

About Refresh™:

Fresh International provides a very practical software called Refresh™ for standardizing and enriching the data that you use to describe all of the things that you buy and use.

In this chapter we will be looking at one important part of Refresh – the part that is interesting to Production, Maintenance and Operations people. In other chapters on our website we discuss other functions of Refresh more interesting for other teams.

In Production, Maintenance and Operations teams, most Refresh customers use the software mainly to make it easy to identify their MRO (Maintenance, Repair & Operations) items. There are normally many of these item line items and it's too tough to classify and describe them without a specific MRO-focused tool.

Now you can "fix" the data in your IT system (Maximo, SAP, Oracle) - Refresh it, making it easier for you to:

- Find,
 - Classify, and
 - Consistently fully Describe, all of the things that you buy.
- Whether these are stock or non-stock, consumables, spares, assets, equipments, rotatables, insurance items, services or "other".

Refresh's global dictionaries and content are the largest in the industry with 8000 fully attributed class specifications with an average of 12 attributes per class. Out of the box these are fully mapped back to major objects such as Item, Asset, Location, Equipment, PIR, BOM, Class, Attribute and Unit of Measure. This data then powers your order system so that information like short texts, long texts, technical specifications, PO texts and spend classes are *not only typed but generated* in your system.

Refresh is bringing quicker benefits today to some of the world's largest companies and governments, with:

- Easy Searching of Parts
- Cleaned-up Inventory
- Lower Capital & Operational spend
- The full part spec, with list prices
- Sharing of big-ticket items
- Better / more fully used systems

If you think you may be able to use our tools to unlock value from your systems please contact us.

www.freshinternational.com

Refresh™ Software Functional Discussion Document: What's in it for Operations and Maintenance?

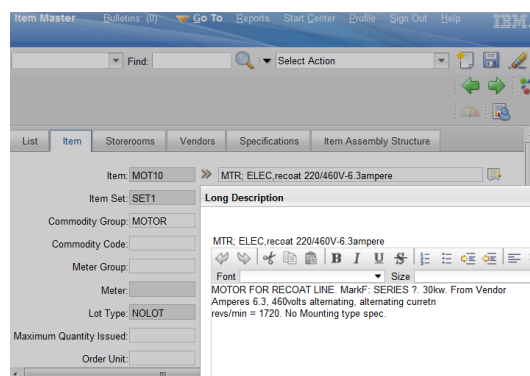


Overview:

Here we will have a look at some of the needs, frustrations, opportunities and benefits that our friends in Maintenance and Operations are experiencing in the daily use of their systems. For similar discussions looking at the issues from other teams like Procurement or IT, please see the other chapters in this series.

Over the last 15 years we have noticed increasingly important common data issues at our global projects. Since 2003 we have been addressing these issues through development of our Refresh™ software. Refresh is live today at major companies using various EAM/ERP systems for example Maximo, Indus (Ventyx) Passport, SAP and others. For the purpose of this discussion we will use Maximo as the example where we want to be specific but the reader should keep in mind Refresh is the "missing piece of the puzzle" for other systems containing asset, product and parts data too.

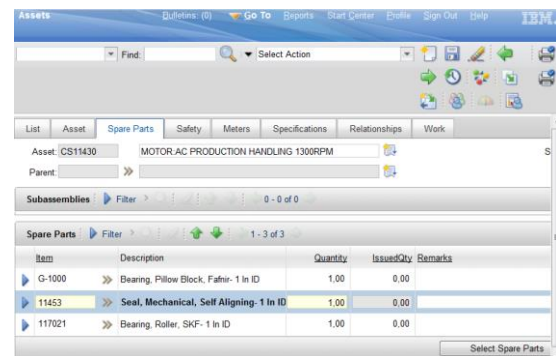
Doesn't it sometimes feel like something important is missing from our systems making it hard to get the benefits we expected? Maybe you've implemented Inventory management and purchasing systems to control your parts, Maximo for work order and maintenance management, Project Systems for engineering project management, new asset introduction and shut planning, and maybe you've even implemented Product Data Management (PDM), Master Data Governance (MDG) or Master Data Management (MDM) in the anticipation that this will help you manage your master data. Even after all of these efforts you may still be suffering from an unintuitive, cluttered and difficult to use system.



BEFORE – a poorly specified Item Master

"I could find it if it was on the parts list..."

As an example, did you know that by far the easiest way to create an order for a part (stock or non-stock) is using the asset parts list or BOM (bill of materials)? Creating an order from a list of parts uses less mouse clicks when compared to looking up the item. And a lot less time! It's pretty easy and intuitive – you just click the asset in your system (this counts for Maximo, SAP PM, Passport and all EAM's we've used) and you see an explosion of the items for this asset. Click one and you're done!



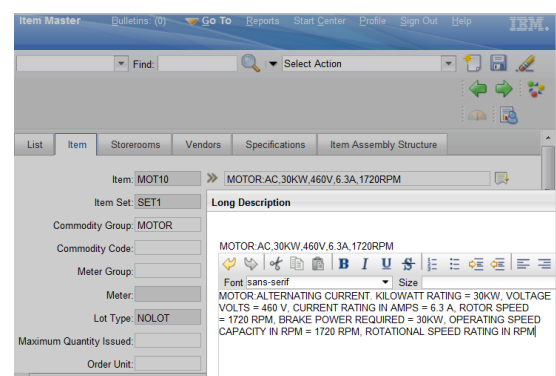
Just click one – a good Asset Spare Parts List

So why don't we do it? Normally it's because when we implemented our system we were under time pressure because of the huge time-related cost of the project. So we just took what was easily transferable from the legacy system. Today there are software tools that can help us to fix this missing data. For example our toolset, Refresh also promotes the creation of this parts list data right first time:



New Assets all get a parts list - workflow with Refresh

We'll see more of Refresh™ later on but first let's look in some detail why it's so very important to get this data right.



AFTER – a well specified Item Master

On this page (2 of 8):
 What are the true business costs when we struggle to find parts?

About Refresh™:

Fresh International provides a very practical software called Refresh™ for standardizing and enriching the data that you use to describe all of the things that you buy and use.

In this chapter we will be looking at one important part of Refresh – the part that is interesting to Production, Maintenance and Operations people. In other chapters on our website we discuss other functions of Refresh more interesting for other teams.

