

# Liferay DXP 7.1

Features Overview

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# Foundation

Successful digital businesses require platforms that are built on solid, reliable IT. Liferay DXP 7.1 delivers with features like modular architecture, a powerful search engine, and advanced tools for testing and upgrades.

## Platform

Liferay DXP gives businesses the ability to connect backend systems through integration along with a flexible, modular architecture that enables agile growth with user needs. Key functionality includes site administration, identity management, search and more.

<b>Simplified UI</b>	Liferay DXP simplifies the user experience of internal, external and channel websites – notably those that allow users to login for personalized services or views and those that require a workflow approval process to update content and integrate or aggregate multiple existing services. Liferay DXP provides a presentation layer for integrating all enterprise systems into a single easy-to-use interface for end users.
<b>Quick Configuration</b>	A fast, responsive interface makes Liferay DXP extremely easy and enjoyable to use for everyone in your organization. Typically time-consuming tasks such as altering a page layout, adding new applications and content, and changing look and feel can all be done in a couple of clicks without ever refreshing the page.
<b>Integration Framework</b>	Liferay DXP is a central presentation layer platform for integrating content and services from back end or legacy applications. Liferay supports multiple methods to integrate, including SOAP, REST, RSS, as well as proprietary APIs.

<b>Multitenancy and Virtual Hosting</b>	<p>Multiple websites serving different groups of users can be administered in a single instance of Liferay, leading to cost savings and operational efficiency for your organization. Enterprises have the ability to organize users by business-defined categories such as departments, geographies or offices, as well as by cross-departmental teams and workgroups. Each organization and site can inherit or define its own permissions and administer user, group and role management for the various applications it chooses to include. A single instance can be used to create many websites quickly to create hosted websites within one Liferay deployment, and each clone can have its own unique URL, custom theme and design. For example, a single deployment could host <code>www.companyA.com</code> and <code>www.companyB.com</code> with completely different themes, pages and applications.</p>
<b>Product Menu</b>	<p>Administrators and registered users have access to administrative and personal applications from the Product Menu, leaving the screen real estate available for site navigation and decorations. The product navigation is fully extensible to allow customizing it for any need. All the tools for managing the current page are now in a bar (Product Menu, Add Content, Add Application, Add Page, Edit Page, Device Preview).</p>

<p><b>Search</b></p>	<p>Dynamic, extensible search is built-in. Elasticsearch, the market-leading open source search engine for modern web applications, is the default search engine in Liferay DXP and provides powerful search monitoring, tuning and scaling. Search capability is extensible using open search, or swapping in a different search engine like Solr. Liferay DXP offers faceted and multi-tier search:</p> <ul style="list-style-type: none"> <li>• <b>Faceted Search</b> - Liferay provides users an efficient way to instantly refine search results by drilling down with specific constraints that match the user's search criteria. For example, a retail site built on Liferay would allow you to search for merchandise by inputting various combinations of criteria, such as color, size and price.</li> <li>• <b>Multi-Tier Search</b> - A platform with web content, documents, images, wikis, blogs, and other user-created content becomes a massive repository of data. Search becomes a vital aspect for users of the system since it is essential that users can find the content they need when they want it. Liferay's search also allows users to search across all assets within the platform to which they currently have access, while also restricting them from assets in which they do not. This multi-tier search capability ensures that users have access to only open content or content available to them based on their roles and membership in various communities.</li> </ul>
<p><b>Data Protection</b></p>	<p>Data protection tools in Liferay DXP help companies address GDPR regulations and maintain control over how their platform manages user data. Companies can erase a user's personal data and export a user's personal data in a machine-readable format upon request. For data erasure, administrators can review content that potentially contains personal information and edit or delete as needed through a simple interface. Both tools include APIs for third-party apps to implement this feature or override the default behavior for out-of-the-box apps.</p>
<p><b>Cloud Support</b></p>	<p>On-premise and hosted cloud configurations are also supported by Liferay with multiple hosting and managed hosting providers available today including AWS EC2, Azure and more.</p>

