

# Index-Based Discovery Services

## *Current Players and Products*

The current library marketplace includes five index-based discovery services from three vendors. It is notable that the products in this category have remained constant since the initial slate of offerings emerged around 2009. The development and maintenance of the central indexes that power these products represent a massive investment of resources that is a very high barrier to entry for new products.

- EBSCO Information Services has developed EBSCO Discovery Service.
- Ex Libris, now owned by ProQuest, develops and supports Primo and Summon.
- OCLC offers WorldCat Discovery Service and its predecessor, WorldCat Local.

These discovery services have been very widely implemented among academic and research libraries as well as smaller proportions of other types of libraries. The market share distribution of these products will be analyzed in chapter 4.

For each of these organizations, its discovery services play a key role in its broader product strategies. The background of each product and how it fits within the company's product portfolio will be discussed below.

### **Ex Libris: Diverse Products for Academic Libraries**

Ex Libris has become established as the largest provider of technology products and services to academic and research libraries. The company was acquired by ProQuest in December 2015 and operates as a wholly

owned subsidiary. ProQuest also offers a wide range of content products, including aggregated databases, e-books, dissertations, and other resources of interest to libraries. ProQuest in turn is a subsidiary of Cambridge Information Group, owned by the family of Robert N. Snyder, with minority ownership by Goldman Sachs.

Ex Libris had assembled a diverse product portfolio prior to its acquisition by ProQuest:

- Its original product, the **Aleph** integrated library system, was developed in the early 1980s for the Hebrew University of Jerusalem.
- In 2000 Ex Libris acquired the **SFX** technology from Ghent University and subsequently launched it as a commercial product. In support of SFX, Ex Libris created a global knowledge base of e-resources.
- **MetaLib**, a federated search utility, was introduced in 2000.
- Ex Libris acquired the **Voyager** integrated library system from Elsevier in 2006.
- **Primo** was launched in 2006 as an enhanced discovery interface with relevancy-ranked results and faceted navigation.
- **Rosetta**, a digital asset management and preservation application, was released in 2009.
- Development of **Alma** began in about 2009, with its first implementations made in 2012.
- The **Leganto** resource list management application was announced in 2015.

Once under the umbrella of ProQuest, Ex Libris assumed responsibility for its library workflow and discovery products:

- **360 Link**, which was developed by Serials Solutions as an OpenURL link resolver that included a knowledge base of e-resource holdings.
- **360 Search** (previously Central Search) federated search application, launched by Serials Solutions in 2005.
- **WebFeat** federated search application, acquired by ProQuest in 2008. This product was eventually discontinued, though aspects of its design and technology were incorporated into 360 Search.
- **AquaBrowser**, originally developed by MediaLab as a graphical discovery interface for public libraries, acquired by ProQuest subsidiary Bowker in 2007, and shifted to Serials Solutions in 2008. Many academic libraries, including Harvard University, implemented AquaBrowser during its ownership by Serials Solutions. This product is no longer actively developed and currently is used only by some library services in the Netherlands.
- **Summon**, launched as the original index-based discovery service in 2009.
- **Intota Analytics**, developed as an early component of a library services platform that ProQuest had planned to create.
- **RefWorks**, a citation manager acquired through COS (Community of Science).
- **Pivot**, a resource to help research universities discover grant funding opportunities.

Since its acquisition, Ex Libris has announced **Esploro**, a new research services product intended to help universities optimize their research activities, including providing increased exposure to research outputs, creating faculty profiles, and incorporating discovery of funding opportunities.

Ex Libris has recently acquired Research Research Ltd., or \*Research, a UK-based company that has developed content and discovery resources for research funding opportunities from the UK, European, and other international regions. \*Research also publishes newsletters, including policy perspectives and other content of interest to the academic research community.

