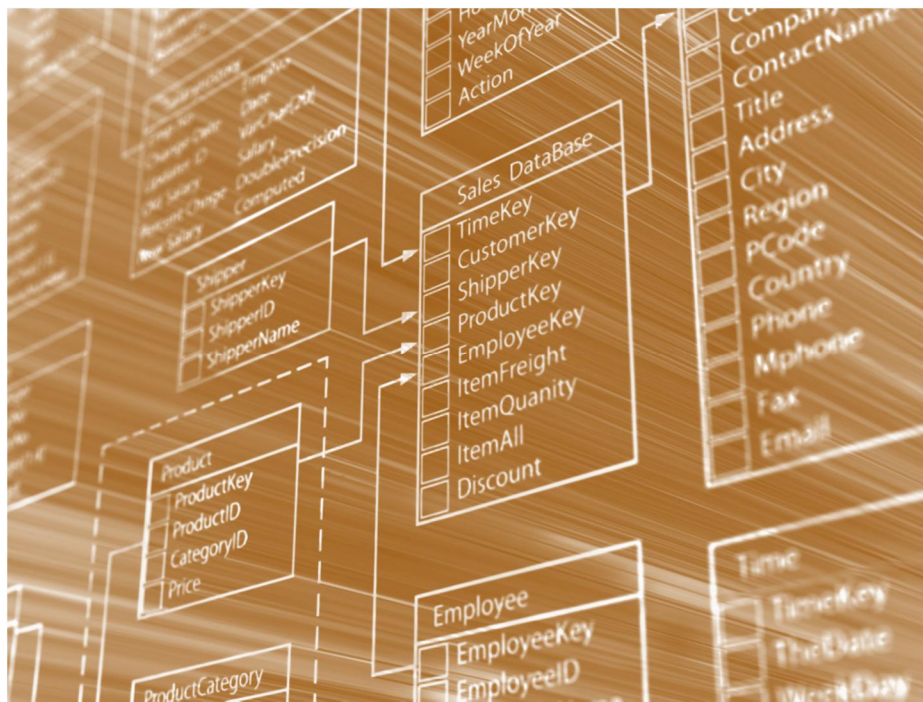


Surviving an ERP data migration project

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Purpose for this paper

The ambition with this white paper is to describe the principles and pitfalls with data migration activities connected to the replacement of an ERP system. Some of the sections in this paper are only relevant to companies delivering projects and some sections are more general.

The scope

A sound starting point for all ERP data migration efforts is to keep it simple and to keep the amount of data to a minimum. This is easier than it sounds since most data underpins some process or KPI vital to the company. In this white paper we will try to narrow the datamigration scope to an absolute minimum.

The complexity of data migrations range from the simplest form with one legal entity with no organizational change and good and non-overlapping datasets to consolidation of multiple ledgers with varying accounting logics and multiple AP and AR with overlapping customers and vendors. Further, if you also have projects and/or inventory articles which needs new unique identifying numbers in terms of project and/or article numbers you have a challenging and quite time consuming migration ahead of you.

The most important focus areas in a data migration

Begin with the end in mind. The statements below are collections from practical experience and struggles through a number of ERP projects. Migrations are NEVER on cruise control and always merit serious attention and paranoia.

Find the right migration team

- Make sure to get a line up of the owners of the data at the beginning (6-12 months before go-live at least for a large ERP project) of the migration project
- Make sure the owners of the data understand that they own the data and that they will sign off on the migration at the go-live weekend. This includes developing a Migration strategy document to be approved by the CFO before any test migrations commence.
- Make sure to train the data owners in exactly how the new ERP works AND start by having an open dialogue about the frustration they will feel when they do not find info like they are used to and how this frustration is not easily met by the migration team since no one has the right answer to their questions. Have an open dialogue where the PM for migration opens each training and validation meeting talking about this frustration and what actions are required to move in the right direction.
- Make sure you have technical resources assigned that both can analyse how data is imported into the new ERP as well as understands how to extract data from existing systems. SQL proficiency is what you need to find as well as accounting understanding out of a system perspective. This is hands down the hardest competency to come by in an ERP project. This is the first resource you want to find when starting an ERP project.

