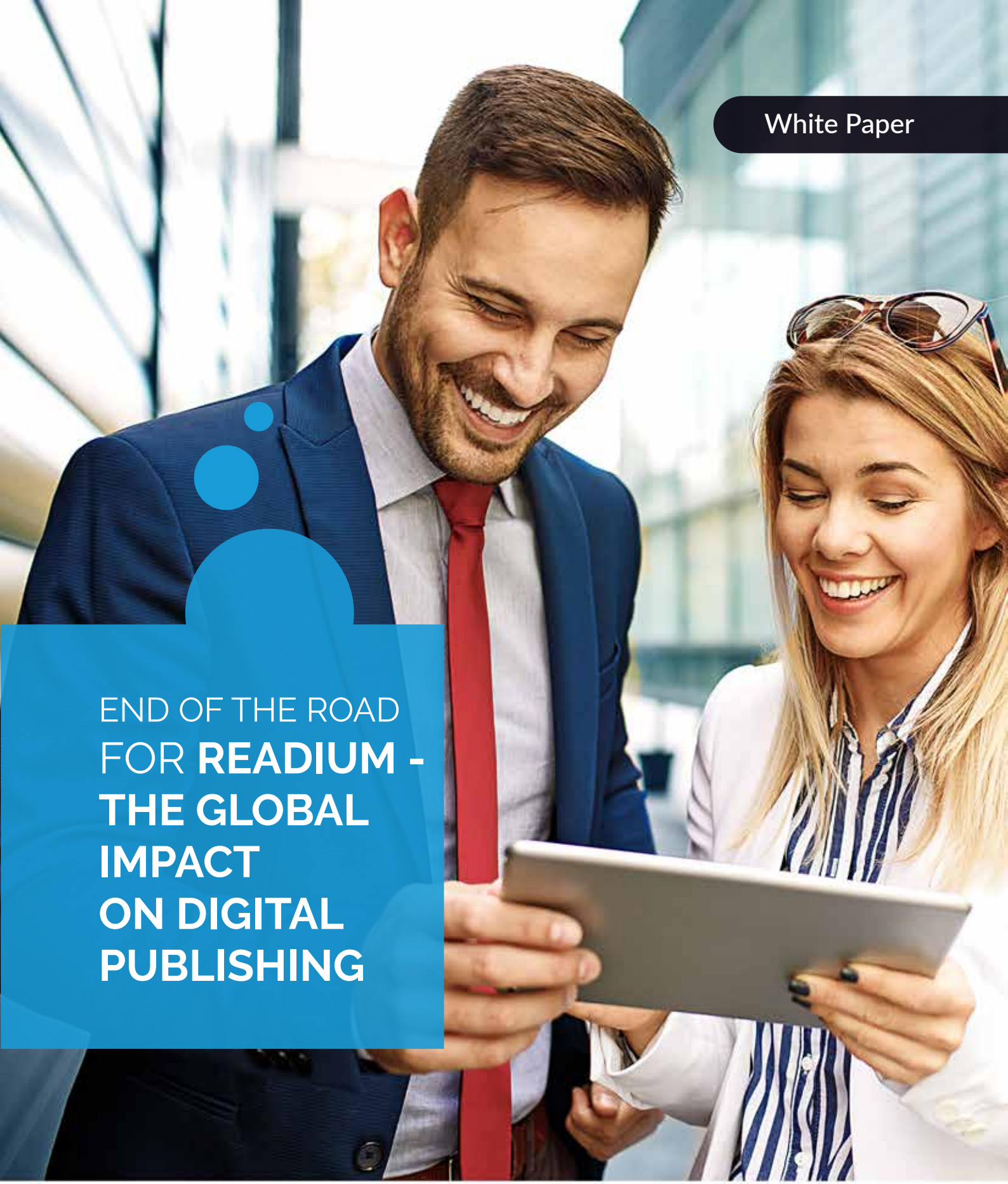
White Paper

END OF THE ROAD FOR **READIUM - THE GLOBAL IMPACT ON DIGITAL