

A hand in silhouette is shown placing a red gear into a larger assembly of various blue and purple gears. The background is a gradient of light blue to white.

# High quality materials data: The foundation of intelligent business

## Introduction

Engineering repair and maintenance work is mostly straightforward, if you have the spare parts! But how frustrating is it when you can't find the spares you need, or are faced with long lead times for getting replacements, and senior management is breathing down your neck to get the plant operational as quickly as possible? Sometimes you may even have the spare parts in your store, but don't know it because the descriptive data is so poor, or the wrong part number has been entered. Enterprise critical (CMMS and ERP) systems are designed to capture maintenance activity and rarely provide well structured, searchable descriptions of your spares.

It's not just engineers who are despairing, your procurement team don't really have the control they need, and can't get the key reports that they want to properly leverage their position. Perhaps you've just merged with another company and one of the key justifications behind the merger is the consolidation of operational processes.

An enterprise system upgrade is one of the best opportunities to improve your master data, but all too often companies fail to do this, instead pushing old, poor quality legacy data into the new system, which is akin to rearranging the deckchairs on the Titanic. It's either that, or they leave insufficient time and budget to complete more than an extract-transform-load project, give it a data cleaning project title and in the process completely undermine the huge investment in their enterprise system; to continue the nautical analogy, they spoil the ship for a ha'porth of tar!

Whatever the reason, your organisation is very likely to invest in its materials data and data management systems at some point, and while the payback is big, it can be a significant, resource draining project and very easy to get wrong.

This article will explain the particular challenges around managing materials master data, detailing some of the standard concepts being used by vendors and identifying the key decisions that will enable you

to deliver a successful project to clean that data and make sure it stays clean.

### Let's clean up this mess

If you're planning to clean your materials data, there is a lot to think about. You are well advised to appoint an experienced project manager to run the planning and execution of such a project, vested with the authority they need to co-ordinate activities across your organisation. They need a robust business case so there is a strong focus on delivering rapid payback, guidance for decision making and protection for the project when other business priorities and personnel change.

### Do not attempt this at home

Ventana did some research in 2007 which showed that as many of 66% of companies try to clean their own data and 75% of them are unhappy with the result. What a waste of time! Not only that, but these companies deplete their budget and by losing credibility with senior management, make the real benefits of clean data seem unattainable. Once a data cleaning project has failed it is hard to resurrect it and even then, the budget will be tighter, preventing a proper job being done. A house with subsidence doesn't need foam filler in the cracks, but proper underpinning and that is not a job for the DIY enthusiast. Don't fall into this trap!

### Don't wait until the last minute

Both cleaning data and implementing a strong and effective data governance process take time. All too often companies give considerable focus to implementing their IT systems and only think about the data that goes into them at a late stage. But getting the right data into the system is fundamental and defines how well the expensive new ERP system will perform. So make sure your data migration plan includes time for data cleaning, or you will end up with a rushed project, unreasonable pressure on data cleaning vendors, inevitable data quality issues, a lack of return from your ERP investment and quite possibly a well-deserved career break!

### Find out who needs to be involved

With the level of time and resource required, this is a project to do just once. There are many people who will use the output and it is important to find out who all these "consumers" of your materials data are so you can deliver a comprehensive set of clean data. For spare parts this includes production engineers, stores staff, procurement staff, compliance, accounting, export control and design engineers.

Whereas one group may be interested in detailed item characteristics, others may only want to know the spend classification, or tax codification. Unless all parties are engaged in the process, however, opportunities for efficiencies will be missed.

### Understand and define your target

The cost of your project will be controlled by the amount of data that needs to be cleaned, how broad the cleaning is going to be and the depth to which cleaning will be carried out.

- **Volume.** Any reduction in volume will save money and can be achieved in a number of ways. With materials data it is usually worthwhile to exclude some data from the project, for example Stock Keeping Units (SKUs) where there is no current stock and there has been no transaction for a certain period - say 2 years. On the other hand, it probably makes sense to clean the stock of a plant that is closing down, because then all the active plants can find and move the spares they can use, saving the new cost of all those items. The "per line" fee is typically the most significant element of a vendor's pricing, so controlling the volume of data to be cleaned is important to managing the cost of the project.
- **Breadth.** Many materials data cleaning projects are focussed on sorting out descriptive data, but there may be a number of other key data that should be included. Certainly Part Manufacturer's names and Part Numbers are essential, but units of purchase and issue, customs and spend classifications should also be considered. Broadening the project further to include getting the Bill of Materials (BOM) relationships right is often very worthwhile, as equipment data is often wrongly held in the spares description and the BOM is a vital link for both searching and setting inventory levels by plant engineers.
- **Depth.** Most data cleaning vendors apply a price per SKU according to the level or depth of the cleaning that will be done. The terms used may vary, but the essential levels are:
  1. **Classify.** This is appropriate when the main focus is on spend management and the item is supplied by a single source. Typically a Noun and Modifier is delivered, e.g. BEARING, ROLLER, together with appropriate spend classifications. This level of cleaning is inadequate for most engineering applications, or competitive sourcing.

2. **Clean.** One of the most common choices, this level of cleaning will re-organise existing unstructured data into the right attribute fields according to a pre-defined technical dictionary. This type of cleaning is appropriate where data is already quite complete and the main aim is to have a normalised set across multiple plants / systems. The outcome is usually a split of the resulting data according to whether it is fit for purpose, with duplicates identified, and a set of items that need further investment.
3. **Enhance / Research.** When cleaning up existing data has been insufficient, additional work is often carried out based on research by using the Manufacturer or Supplier's name and Part Number. It can also be done where there is doubt about the quality of the legacy data and independent validation of the information is required.
4. **Walk-down.** This is normally only needed where the original data is so poor that it cannot be adequately cleaned, or research cannot be completed due to a lack of part numbers. Walk-down is usually most efficiently achieved by staff already positioned at a facility and conducted over a period of time, although teams of specialists can be contracted where the volume is significant, and time is critical.