### Ex Libris Evolving Discovery Strategy

Ex Libris has continually evolved its discovery products throughout its business history. The company has been active in an expanding set of product categories in recent decades. These categories include resource management, resource discovery and delivery, and more recently, products oriented to the broader academic enterprise. On the discovery front, Ex Libris's Primo currently stands as the company's flagship product, though the company develops and supports other related technologies.

Over the course of the company's business history,

Ex Libris has offered discovery products consistent with the expectations of each given era.

Ex Libris's discovery products have advanced in step with the trends in the library technology arena. The online catalogs of its Aleph and later Voyager integrated library systems (ILSs) were typical for the era. They offer a combination of search and browsing capabilities to enable access to the materials managed by the ILS, primarily monographs and journal titles. Both Aleph and Voyager continue to be widely deployed in academic and national libraries globally, though installation numbers are gradually declining as these libraries migrate to Alma and competing products.

For much of the history of library automation, online catalogs of ILSs were the primary library search tool. These online catalogs have generally implemented interface conventions specifically developed for accessing library collections using browse lists and keyword searching. The complex interfaces of online catalogs fell out of favor among some libraries once internet search engines came on the scene with their simplified interfaces and sophisticated search and retrieval technologies.

As libraries became widely invested in electronic resources, new discovery and management tools emerged to complement the ILSs, whose inherent design was focused on print resources.

Ex Libris launched SFX in 2000 as a linking utility to assist users in gaining access to the full text of articles from citations, search results, or other contexts. SFX proved itself as a successful product, initiating a new competition among this new category of context sensitive link resolvers. SFX and 360 Link continue to be used in many libraries alongside various discovery interfaces. The most current of these components have been redeveloped with Alma, with new knowledge bases resident within its Community Zone.

Shortly after the launch of SFX, the company developed its MetaLib federated search tool. Federated search enabled a library user to enter a search that was then distributed to multiple content sources, usually organized by academic discipline, and received consolidated results. While libraries were interested in better ways to provide access to their expanding collections of electronic resources, federated search is an inherently limited technology, plagued with inconsistent search results, slow performance, time-outs of targets, and poor relevancy based on shallow result sets.

Ex Libris has a longstanding strategy of developing products that operate independently from its core resource management products. This strategy can first be seen with SFX. This product was launched in about 2000 and was adopted by academic libraries using a variety of ILSs. Once these libraries became customers of Ex Libris's lower-cost product, many of these

libraries eventually purchased larger scale products such as Primo or Alma.

Primo was launched in about 2006 during a time of peak interest in replacing traditional online catalogs with more modern interfaces. The initial versions of Primo included a relevancy-based search, faceted navigation, and a simplified and customizable interface. Primo uses indexes populated with records from the library's local ILS, local repositories, or other resources. Ex Libris offered a package marketed as MetaLib+, which used the Primo discovery interface with the MetaLib federated search engine.

Primo was launched prior to the development of Alma and was designed to operate with any ILS. Many of its installations were in libraries that used its Aleph or Voyager ILS, but it was also integrated with products from competing vendors, including SirsiDynix Symphony or Horizon, or Sierra or Millennium from Innovative Interfaces.

Ex Libris enhanced its Primo discovery interface with Primo Central, a new full-text article-level index introduced in 2009, shortly after the introduction of Summon from ProQuest. Ex Libris has continually expanded the Primo Central index since its introduction. Primo Central is based on an index that represents broad coverage of the resources of interest to academic libraries. Some gaps remain, mostly due to specific publishers opting not to expose their content within relevancy-based discovery services. Ex Libris was positioned to leverage publisher relationships initially established for SFX to form partnerships with content creators to contribute to the Primo Central index.

The acquisition of Ex Libris by ProQuest brought two of the index-based discovery services into a single organization. The former technology products of ProQuest and its Serials Solutions subsidiary are now part of the Ex Libris product suite. Ex Libris has also been given responsibility for Pivot, RefWorks, Intota Analytics, and the 360 Suite of electronic resource management applications.