PUBLISHING**



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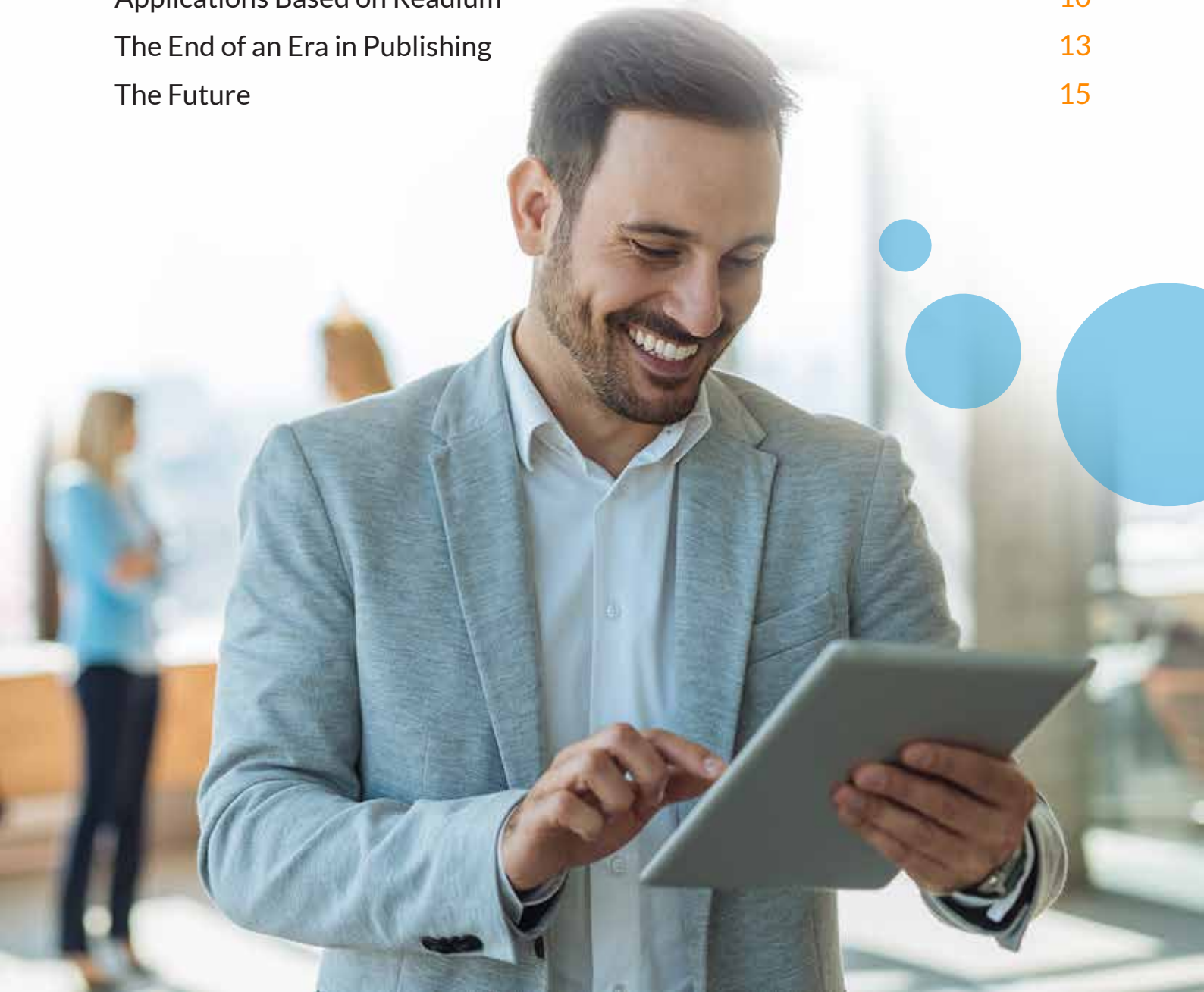


