplicity - you get to results rather than producing heavy volumes of documentation
* SVEA´s backbone is user interaction resulting in stable data base structures built on Business Knowledge.
* SVEA promotes consensus around the way business should be operated and consensus on concepts and interpretations.
* SVEA is speed without loosing quality!

SVEA takes advantage of and is enforced by the latest development in information technology, such as relational databases, prototyping tools and development tools such as CASE.