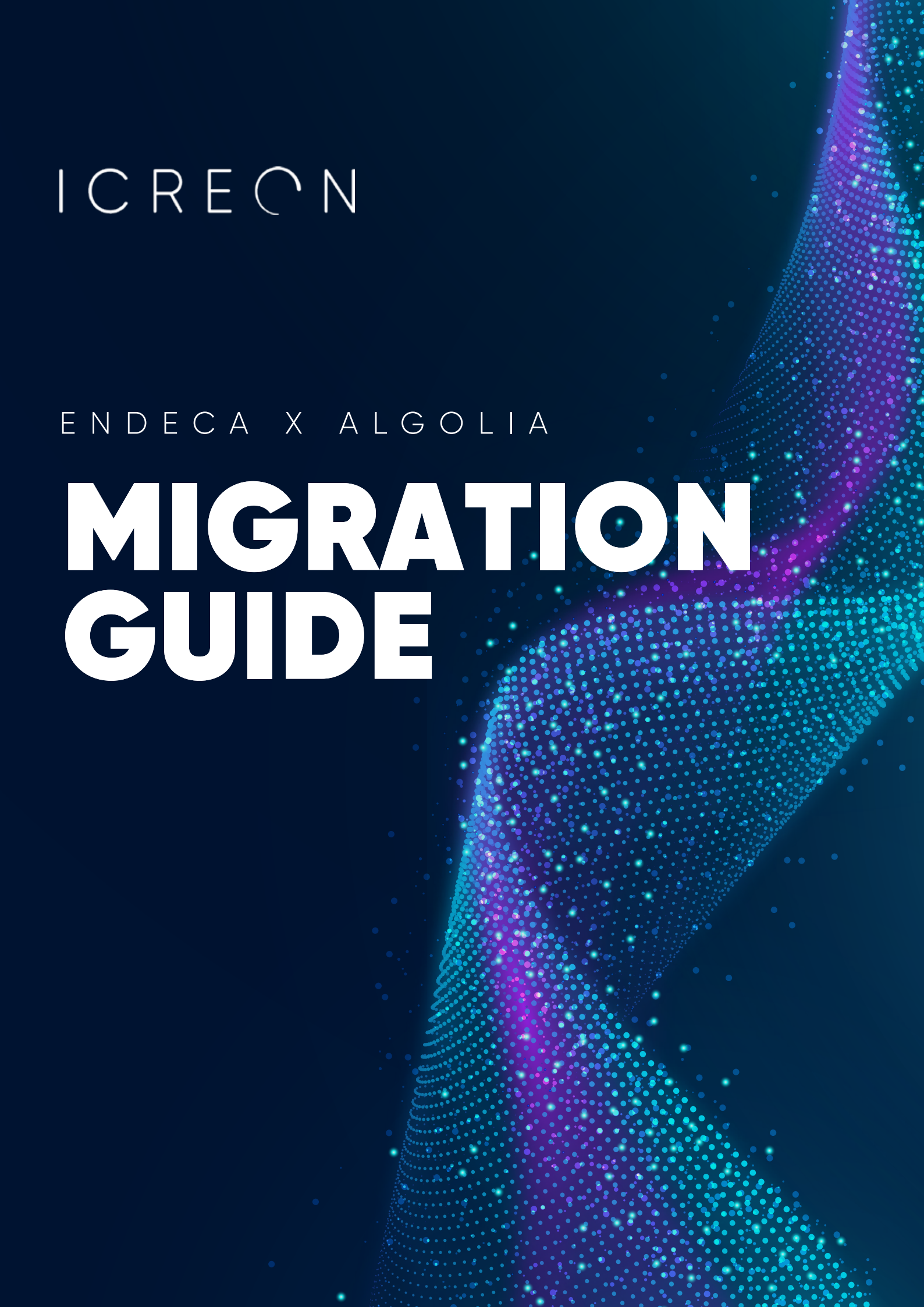


ICREON

ENDECA X ALGOLIA

MIGRATION GUIDE



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INTRODUCTION

For two decades Endeca has powered the search and discovery experience of leading retailers, manufacturers, and other businesses around the world. Unfortunately, Endeca has failed to transition to the cloud or add modern features such as AI-enhanced search that competitors such as Algolia now provide in their core offering.

This lack of innovation leaves companies with no other option than to migrate to modern tools in order to stay competitive in the marketplace. This guide will describe how to modernize your search experience by migrating from Endeca to Algolia.

WHY MIGRATE

In the early 2000's Endeca search released features such as "Did you mean", spelling correction, stemming, and wide search records to handle complex international catalogs. The acquisition by Oracle in 2011 began a slow down in innovation in the product that was exacerbated by the release of Oracle Commerce Cloud and a new reluctance to sell new Endeca licenses to customers in favor of the new SaaS e-commerce platform.

In the time between 2011 and now, the e-commerce landscape has dramatically changed. Fewer and fewer companies are purchasing all of their e-commerce features from a single vendor. API-based approaches to integrations have enabled companies to compose applications with features from multiple vendors in a single, seamless experience. Whether your e-commerce platform is Oracle, Salesforce, Magento, or Commercetools, API-based applications are capable of replacing even complex services such as search with relative ease.