In Production, Maintenance and Operations teams, most Refresh customers use the software mainly to make it easy to identify their MRO (Maintenance, Repair & Operations) items. There are normally many of these item line items and it's too tough to classify and describe them without a specific MRO-focused tool.

Now you can "fix" the data in your IT system (Maximo, SAP, Oracle) - Refresh it, making it easier for you to:

- Find,
- Classify, and
- Consistently fully Describe, all of the things that you buy.

Whether these are stock or non-stock, consumables, spares, assets, equipments, rotatables, insurance items, services or "other".

Refresh's global dictionaries and content are the largest in the industry with 8000 fully attributed class specifications with an average of 12 attributes per class. Out of the box these are fully mapped back to major objects such as Item, Asset, Location, Equipment, PIR, BOM, Class, Attribute and Unit of Measure. This data then powers your order system so that information like short texts, long texts, technical specifications, PO texts and spend classes are *not only typed but generated* in your system.

Refresh is bringing quicker benefits today to some of the world's largest companies and governments, with:

- Easy Searching of Parts
- Cleaned-up Inventory
- Lower Capital & Operational spend
- The full part spec, with list prices
- Sharing of big-ticket items
- Better / more fully used systems

If you think you may be able to use our tools to unlock value from your systems please contact us.

www.freshinternational.com

Refresh™ Software Functional Discussion Document: What's in it for Operations and Maintenance?

What happens when we can't find our items fast:

So a good description or an organized BOM can help you find your item fast... but so what? What happens when we can't find our items? Often it costs us in ways that are spread over departments, indirect, hidden & very expensive:

Cost 1: We waste our time searching



"For an engineer to consider incorporating a standard part in a new design, the engineer must first know that it exists and be able to find it. 27% of total time is routinely spent looking through databases and in-house libraries... 18% of total time is devoted to reentering and re-creating part information that already exists but can't easily be found." Aberdeen Group Research

Ballpark Cost to business: For low estimate of 18% of a technician's hours per day lost, with assumption of a blue-collar rate of \$35/hour. For a small plant with 30 technicians this is a monthly loss of 1200 man hours or \$500'000/year.

Cost 2: We lose production while we search for one

In many cases this is a rare worst case scenario, but unfortunately too many companies are often stuck in "firefighting" breakdown maintenance. If you ever suffer downtime from missing parts it's definitely a sign that it's time to clean up your system and stock. Especially if it happens on a high throughput production bottleneck. And if you are the maintenance manager responsible for this downtime it's better if the production manager is smaller than you!

Ballpark Cost to business: can be close to the total plant cost per hour (including overheads, excluding materials).

Cost 3: We buy the thing off-contract ourselves

Also called "Maverick" buying and a pet-hate of our purchasing colleagues, this happens far too much. While our purchasing colleagues go to great lengths to select the correct supplier for each item with all the contract negotiations and discounts arranged and in place, it only takes us a few silly moments to try to buy it again as a free text item. This represents a real loss for your company – even more so if we already had stock in-house.

Ballpark Cost to business: lose 20% discount on all off-contract spend (Free text purchases are rampant in MRO).

Cost 4: We ask purchasing to "rush buy" it



"For most companies, the purchasing function has traditionally been responsible for buying a good portion of all indirect, non-production goods—with around half of the workload of a typical purchasing department dedicated to these low-value orders. The average level of productivity for this area is appalling, and it is one of the most labor-intensive areas of modern business..." Financial Times (FT) Press Fundamentals of Procurement

We don't believe it is quite as bad as appalling, but it is often not optimized - chiefly because the job is tough with many line items per day that must be processed. So there's room for improvement with proven ways to fix this process (explored further in our chapter for procurement). But overall the main problem for Operations is that it takes too long and the "rush" status often means it has a higher cost. Ballpark Cost to business: +25% of buyer's time misused.

Cost 5: We use an "alternative", badly

Here's a recent real-life example: One of our "Pre-Refreshed" customers told us of one of his reasons for properly specifying and mapping even the cheapest of parts to the production line. On his production line making infant formula (breast milk substitute for babies) one of the vibrating sieves had come loose and had to be welded. As is normal in a high product safety environment all machines were shut down, the welding done, and the weld clinically cleaned before ramping up the new batch. The machine was in good shape but the first batch failed the quality check due to the whole lot being flagged for metal contamination in the process control. Even after checking there were no physical inclusions, the second batch also failed and so did the third and fourth. Turns out that the welding electrode was not specified on the BOM of the machine, nor was the item master well specified, so the welder chose an alternative. The alternative unfortunately had minute traces of lead and so any semi-finished product passing over the clean weld was contaminated. In this case a poorly described \$5 welding electrode cost four batches of product and a second shut. And it could have been much more serious without such an excellent QM alarm!
Ballpark Cost to business: It depends, normally not good.

Cost 6: We create it again or stock more "just in case"

Engineers are smart people – people in tune with the systems around them and it doesn't take long for them to notice if a system isn't working. Very quickly they react so that this "missing item" doesn't catch us again. Typical response here is to either add extra stock or even worse duplicate the part in the system and the warehouse under a new item code even when it exists already. This code proliferation usually makes it harder to find items next time. Ballpark Cost to business: 10% duplicate inventory

Cost 7: We secretly horde parts in "squirrel stores"

Often we add secret stores "outside the radar" of the system. These are sometimes called satellite stores and a pretty common indicator that your system is not ideal. It's not particularly tough to overbuy items or include excess project stock on a project WBS, GL or a cost center. Some plants have 20% of their inventory "outside the books". Ballpark Cost to business: 10 to 20% duplicate inventory, Tax/Compliance risk & high chance of loss or obsolescence

Refresh™ Software Functional Discussion Document: What's in it for Operations and Maintenance?

About Refresh™:

Fresh International provides a very practical software called **Refresh™** for standardizing and enriching the data that you use to describe all of the things that you buy and use.

In this chapter we will be looking at one important part of Refresh – the part that is interesting to Production, Maintenance and Operations people. In other chapters on our website we discuss other functions of Refresh more interesting for other teams.

In Production, Maintenance and Operations teams, most Refresh customers use the software mainly to make it easy to identify their MRO (Maintenance, Repair & Operations) items. There are normally many of these item line items and it's too tough to classify and describe them without a specific MRO-focused tool.