Under Ex Libris, Primo and Summon continued to be developed, supported, and marketed (see tables 3.1 and 3.2). The indexes of these products, however, are now populated from a unified process. Prior to the merger, the Primo and Summon indexes were similar, though each had some content not available in the other. The consolidation of the back-end processes results in a more comprehensive index while giving the company some efficiencies in maintaining the products. The Summon and Primo Central indexes continue to be deployed on separate technology platforms. The interfaces for the two products have always been quite distinct. Primo offers a highly customizable discovery interface with indexes that can be created to represent diverse content resources in addition to the library's catalog and Primo Central.

Summon's interface is more streamlined with less emphasis on customizability.

Ex Libris initially introduced Primo as a stand-alone discovery product designed to be integrated with any ILS, including its own Aleph and Voyager products as well as those from competitors. This strategy built on a strategy seen with SFX where Ex Libris was able to sell products and build relationships with libraries outside its Aleph customer base. Through these relationships, Ex Libris was better positioned to market higher-profile products, such as Primo. Primo likewise was an entrée into Alma. Libraries that had previously implemented Primo with a traditional ILS were natural candidates to implement Alma once it became available.

In the current marketplace, Alma has seen wide adoption among larger academic libraries, and with that success, Primo has likewise gained ground. The market study incorporated in this report reflects a strong trend toward bundling Alma and Primo, though other options remain possible. In recent years, most Primo sales have been to libraries implementing Alma.

Ex Libris also supports Summon as a discovery and user interface for Alma. This option has been exercised by only a small number of libraries. Many libraries implementing Alma that were previously Summon sites have shifted to Primo, including Carnegie Mellon University, Fairfield University, Texas Health Science Libraries Consortium, and Oakland University.

Summon sales have remained relatively strong during the initial period of the consolidation of Ex Libris and ProQuest. Ex Libris reported 126 new contracts for Summon, primarily to libraries using non-Ex Libris ILS products. The NC LIVE program offering resources to all North Carolina residents selected ProQuest content resources delivered via Summon.

Ex Libris continues to develop new types of products beyond the resource management and discovery arena. Leganto belongs to a new category of reading list and copyright management, which spans resource management and discovery. Based on the Alma platform, Leganto provides discovery and delivery of library-provided resources for courses. Instructors use Leganto to produce lists of resources required or recommended for each class, tapping into resources owned by the library and managed through Alma or from other sources. Leganto also includes features to ensure copyright compliance and to minimize duplicative purchase or licensing of resources. The company has also launched Exploro, a new application based on the Alma platform to help universities enhance their research efforts, highlighting the accomplishments of faculty members and helping to discover funding opportunities, manage research data, and other related activities.

One of the threads running through the company's

**Table 3.1.** Primo sales statistics from 2006 to 2017

Year	Contracts	Libraries	Installed
2017	126	244	2,233
2016	138	223	1,989
2015	117	237	1,766
2014	88	122	1,529
2013	98	256	1,407
2012	101	237	1,151
2011	111	158	914
2010		506	756
2009	53	120	250
2008	37	53	130
2007	12	38	77
2006	8	59	8

discovery strategy has been an emphasis on unifying previously separate resources and services into consolidated services. The company has designed its products centered on the concept of unified resource discovery and delivery and unified resource management. The scope of its product suites continues to expand. Leganto and Esploro reach beyond the traditional bounds of the library into the broader campus for support for teaching and research.

## EBSCO Information Services: Content, Discovery, and Technology

EBSCO Information Services, the largest subsidiary of EBSCO Industries, provides a diverse portfolio of products and services for libraries. The company traces its history to 1944 to a company established by Elton B. Stephens to sell magazines to military bases; EBSCO Industries was established in 1958. The company has steadily added new products and services, including a variety of business acquisitions. Today EBSCO Information Services ranks as one of the largest companies offering products and services to libraries. Revenues across all EBSCO Industries companies are estimated to exceed \$2.8 billion annually. The portion derived from EBSCO Information Services is not publicly disclosed. EBSCO Industries is privately owned by the Stephens family. Tim Collins currently leads EBSCO Information Services as its president and chief executive officer.