Also in this time, Artificial Intelligence has become ubiquitous in every modern application powering more and more accurate predictions of human intent and actions. While Endeca provided excellent algorithm base search capabilities, the addition of AI to personalize the user experience based on past behavior is extremely powerful. When personalizing and proprietary data are integrated, With Experience Manager Endeca also enabled easy to configure recommendations.





**Revenue
Increases**

6-10%

By selecting search criteria to choose products to recommend a business user could provide specific recommendations based on data contained in the index. Now, of course recommendation engines are using more advanced recommendation capabilities leveraging behavioral analytics and Artificial Intelligence. Algolia Recommend for example, provides an additional way to increase revenue and has increased total online revenue by up to 8%.

TOTAL COST OF OWNERSHIP (TCO)

Endeca was built and released at a time when on-premise, owned-licensed software was the typical way to do business. This means that every Endeca install requires an environment to run the workbench, ITL, and several layers of development and test MDEX engine servers. In addition to maintaining this infrastructure, customers are responsible for their own upgrades, security updates, and general maintenance for the solution. In contrast, Algolia is a modern, API- first SaaS solution. All infrastructure, hosting, and maintenance are included in the Algolia subscription. This includes global deployment of your Algolia index APIs, allowing customers around the world to connect to a low latency endpoint closest to their current location. This global deployment would be very expensive to implement for a single customer on Endeca.

In addition to the infrastructure required, adjustments to the system by the business team is extremely limited. Most configuration changes are implemented by technical resources using XML files. The ability to merchandise search results are extremely limited to simple boost and bury settings. Data with business relevance such as ratings, inventory levels, or margin can only be configured by developers as part of the data ingestion process.

Algolia moves these tools into a rich administration interface in which all aspects of the implementation can be managed by technical and non-technical users.

PERFORMANCE AND SCALABILITY

As an on premise application, Endeca requires a lot of configuration to tune search performance. Scalability of the implementation is limited to the skillset of the team performing the implementation and the resources compute available. While cloud computing has made global compute resources easier to acquire and deploy, designing for redundancy and scalability are large tasks and virtualization has performance limiting impacts on the application.





**Algolia
includes in their
subscription
engineered
cluster of bare
metal servers
deployed in
400 clusters in
15 regions and
60 data centers
around the
world.**



Many smaller implementations share space in these clusters while larger indexes have dedicated clusters. These clusters provide high availability and redundancy of the application. Algolia has already done the hard work of designing consensus algorithms to ensure data consistency across the cluster as well. All of this is included without a need to devote expensive engineering resources to the implementation.

For customers with users across the globe Algolia also may provide a Distributed Search Network (DSN). Similar to a Content Delivery Network (CDN), this allows clients to distribute their clusters geographically to ensure lower latency of requests by placing cluster members closer to their users.



MIGRATION CONSIDERATIONS

As you consider a migration strategy for moving to Algolia, there are a few areas you should consider.

DATA TRANSFORMATION

When Endeca was built there were few data integration tools and even fewer product and content information management tools available on the market. One innovative feature built by the Endeca team was the Information Transformation Layer (ITL) which included the Forge component to ingest, transform, and merge data from disparate sources into a single index. You were also required to merge all data and index it at once rather than adding to that data over time.

In today's world, our data workflows have changed considerably. Complete records are more often merged into content and product information management systems. There are endless cloud tools for data transformation pipelines such as Tray.io, AWS Glue, and Google Cloud Data Fusion.

The Algolia crawler is able to traverse over the proscribed section of the domain and programmatically parsed the DOM to create and push structured data to Algolia. The solution is hosted by Algolia and can be configured to automatically run or via API. This is most commonly used for ingesting data from a diverse number of sources that are hosted on the web.

For that reason, Algolia fits into your current environment and either expose APIs to ingest content or interfaces in the management console. If you are relying heavily on the ITL today, Icreon can analyze your data transformation needs and propose the best approach for your business.

EXPERIENCE MANAGEMENT

Another innovative feature of Endeca was the release of the Experience Manager product. This product combined site experience with search and limited content management. It was the first Enterprise tool on the market that put personalization and layout management in the hands of a business user that could incorporate search facets, terms, and results. Experience Manager helped Endeca and eventually Oracle to compete against CMS solutions as part of their monolithic e-commerce package. As part of a composable architecture, Algolia does not attempt to replace experience management or content management solutions. Algolia can index content and make that content discoverable for users. It can also provide recommendations for related or frequently purchased products, but Algolia allows you the flexibility to use the product for search while working well with other MACH content solutions such as Contentstack.



