Saving Millions on Reuse

Quantifying the Value of Parts and Family Classification

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Say a manufacturer introduces 10,000 parts per year at approximately $5k per part. Even a 2% improvement in part reuse could net the manufacturer millions of dollars in savings! So, why aren't more manufacturers focused on organizing and classifying their parts to achieve better reuse? How do you calculate the real costs of introducing a new part and maintaining it over the life of a product? And what is the best way to avoid part duplication?

The Lifetime of a Part Across the Value Chain

The lifetime value of a part should take into consideration far more than just the cost of its initial creation. The example below outlines the various teams that are often involved in a part lifecycle as it progresses from project to production and aftermarket phases.

Aligned Classification: The Gift that Keeps Giving

Create a project around parts governance that eliminates products that are unnecessarily complex. Parts classification helps engineers select the right parts, from preferred vendors, before it is too late to say no!. The costs associated with poor part reuse, scrap, and high inventory are reason alone to tackle classification. Manufacturers who classify and reuse existing parts see huge benefits including:

Reduced costs:
New parts can be expensive. When parts are reused organizations not only save time and deliver products faster, but material and inventory costs are also reduced.

Minimized delays and complexity:
By maintaining clean parts data organizations can more readily find and reference existing parts that meet design needs. This prevents wasted time spent creating new parts while increasing time to market.

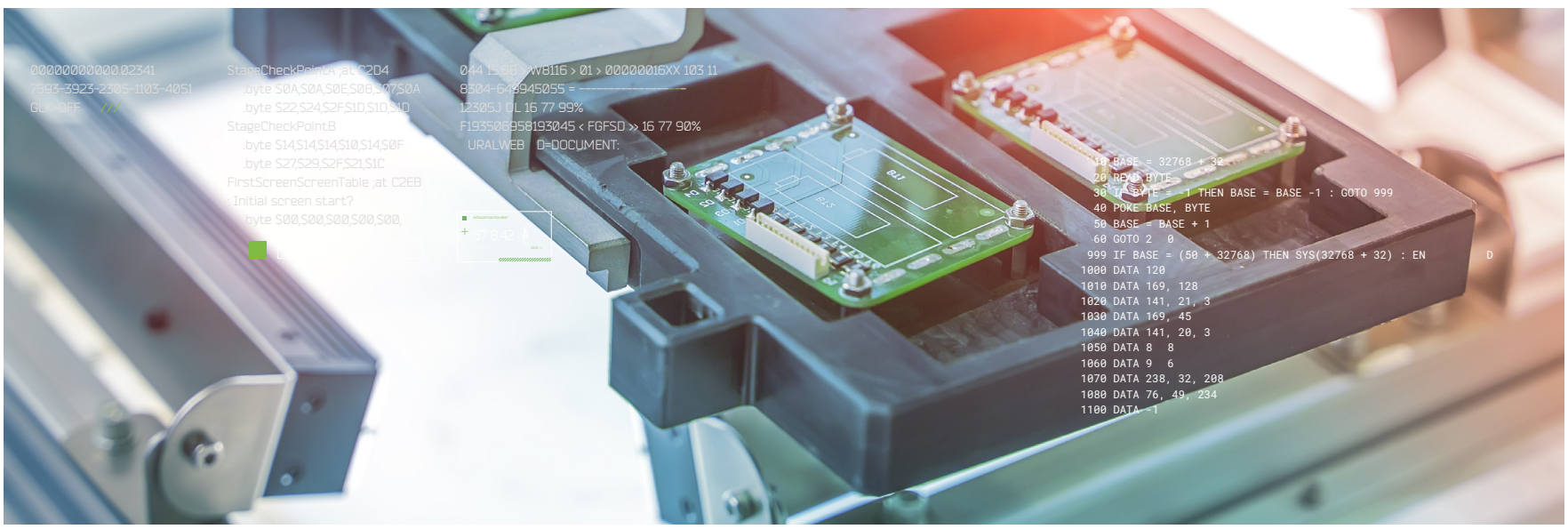
Optimized for manufacture and service:
With fewer duplicated parts and drawings, manufacturing and service engineers can more easily plan, assemble, test, and execute.

Benefit Calculation: How to Project Saving Millions Per Year

When calculating the benefits of part reuse a variety of factors need to be taken into consideration, including the part type, project phase, and the part duration per project phase.