<p><b>Workflow Framework</b></p>	<p>Liferay DXP allows you to incorporate workflow into any of your own custom applications by leveraging Liferay’s workflow APIs. This provides a better end user experience, saves your development team a lot of effort by reusing Liferay’s workflow administration tools, and provides seamless integration with all supported workflow engines.</p>
<p><b>Auditing and Performance Monitoring</b></p>	<p>To help administrators monitor the platform’s performance and better optimize resources, Liferay DXP gives administrators access to key performance statistics (hits/page, avg time/hit, max time per request, and more) for all applications and pages. Meanwhile, our Auditing feature allows administrators to track and manage user activity within the platform.</p>
<p><b>Modularity</b></p>	<p>Liferay provides a highly modular architecture that allows for greater extensibility, stability and flexibility. Developers can enjoy an elegant development model all based on the standards of the OSGi family. Modularity leads to many benefits such as:</p> <ul style="list-style-type: none"> <li>• Greater flexibility including the ability to remove unused modules</li> <li>• Faster new features implementation with users getting new modules as they’re ready rather than at the next GA release from Liferay</li> <li>• Reduced complexity with greater stability since updates and bug fixes are delivered independently and routinely</li> <li>• Quicker deployment since modules can be installed, uninstalled, started or updated all while running Liferay DXP</li> </ul>
<p><b>Page Customization</b></p>	<p>Depending on what an administrator allows, users can customize pages by adding, removing, positioning content or application attributes (e.g., zip code for weather application). These pages can be made public (published as a website with a unique friendly URL) or kept private.</p>

<b>Custom Fields</b>	<p>Administrators can customize, edit, add and change user attributes (name, company, date or any other information that needs to be tracked or logged by your system) directly from Liferay, without needing to modify their database. This support extends to Pages, Web Content, Blogs Entries, Documents and its folders, images and its folders, bookmarks and its folders, forum messages, calendar events and wiki pages. Liferay also offers a framework so that developers can leverage this functionality in their custom applications to support custom fields for their own entities.</p>
<b>Site Administration</b>	<p>Users can create and manage sites and their respective members. Each site gets its own set of pages, content management system, shared calendar and permissions. Users belonging to multiple communities can easily navigate between sites. Page settings allow site administrators to change the portal look and feel with one click, manage portal pages, insert JavaScript and metadata, set friendly URLs, create page sets to help you organize your pages/navigation and more.</p> <p>One-click page and site creation is possible: web structures and templates allow common web layouts to be predefined and saved for future web pages. With one-click page creation, users can create a new page and immediately begin adding content to the page layout, allowing web pages to be set up within minutes without any developer support required. Users can also create Sites with sets of predefined pages configured to their needs. These site templates can be dynamic, allowing all changes to the parent template to be inherited by associated children sites.</p>

<p><b>High Availability and Scalability</b></p>	<p>The Liferay platform has been tested to support tens of thousands of simultaneous virtual users as an infrastructure portal and in collaboration use cases on a single application server. It has also been deployed in large installations with millions of active users in the most demanding environments. Liferay DXP is highly scalable — for example, it has been certified to work seamlessly with data grid products for massive scalable data caches.</p> <p>Additionally, customers can feel secure in deploying Liferay to cloud-based environments — many users have deployed the platform to private clouds built on top of VMWare, Xen, and KVM technologies and to public cloud infrastructures like Amazon EC2.</p>
<p><b>Identity Management</b></p>	<p>Liferay offers a customizable single sign-on (SSO) that integrates with CAS, LDAP (Active Directory, etc.), NTLM, CA Siteminder, Oracle Access Manager, Novell Identity Manager, OpenSSO and more. For example, the SAML 2.0 Provider allows Liferay to act as your SSO server to authenticate all applications integrated. OAuth 2 is the de facto standard for providing authentication and authorization between systems.</p>
<p><b>Single Page Applications</b></p>	<p>Users experience faster loading and greater performance on the Liferay platform through Single Page Applications, a technology that provides dynamic and responsive web experiences by taking only the parts of a page that need to be loaded rather than reloading the entire page. This can be achieved in Liferay DXP through Senna.js, a SPA engine.</p>



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## Security

Liferay DXP has been “VerAfied” by Veracode. This independent third-party certification means that Liferay DXP has successfully undergone rigorous testing based on the most widely accepted and comprehensive methods, and that the platform meets customer requirements for addressing security issues in an effective and proactive manner. In addition, Liferay DXP is developed according to secure coding best practices and guidelines such as the OWASP Top 10 and the CWE/SANS Top 25. Our continuous security testing process includes regular security code reviews, penetration testing by ethical hacking firms, continuous white and black box security scans from third-party firms and continuous vulnerability monitoring of third-party libraries included in Liferay DXP. Whenever new potential security vulnerabilities are found by Liferay’s security team, customers are notified and provided with a security update or fix pack.

# Experiences

Liferay DXP is designed to support omnichannel experiences, including digital touchpoints across web, mobile and connected devices. Features around business productivity also help companies create useful experiences for employees and partners, making the platform a solid foundation for almost any project. Create consistent, personalized experiences quickly and easily.