Now you can “fix” the data in your IT system (Maximo, SAP, Oracle) - Refresh it, making it easier for you to:

- Find,
- Classify, and
- Consistently fully Describe, all of the things that you buy.

Whether these are stock or non-stock, consumables, spares, assets, equipments, rotables, insurance items, services or “other”.

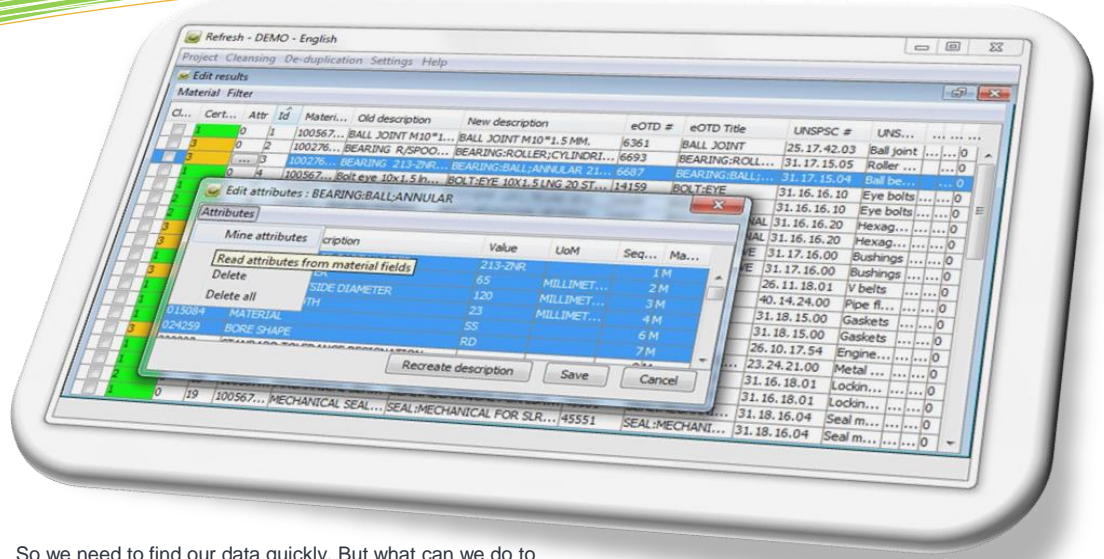
Refresh's global dictionaries and content are the largest in the industry with 8000 fully attributed class specifications with an average of 12 attributes per class. Out of the box these are fully mapped back to major objects such as Item, Asset, Location, Equipment, PIR, BOM, Class, Attribute and Unit of Measure. This data then powers your order system so that information like short texts, long texts, technical specifications, PO texts and spend classes are *not only typed but generated* in your system.

Refresh is bringing quicker benefits today to some of the world's largest companies and governments, with:

- Easy Searching of Parts
- Cleaned-up Inventory
- Lower Capital & Operational spend
- The full part spec, with list prices
- Sharing of big-ticket items
- Better / more fully used systems

If you think you may be able to use our tools to unlock value from your systems please contact us.

www.freshinternational.com



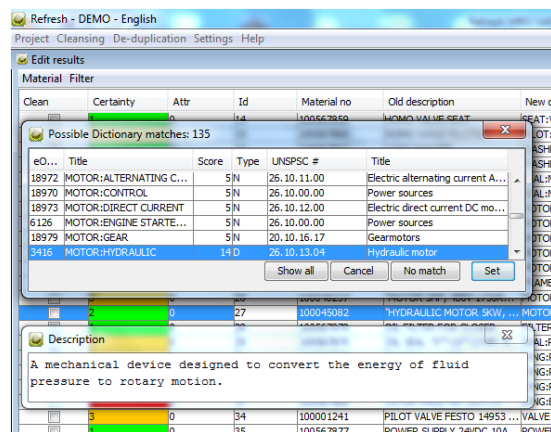
So we need to find our data quickly. But what can we do to make this possible – **what do we need in our systems today to find our items first time, every time?**

1) We need repeatable short descriptions

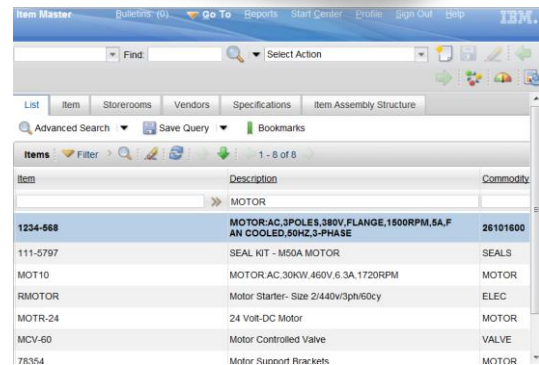
We need to avoid the old problem of many possible ways of describing the same item in our systems e.g:

- MOTOR AC, 90KW, 3PH, 400V,160A,1500RPM
- MTR, ELEC, 3ph, 120hp, 220/400V,160amp
- ELEC MOTOR, 3-PHASE, 2 POLE, 90KW

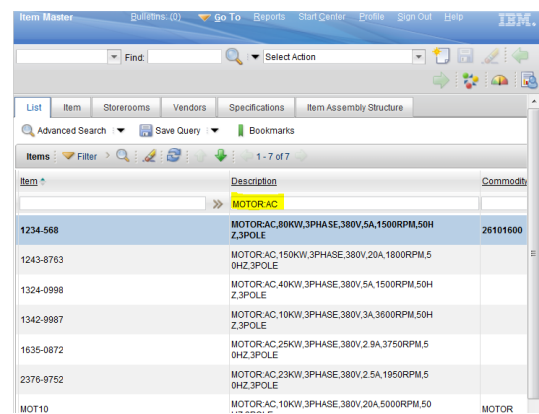
If only we had standardized on one way of describing them! Then we could find all of them quickly. Luckily there is a standard way of describing all of our items. It is of course the Noun:Modifier approach. Refresh contains the largest collection of ISO standardized Noun:Modifier classes in the industry and also the largest collection of fully attributed classes with around 8000 pre-built specification templates including attribute prioritization/sequence number, mandatory/optional and unit of measure mapped by engineers. This means you can start using the international standards today without any upfront work trying to create a dictionary from scratch or any wrestling with the raw format of ISO standard – Just use Refresh's clean standard dictionary:



Use the dictionary in Refresh – Don't reinvent the wheel



Too many false hits when you don't standardize



A much better search – courtesy of a Refresh Client

- Tips:
- Use an automatic tool – don't make this harder
 - Use the ISO8000 Noun:Modifiers in Refresh
 - Generate your descriptions, don't type them.

