The purpose of this paper is to discuss the evolution of Vynide’s data warehouse. As everyone knows, evolution is an on-going process, with adaptations and changes being made as and when the environment changes. The computing environment at Vynide has changed a number of times over the years, and is currently in the middle of another major change.

It is interesting that, long before the term or phrase ‘DATA WAREHOUSE’ was coined, the concept had already been embraced by Vynide, using SAS® System Products. Therefore, even though it is a relatively new concept, the SAS System has been providing all the facilities for data warehousing at Vynide for quite some time already.

About the company:
Founded in 1948, Vynide is a medium-sized manufacturer in the Plastics Industry, and has recently become a subsidiary of the newly formed POLIFIN group in South Africa. The company has two factories/sites - the largest is in Somerset West in the Western Cape, where the head office is also situated. The other is in Sasolburg in Gauteng. There are also sales offices in various parts of the country.

Vynide is not really in the market to produce finished end products as such, but rather produces the material used by converters. Vynide products are sold into various trades/industries/markets, as well as being exported. Some examples are:

- Automotive trade - panelling and seats for cars
- Furniture - synthetic leather
- Protective Clothing - raincoats
- Covers & Liners - tarpaulins, shade nets, portable pools
- Bookbinding - plastic files
- Also footwear, rubber ducks, Self Adhesives (Contact, Wallpaper), etc.

Vynide has a customer base of 1,000+ Customers, and a product list of 4,000+ Products. These 4,000 products are, however, made up out of about 900 base products. Each variation of a specific material, be it in thickness, colour, width, type of emboss, etc., is treated as a separate entity in the transactional systems.

With this picture of the business in mind, we can now look at the computerised systems at Vynide.

Past:
Everything had been done manually from 1948, up until about 25 years ago, when the very first computerised systems came along. At this stage the mainframe was installed with various different systems designed to make the company and it’s staff more productive.

These systems were:

- SDS - An order processing system, but with no accounting or statistical capabilities.
- FIST - Financial and Statistical system, but the statistical capabilities were very limited.
- BU CO - Budget raw material CO sting
- MIS - Marketing Information System for statistical reporting on invoiced sales to the Marketing Department

In addition to the above mentioned systems, there also was the Supply Purchasing System, the Production Planning System, and a General Ledgers System.
These systems were designed to simplify data entry - i.e. get data into the systems. However, there was no way to produce integrated information and reports out of the different systems. Then the Marketing department took the initiative and started using SAS System products on the mainframe to integrate data from these various systems and to produce information in the form of batch reports on a regular basis.

This was the start of Data Warehousing at Vynide.

This (very informal) data warehouse was basically just a collection of SAS datasets on the mainframe, with no specific structure or standards. There was some degree of summarisation, and historical information was accumulated, but not much more.

Present:
In 1992, the decision was made to introduce SAP R/2 at Vynide.

This was a major step forward for the company. All the old legacy systems could be thrown away, as everything was now being integrated into one huge system. All the departments were working off the same database, and theoretically there were no more 'islands of information'.

But --- SAP was still a transactional system (OLTP). It could produce reports, but it didn’t provide the marketing department with the required information. The company was data rich, but information poor.

So there was still a need for some kind of information delivery system. Vynide had to cut costs, though, and looked to rightsizing - moving the information system away from the mainframe and onto a smaller platform.

There was just one answer - the SAS System. The data warehouse and suite of batch programs could be moved from the mainframe to a UNIX platform (Vynide’s choice was the IBM RISC/6000 with AIX as the operating system) with relatively little pain. Some programs ran with none of the source code changed, while others required minimal changes.

With the move to the RISC/6000, the decision was made to formalise / standardise the data warehouse more, and to expand it somewhat.

The historical product/customer information was kept to a window of 5 years. For information older than this, only highly summarised information is kept.

The data is now much more structured, with standard naming conventions.

The RISC box automatically signs on to the mainframe (weekly and monthly), pulls down flat files produced by ABAPs in SAP, reads the data into SAS, scrubs, cleans and summarises it, and populates the data warehouse.

70%-80% of requests were (and still are) for the same kind of information. A point-and-click menu system code-named SMART (Sales & MARkeTing System) was developed under OS/2, and ported to the RISC box, making it available to the marketing department on a small network - i.e. we were starting to empower our users. The other 20% of requests were (and are) still ad-hoc, and might be added to the system if they become more regular. (Eg. graphical reports.)