## Content Management

Content Management features provide support for creating and managing web experiences for developers and business users, including a modern UI, content authoring, no-code page creation, geolocation and staging tools.

<b>Liferay CMS</b>	Main interface for Liferay’s integrated web publishing system. Allows users to create, edit and publish content as well as reusable content templates and structures. These structures and templates enable users to quickly build pages and websites while maintaining a common look and feel across an entire site. It also allows for one-click changes in layout and one-click creation of full pages. There is built-in workflow, article versioning, search and metadata.
<b>Web Content Display</b>	Publishes any piece of web content created within Liferay WEM to a page. Web Content Display is used to display most of the web content on Liferay.com and other Liferay-driven websites, and can be arranged on a page with a convenient drag-and-drop.
<b>Modern UI</b>	Liferay supports modern UI frameworks and Single Page Applications (SPAs). Users experience faster loading and greater performance on the Liferay platform through SPAs, a technology that provides dynamic and responsive web experiences by taking only the parts of a page that need to be loaded rather than reloading the entire page. This can be achieved in Liferay DXP through Senna.js, a SPA engine.  Support for third-party UI frameworks include Metal.js, Twitter Bootstrap, JQuery, ReactJS, AngularJS, Senna.js, Vaadin and more.

<p><b>Widget Pages</b></p>	<p>Widget pages use the traditional method of creating pages through adding and configuring applications (widgets) to a page layout of columns and rows. This method is recommended for pages that want to pull in existing content and information and for content that will be reused in other pages or sites.</p>
<p><b>Content Pages</b></p>	<p>A type of basic page that allows you to add content directly to a single page, rather than storing it as an asset. Content Pages leverage Page Fragments to quickly build layouts and add content to marketing and landing pages. This is useful for site pages that don't need to leverage structured web content within Liferay for reuse, such as one-off landing pages for marketing campaigns.</p>
<p><b>Page Templates</b></p>	<p>A preconfigured page to reuse throughout a Liferay site to create pages quickly. Page Templates exist in a collection to select for use in building Content or Widget pages. New templates can be created using existing Page Fragments.</p>
<p><b>Page Editor</b></p>	<p>This is a new way to create pages and templates with the introduction of Page Fragments in Liferay DXP 7.1. The Page Editor allows business users to visually lay out page designs and save them as reusable templates. Within this interface, users can search through collections and add fragments to the template, where marketers can then customize text and images with a few clicks. Fragments can incorporate Liferay's out of the box applications and configure them within the Page Editor.</p>
<p><b>Page Fragments</b></p>	<p>Fragments are designed components to quickly create pages and page designs without coding. Fragments are organized in collections and leverage familiar asset management features such as drafts, thumbnail previews, search and permissions. Page sections can be saved as fragments and reused across pages within a Liferay site.</p>

<b>Fragment Editor</b>	Developers can create or edit fragments using this professional code editor. Alternatively, developers can create fragments with their preferred tools and import the fragments into Liferay.
<b>Display Pages</b>	Create a common template for a particular type of web content without touching code. Use page fragments to implement the design of the page and map content sections to the web content with a few clicks. When a piece of web content is published with a display page template, it will automatically be given its own page with a unique URL, replacing the default content in the template with the newly added web content.
<b>Inline Editing</b>	Content editors can conveniently and quickly enter and update copy on Content Pages with inline editing. This also allows editors to see a preview of the final results as they work.
<b>Menus</b>	Menus are decoupled from page navigation in Liferay, giving business users the freedom to create custom menus for sections of the site or remove menus when desired such as on marketing landing pages. A drag-and-drop interface allows you to manage menu hierarchies and save different menu sets.
<b>Asset Publisher</b>	Allows users to dynamically display any piece of content either through a set of publishing rules or by manual selection.
<b>Related Assets</b>	Allows users to specify assets that are related to the asset they are creating. For example, when creating a new web content, users can specify that the content is related to a document, blog post, forum post or any other asset. When someone views that content, the related assets are also shown so the user can look for more information.
<b>Tag Cloud</b>	This displays a cloud of tags from some set of assets in a site.