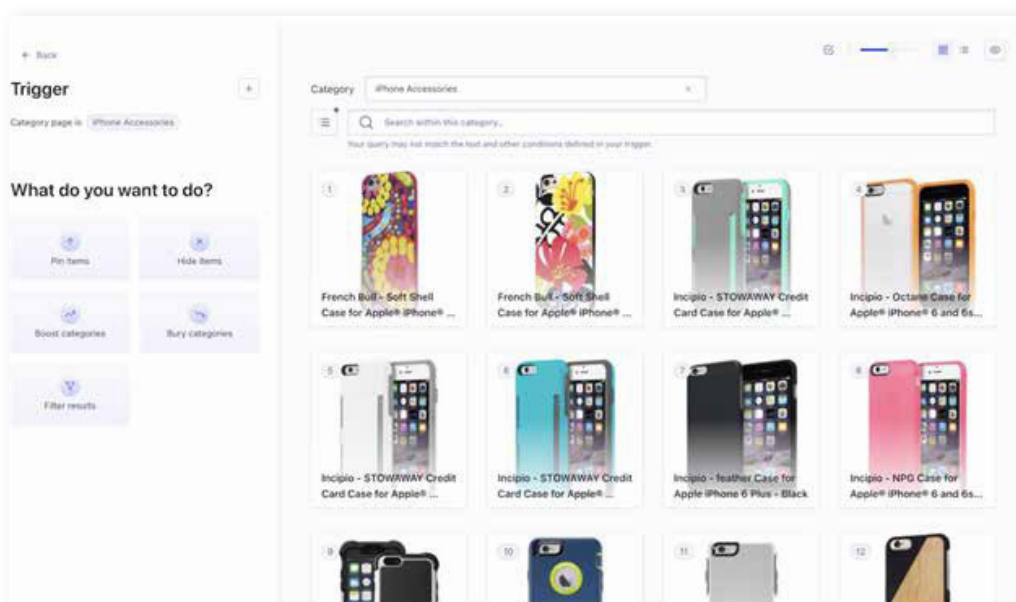
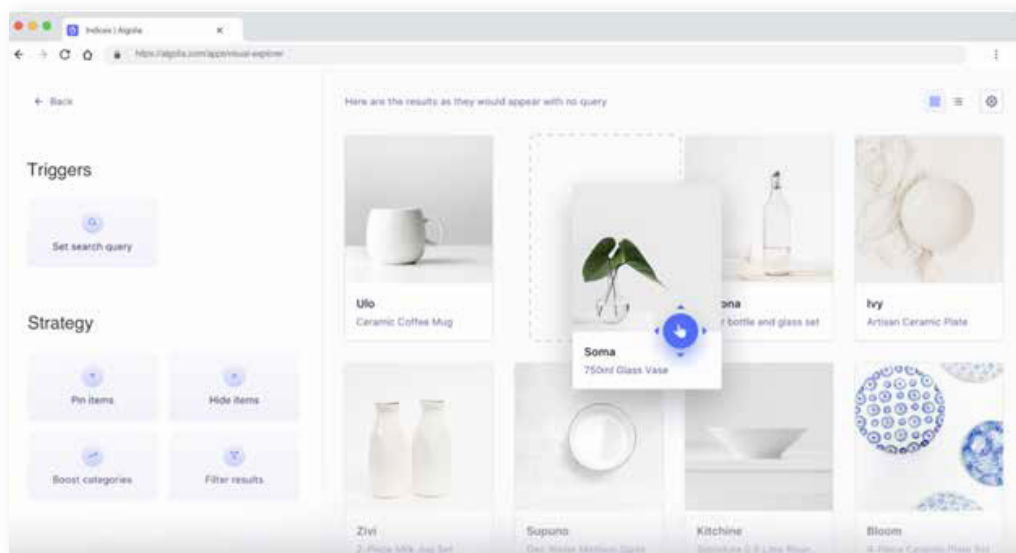
FEATURES NOT INCLUDED IN ENDECA

While data transformation and experience management are two areas Algolia does not address as part of their search solution, there are many new features included that you will want to consider as part of your migration.



01 VISUAL EDITOR

Algolia includes the visual editor that can be used to view and merchandise the results of a search or category page. A user can drag and drop, multi-select, boost, bury, or refine the results. The rules can be targeted to a specific audience and can be set to start and expire using a calendar. The configuration of a category has been made easy, simply identify what you want to merchandise and manipulate the results.





02 **RECOMMENDATIONS**

Algolia has two models available today: frequently bought together and related products. The data is available with implementation of Algolia search and click analytics, and the models can be trained with the toggle of a switch. The UI can easily be added to any Product Detail Page and additional models will be introduced soon.



03 **AI SYNONYMS**

Algolia AI will suggest synonyms based on the usage of search. The synonyms can quickly be accepted, rejected, or advanced configurations can be applied.



04 **DYNAMIC RERANKING**

Algolia AI can leverage the last 30 days of usage data to automatically promote popular items and demote underperforming items. This can be configured for search queries and viewing a category or collection page powered by Algolia.