As the information became more readily available, and as the historical information accumulated, other departments began realising the benefits of the data warehouse and requests for additional information started coming through.

Future:
Because of the increased awareness of the benefits of the data warehouse, dramatic changes in the user requirements have taken place. This has necessitated a fresh look at the data warehouse.

Up until now it has been focused almost entirely on subject areas of interest to Sales and Marketing, such as region, customer, and product, but now it needs to expand and grow.

We do not have much history for other applications areas, but at least one can start accumulating history NOW for the future. I believe it’s never too late to start.

Management requires an Executive Information System which gives an overall view of the business - stock management, order bank, production planning, as well as the existing sales & marketing information. All this must now be incorporated into the data warehouse.

The Technology department, which is responsible for Research & Development, requires an interface to SAP, but at the same time they require a system which can be used for Project Management, Design of Experiments, Statistical Analyses, etc.

Similarly, the Quality Assurance department requires a data entry system and Laboratory Information Management System. Currently all test results are kept in a card filing system, and quality control graphs and charts are produced by hand. All of this will now be automated, with links to product and raw material master files in SAP. Some customers also require QC reports to be sent to them, which can be done automatically from such a system, allowing Vynide to better our customer service.

It is important to note that in both the Technology and QA areas, we will be deviating somewhat from the normal definition of data warehousing. In a “pure” data warehousing environment no data entry or editing is allowed. In these two areas, however, data will be created, and we are therefore looking at data entry into a DATA STORE, with links to the data warehouse.

And last, but not least, we have SAP R/3 looming on the horizon. Because of this imminent change, we have spent the last 6-8 months installing a Local Area Network, and training all our users in Microsoft Windows and MS Office. We are also looking at ultimately hooking into a Wide Area Network, and making use of electronic messaging, EDI, etc. This in turn means that we need Information Systems that will fit into this new environment. We see no need to move away from the SAS System, because it can interface with SAP R/3 and the Microsoft environment. The SAS System can also handle things like DDE, OLE, ODBC, e-mail, etc.

The SAS System also has extremely powerful application development tools, especially in the new Version 6.11. Because we have the in-house SAS knowledge, we can develop our own applications to cater for all the requirements of the various departments, and provide our own in-house support.

In addition, SAS/EIS® software ranks among the top EIS products in the world today. We are aware of the fact that SAP also has an EIS in R/3, but SAS/EIS is available to us today. We will satisfy the current demands with SAS/EIS, and when SAP R/3 is installed at Vynide, we will re-evaluate.

Getting to the Data Warehouse itself, we have no need to move to another database. Our current Data Warehouse is very small compared to other companies’ (about 1 GB), but we foresee that it will grow to about 3 GB within the next two to three years. The SAS System provides us with all the features we require of a database, ie. SQL, Indexing, Compression, Security, etc.

The envisaged setup at Vynide will be as follows: the transactional system (SAP R/3) will reside on a DEC ALPHASERVER with OSF/1 as the operating system. From there, we will automatically, and at regular intervals, populate our enterprise data warehouse on the
RISC/6000 through what one can call our ‘data warehousing system’ - cleaning, scrubbing, summarising, adding value to the data. Here we will make use of distributed processing, as we will have SAS on both machines. One would typically subset the data on the DEC ALPHA before moving it across to the RISC/6000, where it would be summarised, as one would not want too much processing taking place on the machine which also runs the transactional systems.

The enterprise data warehouse will be used to produce weekly and monthly batch reports, and to populate various data marts on the Local Area Network.

With our specific setup regarding the networks and SAP, we have thought it best to move the information required closer to the users in the various departments. Hence the data marts on the Local Area Network. But users will still be able to share information between the various data marts - they are not entirely separate entities. As our file server runs Windows NT, we are in the fortunate position to be able to make use of all the client/server features available in SAS. Currently we have 3-way SAS communication going (NT server - RISC/6000 - PC user), and ultimately we will have 4-way communication, once SAP R/3 is up and running.

In this way we will bring information and power to the desktop, assisting our decision makers in running the business.

Thea Bruwer  
Management Information Officer  
Vynide (Pty) Ltd  
Private Bag X105  
Somerset West 7129  
South Africa  

e-mail: itdept@iafrica.com

SAS® and SAS/EIS® are registered trademarks of SAS Institute Inc., Cary, NC, USA