<p><b>Dynamic Tagging</b></p>	<p>Search can be used to look inside content published within the platform, but occasionally it is not enough to help users find their desired content. Dynamic Tagging is available in Liferay, allowing content creators to define keywords associated with their content. Users can add keyword tags to web content, documents, message boards and more, simplifying search and enabling powerful features like the Asset Publisher.</p>
<p><b>Geolocation</b></p>	<p>Geolocation is the ability of knowing where your users are located and showing maps of your entities. For example, say you have a Structure and Template for adding events to your Liferay system. When filling out the piece of content, the author can manually enter the address of where the event will be held. Once the content is rendered it will display an inline map of the location of the even</p>
<p><b>Web Content Diffs</b></p>	<p>Web content can be compared when the content is being processed through a workflow. This makes it easier for the content approver to review the changes before approving them.</p>
<p><b>AlloyEditor</b></p>	<p>A modern WYSIWYG editor designed to create modern and gorgeous web content, AlloyEditor is the default editor and aims to improve the experience when creating new content in Liferay DXP. It includes the ability to preview source written in HTML as its being typed live, which makes it simple to add new content using only the source code. AlloyEditor uses a context-aware toolbar that stays out of the way until it is needed.</p>
<p><b>Role Based Content Delivery</b></p>	<p>Liferay DXP allows for multiple user types to access a single URL and access a unique page view depending on the users role, group, organization or personal preferences. Administrator controlled and user customized, Liferay DXP provides a central platform for determining enterprise content policy, including who can edit and publish content, files, communities, files and applications.</p>

<b>Site Content Sharing</b>	Gives you the capability to share various content pieces between child and parent sites. As the administrator of a child site, you will be able to use all the structures, templates, categories, application display templates and more from any of your parent sites that allows for it.
<b>Site Map</b>	Displays a structured directory of links to all pages. The Site Map can be used to navigate directly to any page on the site. It can be configured to display the entire site or a sub-section of pages. This site map is automatically generated and the hierarchy can be changed with drag-and-drop allowing administrators to quickly rearrange pages within the site.
<b>Breadcrumbs</b>	Displays a trail of “parent” pages for the current page. The Breadcrumb app can be placed on public pages as a navigational aid when using Liferay to publish websites.
<b>Navigation</b>	Allows for dynamic generation of navigation. Displays and sorts site content based on page structure, tags and categories. Nine Application Display Styles can be used to enhance your navigation's look.
<b>File Selector</b>	A modern UI for file selection leverages Liferay's core navigation, search and filtering capabilities. It displays a breadcrumb of documents, images, and other files, with pagination implemented to accommodate for folders with long lists of files and assets. In Liferay DXP, the File Selector has been updated with a new UI that makes use of the Documents and Media navigation and search capabilities.
<b>Inline Image Editor</b>	Allows for simple image editing directly from within Liferay, eliminating the need for an external tool while creating content. Resize, crop and make color adjustments to any image uploaded to Documents and Media from within blogs or any other application that uses an item selector. The image editor has been designed in a way to make it easy to customize and allows for developers to create and deploy tools that modify images.

<b>Recycle Bin</b>	All deleted content goes in a Recycle Bin that allows recovery in case of accidental deletion. The Recycle Bin supports full search as well as browsing within deleted folders.
<b>Nested Layouts</b>	Nested page layouts are possible through simple drag and drop.
<b>Multi-language Support</b>	International or multilingual organizations get out of the box support for languages. Users can toggle between different language settings with just one click. You can also easily add other languages. In addition, right to left language support is fully functional out of the box without the need to install a separate app.
<b>Localization</b>	Create localized versions of sites and content for specific regions. Email notifications can also be localized.
<b>Web Content Folders Workflow</b>	Give users the ability to subscribe to specific folders and content types and now also provides the ability to set up separate workflow processes per folder and content types. Web Content Folders now also have the ability to restrict specific web content structures to a specific folder.
<b>Web Content Prioritization</b>	Create a ranking of assets for publishing.

<p><b>Staging</b></p>	<p>Liferay allows multiple teams to work on several variations of a site simultaneously and schedule publication dates for each. For example, three different teams can work on sites for Halloween, Thanksgiving and Christmas and schedule their variation to publish at different times. Enhanced staging includes automatic versioning with history, undo support at the site and page level, and preview based on scheduled publications.</p> <p>Pages from a live site can be edited and previewed without affecting what is seen on the public site, then scheduled for future publishing all within the online editor. Users can use this same method to edit individual pages, entire communities or full websites. Liferay also allows users to “roll-back” to previous versions of pages, sites or communities.</p>
<p><b>Publish and Export Templates (Staging)</b></p>	<p>Liferay DXP has the ability to create custom export configurations for when you are exporting Site pages from within a Site.</p>
<p><b>Restart a Finished Process (Staging)</b></p>	<p>Saves administrators time by allowing the staging process to be restarted using the same configuration. Once you have published to live the Staging status appears on the Current and Previous tab. A drop down option lets you relaunch the process using the same configuration.</p>
<p><b>Multiple Step Staging</b></p>	<p>Staging can go beyond two environments to multiple environments to support a greater variety of setups.</p>



