

BINGO!

Shape-Based Search System



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Bingo! is a shape-based search technology which provides a unique and highly productive solution to the data proliferation problems found amongst major manufacturers today.

Using our powerful shape similarity algorithm, Bingo! enables manufacturers to reduce part proliferation and save on operating costs. This goal is achieved by locating and cleaning proliferated parts, aggregating part data to make easy vendor and sourcing decisions, organizing data, and encouraging engineering data re-use.

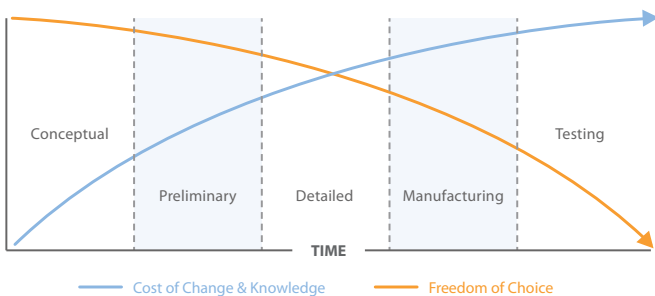
Shape-based search is nameless. Spelling, language, and file naming rules are not required. The technology of Bingo! is simply the most ubiquitous, accurate, and intuitive search key for product data. Bingo! will enhance your product development process by enabling part and product similarity analysis throughout the company.

New Product Development

The Opportunity:

New Product Development (NPD) is an ongoing innovation process in any product enterprise. Continuous creative design updates are the top priority for manufacturing companies that are determined to stay competitive in today's fast paced market.

It is essential to make the right choices and decisions while designing parts and assemblies in the early stages of NPD, as the cost of change increases drastically and freedom of choice falls over time along the process from designing to manufacturing parts.



Common industry problems, including multiple naming conventions and language diversity, poses a big challenge when attempting to find and re-use already existing models. Higher freedom of choice at the beginning of NPD is required, however, it is hampered due to lack of a search mechanism that can efficiently present all available re-use choices.

The Solution:

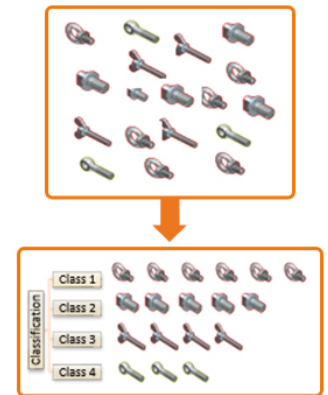
During the initial conceptual stage, models can be efficiently searched for using **Bingo!** search tools that utilizes 2D, 3D, and parameter inputs. In the top-down approach, where skeleton parts for the new assembly are designed first, Bingo! can find existing, matching parts for all components of the assembly at once. These searches prevent unnecessarily created parts and assemblies, and data proliferation is avoided from the very beginning of the NPD process.

Classification and Part Standardization

The Opportunity:

The goal of parts standardization is to improve operational readiness and reduce lifecycle costs by promoting the use of common, available, cost effective, and reliable parts.

However, implementing a classification system is often tedious and lengthy. Decisions have to be made on the structure of the tree, which models will go to each nodes, and what attributes will be designated to each class. With thousands of attributes and magnitudes more in parts, the process of creating a part standardization system is a time consuming endeavour.



The Solution:

Fortunately, advances in shape-based classification technology can have a dramatic effect on this process. A shape-based searchable part library can be created in weeks versus years.

Bingo! automatically organizes and groups part information based on shape. A predetermined hierarchy can be used prior to indexing or, once indexed, a classification can be developed from the grouped data. The process is dramatically improved by the automatic grouping of part data. Attributes are extracted during the indexing process so that attribute comparisons can be done at the group level and commonality is easily identified and standardized. Furthermore, attributes from external sources can also be linked to the data, thereby producing a fully described and attributed library quickly.

Studies on part standardization vary, however, the conclusion does not. Proliferation of parts is very common and very expensive!

The Parts Standardization and Management Committee has found that a single part can cost \$20,000 over its lifetime. Additionally, according to the Aberdeen Group, 30-40% of a typical manufacturer's parts data are either duplicates or acceptable substitutes. Therefore, the burden of maintaining 1 million proliferated parts may reach \$200 million.

A manufacturer will benefit from the concept of clean data, where cost is reduced, manageability is increased, and a streamlined approach to product data is achieved.