Find out the exact data requirement

- Have involved ERP process experts to document exactly all data necessary to run each process in the new ERP. Focus on the necessary data, not the nice to have. (eg meta data is not process critical)
- Have users in the current (old)system add necessary data requirements that is needed to carry out the process in the real world.

- Map everything at the beginning. Do not leave anything out that is part of the migration strategy.
- Have the ERP process experts map the old ERP fields into the new ERP fields, eg "adress field 1" -> "adress field primary"
- Have a pinpointed finance employee map old ledgers into new ones. Do this well in advance of any test migrations.
- If an organizational change (system wise) is part of the new ERP, make sure that organization stays the same through the entire migration project. Have the one responsible for the organizational change map everything, eg cost center X -> cost center Y and cost center Z. Do not expect 1:1 mappings but that there will be 1:many or many:1. Rules need to be created for this kind of mapping. Since these rules affect all performance reports after go-live the CFO need to approve these rules.
- Identify which automatic accounting transactions that exist today that are replaced by other procedures in the new system (eg cost allcations). Put actions to retire these procedures in the old system and create a "To-do" list together with the accounting department for their benefit once the new ERP is live.
- Make sure you testrun the processes in the new ERP on migrated data, some mapping mistakes may show up where either you need to change the mapping or change the configuration of the ERP.

Inform of migration limitations

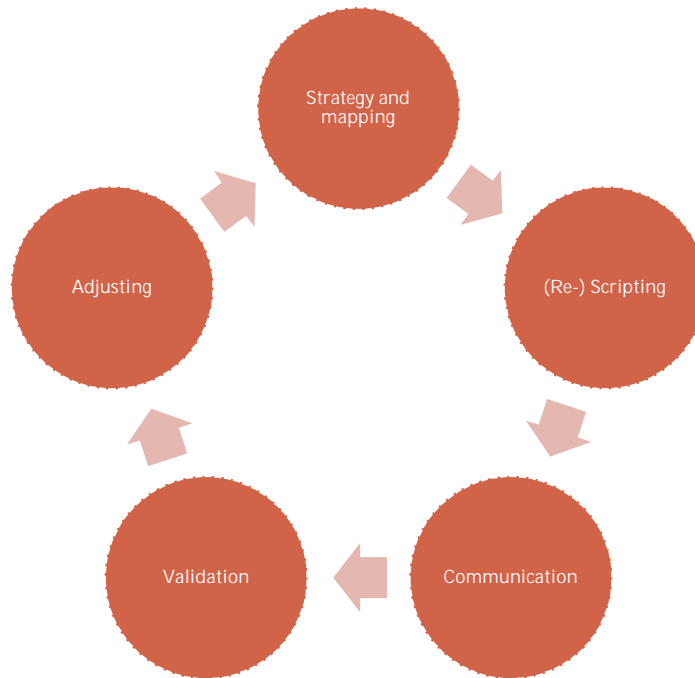
- Be sure to manage expectations, a lot of people may expect all current data to be migrated. Kill their expectations. A lot can be kept in the old ERP if there is a possibility to keep it running with viewing rights. ONLY data that is required to run the processes in the new ERP should be moved. Make sure that you visualize the migrations scope in pictures in order to manage expectations. The visualization is basically a picture of what has been decided in the data migration strategy document.
- If you are changing the accounting principles as part of the migration be sure to have a dialogue with the external auditors for the company. At a minimum the auditors always should get a copy of the migration strategy document and also your chosen validation strategy and template for logging identified migration errors.

Monitor progress

- Datamigration is a once-in-a-lifetime thing so most people fumble with how to approach it. Be sure to monitor progress and if necessary replace participants. Some may have hang-ups on datapoints that "has always been important" but will not be migrated. Make sure to quickly get decisions from the CFO about routes to pursue or not.
- Expect datamigrations to require at least 3-4 trial runs, usually more. Plan for it in detail. One trial run with modifications to the extraction query or transformation scripts may take up to 2-3 weeks to implement and a full transfer of data may take 2-3 days for a data intense businesses so +2 weeks is the minimum between new migrations. Do not underestimate the difficulty in scheduling validators.
- Best practice is to have a plan for validators over a couple of months and stick to it. Have a change process in place where perhaps not all errors in the previous validation log are fixed in order to keep to the schedule. Be transparent with validators about what has been fixed in the validation error log.