<p><b>Search Engine Optimization (SEO)</b></p>	<p>With its ability to easily create web content, blogs, wikis and to share documents, Liferay DXP allows a website to become a valuable repository of information. While Liferay’s internal search can be used to find data within Liferay DXP, Liferay also optimizes updates to the site map information and other metadata, which allows new pages to be instantaneously searchable by external search engines. Additionally, all pages within the platform can be easily given a friendly URL (i.e., you can easily setup new pages and define their URLs as &lt;www.companyA.com/documents or www.companyA.com/training&gt;). Pages can define a custom robots.txt to indicate pages that should or should not be indexed. Also, Liferay’s Single Page Application (SPA) technology provides the benefits of dynamic web sites without hurting SEO.</p>
<p><b>Application Display Templates</b></p>	<p>Application Display Templates are a way to define how built-in and custom applications display content. Site administrators and web designers can create, edit and share templates directly in Liferay, significantly reducing the time to develop and deploy customizations. You can change the look of individual apps without customizing the plugin. These templates allow you to fully customize the look and feel of an application without using a theme or hook, which require deployment and typically have to be upgraded between Liferay versions. In Liferay DXP, you have the ability to customize the RSS, Language, Wiki, Asset Publisher, Navigation and Breadcrumb apps and more.</p>
<p><b>Search Applications</b></p>	<p>Search Bar, Search Results and Facet applications allow for flexibility in page construction and bookmarkable pages.</p>

# Mobile

Liferay DXP's mobile experience suite is a collection of software to enable responsive design, native and hybrid app development, push notifications, and mobile integration with different Liferay instances and applications.

<b>Mobile Device Rules</b>	Feature and framework for defining different platform behavior based on device type with a built-in set of device definitions for most mobile device platforms (iOS, Android, etc.) and an optional device detection database for purchase.
<b>Responsive Design</b>	Liferay DXP's CSS framework is responsively designed to work with browsers on all platforms from mobile to tablet to desktop.
<b>Mobile Device Preview</b>	Preview your content on a variety of predetermined or custom screen sizes.
<b>Adaptive Media</b>	Adaptive Media is an application in Liferay that dynamically adjusts images to best fit the screen size of the device being used. It also offers deep control over how images are loaded and displayed, allowing companies to address performance issues across a wide variety of devices and varying network speeds between users and countries.
<b>Native App Development with Liferay Screens</b>	Rapidly develop native apps with a collection of fully native mobile components, using all the power of your Liferay platform as an enterprise grade mobile back end.
<b>Hybrid App Development with Liferay Screens</b>	Liferay Screens enables software developers to use Apache Cordova or Xamarin to build cross-platform applications from one codebase designed for the web on a PC and embed that content into a Screens app for mobile use. Sites and applications designed for PC can be rendered in screenlets with no additional code. The resulting apps allow native mobile capabilities and navigation to be mixed with HTML content seamlessly.

<b>Liferay Push</b>	Liferay Push exposes a framework that lets developers send push notifications from the Liferay platform to native Android and iOS apps.
<b>Liferay Mobile SDK</b>	The Liferay Mobile SDK is a framework for building native mobile apps that integrate with your different Liferay DXP instances and their portlets.
<b>Mobile Sync App</b>	The Android and iOS mobile app for Liferay Sync gives you the convenience of sharing and viewing files in tandem across your devices while enjoying most of the desktop client's capabilities. The mobile client allows you to be connected to one account at a time and, in order to save storage space on your device, you choose the files with which you want to work in lieu of automatic downloads.

## Personalization

In order to facilitate deeper, personalized digital experiences, Liferay DXP provides features for role-based content delivery, audience targeting and segmentation.

<b>Audience Targeting</b>	Create and deliver content specifically tailored for each of your segments based on rules and behavior. Liferay DXP allows for “contextual personalization,” which is the specification of content, functionality and features in real time based on a user's location, device, activities and personal attributes.
<b>Segmentation</b>	Create audience segments based on user behavior (e.g., page visited, device, last login date), user attributes (e.g., country, gender, language), social media profiles or custom fields.
<b>Optimization</b>	Measure the interaction of targeted user segments with your chosen content to optimize content delivery.