05 **PERSONALIZATION**

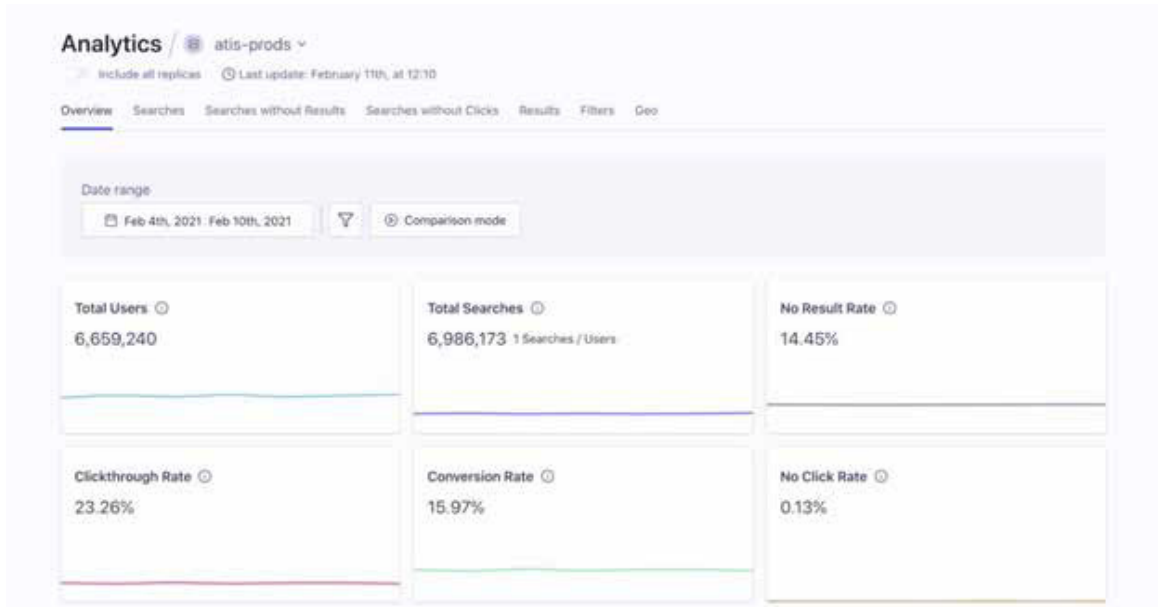
Algolia AI can leverage the last 90 days of usage data to build an affinity profile for each user based on the algorithm defined by the administrator. At query time the affinity profile is applied to the query, creating an individual personalization for every interaction.





06 ANALYTICS

Algolia collects and normalizes the API calls into a user-friendly dashboard that can be used by both administrators and merchandisers.



A single time period or a comparison of two time periods can be viewed. Additional insights on the performance are available in Searches, Searches without Results, and Searches without clicks. The performance of a search is measured by the click-through rate (CTR), conversion rate (CVR), and average click position.