- Be prepared to have the final-final validation at the go-live weekend. Have a detailed validation plan incl. what items that will be validated in each, by whom and what form of validation reports from old system that is needed to be able to sign off on the validation result.

The migration iteration cycle is illustrated by the picture below:



Some thoughts on ledger specific datapoints

Accounts Payable

The Accounts payable department needs data to keep track of which liabilities have not been paid. They do not need to know what has already been paid. But, as is custom today, a liability does also have the interim status of "payment instruction sent to bank but payment not yet confirmed". So usually you need to migrate all open payables, both the ones where payment instruction has been sent and the ones who has not yet met their due date. This can be more flexibly handled if the AP dept. account manually for bank accounts. Then you can let your payables run out in your old system which simplifies your migration process.

If you employ halt codes on open payables you most likely want those migrated as well in which case you must also create a translation from old to new halt codes.

If you strive to maintain a link between an open payable and a project number, in case projects are invoicing services rendered, you need to be careful about in which order you transfer data since the new project number generated in the new ERP must be attached to the open payable once it is imported. This may make it necessary for you to extract number series to attach to your data set before importing them and switch of and on the numbering mechanism in the ERP. Study this carefully with the ERP vendors instructions for import sequencing and transaction logic.

Information that is usually needed at a minimum in an open payables import:

- Old verification number (since payment instructions sent will be matched at reconfirmation of payment to the old number, the new verif number did not exist)
- New verification number is generated when the payable is entered (if automatically, can by choice be set to the old number but this may create issues)
- Amount
- Currency
- Issue date
- Due date
- VAT rate
- Vendornumber (this is typically a new number since the numbering of vendors is typically done at import of vendors)

The order in which things will be done at go-live in AP registers

If you are going to migrate open AP entries, at some date before go-live you will need to block the old ERP from new transactions. This will give you the following process:

1. Que up vendor invoices at a certain date
2. Approve all vendor invoices already entered into old ERP
3. Create and send payment file to bank
4. Import and book payment reconfirmation files
5. Close the AP for further transactions and retrieve an AP report from old ERP to use as validation in new ERP.

A special note on transition problems after go-live in the AP department

The normal case in an ERP project is that the Chart of Account changes, not only the numbering, but also the purpose and logic behind the use of certain accounts. Coding vendor invoices in a large company is a transaction intense activity where the clerks running this process usually knows the account logic and numbering by heart. After go-live they don't. Processing speed may slow down dramatically for a period of time. Acknowledge this transition effect and staff for it.

Accounts Receivable

For an open Accounts Receivable it is vital to have the link between the old and new verification number since this is what makes you able to verify payment receipt in the cash journal file from the bank (if you receive payments on file). To make sure you have captured all aspects of this it is good to have consulted with the staff in the Accounts Receivable department first.

Information that is needed:

- Old verif number
- Payment reference number
- Issue date
- Due date
- Amounts (net of VAT, VAT and incl. VAT)
- Currency
- Customer number
- VAT rate and type
- Halt code

- Reminder number (if reminders has been sent from old ERP)
- Cash collection date (if the company employees cash collection services)

If the AR department uses the current ERP as diary for overrun receivables make sure they know you will likely not migrate those so they need to save those in a separate file of their choosing. Otherwise they will lose track of their customer dialogue.

Fixed assets

These registers typically can be quite messy insofar as the contents of the registers do not correspond to reality. It is not uncommon to find fixed assets in the books that no longer exists. It is also not uncommon to find assets that exist in reality but have not been activated on the balance sheet. So, an audit of what actually exist may be the activity to start with for fixed assets. Prepare an excel file that corresponds to the file import structure for fixed assets and hand to the one responsible for the fixed assets register.