<p><b>Campaigns</b></p>	<p>Create ongoing campaigns to present specific content for different user segments over fixed periods of time.</p>
<p><b>Role Based Content Delivery</b></p>	<p>The Liferay platform allows multiple user types to access a single URL and a unique page view depending on the user's role, group, organization or personal preferences. Administrator controlled and user customized, Liferay DXP provides a central platform for determining enterprise content policy, including who can edit and publish content, files, communities and applications.</p>
<p><b>Page Customization</b></p>	<p>An administrator can allow users to customize pages without affecting other users or site members. Users can customize pages by adding, removing, positioning content or application attributes (e.g., zip code for weather application). These pages can be made public (published as a website with a unique friendly URL) or kept private.</p>

# Business Productivity

Powerful and flexible forms, workflow and reporting features give users more ways to simplify processes and provide access to information.

<b>Forms</b>	<p>The Form Builder counts on an improved experience with an intuitive and simple user interface. Design, publish and manage forms with a simple-to-use drag and drop interface. Instead of making users fill up a long and tiring form, break it down, improve the experience and take advantage of the multiple pages. Share with your target audience a form URL published into a standalone page. Assign your form to a workflow so it will follow a process suited to your business after user submission. Allows users and administrators to create multiple choice polls that keep track of responses. Ultimately, customize your forms to show or hide fields, only asking relevant questions to the users.</p>
<b>Form Rules</b>	<p>Create personalized forms with the power of conditional rules using the Form Rules feature. Conditional rules allow users to introduce dynamic behavior in forms and allow personalization of the questions or fields to show/require based on how users respond on your forms.</p> <p>A predefined set of form rules allows for quick customizations to users' form fields, including: setting a required field, enabling fields/options, autofill selects, show and hide, jump to a page, calculations, conditional success pages, and an API to create and execute new customized rules for your form needs.</p>
<b>Translation/Multi-language Support for Forms</b>	<p>Users are now able to add a translation for each form field when building their forms. Similar to creating translations for Web Content, the ability to add translations for form fields allows for better support globally, where common things like names, surnames, and address formats vary between countries.</p>

<p><b>Fields and Properties</b></p>	<p>Field types included in the default form fields including file upload, numeric, password, and grid fields. The ability to create form field sets, by grouping fields together, and easily repeat that group of fields help speed up the creation of long forms where repeated inputs may be necessary. An API also allows users to create new customized field types, with a provided Blade template and documentation.</p>
<p><b>Forms Structure</b></p>	<p>Structuring your forms is easy with the drag and drop interface. Users can easily layout and resize their form fields on a page, and better design their form layouts through the intuitive interface. Users can also configure a URL for redirects after a form submission, and standalone forms can have URLs independent from the default site navigation.</p>
<p><b>Validation</b></p>	<p>Users can define validation logic for a specific form field by creating custom messages for form validation errors, which can help improve the completion rate of your forms.</p>
<p><b>Field Library</b></p>	<p>Liferay DXP comes with a default predefined library of form fields, so that users can easily get up and running with building the forms they need.</p>
<p><b>Data Provider Integration</b></p>	<p>Integrate external web services using a Data Provider to apply to fields and benefit from live data. You can prepopulate fields with data from external services, and import and export Data Provider definitions.</p>
<p><b>Entries Management</b></p>	<p>Liferay DXP provides functionality for improving the end user experience upon form completion. End users can receive email notifications after a form entry and export entries into a XLS format. Entries have workflow integration provided, so that they can also go through a workflow process after submission.</p>

<p><b>Reports</b></p>	<p>Business intelligence and reporting tool showing activity and history of various applications in the platform (e.g., documents downloaded by groups, statistics on message board threads, most active users). It can also make use of the JasperReports application.</p>
<p><b>Workflow</b></p>	<p>Liferay DXP allows you to incorporate workflow into any of your own custom apps. This provides a better end user experience, saves your development team a lot of effort by reusing Liferay's workflow administration tools, and provides seamless integration with all supported workflow engines.</p> <p>Workflow allows a user to define any number of simple to complex business processes/workflows, deploy them, and manage them through a web interface. Those processes have knowledge of users, groups and roles. A graphical workflow designer gives you a point and click interface to create workflows. It can be used in conjunction with Kaleo Forms or standalone to create workflow definitions without having to write XML.</p>
<p><b>Dynamic Data Lists</b></p>	<p>A Dynamic Data List is a user-defined collection of records, similar to a spreadsheet. Users can create custom lists of information that can be published as workflow-enabled forms. These forms can be shared dynamically with other users to capture information such as an RSVP, tasks tracking and managing issues. Dynamic Data List record sets also include versioning for records.</p>
<p><b>User-Driven Workflow and Approval</b></p>	<p>Not only is there embedded workflow for content, Liferay DXP allows users to create their own workflow and define the number of approval paths based on their own unique business requirements and operational needs. For example, administrators can implement an approval process for new document uploads before they appear in the Document Library.</p>

# Assets

Manage and publish any asset in your system, allowing your employees or customers to easily collaborate and share documents and media.