As one of the largest global companies oriented to libraries, EBSCO Information Services has products that include the following:

- Content packages
  - A variety of research databases via its **EBSCOhost Research Platform** in many academic disciplines.
  - **EBSCO eBooks and Audiobooks.** EBSCO began a new initiative in 2018 to offer e-books

**Table 3.2.** Summon sales statistics from 2009 to 2017

Year	Contracts	Libraries	Installed
2017	67	164	740
2016	73	73	602
2015	158		718
2014	195	192	697
2013	169		673
2012	158		504
2011	214		407
2010	164		170
2009	50		50

without cumbersome digital rights management restrictions and now offers 70,000 e-books without DRM.

- **Flipster** digital magazines, launched in 2014.
- Content acquisition services
  - Print and electronic journal subscriptions via **EBSCONET**.
  - **GOBI** for acquiring books and other library materials.
- Discovery, access, and resource management technologies
  - **EBSCO Discovery Service (EDS)**, the company's flagship product for broad-based discovery and access to library resources.
  - **Explora**, a simplified discovery interface designed for school and public libraries, addressing selected collections of articles, topic overviews, and video content.
  - **OpenAthens** single sign-on technology, via a partnership with Eduserv established in 2007.
  - **Full Text Finder**, an application for libraries to organize their electronic resources and to provide public interfaces for searching, browsing a library's electronic resources, and linking to full text. The product operates on top of the EBSCO Integrated Knowledge Base.
  - EBSCO, via a partnership with Hybrid Ventures, offers **Stacks**, a comprehensive library website environment fully integrated with EDS for access to library resources.
  - A growing list of utilities and applications are available from EBSCO's **Apps and Cloud Services** offerings.

The **EBSCOhost** platform hosts the content products that EBSCO produces directly or licenses from other content providers. The content portfolio of **EBSCOhost** spans almost all academic disciplines and includes products oriented to academic libraries, the health-care industry, corporate information centers, government agencies, public libraries, and schools. Many **EBSCOhost** databases include access to the full text of the articles indexed.

**EBSCOhost** Integrated Search extends **EBSCOhost** with dynamic connections to selected external

targets. The product incorporated federated search technology to provide access to databases and other resources not directly indexed on EBSCOhost. EBSCOhost Integrated Search continues to be supported, though EDS is now promoted as the company's strategic offering for search and discovery.

EDS, launched in 2009, builds on the EBSCOhost platform to address the broadest representation of content of interest to libraries. EDS natively includes all resources delivered on EBSCOhost as well as metadata and full text from most publishers and aggregators. EDS also ingests metadata from and enables real-time interfaces to the libraries' ILSs. EDS falls within the company's software-as-a-service (SaaS) portfolio, which in recent years has become an area of growing strategic focus.

The indexing and relevancy ordering of results through EDS prioritizes subject indexing, consistent with the company's core expertise in producing content resources such as its A&I (abstracting and indexing) databases. EBSCO promotes this characteristic as an advantage of its discovery technologies relative to competing products based on keyword algorithms. This approach also resonates with other producers of A&I products, some of which contribute content to EDS but not to other discovery services.

The EDS API (application programming interface) was released in June 2012. This API enables third-party discovery interfaces to incorporate search results from EDS and has been an important factor in enabling interoperability with ILSs and fostering partnerships of mutual interest.

### Recent Enhancements

EBSCO has recently made a variety of enhancements to EDS. In addition to links to the full text of articles, EDS now also provides links to specialized databases covered by the library's subscriptions to facilitate further exploration of the topic via their native interfaces.