2) We need some properties/characteristics/attributes

For some of your items e.g. the more important things that you buy or stock, you may need to collect values for each of its important characteristics e.g. Length = 20mm, Voltage = 220V etc. These will help you to search in detail for suitable replacement parts as well as de-duplicate your current assets or items. Although attributes

About Refresh™:

Fresh International provides a very practical software called Refresh™ for standardizing and enriching the data that you use to describe all of the things that you buy and use.

In this chapter we will be looking at one important part of Refresh – the part that is interesting to Production, Maintenance and Operations people. In other chapters on our website we discuss other functions of Refresh more interesting for other teams.

In Production, Maintenance and Operations teams, most Refresh customers use the software mainly to make it easy to identify their MRO (Maintenance, Repair & Operations) items. There are normally many of these item line items and it's too tough to classify and describe them without a specific MRO-focused tool.

Now you can "fix" the data in your IT system (Maximo, SAP, Oracle) - Refresh it, making it easier for you to:

- Find,
- Classify, and
- Consistently fully Describe, all of the things that you buy.

Whether these are stock or non-stock, consumables, spares, assets, equipments, rotables, insurance items, services or "other".

Refresh's global dictionaries and content are the largest in the industry with 8000 fully attributed class specifications with an average of 12 attributes per class. Out of the box these are fully mapped back to major objects such as Item, Asset, Location, Equipment, PIR, BOM, Class, Attribute and Unit of Measure. This data then powers your order system so that information like short texts, long texts, technical specifications, PO texts and spend classes are *not only typed but generated* in your system.

Refresh is bringing quicker benefits today to some of the world's largest companies and governments, with:

- Easy Searching of Parts
- Cleaned-up Inventory
- Lower Capital & Operational spend
- The full part spec, with list prices
- Sharing of big-ticket items
- Better / more fully used systems

If you think you may be able to use our tools to unlock value from your systems please contact us.

Refresh™ Software Functional Discussion Document: What's in it for Operations and Maintenance?

are needed only for some of your items, this still represents a whole lot of work, especially if you do not have an automated tool. There are two jobs that need to be done: we do need to collect the values, but first we need a list of the standard attributes needed for each type of item or asset. These are called specification templates. Refresh contains around 8000 of them. In Refresh these templates are easy to edit for the project manager. Do it in Refresh or Excel – it's your choice.

The template configuration file, like all Refresh configuration is in Excel format for easy mass changes:

Change to include Horsepower	Kilowatt Rating				
	A	B	C	D	E
1	Refresh Characteristic Templates	Property Description	Mandatory	Sequence	
42217	0161-1-01-018972 MOTOR	0161-1-02-016846 Kilowatt Rating	M	1	
42218	0161-1-01-018972 MOTOR	0161-1-02-017594 Phase	M	2	
42219	0161-1-01-018972 MOTOR	0161-1-02-018581 Voltage Rating in Volts	M	3	
42220	0161-1-01-018972 MOTOR	0161-1-02-016064 Current Rating in Amps	M	4	
42221	0161-1-01-018972 MOTOR	0161-1-02-017978 Rotor Speed Rating in RPM	M	5	
42222	0161-1-01-018972 MOTOR	0161-1-02-016505 Frequency in Hertz	O	6	
42223	0161-1-01-018972 MOTOR	0161-1-02-022700 Pole Quantity	O	7	
42224	0161-1-01-018972 MOTOR	0161-1-02-000640 Frame Size Designation	O	8	
42225	0161-1-01-018972 MOTOR	0161-1-02-019094 Mounting Method	O	9	

It's Easy to Fine-Tune Refresh Templates

The important thing is that we have worked with standards authorities and many customers for almost ten years to get these templates right. It will save you a huge amount of time to start from our list rather than build your own. E.g. this is what the one for AC Motors looks like in Refresh:

Three Cleaned Motors in Refresh showing one template

The second challenge is to populate all of the values, e.g. Refresh automates this in Maximo through its algorithms:

Don't collect values manually – let Refresh "mine" them

Refresh is the subject of an important patent for the algorithmic searching of attributes from all of your internal structured and unstructured texts as well as key manufacturer catalogues. Even if your data is in bad shape it will help you to automate the collection of key values.

These values can also populate the attributes in your item or asset masters, allowing you to finally use the standard attribute search & compare in your system:

Finally use the standard attribute search & compare

Using the standards you can even get your vendors to do it for you. Some customers do this with Refresh PO texts:

Refresh can also prompt our vendors to help

3) We need manufacturer details in the right place

We need manufacturers' names and part numbers to be standardized and always in the right place. Whether you use the item master, the purchasing or finance module, classification or a manufacturer item type, Refresh can put your part related data in the right fields. Refresh is able to mine part numbers out of all of your structured and unstructured text according to a customizable pattern and then place these part numbers correctly. Manufacturer catalogs are also often used to verify the part numbers.

On this page (5 of 8):
Searchable Long Texts
Easy Search Tools
Automation Saves Time

About Refresh™:

Fresh International provides a very practical software called Refresh™ for standardizing and enriching the data that you use to describe all of the things that you buy and use.

In this chapter we will be looking at one important part of Refresh – the part that is interesting to Production, Maintenance and Operations people. In other chapters on our website we discuss other functions of Refresh more interesting for other teams.

In Production, Maintenance and Operations teams, most Refresh customers use the software mainly to make it easy to identify their MRO (Maintenance, Repair & Operations) items. There are normally many of these item line items and it's too tough to classify and describe them without a specific MRO-focused tool.

Now you can "fix" the data in your IT system (Maximo, SAP, Oracle) - Refresh it, making it easier for you to:

- Find,
- Classify, and
- Consistently fully Describe, all of the things that you buy.

Whether these are stock or non-stock, consumables, spares, assets, equipments, rotables, insurance items, services or "other".