## Documents

Features around document and media management offer administrators more control over how assets are stored, shared and accessed. Additionally, Liferay DXP can integrate with repositories such as SharePoint, Google Drive and Alfresco.

<b>Documents and Media</b>	<p>Unified document repository that houses documents, video, audio, images and other media types from one place. It can be leveraged across an enterprise, within a specific group, or for a single individual as a web repository. Enterprise-wide repositories allow groups to store assets, tag them, lock them, search for and leverage them in web pages, or download them for use offline. It provides a clean and attractive display to find and browse all images, video and other media assets. Other features include:</p> <ul style="list-style-type: none"><li>• Check in / check out, metadata and versioning. Document file formats may be converted at the time of upload. Items saved are displayed through the Display app and Document and Media Display app.</li><li>• Multiple-file upload allowing users to upload and store a document in one file format while making it available for download in other formats (i.e., a .doc file can be available for download as a .pdf with Liferay providing the conversion at download time).</li></ul>
<b>SharePoint Integration</b>	<p>Allows users to mount and browse SharePoint document repositories through Documents and Media.</p>
<b>Alfresco Integration</b>	<p>Allows users to mount and browse Alfresco and other CMIS-compliant repositories through Documents and Media.</p>



<b>Document Types and Metadata Sets</b>	Administrators can create their own custom metadata sets and document types into language familiar to users. For example, financial reports, surveillance videos, and so on can be defined in a way that makes sense for the business functions of the content (e.g., author, reporting period, etc.).
<b>Preview Generation</b>	Automatically generates full document preview.
<b>Search</b>	Search for documents, video, audio, images, and other media types based off of file names, tags, metadata and the file's text content.
<b>File Types</b>	Supports any file type.
<b>Versioning</b>	Liferay versions documents and increments them as you make changes, allowing you to rollback and view the version history.
<b>Inline Image Editor</b>	Allows for simple image editing directly from within Liferay, eliminating the need for an external tool while creating content. Resize, crop and make colors adjustments to any image uploaded to Documents and Media from within blogs or any other application that uses an item selector. The image editor has been designed in a way to make it easy to customize and allows for developers to create and deploy tools that modify images.

# Sync

Liferay Sync is a central, easy-to-use document sharing service that automatically synchronizes documents across popular desktop and mobile environments, allowing users to share files with a simple drag-and-drop.

## Liferay Sync

Liferay Sync provides offline synchronization for Liferay's Documents and Media. It exposes and synchronizes content and documents to both desktop and mobile environments with support for Windows, Mac OS, Android and iOS. You can also log all your document changes and versions. Users can seamlessly work on the same file together with versioning and revision tracking.

## Single Sign On Support

Any SSO implementation that works against Liferay DXP will work with Liferay Sync as well (SiteMinder, OpenSSO, OAM, SAML, Shibboleth, etc.).

# Collaboration

Collaboration in Liferay DXP is supported with applications for blogs and social networking, as well as a solid set of tools for forums, message boards and other functionalities.

<b>Knowledge Base (and associated apps)</b>	<p>Allows users to add and categorize content in the form of articles. Content can be added directly through the web or imported from external sources with category-based navigation. This helps users easily find answers to questions they may have. Knowledge Base includes several apps:</p> <ul style="list-style-type: none"><li>• Knowledge Base Display</li><li>• Knowledge Base Article</li><li>• Knowledge Base Search</li><li>• Knowledge Base Section</li></ul>
<b>Search and Tagging</b>	<p>Tag web content, documents, message board threads and more to dynamically share important or interesting content with other users. Users can then search for relevant information through faceted search, allowing one to filter results by specific criteria within specific apps, communities, the entire platform and even external integrated applications.</p>
<b>Invitations</b>	<p>Allows users to invite others to join a specified site and sends a notification.</p>
<b>Page Comments</b>	<p>Allows users to leave comments on any user page.</p>
<b>Page Ratings</b>	<p>Allows users to leave ratings on any user page.</p>
<b>Page Flags</b>	<p>Allows users to report inappropriate content on a page.</p>