Once having concluded the actual inventory of fixed assets it is time to identify what depreciations that have been accounted and that remaining life is logged in the old ERP. An additional complexity arises if the accumulated depreciations have been for example double-declining and the new accounting principles are to have straight-lined depreciations. One piece of general advice in these circumstances is to actually switch accounting principles in the existing system before the migration as it simplifies the mapping and also the subsequent validation of data. Obviously switching means the tax statement for the migration year may be messy and that the one completing the revenue file to the tax authorities will have to do the tax calculations in a side register before booking them in the GL.

There are a number of other areas that needs to be analyzed and the approach to be decided. To mention a few we can point to

- the challenges with activated assets also being in an equipment rental subledger where each piece has a charge rate
- we may have fixed assets that are grouped together into combinations to form one piece of equipment (eg engine and a hull makes an excavator)
- we may have depreciations that are not done regularly which means depreciations are temporarily lacking in the GL
- we may have depreciations being charged to project numbers that will no longer exist post go live so you need to change the accounting logic in force in the old ERP

A thorough analysis of the situation should be done well in advance of any migration tests. The CFO needs to decide how to simplify and eliminate complexity. Many questions from the accounting department will be about how to make these accounting routines work after go-live. Make sure these are covered in any training for the finance staff.

General ledger

Normally the GL migration is the least complicated. We may have one-to-many account mappings or vice versa but those should be limited. We may have change of account meanings and purpose and we have changes of accounting logic. If the ambition level is high and the expectation is that KPIs and similar reporting items are exactly aligned after a migration, the job will be quite challenging in creating a migration logic that captures all of these nuances.

However, the most sensitive and difficult change to sell is the prospect of losing information whereby old account structures are replaced by new ones and in so doing old logic and information is lost. This

is necessary to do in projects where several businesses are jumping into one accounting model to create transparency. It implies everyone is leaving their current logic and replacing it with something that has to be learnt over a long period of time. The CFO should really spend time with the accounting team to discuss these matters and smooth over the anxiety that often presents itself in this area.

Project ledger

Ideas about how to best structure, run and follow-up a project determines how the project module of an ERP has been designed. This is the area where the difference is the greatest between the current system and the new ERP. There are usually four subsets of data for each project;

Project master

- Project number, address, PM's name, start date and contract type etc.
- Customer, VAT rate, invoicing method, customer ref.no etc.
- Price list, rebate letters etc.
- Project meta data used for reporting and segmentation
- Project status

Payment plans or Settlement sheets

- Invoicing lines incl. what has already been invoiced
- Open invoices (sent to customer but not yet paid)
- Potential retention kept by customer until final invoice

Budget information

- Contract value
- Work break down structure including Change Orders
- Original budget and last forecast on detailed level

Transactions

- Accrued amounts per task/cost object/littera
- Accrued hours incl. which have been invoiced (for T&M projects)
- Accrued no. of articles incl. how many have been invoiced (T&M)
- Percentage-of-Completion (PoC) valuations and Work-In-Progress (WIP) transactions

In order to succeed with migrating projects in a way that maintains the size of the balance sheet for Work-In-Progress, in the case where accounting principles are not changing (ie PoC to PoC), the new ERP usually requires the WIP value to be calculated by the system based on the imported accrued costs (in case where PoC is based on cost). This means the quality of the accounting in the current ERP has to be spotless when it comes to WIP values per project. This becomes quite the exercise for loss-making projects if the company is to comply with accounting standards (IFRS) in which case the loss reserve for future losses for each such project is a component of the WIP value. The recommendation here is to closely study the accounting logic of the new ERP before deciding what WIP values to move.

The most tricky case comes when the accounting principles have been decided to change i.e. going from Completed Contract accounting to Percentage of Completion (PoC). I have written a specific white paper about this topic, "Complexities in transitioning from Completed Contract to Percentage of Completion in an ERP migration" and will not go into detail here. It can be found on www.schnitzer.se.