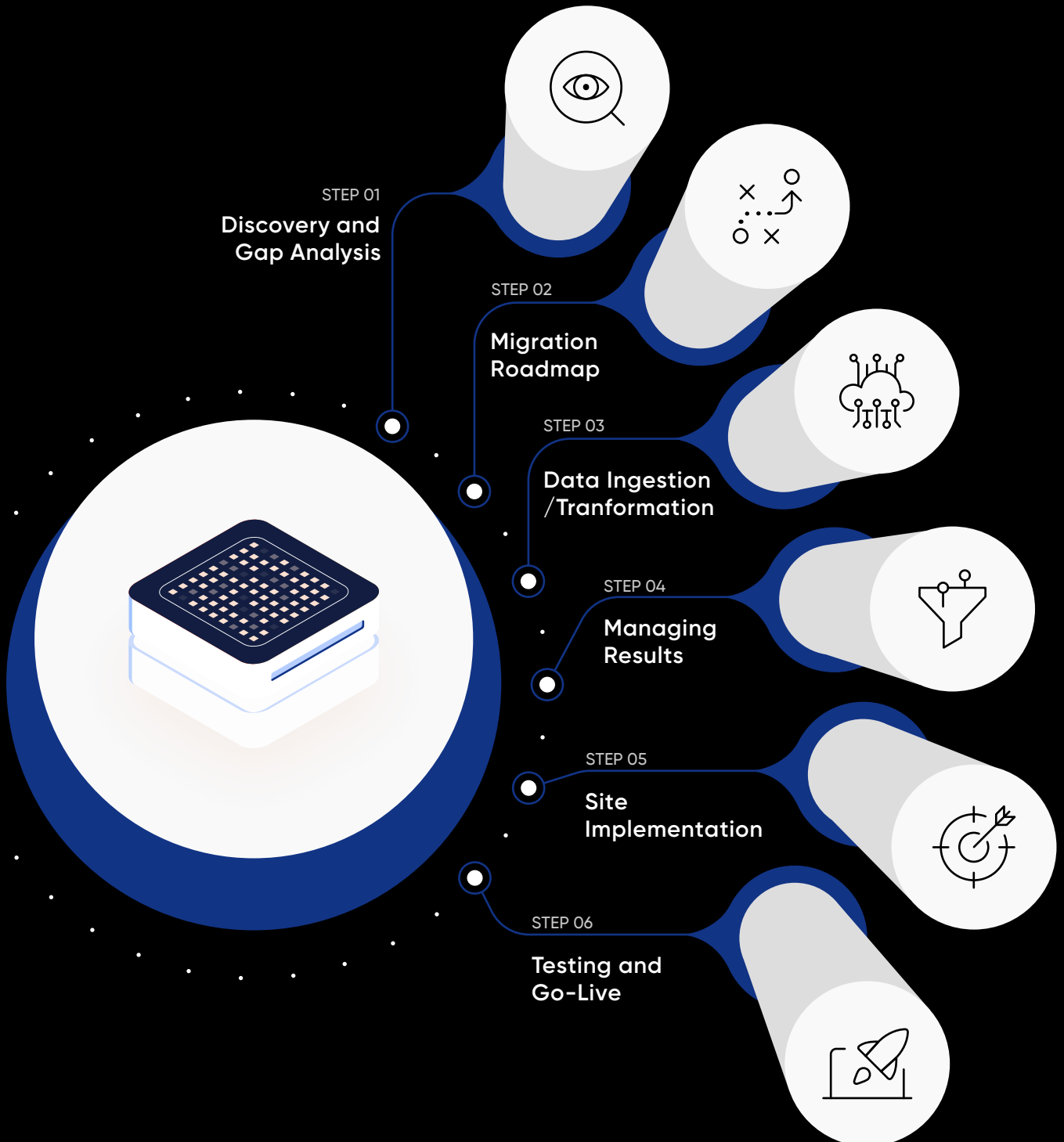
07 A/B TESTING

A/B testing allows administrators to split test a configuration without the need for an engineer. This capability is typically used to verify the positive impact of Dynamic Reranking or Personalization, but it can be used for many other configuration changes or rules in a data-driven approach.



MIGRATION STEP BY STEP

Now that we have covered our considerations for the migration, execution of that migration can begin. We'll follow 6 steps in our project:



DISCOVERY AND GAP ANALYSIS

The first step in migration is an analysis of the current Endeca environment and the processes that comprise it. The key areas to investigate include:

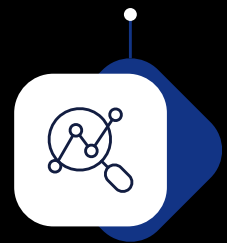
Data Acquisition and Transformation



Site Configuration



SEO Configuration



Index Configuration



Feature Configuration

DATA ACQUISITION AND TRANSFORMATION

There are two major steps in the acquisition and transformation process of data being indexed by Endeca. All of these processes run inside the Information Transformation Layer (ITL). First data is acquired through connectors in the Content Acquisition System (CAS). This may be as simple as reading your product catalog in a database or maybe as complex as acquiring data from an assortment of databases and flat files.

As mentioned previously, more modern tools exist to replace this process today that you

likely already use. In most cases, the e-commerce catalog and your content management system (CMS) are already compiled sources of the data to be indexed. If you are running ATG and Endeca together, it's most likely that the Oracle-provided integration does all of this work for you already without additional configuration.

If you are using a custom CAS data source, you should map those data sources and then the Foundry component that may be joining and transforming that data. This work may require some additional tools. You should work with Icreon to define a strategy for data ingestion and transformation.





INDEX CONFIGURATION

Next, you should inventory how the data is being indexed. This configuration lives in <app dir>/config/script/ inside of several XML files and supplies all the necessary configuration to define fields that are included in the index, their relevance in search, and custom field definitions such as ranges. Documenting these configurations will be critical in ensuring all of the current configurations migrate over.



SITE CONFIGURATION

In addition to your index configuration, the integration of Endeca into your application should also be considered. This would include any non-standard features that were built leveraging the platform such as guided selling paths, year / make / model / engine selectors, or image maps for color and fabric swatches.

This is also the time to document any Experience Manager configuration that is powering the site. If the entire website is driven by Experience Manager cartridges, a catalog of those cartridges and their functions should be taken. More often, Experience Manager is only powering a few areas of the site such as product carousels or boost and bury products.



FEATURE CONFIGURATION

There are also several features that may be configured in Endeca that you may be using. Be sure to take a snapshot of all configuration in the Workbench including Rule Manager, Keyword Redirects, Phrases, Thesaurus, Stop Words, and Dimension Order.



SEO

If Endeca is powering your URL and sitemap generation, pay attention to how URLs are currently being mapped. Take a snapshot of your current sitemap so that you can either replicate the current scheme or create a collection of 301 redirects that point the user to the new URL. This will prevent most impacts to SEO performance.