In the example below, the manufacturer could expect to avoid introducing approximately 160 new parts per year ((10,000 new parts per year x 2% redundant parts) x 80% probability of redundancy avoidance). By multiplying 160 redundant parts per year by the overall NPV (net present value) for a new part ($15,000), this manufacturer would save approximately $2.4M per year on parts reuse. To understand the lifetime impact of the parts reused in 'Year One', we can multiply the total lifetime duration of those reused parts by the lifetime value of the parts to estimate a total savings of $55M across 23 years. Net present value can be calculated using the organization's internal interest rate.

Parameter	Unit	Value
New parts introduced per year	#	10,000
Amount of simple parts	%	30%
Amount of normal parts	%	50%
Amount of complex parts	%	20%
Number of redundant parts	%	2%
Probability of redundancy avoidance	%	80%
Net Present Value (NPV)	$/year	$15,000
Cost for new part, project phase	$/year	$5,000
Cost for new part, production phase	$/year	$5,000
Cost for new part, aftermarket phase	$/year	$5,000
Part lifecycle duration	Years	23
Project phase duration	Years	3
Production phase duration	Years	5
Aftermarket phase duration	Years	15
Estimated Savings Per Year ((10K parts/year) x 2% redundant parts) x 80% probability redundancy avoidance)) x $15K NPV	$/year	$2.4M



Using PLM to Achieve Parts Reuse

We can see the benefits of parts reuse are obvious from a cost standpoint alone. So, how does a manufacturer go about doing it? Let's start by understanding what it means to classify parts. Parts classification is the process of organizing products, parts, and documents for easy retrieval and waste prevention. By standardizing and classifying products, organizations promote information and parts reuse throughout the engineering process.

Parts classification can be achieved in two common ways leveraging product lifecycle management (PLM) software:

Parts Classification

Creating an initial description to classify parts and allow for additional attributes to be added to the description, making it easier to break down parts by category.

Example A Bolt

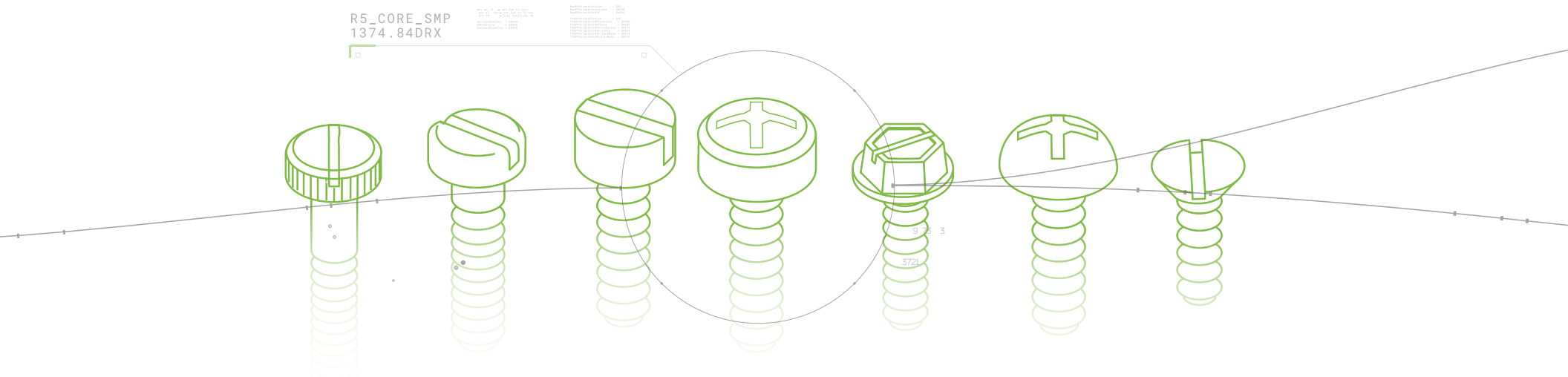
This would first be categorized as hardware with a description classifying it as a "HEX HEAD, HEAVY." It can be further classified with more descriptive attributes like length, finish, and thread pitch.

Supply Chain Agility

When there are many parts from different suppliers, supplier management helps organizations know which parts can be sourced from each supplier when defining a product.