### Find a partner with experience, that you can trust

There are a large number of service companies set up to undertake manual data cleaning work, with the main centre being in India. It is important to understand that these content factories, as they are known, are significantly different from each other. Different operators have different skill sets, different specialist knowledge, can handle different levels of volume and achieve different levels of quality. While there are some excellent companies, it is not always easy to distinguish between these and others which may turn out to be not much more than a desk, a phone, a web site and telesales activity.

Rather than setting up your own production facility for a one-off non-core project, the best approach is to employ a full solution provider that can combine a software application, project management local to you, and has done the groundwork to select, train and built a tight relationship with one or more content partners. As well as providing reassurance on quality, they will relieve you of considerable

project management time and ensure a much more predictable and reliable outcome.

### Choose the right tool for the right job

The complex data structures that define a material item are very different from those for the traditional data cleaning area around customer names and addresses. Moreover, like many ERP systems, too many big vendor MDM solutions are providing functionality that still needs a great deal of configuration and development to transform it into a useful business application, while leaving the thorny subject of data cleaning as an implementation issue.

A materials data cleaning tool has to combine the following features:

- **Catalogue Structure.** The data structure has to support the huge number of part numbers and inter-relationships between Part Manufacturers, Original Equipment Manufacturers, Vendors and Distributors. It needs to be able to handle the various relationships within a specific material item, such as drawing numbers, supersession, obsolescence and old versions of part numbers. Finally, it must be able to capture the relationship of the part to the machine it is fitted to and the asset locations of those machines.
- **Technical Dictionary.** Sit down 4 people in a room, ask them to describe a simple item in 4 words, and you will get 4 different answers. However, when you give them a set of choices to follow, you will usually get 4 identical answers. This set of choices is what a technical dictionary represents. It is not something that you can easily create for yourself, but a good solution provider will be able provide a technical dictionary that has been built up over time and can act as a basis for your project, or have the tools and experience to guide you in creating your own for specialist areas. The key thing is to understand the detail of how it is being used within the cleaning and governance applications. If you have an international dimension to your project, then it's also important to gain confidence in the multi-language features.
- **Efficiency.** Data cleaning involves a lot of manual work, so the productivity of the system is important, including the level of automated data cleaning. Don't believe any vendor that offers full automation, unless your data is already clean! Significant structuring and data organisation can be automated, but must invariably be backed up by manual checking and confirmation/enhancement. The use of

matching to pre-existing databases is also worth considering, but care must be taken over copyright and so is best left to a direct relationship with your spares suppliers.

- **Process Management.** Both data cleaning and governance can only be successful if your chosen solution incorporates strong process controls. This can take several forms with work assignment and ease of project reporting important features to look out for. The better applications offer the ability to group data fields and control edit and authorisation rights of fields according to an individual's specific skill set and responsibility
- **Quality Process and Audit.** Within a data cleaning project, it is crucial to maintain a good history of work undertaken to ensure accountability. Quality control processes must be embedded into the application, rather than thrown in as an afterthought. The available software applications have different capabilities and it is important to understand how each one ensures a high level of quality, and how you can track this as the project progresses.

## Now what?

Step forward in time and make the bold assumption that you've employed the best services partner and used the right data cleaning application to deliver a set of well organised, clean materials data. Well done, but how are you going to maintain all that information and make sure that your data doesn't get corrupted, leading you to start all over again?

This is where putting in place the right governance process and software application is crucial – and it must be a combination. Data governance across a large organisation with many languages and ERP systems can be achieved, but only with a very capable software application backed up by the business processes and organisation to apply it.

Every good consultant will tell you the starting point is to understand your current processes and define what you need to control. This is an important step, but care must be taken not to define an entirely custom process which requires lots of expensive development and implementation....by those same consultants. You might save a great deal of time and money by finding a solution which already has the flexibility to map in your required processes through simple configuration.

Your chosen solution has to handle the requirements of creating a single item, internationally, across

multiple languages, dealing with the complex workflow and approval processes required by the end users of materials, where inaccuracy is much more costly than a misspelt address. It needs to be capable of controlling the entire creation and modification process; from the initial request for a new master item originating from the factory floor, to the addition of the item to whichever enterprise system needs it. This includes ensuring it is not a duplicate, recording the descriptive information consistently, adding all the other data associated with materials such as accounting codes, logistics information and so on, and tracking this process all the way. Moreover, if you, like most companies, operate with multiple ERP / CMMS systems, your governance/MDM application has to handle all of the different fields in each application and make sure descriptions are optimised to use the space available for each system.

Finding an application with all these capabilities embedded off-the-shelf will allow you to focus on the crucial organisational changes and staff management issues of implementing a centrally controlled data hub and then exploiting the many significant benefits that suddenly become possible.

## And finally

Data cleaning and governance projects are hard to get right and many companies have wasted a lot of money failing to do so, but clean materials master data is the foundation on which considerable business intelligence rests. Getting it right can open up a myriad of opportunities and will save you much, much more than it costs.

By reading this article you will hopefully now have a better sense of what is required to succeed and be well placed to engage with the potential solutions providers in this rapidly growing market.

  
sparesfinder  
materials data, mastered.

sparesFinder have over 10 years' experience of delivering significant savings to multinational companies in over 90 countries. We have developed a market leading materials data cleaning and governance application, which is combined with the right services package to deliver a complete solution. Because our software is fully hosted, the IT hassle is low, the implementation rapid and the costs very competitive.