Engineering & Design	\$9,300	46%
Testing	\$700	3%
Manufacturing	\$1,750	9%
Purchasing	\$3,800	19%
Inventory	\$875	4%
Logistics Support	\$3,750	19%
Total Cost per Part	\$20,175	100%

Part Proliferation/Data Cleaning

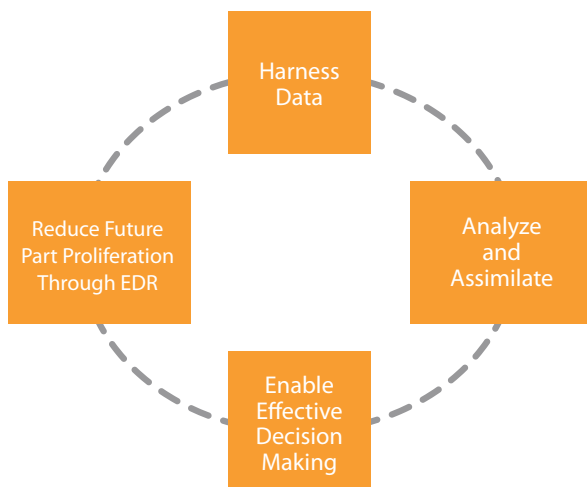
The Opportunity:

Part proliferation is an ongoing problem with many of today's manufacturing companies. With hundreds of thousands of parts to consider, companies have and will continue to experience difficulties in controlling the product data's quality and efficacy. Along with current standards that encourage part duplication in order to save time, companies face an uphill battle of incurring unnecessary part proliferation costs.

The Solution:

The time and effort spent on data cleansing can be dramatically reduced using shape-based technology. **Bingo!** automatically determines both duplicated and similarly shaped objects for each individual part. For part proliferation identification throughout the company, many powerful, visual, and detailed reports provide the location and intensity of duplicated data.

In addition to shape-based matches, **Bingo!** has tools to compare part attributes and identify parts used in an assembly, in order to help a company make correct decisions on eliminating proliferated parts. Furthermore, tools are available to actively prevent part proliferation from occurring after a data cleansing effort has been completed.



Sourcing and Supply Chain Solution

The Opportunity:

Global sourcing and supply chain professionals can produce enormous savings for large manufacturers through aggregation. Aggregation of parts leads to reductions in suppliers, reduced cost through consolidation, increased simplification, and improved productivity.

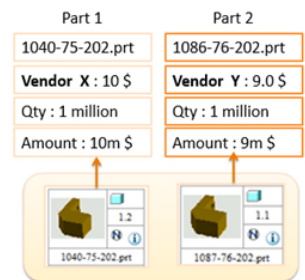
However, most engineering product data is hidden. Complex file naming rules, multiple languages, and CAD/PLM system differences make finding product data very difficult across locations. In addition, finding data pertaining to a part name or number does not give you the needed insight to compare that part to duplicate or similar parts located elsewhere.

In order to achieve the benefits of aggregation across an ever growing global organization, a new approach is necessary.

The Solution:

The ability to use the shape search technology provided by **Bingo!** allows sourcing and supply chain teams to easily locate, organize, and analyze data. Using shape to identify duplicate and similar designs provides better visibility and decision support in encouraging aggregation initiatives and cost savings.

Tools are also available to quickly compare data that exists in two PLM systems, libraries, products, and folders. Furthermore, powerful reports that identify part duplication and enable the marking of data for removal are provided to support important aggregation decisions.





ENFINIO

Envision the Power of Shape

Enfinio is formed around a simple, inspirational and disruptively productive idea. That being, for many types of search, shape-based search can convey the most precise context and therefore the most accurate and useful results. Language, semantic and meaning based search engines have certainly shifted the productivity curve of mankind, however, for many kind of searches shape matters!

It is not only exact but completely unambiguous. Shape search is name-less, Intuitive, accurate and language independent. Spelling doesn't count. File naming conventions don't apply.

"I want a part that has this shape." "I want a table lamp that looks like this."

Perform a quick Google search on table lamps, you get 36,200,000 results. But where is the lamp you are looking for?

Studies show that Engineers in large industrial organizations will spend 3-5 minutes in a hopeless search through part meta data before they just give up and build a new part.

Enfinio, Inc. believes there is a better way. A simple yet profound way to find exactly what you are looking for.

Enfinio, Inc is where search takes shape!

For more information about Bingo! or Enfinio,
please visit: www.enfinio.com