Refresh's global dictionaries and content are the largest in the industry with 8000 fully attributed class specifications with an average of 12 attributes per class. Out of the box these are fully mapped back to major objects such as Item, Asset, Location, Equipment, PIR, BOM, Class, Attribute and Unit of Measure. This data then powers your order system so that information like short texts, long texts, technical specifications, PO texts and spend classes are *not only typed but generated* in your system.

Refresh is bringing quicker benefits today to some of the world's largest companies and governments, with:

- Easy Searching of Parts
- Cleaned-up Inventory
- Lower Capital & Operational spend
- The full part spec, with list prices
- Sharing of big-ticket items
- Better / more fully used systems

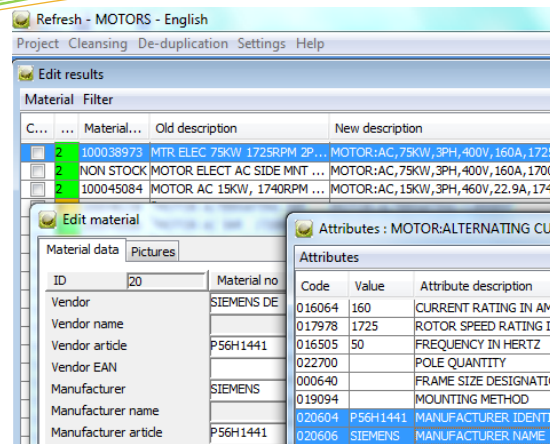
If you think you may be able to use our tools to unlock value from your systems please contact us.

www.freshinternational.com

Refresh™ Software

Functional Discussion Document:

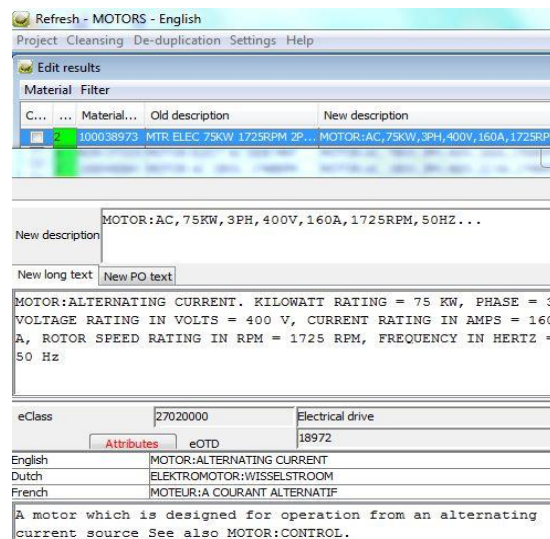
What's in it for Operations and Maintenance?



Don't look for a part number manually – let Refresh "mine" it

4) We need searchable long texts, PO texts inside ERP

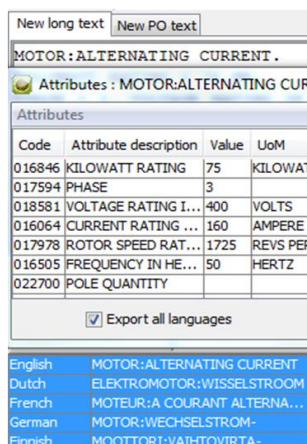
If all of your texts – short, long & purchase order etc. were written in the same order this would help you to quickly search and compare materials visually in your system:



Get consistent data - generate your longer texts in Refresh

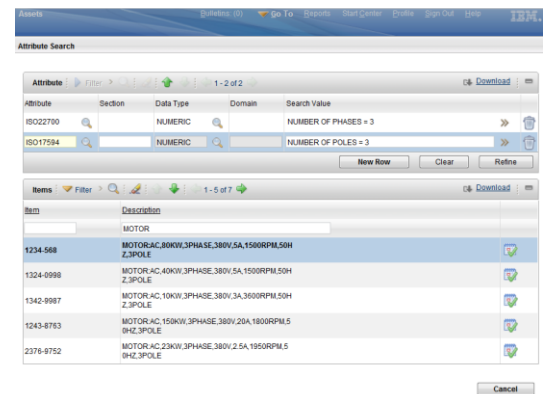
5) Automatic Translation – unlocks sharing

Sometimes we may even need to share across languages. Since your descriptions are generated in the source language, they can be auto-generated in multiple others:



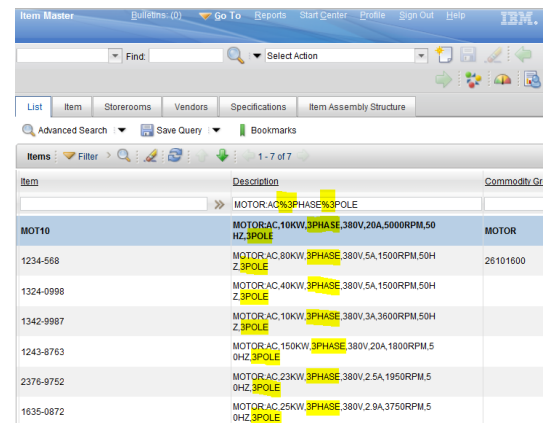
6) We need better ways to search, and better data:

Step number 1 should always be to get your data in better shape before looking at better search tools. For example if you have good attributes with values filled in for your assets you can even look for suitable alternative assets while inside the work order itself. Many order management systems offer this function, but without the data in the attributes it does not make sense to use it, even if using it could find you an alternative item, saving you thousands of dollars and possible downtime. For example let's say we need to find all alternative 3pole 3phase motors. Can you do this in your system with trustworthy results today?



Search Alternatives by Attribute – it's the data you need

Refresh includes these and other search options for the newly cleansed data which can really unlock your system and make it truly simple to get complete relevant searches:



"Wildcard Search" is easy with standardization

7) We need automated tools for fast scrubbing

Some of the automating functions of Refresh have been shown in this section but there is much more automation inside the Refresh toolset. This is our main goal – to make it easier and faster for you to achieve your perfect level of data. This automation will help you whether you are cleaning existing materials or trying to properly create a new one. It's the level of automation inside Refresh that makes it possible for you to do this job in-house.