The EDS Interface now follows a responsive design, enabling easier use across all types of devices, including those with smaller screens, such as smartphones.

EBSCO, beginning in fall 2018, is launching Knowledge Services, a new suite of products based on the EBSCO Integrated Knowledge Base. These products are each powered by the EBSCO Knowledge Base API, spanning both electronic resource management and end-user interfaces.

### Content Exchange with Discovery Services

Index-based discovery services depend on content creators to provide access to metadata or full text. The discovery service provider builds its indexes based on this content, in most cases linking users back to the content provider for access to the full text of the items

selected from search results.

Almost all the primary publishers of scholarly and professional journals have contributed their content to the major index-based discovery services. These publishers gain an additional layer of exposure for their resources through participation, which benefits their business through possible increases in use, which in turn stands to bolster new subscriptions and renewals.

The role of A&I products within discovery services is more complicated. These products include proprietary content in the form of subject terms, abstracts, and other value-added elements applied to selected journals, book chapters, and other publications within a defined discipline. How the citation metadata, value-added elements, and full text fit within a discovery service is not necessarily straightforward and has been a controversial dimension of the index-based discovery arena.

Most A&I providers do not directly provide their content to discovery services or opt to cooperate only with ones able to control access to their proprietary content and that give special consideration to their subject indexing and abstracts. Discovery services can potentially pose a threat to their business model, based on the concern that libraries would no longer subscribe to their products if indexing based on the articles were perceived as a sufficient and less costly approach. To date, interest in A&I products remains strong despite the near saturation of index-based discovery services among academic libraries.

### EBSCO Discovery Service Market Position

EBSCO Information Services reports current installations of EBSCO Discovery Service (EDS) at around 16,000 sites. Table 3.3 provides the numbers of new contracts and total installations EBSCO reported for EDS for the *American Libraries* "Library Systems Report" in recent years.<sup>1</sup>

These installation counts far exceed those of the competing products. The marketplace study of academic libraries in the United States presented in the following chapter shows a more even distribution among the competing products. It should be noted that EDS has been licensed by many nonacademic libraries, including some public library systems and those associated with schools, corporations, and other types of organizations. The product has been implemented in almost all global regions and is used in conjunction with almost all ILSs.

EBSCO Information Services has a multipronged strategy for positioning its discovery service in libraries. In addition to direct sales to libraries in response to procurement processes focused on discovery, EBSCO has also formed many partnerships with the vendors of ILSs and open source projects for the integration of its discovery service.

**Table 3.3.** EBSCO Discovery Service sales statistics from 2013 to 2017

Year	Contracts	Libraries	Installed
2017			12,416
2015	2,634		10,003
2014	2,634		8,246
2013	1,774		5,612

The global sales force of EBSCO naturally promotes the product to libraries based on its merits as the only discovery service that prioritizes subject indexing in its relevancy algorithm, its interface features, and its ability to integrate with other interfaces and services.

EBSCO has worked with almost all the organizations developing ILSs to help enable integration between their products and EDS. The EDS API, released in 2012 and continually enhanced, enables the online catalogs or discovery interfaces to offer article-level results in addition to the local holdings managed within the library's ILS. The EDS API can also enable a library to use EDS as a complete replacement for the online catalog for its ILS. The market study presented in the following chapter shows that EDS has been implemented in conjunction with all the major ILSs within the study group.

Partnerships with EBSCO have proven to be beneficial to the ILS vendors that have not created their own index-based discovery services, e-resource knowledge bases, or other components for electronic resource management and access. Given that academic library collections are now dominated by electronic content, these components are essential to retain existing customers and to attract new ones. Currently EBSCO Information Services is the primary company that actively partners with the ILS companies to provide an index-based discovery service. Many academic libraries, for example, have implemented Primo with their non-Ex Libris ILS, but this arrangement is primarily supported by Ex Libris and is not an option actively promoted by the ILS vendor. In this market sector, these companies compete directly with Ex Libris, which not only has a specialized resource management system, but also has two of the major index-based discovery services in its product portfolio.