A note on transitioning from direct cost to full cost

In large project delivery businesses it is beneficial to have an economic model that is consistent from estimating to project closure. For that purpose these companies strive to show EBIT project margins to the project staff that harmonize with the companies full cost of employing those resources. However, switching from direct cost to full cost is not without its challenges. The finance department should analyze properly over various scenarios what the impact will be on periodic result after go-live for the following parameters:

- Percentage-of-Completion – all else equal the PoC will go backward when applying full cost
- Forecasted project margins – all else equal the margins will go down when applying full cost

Inventory

For businesses that use many articles, such as an electrical installation business, the concept of keeping an updated inventory can be quite daunting. So consequently project delivery businesses are quite reluctant to take on the workload and discipline required to make it work. So what we see is usually one of four scenarios:

1. The business has its own storage facility and the business process environment promotes a structured process for proper inventory management.
2. The business has a lot of articles flowing through directly to projects that needs to be invoiced to customers but are not inventoried.
3. The business delivers combinations of materials normally under fixed price, which is the typical civil construction project.
4. A combination of the above.

In case 1 above there will be an inventory setup with articles, article numbers and inventory counts that will be migrated. The crucial part is to know what is on the way of being checked in to inventory and how many articles that has been ordered but not yet delivered. So the order number will be crucial to migrate so that a delivery can be received in the new ERP.

In case 2 above it is a matter of migrating the pricelists that are in use by the business and to make sure the combination of article price and potential customer rebate, is applied on the next invoice according to the contract with the customer (for T&M). Further, you do not want to migrate all retired pricelists but being able to parse the numbers down means that you have to find out which ones are still in use and which ones are not. This is quite the task.

In case 3 your challenges are the least since there is really no need for any articles or pricelists. The only inventory that most likely exist at all is a value in the balance sheet on a GL account for inventory. Which in fact has nothing to do with Inventory accounting in an ERP sense, it is just accounting based on a manual inventory process where material value is counted by visual inspection.

The above paints quite an easy picture for migrating inventory. If you are in an industrial setting for example the information required to migrate can be massive. In those cases you have multiple locations, several stages of WIP for a single component, combination of articles to combinations and in case of a medical plant you need to log batch numbers and tracing information back to source etc.

Employee register

Last but not least, the employee. To confuse things an ERP has several concepts for one user using the system. Usually you have three main properties which need to be included in the setup for the system and this is also part of the migration exercise. Before devising the migration scripts for employees it

should in the migration strategy be concluded what other systems that are master for employee related information. One typical master for salary is the payroll system (if it is a separate system).

The main data points are:

Employee (thing in excess of the below is often kept in an HR system)

- Name, employee no., Date of birth, employment date etc.
- Manager
- If the employee is required to report time
- Profit center belonging
- Blue collar or white collar
- Work calendar
- Standard hourly rate if any
- Attributes for reporting purposes

User

- Access rights to other profit centers
- Access rights to other companies

Role (e.g. "Project manager", "Controller")

- Approval limits for invoices (Delegation of Authority)
- Profile
- Screen layouts
- Report layouts

When reviewing this list you probably get the picture that there are many things that you either have little information about today that is totally dependent on the new ERP and also that there will be serious quality issues in the current systems for some of the master data. You are right. And the consequence is that users will not have the right setup for their real-world job at the time of go-live which generates massive numbers of support tickets to the support team to change the setup. "I can not see my projects", "I cannot write time on the projects I am working on" etc. That will happen but with a proper process in place in which all the above master data is reviewed by line managers before setting up the production system for go-live you tend to bring the errors down to a manageable level.

Summary

That is all. If you are embarking on an ERP project please do not underestimate the challenges involved with migration. Plan and execute many test migrations as it is the most efficient training you can give to key stakeholders both about their future reality but also a nuts and bolt picture of the changes that are taking place so they get prepared to take ownership of this new ERP system.

My main recommendation is that you make an inventory of all items pointed out in this document and start addressing them one by one. It will put you on the right track and also build confidence with Project Management and the Steering Committee that you are on top of this very challenging process in the ERP project.