<p><b>Blog</b></p>	<p>Liferay's Blog uses a modern WYSIWYG editor (AlloyEditor) designed to create entries quickly and a modern card design for displaying blogs. The Inline Image Editor also allows for easy image editing directly from within Liferay. You can drag and drop images right into the blog text. If you want to add format to some text, just select it and a modern toolbar will offer the format options. Also features include friendly URL creation, estimated reading time, unsubscribe from emails, publication date, RSS support, threaded user and guest comments, tags and labels, social bookmarking links, email notifications of blog replies and an entry rating system. You can also add videos inline while writing a new entry from popular services such as YouTube, Vimeo, Facebook Video and Twitch.</p>
<p><b>Blogs Aggregator</b></p>	<p>Grabs blog entries from the entire portal or by specific organizations.</p>
<p><b>Recent Bloggers</b></p>	<p>Dynamically displays a list of recent bloggers.</p>
<p><b>Forums/Message Boards</b></p>	<p>A full-featured forums solution with threaded views, categories, RSS capability, avatars, drag-and-drop file attachments, drag-and-drop image additions, section renaming, category and thread grouping, notification management, previews, dynamic list of recent posts, and forum statistics. Message Boards work with Liferay's fine-grained permissions to give detailed levels of control to administrators and users.</p>
<p><b>Wiki (and associated apps)</b></p>	<p>A straightforward Wiki solution with versioning capabilities, categories, Creole, HTML, or plain text modes, WYSIWYG editing, drag-and-drop support for page creation, page history and reversion, and permissions.</p>

<b>Calendar</b>	A community-based calendar with task lists that allows users to create, manage and search for events. Events can be shared across communities, and event reminders can be set up to alert users of upcoming events by email, notifications or SMS. You can also create and manage company resources through the calendar.
<b>RSS</b>	These allow users to get dynamically updated digests of critical news topics, blogs, and other publications. Users can configure the order of topics displayed and how many articles are shown per provider.
<b>Alerts and Announcements</b>	Offers a free form text area that can display and update new information quickly. You can target Announcements to readers by group or role.
<b>Microblogs</b>	Microblogs can be used to update your status on a Liferay social network and post your activities including @ mentions.
<b>Polls</b>	Allows users and administrators to create multiple choice polls that keep track of votes and display results on the page.

# Developer

Liferay gives you control over maintaining and extending your Liferay instance along with developer tools for building, managing and controlling Liferay projects with convenience and added simplicity.

## Enterprise

<b>Liferay Connected Services</b>	A cloud-based management solution for maintaining a Liferay DXP infrastructure, Liferay Connected Services gives businesses greater control and closer monitoring over their enterprise software's performance with fix pack management, maintenance updates and performance reports.
<b>Liferay Marketplace</b>	Developers can sell, share and download themes, integration plugins and entire applications built on Liferay DXP in Liferay Marketplace. These apps can be quickly deployed into a Liferay DXP implementation via the Liferay Management console.
<b>Lexicon and Clay</b>	Liferay DXP users have access to a set of guidelines and components that allow developers to create visually stunning applications with minimal effort. Lexicon is a design language that provides a common framework for building interfaces that leads to a unified experience for its users. Clay, the web implementation of Lexicon, is based on Bootstrap and designed to be extensible.
<b>Frameworks Support</b>	Support for popular JavaScript frameworks such as Angular, Vue.js, React and modern JavaScript workflows are included out of the box. Java frameworks such as JSF, SpringMVC, Vaadin are supported.

## Tools

<b>Developer Studio</b>	Based on Eclipse, Developer Studio makes it easy to use project creation wizards for creating modular projects based on Maven and Gradle. It also includes tools for aiding in Liferay DXP upgrades and includes a migration tool to help migrate plugins to the next version.
<b>Liferay Workspace</b>	A Maven or Gradle-based, highly structured environment for modular development, Liferay Workspace aids in the building and management of Liferay projects. It is very easy to import Liferay Workspace projects into any IDE with built-in Maven or Gradle support, which eliminates the need to only use Eclipse for development.
<b>Blade CLI</b>	Liferay development projects can be completely controlled from the command-line using Blade CLI. Blade CLI can perform several development tasks such as creating new projects, installing and managing Liferay Servers, and creating Liferay Workspaces.
<b>Upgrade Tool</b>	A revamped Upgrade Tool greatly simplifies the upgrade process from previous versions of Liferay. The tool runs stand-alone from Liferay and lets system administrators restart failed upgrades, reducing the amount of time involved in troubleshooting upgrades.

## What's Next

Learn more about how Liferay can help your business take the next step in your digital strategy. Request a demo from one of our team members at [liferay.com/request-a-demo](https://liferay.com/request-a-demo).



Liferay makes software that helps companies create digital experiences on web, mobile and connected devices. Our platform is open source, which makes it more reliable, innovative and secure. We try to leave a positive mark on the world through business and technology. Hundreds of organizations in financial services, healthcare, government, insurance, retail, manufacturing and multiple other industries use Liferay. Visit us at [liferay.com](https://liferay.com).

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