STEP 02

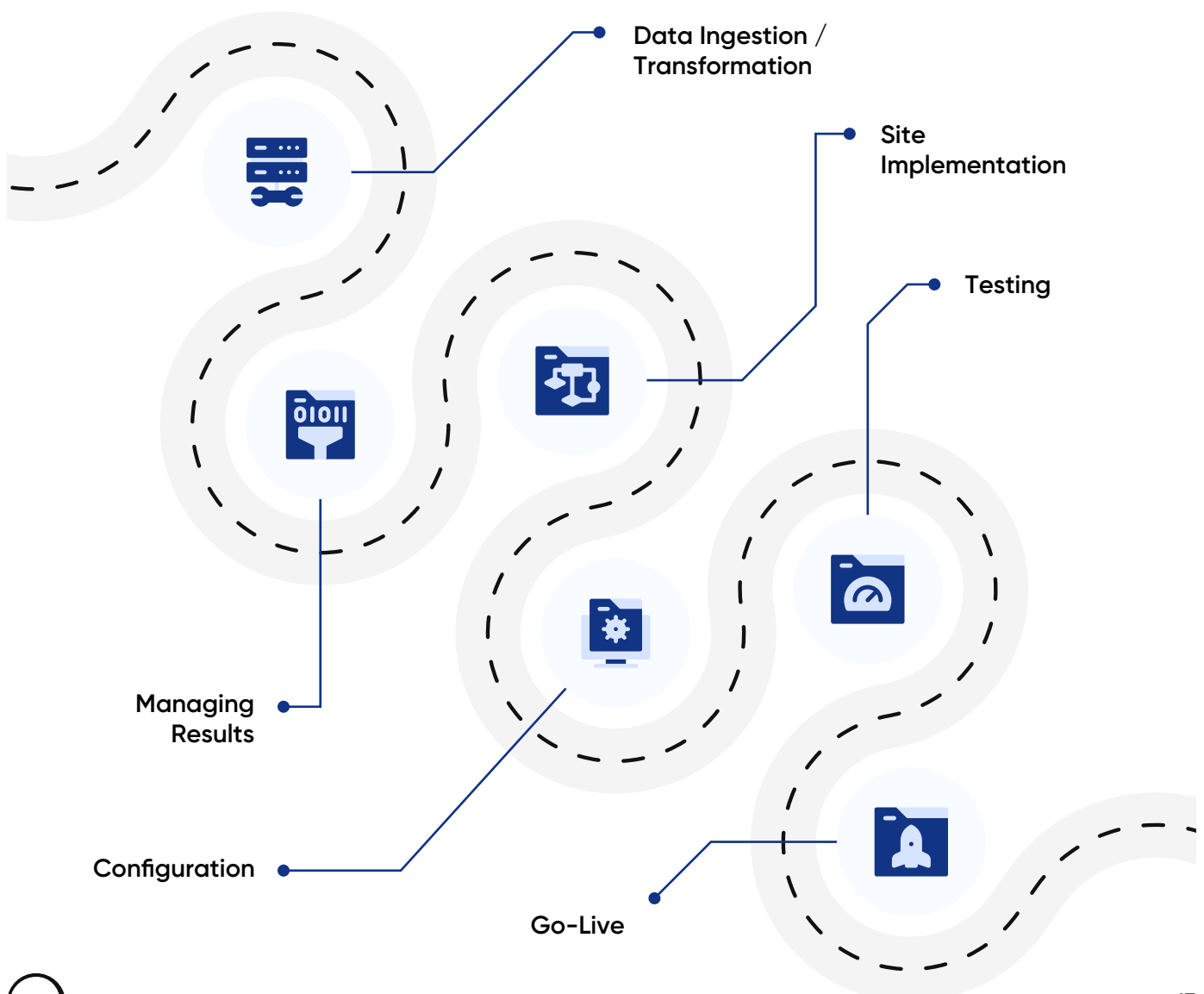
MIGRATION ROADMAP

The next step in the migration is to create a roadmap for how to transition to Algolia search. The most common path is to do a full replacement in one project. Some reasons to consider a phased approach if one of the below applies to you:

➤ You currently run most of your website experience on Endeca Experience Manager and want to migrate search or experience in phases.

➤ You use multiple search interfaces in Endeca for commerce, content or other areas and would like to migrate them one at a time.

YOUR ROADMAP SHOULD INCLUDE THE FOLLOWING STEPS:



STEP 03

DATA INGESTION/ TRANSFORMATION

As discussed previously, the most typical use case is that the current Endeca implementation is pulling data directly from an already combined data source such as an e-commerce product catalog. This may be as simple as the export of the e-commerce catalog or connecting to the catalog API of the platform.

If you are using Endeca to consolidate and transform data you will want to determine a strategy for accomplishing that transformation in PIM, CMS, or other modern data ETL tools such as Google Data Prep or Amazon Trifacta. In any case, the data may need to be structured to be ingested properly.

There are 3 primary methods of data ingestion in Algolia:

01 FILE UPLOAD

File upload requires that you convert your data to one of JSON, CSV, or TSV formats.

02 API

API upload is the best way to automate imports to Algolia from other systems. In some cases, there may be an existing connector for your source content platform that leverages the API import methods.

03 CRAWLER

The final option is using the Algolia crawler to extract data from a website in the case that the data you would like to index is difficult to access or is already combined in a way that is difficult to process.

One item to note is that data does not have to be loaded all at once. Unlike Endeca, you can load data from one source and incrementally add, modify, and delete records. This means that you may start with a standard product import, but you may add business data such as sales, inventory, or analytical metrics to the records after the initial data load is completed.



MANAGING RESULTS

Once your data is loaded into the index you can then begin to manage how your records are returned in search results. At a minimum, you should define searchable attributes, define a custom ranking, and define search filters.

DEFINING SEARCHABLE ATTRIBUTES

When migrating from Endeca, now is the time to leverage your documentation from the discovery and gap analysis section of this migration guide. Similar to Endeca, you must define which attributes are to be searched and their priority in the results. You likely have been through this exercise before, but this is a good opportunity to review your fields and priorities.