SirsiDynix and Innovative, both companies with substantial numbers of academic library customers, do not offer their own index-based discovery services and have developed business and technology partnerships with EBSCO. Innovative launched Encore Duet in April 2014, combining its Encore discovery interface with article-level search results from EDS. This product is available to libraries that subscribe to both Encore and EDS; many libraries have initiated subscriptions to EDS through the procurement of Encore Duet. SirsiDynix has a similar arrangement with

EBSCO for its BLUEcloud Campus product, which combines its Enterprise discovery layer with the EDS API. This strategy has helped SirsiDynix fend off many defections from libraries using its Symphony and Horizon ILS products that otherwise might have moved to Ex Libris Alma or OCLC WorldShare Management Services.

Given the must-have status of the index-based discovery services for most academic libraries, those using ILSs often seek an integrated solution with a third-party provider. Many ILS providers have worked out partnerships with EBSCO.

### Implications of FOLIO for Discovery Services

The FOLIO project to develop a new open source library services platform continues to advance. We can expect production implementations of this product beginning in 2019. Given the sponsorship of this project by EBSCO, we can also anticipate that most of these implementations will be integrated with EDS. Because it is an open source project, libraries can opt to create integrations with other discovery services, but most, if not all, of the currently named development partners and early adopters are likely to use the EDS index for article-level discovery.

In addition to its in-kind and financial support of FOLIO, EBSCO has announced that it plans to offer hosting and support services. ByWater Solutions will also provide support services, with EBSCO providing hosting. We can reasonably assume that EBSCO-hosted installations of FOLIO would be integrated with EDS and other apps available from the company's SaaS offerings, although that is not explicitly stated as required.

The top tier of academic libraries represents the most lucrative segment of the library technology and services industry. Product pricing is scaled according to the size and complexity of the institution, meaning that large institutions carry considerably more economic impact. Given that some of the early FOLIO partners are in the category of large academic libraries, the project has the potential to strengthen EBSCO's position within this market segment.

Ex Libris currently holds a dominant position in the top tier of academic libraries for placement of its discovery products, though EDS has a higher percentage of libraries among Doctoral/Research Universities—Intensive than either Primo or Summon individually, though not combined.

If the momentum of Alma continues at about the same pace it has in recent years, Ex Libris will also strengthen its market share in the discovery sector. Possible disruptions to that trend would include a wave of FOLIO implementations once the product has been completed and additional libraries opting to use EDS alongside Alma. A more cooperative relationship

between EBSCO and ProQuest to enable interoperability between EDS and Alma cannot be ruled out, but thus far has not been announced.

Neither OCLC nor Ex Libris has yet announced any plans to develop integrations between FOLIO and its discovery service.

### EBSCO Discovery Service Prospective

EBSCO Discovery Service (EDS) is currently the most widely deployed index-based discovery service globally. The success of EDS can be attributed to its merits on content coverage and interface design, as well as its interoperability with strategic systems implemented in libraries.

The almost unbridled success of Alma, with its tendency to capture current or potential EDS implementations, has had an impact on the higher tiers of the more lucrative academic library market. EBSCO has a very strong position among libraries that continue to rely on ILSs as the core of their automation environment. These libraries appreciate the integration options available for EDS. The trend for academic libraries to move away from ILSs to library services platforms has become increasingly pronounced in recent years. This trend works against EDS since most libraries opt to implement the bundled discovery service. EBSCO's involvement with FOLIO addresses this market trend, tapping into multiple threads of interest, including an additional option in the narrow slate of library services platforms, open source software as a hedge against the control associated with proprietary systems, and a modular architecture promoted as offering more flexibility for functional components.