Example A Screw

If a screw is available from different supplier companies, managers need PLM to provide relationship identification between parts and suppliers with region, availability, cost, or compliance information.



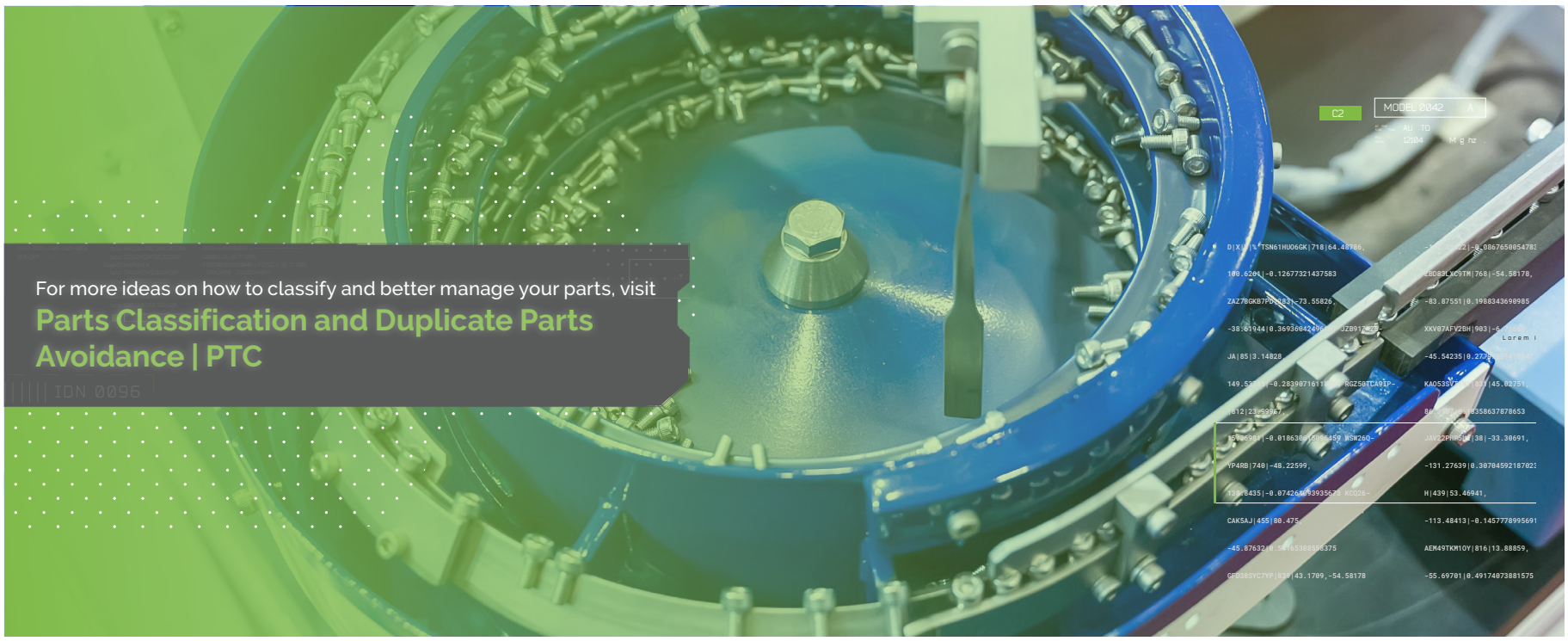
Core functionality that will help manufacturers to ensure a swift and seamless engagement include:

- Automatic parts and documents naming based on attributes
- Localized parts information
- Configurable classification scheme tailored to business needs
- Simplified assignment or classification of new parts and documents
- Multiple ways to search and refine searches

SEAGATE

Seagate had over 30 million records to migrate, several design centers, several internal & external suppliers, as well as contract manufacturers and original design manufacturers.

By implementing parts classification with Windchill, Seagate created two classes: one for parts and another for tooling. This was made possible by a cross functional team that accounted for all users in the value chain. Seagate moved and classified over 1 million parts into the Windchill environment allowing users to search and browse for parts in a fast and efficient way. They were able to create a record for part numbers and suppliers for future referencing enabling greater efficiency and collaboration in the overall value chain.



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