While defining the relevance of fields over one another is similar to Endeca, the ranking criteria are significantly different. This feature uses advanced algorithms to break ties in your results. This fine-tunes results for general searches to ensure the most desirable and relevant results appear at the top of the results. Algolia uses the following to rank search results:

- ✎ **Number of typos**
- ✎ **Geolocation (if using)**
- ✎ **Number of words in the query matching in the result Filters**
- ✎ **Distance between words**
- ✎ **Best matching attribute in the record**
- ✎ **Number of words matching exactly (without typo) Custom ranking**



DEFINE A CUSTOM RANKING

Defining a Custom Ranking allows you to fine-tune search results. With this feature, you can add in data that reflect business value such as page views, sales, or popularity rankings. While this was possible as part of the indexing process with Endeca, it required technical resources to configure this in the ITL process. Filters in Algolia are analogous to record filters in Endeca. In your discovery and gap planning, you should have defined all the areas where these types of filters may be applied. Common areas for record filters to apply to an index are when a catalog or content is restricted by site, profile role, organization, or county.

In the same way facets in Endeca and Algolia are similar in that they provide the user navigational filtering options that can be added or cleared. These facets may also include refinement counts allowing the user to view the number of records that will be displayed if a certain facet is selected.

DEFINE SEARCH FILTERS AND FACETS

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GROUPING

When a search is performed on SKUs multiple variants of a product can be displayed (like color or size). To display each product once the feature of Distinct is implemented in Algolia to display 1 (or a subset) of variants per product.

Distinct is a query time attribute so it can be modified dynamically. Records can store the other available variants or the records can be enriched with external API calls (usually as a lazy load) to be able to create a swatch experience customers want.



GEOLOCATION

_geoLoc stores one or an array of lat long positions and the results can be returned based on the distance to the current location or be geo boxed. The geographic data can also be used to display the results in Google Maps or similar technologies.

For scenarios where the 'as the bird flies' distance is not applicable (like deliveries), the records can store an array of numbers that represent the grid of availability for delivery. At query time the grid for the searcher can be used to boost or filter on the applicable results, allowing them to easily see what can be delivered to them. Similar implementations can be done with zipcode, City, County, or other regional areas.

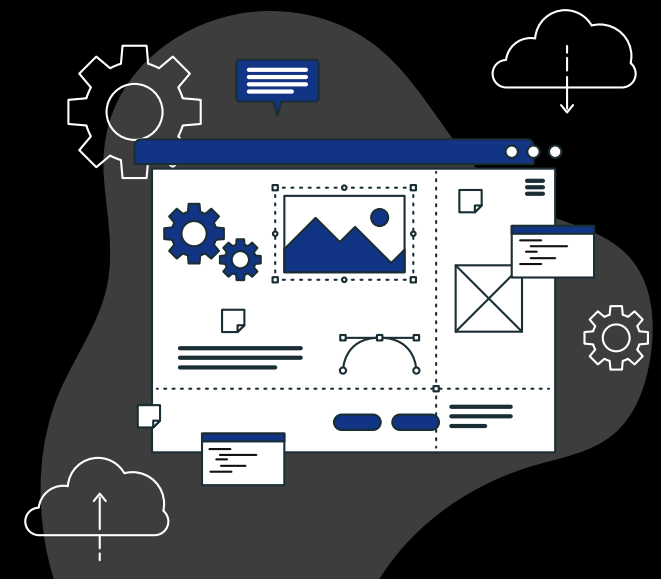
STEP 05

SITE IMPLEMENTATION

Algolia's E-Commerce Search & Discovery UI Kit provides a Figma project with predefined elements following best practices to kick-start the UI design process. This design file provides fully customizable templates for all Algolia related UI components in a mobile-first, omnichannel-aware, experience ready to be branded for your needs.

If you are implementing Algolia on top of one of the supported platforms such as Magento 2, Shopify, Salesforce Commerce Cloud, WordPress, Zendesk, Jekyll, and Netlify or frameworks such as Laravel, Symfony, Django, and Rails there are connectors to accelerate the integration and implementation.

If your site runs on legacy platforms like Oracle ATG or SAP hybris, Instant Search offers open-source libraries for JavaScript frameworks (React, Vue, Angular), iOS, and Android. These provide pre-built widgets and implementation guidance. For custom applications, Algolia has client libraries in PHP, Ruby, JavaScript, Python, iOS, Android, C#, Java, Golang, Scala, and Kotlin. Ensure a seamless transition with SEO considerations. If using Endeca, extract the sitemap, create 301 redirects for the new URL structure, and consider manual curation or script-based curation by a developer.



TESTING & GO LIVE

Testing the implementation is part of the implementation that is often not given sufficient time and resources. Ensure that before the testing phase actually begins that test scripts that map back to the original requirements of the site have been written.

Be sure to not only include ranking strategies, guided navigation, and type-ahead, but also advanced features that may have been implemented such as:

PERSONALIZATION

ADVANCED
MERCHANDISING RULES

QUERY
SUGGESTIONS

ANALYTICS
INSTRUMENTATION

301 REDIRECTS

INTERNATIONALIZED
CONTENT

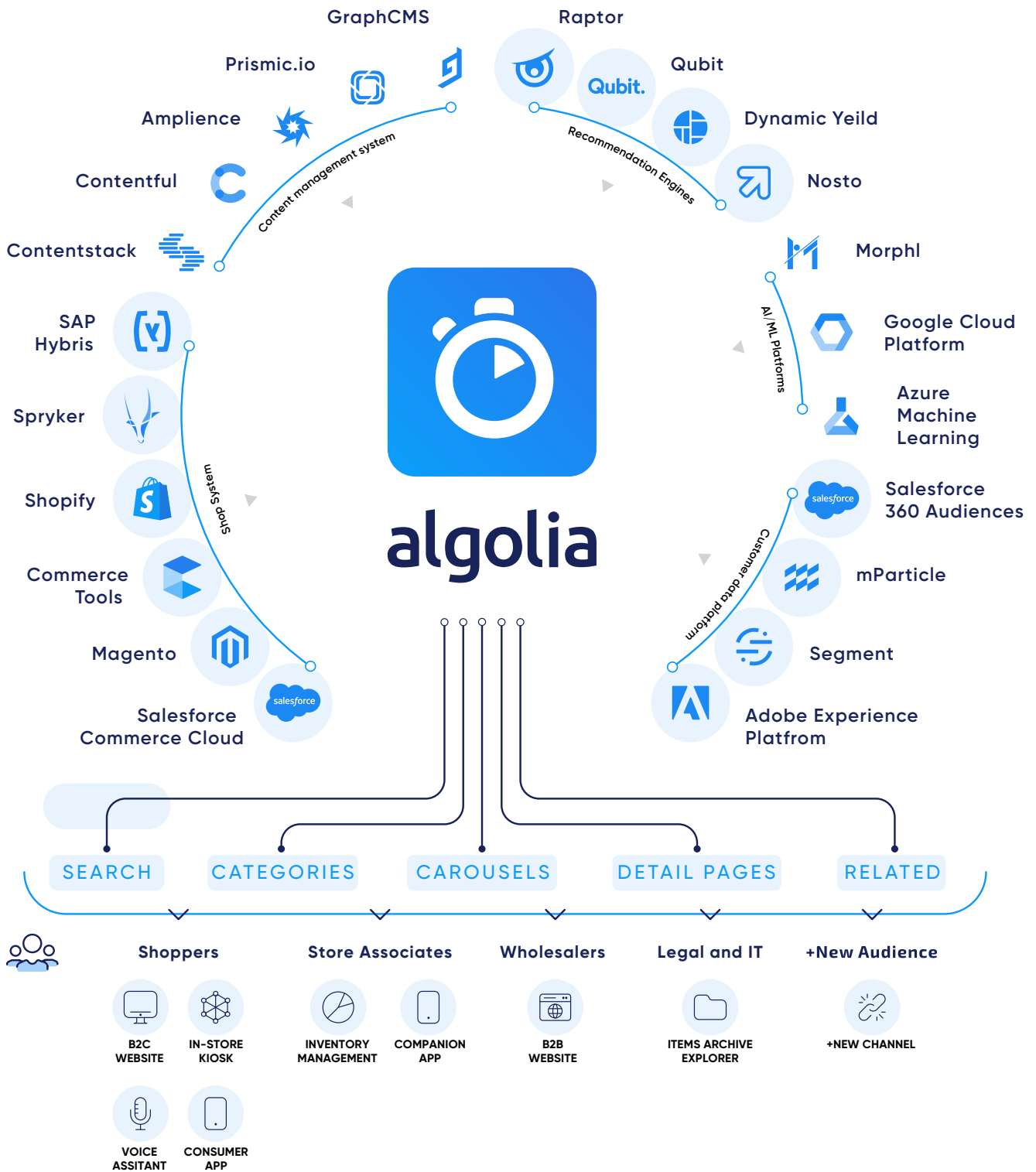
Before going live, be sure to run through the Algolia Implementation Checklist for additional platform settings to double-check.

It is also a great idea to take a snapshot of your current analytics platform KPI's and measurements. In addition to conversion rates, average order values, page views, and engagement, also be sure to take note of popular search terms, product detail views, zero result search terms, and total page searches. After go-live leverage the built-in analytics tools to understand how customers are using the new search tools. Algolia provides much deeper analytics of how search is performing than Endeca is able to, so reading and understand the Algolia Guide on Getting Insights and Analytics is important.

When you notice that certain adjustments may improve your customer's experience, Algolia makes it easy to make those adjustments with tools instead of configuration and deployment. In addition to easy-to-use tools, you should also A/B Test your changes to ensure new strategies actually do improve performance.



REFERENCE ARCHITECTURE



While Endeca led the charge in search for many years, innovation on the platform ended years ago. While there are a few areas to be considered such as ETL and site experience, Algolia and Icreon have the experience to guide your company towards a search experience that not only provides a lower cost of ownership, but also delivers innovative features and vastly improved experiences for customers, users, and developers.



ABOUT ICREON

Founded in 2000, Icreon has been collaborating with businesses of all sizes to make a new meaningful impact in a new age of digital maturity, resulting in more efficient and powerful brands. We help businesses define the future of their customer experiences and then develop personalized solutions for them by merging technology engineering solutions and the power of digital. These digital-first solutions not only result in commerce transactions, but also enrich our ongoing relationships with our clients.

Headquartered in New York City, Icreon's global capabilities expand across North America, Europe, and Asia. With a dedicated team of over 400 technology specialists across the globe, our team supports clients at companies such as GSK, Novartis, Jazz Pharmaceuticals, New York Road Runners, and Lincoln among others. We blend the art of digital transformation and engineering solutions to generate ROI for brands for "what comes next."

[**Let's Get Started**](#)