### OCLC: A Suite of Discovery Tools Based on WorldCat

OCLC, a nonprofit cooperative based in Dublin, Ohio, is owned by its members, governed by a board of trustees, with a set of global and regional councils providing advice and oversight. An executive team, led by President and Chief Executive Officer Skip Prichard, provides strategic and operational leadership of the organization. OCLC operates as a nonprofit in the United States but is involved in commercial competition for library products and services and is active in almost all global regions.

The nonprofit offers a wide range of products and services, addressing almost all aspects of library operations. While too numerous to comprehensively describe, some of the offerings relevant to this report include the following:

- Resource management products
  - **WorldShare Management Services** was

launched in 2011 as a library services platform based on the bibliographic ecosystem of WorldCat. Its data model relies on attaching inventory records to WorldCat records and aims to deliver highly streamlined workflows by avoiding the need for local bibliographic databases.

- **WorldShare License Manager** provides functionality for managing licenses associated with library content subscriptions. Though tightly integrated with WorldShare Management Services, it is an optional, separately priced service.
- **CONTENTdm** is an application for the management of image and other digital collections. The product is deployed on its own codebase separate from the WorldShare platform.
- **EZproxy** provides authorization and authentication services to enable users to access restricted content resources.
- Metadata services
  - **WorldShare Metadata Services** supports OCLC member libraries in describing their collections, including using WorldCat records for copy cataloging, creating new original records, and attaching their holdings to bibliographic records for resource sharing. OCLC's metadata services span all formats, including print, electronic, and digital materials.
  - **WorldShare Collection Manager** provides bulk records for collections of e-books or other packaged content.
- Resource sharing
  - **WorldShare Interlibrary Loan** provides a brokering service to enable libraries to borrow and lend print and electronic materials.
  - **Tipasa** is a new interlibrary loan management utility based on the WorldShare platform intended to eventually replace the ILLiad application widely used for managing lending and borrowing operations in library interlibrary loan departments.
- Discovery services
  - **WorldCat.org** is a public-facing interface for the OCLC bibliographic database intended for use by the general public as well as member libraries and their patrons. The service enables users to find what libraries near them hold items of interest.
  - **WorldCat Discovery Service** is a subscription-based service for comprehensive patron search of the WorldCat.org database (prioritizing local library holdings) and article-level metadata associated with library subscriptions.
  - **FirstSearch** addresses the same content resources as WorldCat Discovery Service, but using an interface with advanced search capabilities oriented more toward library staff

members than patrons. FirstSearch subscriptions also enable exposure of the library's holdings to the open web through WorldCat.org.

OCLC's discovery products take advantage of the massive WorldCat.org database. This resource currently includes over 425 million bibliographic records and continues to grow at a rapid rate. It is populated through the cataloging performed by member libraries as well as by batch loading of records from national libraries, regional consortia, and other organizations. Publishers and other vendors also provide records for WorldCat, often with minimal descriptive data, which are often subsequently enhanced by catalogers from member institutions. WorldCat provides the foundation for OCLC's resource-sharing products and services, including WorldShare Interlibrary Loan, ILLiad, and Tipasa.

WorldCat Local was launched in April 2007 as an extended discovery tool integrated with a library's ILS. The product is based on the WorldCat database, prioritizing results for resources held by the library, with features such as real-time availability and requests enabled through live connections to the local ILS. WorldCat Local enables patrons to discover items in their library's collection and beyond, simplifying the process of having to search multiple systems to find and request items of interest. WorldCat Local depends on a library's collection being accurately represented in WorldCat, usually accomplished through a synchronization process OCLC describes as "reclamation."

In addition to the bibliographic records describing books and journal titles, WorldCat Local also provided access to an extended article-level index, populated with citation data received from publishers and aggregators and harvested from open access repositories. WorldCat Local has steadily grown in the article-level content indexed.

In April 2009 OCLC announced its intent to create a new resource management service based on WorldCat. Initially named Web-Scale Management Services, the product was branded as WorldShare Management Services in November 2011 prior to its initial production release.