On this page (6 of 8):
Automation Saves Time (cont.)
Automation of New Item Requests
Getting rid of Duplicates

About Refresh™:

Fresh International provides a very practical software called Refresh™ for standardizing and enriching the data that you use to describe all of the things that you buy and use.

In this chapter we will be looking at one important part of Refresh – the part that is interesting to Production, Maintenance and Operations people. In other chapters on our website we discuss other functions of Refresh more interesting for other teams.

In Production, Maintenance and Operations teams, most Refresh customers use the software mainly to make it easy to identify their MRO (Maintenance, Repair & Operations) items. There are normally many of these item line items and it's too tough to classify and describe them without a specific MRO-focused tool.

Now you can “fix” the data in your IT system (Maximo, SAP, Oracle) - Refresh it, making it easier for you to:

- Find,
- Classify, and
- Consistently fully Describe, all of the things that you buy.

Whether these are stock or non-stock, consumables, spares, assets, equipments, rotables, insurance items, services or “other”.

Refresh's global dictionaries and content are the largest in the industry with 8000 fully attributed class specifications with an average of 12 attributes per class. Out of the box these are fully mapped back to major objects such as Item, Asset, Location, Equipment, PIR, BOM, Class, Attribute and Unit of Measure. This data then powers your order system so that information like short texts, long texts, technical specifications, PO texts and spend classes are *not only typed but generated* in your system.

Refresh is bringing quicker benefits today to some of the world's largest companies and governments, with:

- Easy Searching of Parts
- Cleaned-up Inventory
- Lower Capital & Operational spend
- The full part spec, with list prices
- Sharing of big-ticket items
- Better / more fully used systems

If you think you may be able to use our tools to unlock value from your systems please contact us.

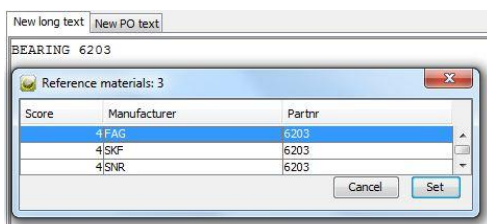
www.freshinternational.com

Refresh™ Software

Functional Discussion Document:

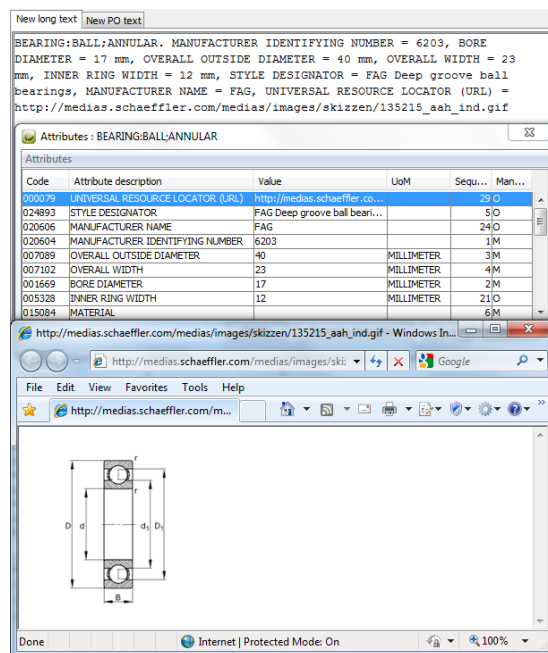
What's in it for Operations and Maintenance?

For example, let's say you have to cleanse a bunch of bearings. Refresh is able to propose to you what it “thinks” you are trying to cleanse each time. Let's say all you have in your systems for the bearing is the text “BEARING 6203” “BEARING 6203” is just enough for Refresh to guess:



Let Refresh guess – sometimes it can do the work for you

If we click once in Refresh to confirm the manufacturer we will happily get much of the information we need in one shot:



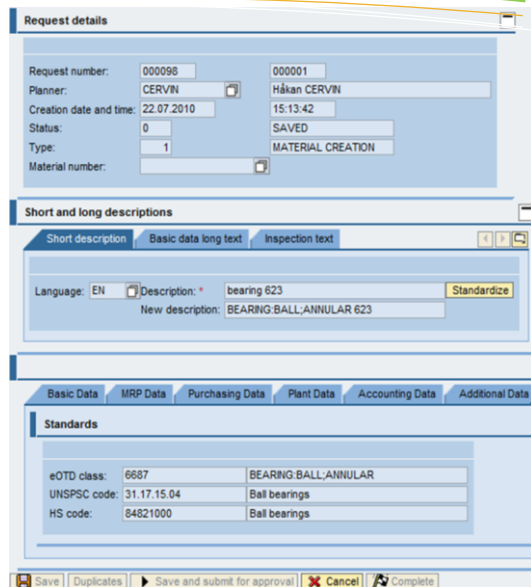
Deep Technical Content is Referenced in Refresh

This approach brings you more accurate items faster.

7) We need automated tools for keeping it clean

Even in sustain mode the Reference content can be used. But Refresh also contains many other helpful automated functions for the creation of new items.

Refresh can be deployed inside a simple item request page or a fully functional item approval workflow (or purchase requisition workflow). This is dependent on whether you want to build a workflow at this stage (e.g. an item master data governance workflow) or not. If you want to support a central approvals process to look after your items you can choose to build a workflow calling Refresh. For most systems this is done by calling Refresh as a service – keeping your database of new items and newly cleansed items clean.



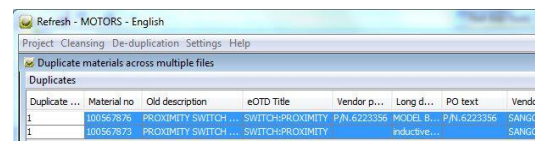
Workflow example – Refresh Server in an ERP system

Of course the usual Refresh data automation is integrated in the workflow meaning that you get all your technical automatic cleaning functions as usual. However, Refresh also automates the correct code from a choice of leading international standards including:

- ECCMA eOTD / NATO / ISO 8000
- UNSPSC
- ECLASS
- INTRASTAT
- HS (Harmonized System)

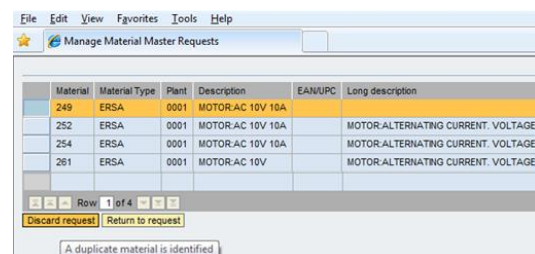
This means you don't have to choose the right codes – Refresh will do it for you – all you have to do is type a short description and hit the “Standardize” button. Some companies and governments have purchased Refresh solely because this is the fastest way to adopt these standards. For you it means that Refresh takes the load off of you when you are creating or approving any new item.