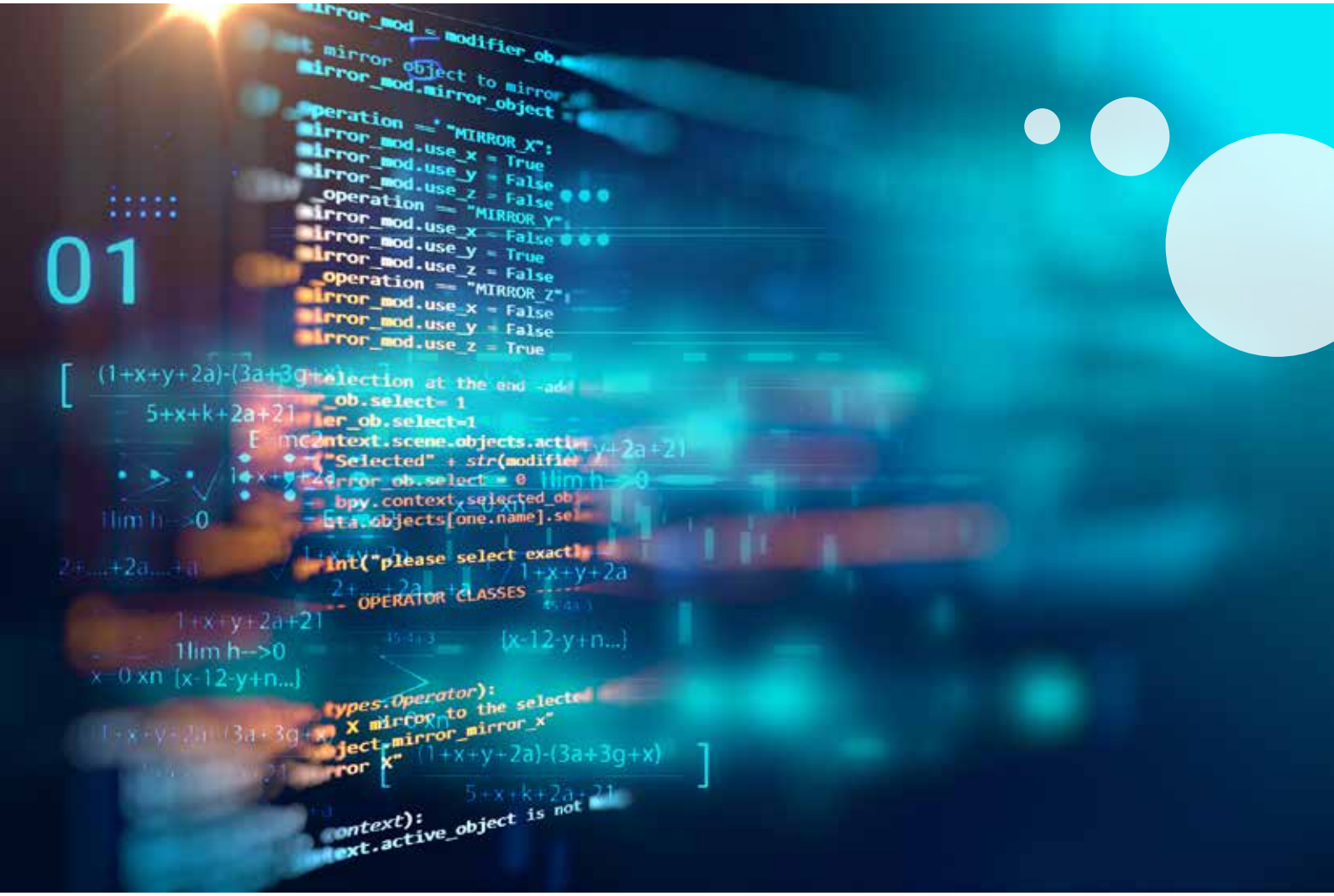
What is Readium?

The Readium Foundation was created in March 2013 as an independent non-profit corporation. The Open Source Foundation aims to develop technology for expediting the adoption of ePUB3 and the Open Web Platform by the Digital Publishing Industry. It strives to deliver leading-edge functionality that is fully specified, free, open, and interoperable.

Readium aims at networking and coordinating between other similar open source efforts. Among them, the European Digital Reading Lab (EDRLab) is the most important participant of the Readium project. In addition, EDRLab is also the driving force behind the LCP (Licensed Content Protection) system, which is a significant new development of Readium.

The Readium project aims to develop a robust, high-performance, cross-platform, and spec-compliant ePUB reading system, which can be used by the native applications of both mobiles/tablets as well as desktop systems. This engine can be deployed in browsers, and embedded into browser apps such as Google Chrome extension or into native applications.

The Readium SDK is an ePUB reader SDK (software development kit) much similar to that of Adobe's Reader Mobile SDK (RMSDK) in terms of its capability and scope. The Readium SDK performs simplistic test applications for the different operating systems, whether it be Android, iOS, or even OS X, apart from supporting encryption-based modules. Although it can work along with various web browsers, the Readium SDK prioritizes the development of the WebKit over everything else.



Goals of the Readium Project

The Readium project's primary goals were to:

- Facilitate the rapid implementation of ePUB3, without depending on or proliferating proprietary technologies.