OCLC launched WorldCat Discovery Service in January 2014 as an eventual replacement for WorldCat Local. WorldShare Management Services was deployed on a new technical platform and offered a redesigned interface and other improvements. Upon its production release, OCLC reported that the central index for WorldCat Discovery Service covered more than 1.5 billion articles, book chapters, and other electronic content.

WorldCat Discovery Service is offered as the default public interface for new libraries subscribing to WorldShare Management Services. WorldCat Local continues to be supported for libraries using

**Table 3.4.** WorldCat Local installations from 2009 to 2017

Year	Installed
2017	725
2016	725
2015	698
2014	1,796
2013	1,717
2012	1,683
2011	1,578
2010	1,419
2009	624

WorldShare Management Services and ILS products from other vendors.

OCLC released a beta version of the WorldCat Discovery API in October 2014. This API enables libraries to integrate results from WorldCat and the article-level central index into their own interfaces and other services. As of August 2018, this beta API has not yet been established as a commercial service.

Each of OCLC's discovery products addresses the needs of different categories of users, but all contribute to the organization's broader mission of supporting libraries through the efficiencies and impact gained through global cooperative services and supporting technology infrastructure.

WorldCat.org provides the general public access to library resources available in its member libraries. It is designed to help individuals find materials in nearby libraries and connects to local catalogs to display status and availability, enabling searchers to gain access to materials physically or electronically.

The number of active subscriptions to WorldCat Local peaked in 2014 and has declined since that time (see table 3.4). Many of these libraries have shifted to WorldCat Discovery Service. Table 3.5 shows the installations of WorldCat Discovery Service from 2014 to 2016.

The market positions of WorldShare Management Services and WorldCat Local are difficult to assess due to the complexity of implementation scenarios and license arrangements. The focus of interest in this report is on libraries that use an index-based discovery service as their primary search interface. Many libraries may have access to the OCLC discovery products but do not position them prominently on their websites as their main search tool for their patrons.

OCLC reported 521 libraries using WorldShare Management Services at the end of 2017, as shown in table 3.6. Almost all these libraries are using WorldCat Discovery Service or WorldCat Local as their patron interface and primary discovery tool. These libraries using WorldShare Management Services comprise about 12 percent of the combined subscriptions reported for WorldCat Local and WorldCat Management Services. A large portion of the subscriptions



**Table 3.5.** WorldCat Discovery Service installations from 2014 to 2016

Year	Installed
2016	3,737
2015	3,642
2014	2,085

for WorldCat Discovery Service are currently associated with FirstSearch subscriptions, including use intended for library personnel or advanced users as a specialized reference resource.

OCLC plans to phase out WorldCat Local in favor of WorldCat Discovery Service as its broad-based discovery tool. Contrary to initial announcements, OCLC now plans to continue FirstSearch as an advanced search interface for WorldCat. Although now combined, subscriptions for FirstSearch and WorldCat Discovery Services will eventually be discrete.

Not discounting the usefulness of OCLC's discovery products for library personnel and as reference tools, it is also important to understand the relative position of the product as a library's primary discovery service. The total subscription counts reported by OCLC reflect broad interest in these products, but do

**Table 3.6.** WorldShare Management Services sales statistics from 2010 to 2017

Year	Contracts	Libraries	Installed
2017	52	54	521
2016	83	97	440
2015	68	73	386
2014	79	90	303
2013	92	140	177
2012	163		73
2011	184		38
2010	130		5

not tell the whole story in terms of their use as a library's core discovery service. The implementation study presented in the following chapter will provide some insight into this question.

### Note

1. Marshall Breeding, "Library Systems Report 2018: New Technologies Enable an Expanded Vision of Library Services," *American Libraries Magazine*, May 1, 2018, <https://americanlibrariesmagazine.org/2018/05/01/library-systems-report-2018/>.