8) We need to mass de-duplicate our systems...



Refresh de-dupe is practical – Fine-tuned over many years

9) ...and stop new duplicates from coming in



Refresh dedupe checks for duplicates at point of entry

About Refresh™:

Fresh International provides a very practical software called **Refresh™** for standardizing and enriching the data that you use to describe all of the things that you buy and use.

In this chapter we will be looking at one important part of Refresh – the part that is interesting to Production, Maintenance and Operations people. In other chapters on our website we discuss other functions of Refresh more interesting for other teams.

In Production, Maintenance and Operations teams, most Refresh customers use the software mainly to make it easy to identify their MRO (Maintenance, Repair & Operations) items. There are normally many of these item line items and it's too tough to classify and describe them without a specific MRO-focused tool.

Now you can "fix" the data in your IT system (Maximo, SAP, Oracle) - Refresh it, making it easier for you to:

- Find,
- Classify, and
- Consistently fully Describe, all of the things that you buy.

Whether these are stock or non-stock, consumables, spares, assets, equipments, rotatables, insurance items, services or "other".

Refresh's global dictionaries and content are the largest in the industry with 8000 fully attributed class specifications with an average of 12 attributes per class. Out of the box these are fully mapped back to major objects such as Item, Asset, Location, Equipment, PIR, BOM, Class, Attribute and Unit of Measure. This data then powers your order system so that information like short texts, long texts, technical specifications, PO texts and spend classes are *not only typed but generated* in your system.

Refresh is bringing quicker benefits today to some of the world's largest companies and governments, with:

- Easy Searching of Parts
- Cleaned-up Inventory
- Lower Capital & Operational spend
- The full part spec, with list prices
- Sharing of big-ticket items
- Better / more fully used systems

If you think you may be able to use our tools to unlock value from your systems please contact us.

Refresh™ Software Functional Discussion Document: What's in it for Operations and Maintenance?

Focus on Inventory to get a clean-up project approved

It may be that your current top management isn't aware of all of the costs of not finding your parts. You should tell them all about it in order to get support in your improvement projects. While you're at it, it is good to have a background of the issues that bother them most often on the topic so in this section we'll recap some management theory around one management favorite of all the costs we mentioned previously – the true cost of dirty inventory data. While we've seen that Refresh also cleans up your purchasing data, these savings from purchasing are covered in a later section.

In case you're not sure what management's goals are (or should be) let's look at the basic drivers...But first a quick proviso: it is important to remember that the goals of management are changing over time but one thing remains constant - they are always aligned to the current manager's performance KPI's. It may be that in your company, some of the KPI's may not yet be perfectly aligned with best practice for the overall company. For example an old poor KPI is "maintenance cost as a percentage of production cost". This KPI may actually be meaningless at best and at worst harmful to the modern business as *production cost is always related to maintenance cost*. It's better to look at overall production cost alone, move towards a combined production-maintenance team (TPM) and leave the idea of maintenance as an evil cost center in the past. Thankfully after many years of campaigning against this one we are seeing less and less of its use. But do be aware that old KPI's around materials management may still be lurking around and you should be prepared to gently challenge your colleagues on them.

The real reasons why we need to manage our inventory

How much do you think your collection of equipment and parts "costs" your business? Many Operations people do not know the right answer to this. And don't bother asking the accountants either - it's been our experience that often they don't really know (with the exception of good management accountants). Top management usually has a good gut feeling that inventory needs to be managed wisely. In today's challenging economy it has become a very hot topic so let's take some time to understand "where the real money goes".

Today's KPI's in "the boss zone" - KPI #1: Profit

Roughly equals: Income minus Expenses

Financial document: P&L / Income Statement

Impact of parts/assets/items on this:

- Any item that we consume is added to the Cost of Goods Sold (COGS) in the P&L and directly reduces the profit for the year as an expense.
- For any asset that we depreciate, this depreciation is added to Depreciation/Amortization in the P&L and directly reduces the profit for the year as an expense.
(albeit a special kind of expense – not reducing cash).

KPI # 2: Return on capital

Return on capital gives a good indication of how much we money we make given the resources at our disposal.
Roughly equals: Profit divided by Capital
Financial document: P&L and Balance Sheet
Impact of materials on this: Anything that we consume comes out of the profit for the year as an expense thus reducing our return on capital. Anything that we purchase to replace it in inventory increases our capital also reducing our return on capital. Overall capital use should of course be minimized and we should focus on "capital employed" which is equal to **fixed assets plus working capital**. And generally speaking, *our Equipments/Assets are fixed assets and our items/parts are working capital*.

The credit & liquidity crisis followed by recent inflation effectively means that banks now charge more to lend capital to companies for investments made from "debt financing" (borrowed money). Also, the slowdown of the general economy due to this reduction in liquidity means less sales are taking place, reducing profits and leaving even less money for investments made from "equity financing" (your own money). Apart from leasing, which has its own problems, debt financing and equity financing are the only ways companies can finance the procurement of assets. We now see a squeeze on all forms of this money.

Government legislation is now being put in place globally to measure banks on their levels of risk-weighted assets, with the obvious future knock-on effect that the banks will try to pass on the risk to borrowers through tougher clauses in the debt contracts (higher risk of loan call) or higher interest (higher cost of capital). This means two simple things for our top management – and subsequently us:

- we need to tightly control all of our Capital
- we need to make effective use of our Assets

So what has all that got to do with me and my stuff?

Typically we find 3 different types of supplies that we hold each with different management processes and valuations:

- 1 Smaller 'Free Issue' Items/Consumables
e.g. nuts and bolts. Good practice to immediately consume these low value items against an overall production cost center and have the operators/technicians have them as free issue (you reduce process costs here)
Accounting treatment: **Expensed at purchase**
- 2 Maintenance and Operations Inventory
e.g. bearings, valves, pipes etc. Good practice to issue these items at an average real stock price to the consuming production cost center (the one on the asset) and have the operators/technicians order them from stock using a planned part on the Work Order.

About Refresh™:

Fresh International provides a very practical software called Refresh™ for standardizing and enriching the data that you use to describe all of the things that you buy and use.

In this chapter we will be looking at one important part of Refresh – the part that is interesting to Production, Maintenance and Operations people. In other chapters on our website we discuss other functions of Refresh more interesting for other teams.

In Production, Maintenance and Operations teams, most Refresh customers use the software mainly to make it easy to identify their MRO (Maintenance, Repair & Operations) items. There are normally many of these item line items and it's too tough to classify and describe them without a specific MRO-focused tool.

Now you can "fix" the data in your IT system (Maximo, SAP, Oracle) - Refresh it, making it easier for you to:

- Find,
- Classify, and
- Consistently fully Describe, all of the things that you buy.

Whether these are stock or non-stock, consumables, spares, assets, equipments, rotables, insurance items, services or "other".

Refresh's global dictionaries and content are the largest in the industry with 8000 fully attributed class specifications with an average of 12 attributes per class. Out of the box these are fully mapped back to major objects such as Item, Asset, Location, Equipment, PIR, BOM, Class, Attribute and Unit of Measure. This data then powers your order system so that information like short texts, long texts, technical specifications, PO texts and spend classes are *not only typed but generated* in your system.

Refresh is bringing quicker benefits today to some of the world's largest companies and governments, with:

- Easy Searching of Parts
- Cleaned-up Inventory
- Lower Capital & Operational spend
- The full part spec, with list prices
- Sharing of big-ticket items
- Better / more fully used systems

If you think you may be able to use our tools to unlock value from your systems please contact us.

Refresh™ Software Functional Discussion Document: What's in it for Operations and Maintenance?

These can be subdivided further into 'normal' and 'slower' moving inventory.

Accounting treatment: *Bought using Working Capital and fully expensed when consumed.*

3 Capital Equipment

e.g. often expensive, large and important equipment that we have on the asset register too.

Accounting treatment: *Bought using Investment Capital and depreciated annually.*

There are also other, less impactful valuation types for example repairable spares sometimes referred to as "rotables" but these are topics for another discussion.

So we can see from the above that the majority of our inventory and equipment will hit directly our cost of capital and our risk of borrowing it. So, purely from a capital point of view we need to manage these better in today's economy.

The total carrying costs of holding inventory are bigger

We have seen purely from a capital point why we need to refocus on the cash tied up in our inventory working capital. But how do we quantify the total costs of holding inventory?

Some numbers from *The Supply Management Handbook*:

- Cost of capital: 10% of average inventory value**
- Labor costs: 15%**
- Storage costs: 10% (some of this can be new Capex)**
- Variable costs (telephone, insurance etc): 5 to 10%**
- Tracking costs: 2 to 5%**

"a fair average cost for industrial firms is approximately 40%"

Remember these are annual costs – every year you hold the inventory costs you 40% of its value! That's in addition to the money already invested in buying all the inventory in the first place. And it's the same 40% cost the next year... and so on.

Think about areas you could improve on and then estimate a percentage saving in each area. If your plant is running a lean or 5S type initiative Refresh fits very naturally in to the Sort, Simplify, Shine, Standardize & Sustain philosophies.

There are many examples of how you can make savings through standardization but the inventory should definitely be minimized, freeing up cash for your business. In most cases so should the amount of borrowed Investment capital. There are special cases where e.g. in a high profit environment the tax savings from Capex depreciation in the early years outweigh the total interest cost of borrowing, but buyers beware – this may not be the case in the future. Remember that the idea behind depreciation is that the tax savings should be saved internally to provide your own capital slush fund to replace the asset at its end of life. You need to look after your assets! And save up for new ones.

After Refresh use inventory common sense methods:

Cleaning up your data is the first step towards making your warehouse clean, lean and green. Once you have good **de-duplicated** data it is easy to save with some common-sense practices, like inventory stratification for example:

- Cat 1: **Fast moving** (turnover ~ every 4months)
These can be targeted with consignment stock and/or optimum order quantity analysis. Use good MRP settings.
- Cat 2: **Slow moving** (turnover ~ up to 2 years)
Anything longer than 2 years may be moved to category: surplus, checking with engineering first.
- Cat 3: **Surplus** (the "use up first" stockpile)
Use these up first and absolutely minimize this stock
- Cat 4: **Obsolete** (practically useless)
Get rid of it now. Don't waste much effort trying to get "a deal" on this. It is taking up valuable carrying cost / space.
- Cat 5: **Project** (extra spares from current Capex projects)
Exclude from analysis. If they are "old" transfer to surplus
- Cat 6: **Insurance** (mandatory insurance items)
Exclude from analysis.

Refresh Operations Savings Summary:

One time savings:

Remember to include these at today's Capex cost:

- Overall Reduction in **Inventory Levels – 22%**
- Overall Reduction in **Duplicate Inventory – 8%**

Annual Savings:

Remember to include these as savings repeating/year:

- Annual Total Reduction **Inventory Carrying Costs – 40%**
- Reduced **Cost of Capital – 10%**
- Reduced **Inventory Labour Cost – 15%**
- Reduced **Storage Costs – 5%**
- Reduced **Variable Costs – 5%**
- Reduced **Tracking Costs – 5%**

- Operations staff **Time Savings – 1.5 hours / person/ day**
- Reduction in lost production due to **stoppage – 5% stops**
- Reduction in lost production due to **quality – 2% stops**
- Reduced **Maverick Buying – 20% total requisition spend**
- Reduction in Purchase **Orders – 25% of total buyer time**

There are also some intangible benefits but the tangible ones should give your project an excellent NPV & payback for your management in today's challenging economy.

Intangible Savings:

- Increased Safety Performance
- Increased Environmental Performance
- Easier implementation of initiatives like 5S, lean & TPM.
- Better data promotes system and process ownership
- Better, fuller use of IT Systems

Also, have a look at our documented savings for other teams discussed in further detail on our website e.g.: Refresh Savings for Procurement or IT and Compliance. Contact Fresh for more info / further practical project tips.