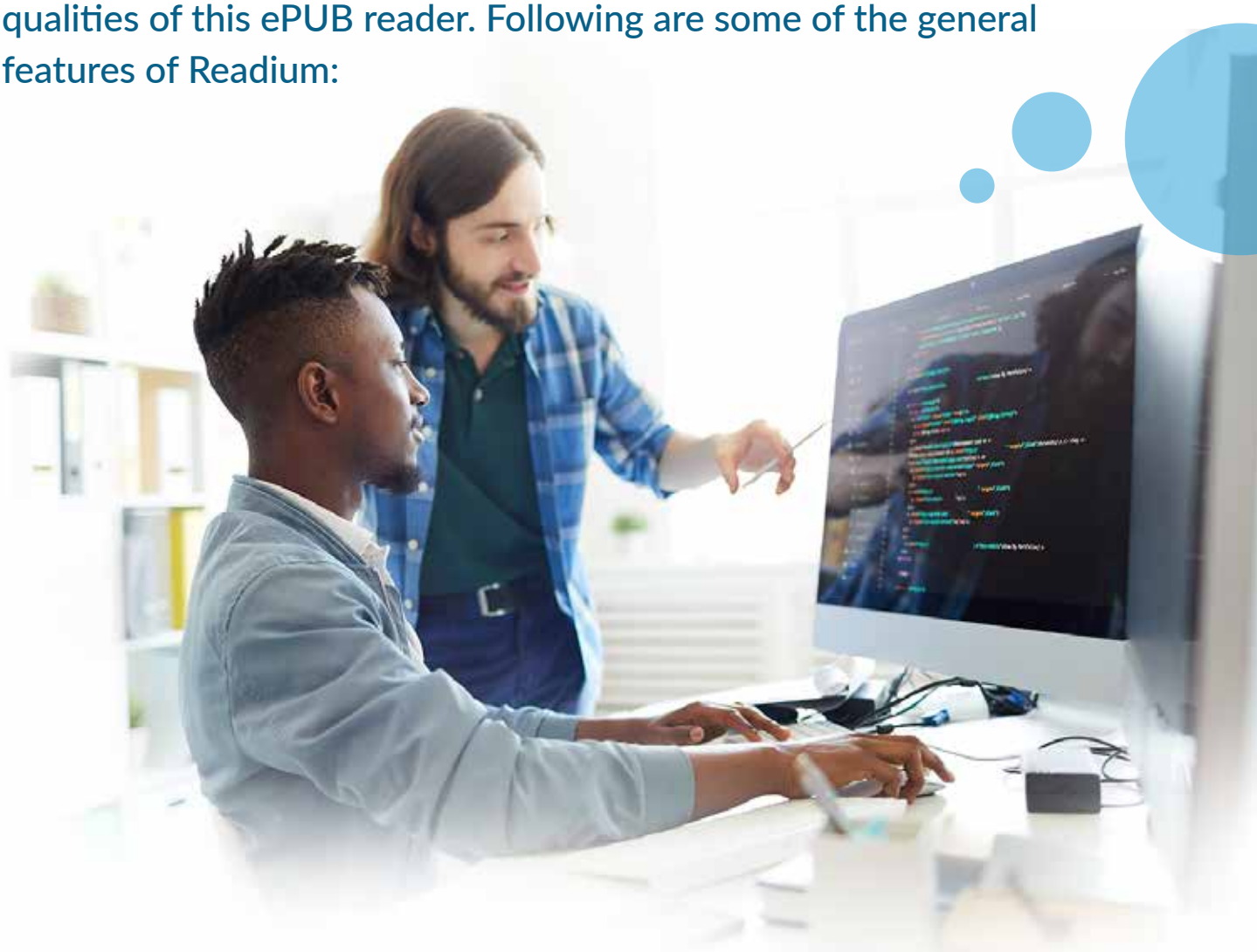
- Provide functional and innovative ePUB reading systems for web use. At present, two systems are available: ReadiumCloudReader and Readium Chrome Extension. ReadiumCloudReader is a cross-browser solution for embedding in the websites of users, whereas Readium Chrome Extension is available for download in the Google Chrome Store.

- Create a cross-platform native code software development kit (SDK), which you can use to build native applications across different hardware platforms.

- Create a platform, which is able to support a variety of digital publishing formats such as ePUB 2.x and 3.x, audiobooks, Web Pub, and image-based books such as Manga.

Features of Readium

The wide popularity of Readium is mainly due to some of the integral qualities of this ePUB reader. Following are some of the general features of Readium:



Accessibility - Readium is available for both open source as well as proprietary applications.

Portability- Readium can be ported or deployed to a wide variety of platforms, including desktop and mobile devices, browsers, and native applications. Its target platforms are iOS, Android, Browser-based, and Desktop.

Communication- Readium actively tries to create a courteous, welcoming and approachable environment for newcomers in the field. Readium makes use of public chat rooms and a public mailing list to communicate and discuss with its contributors. Through these channels, Readium gives equal value to the ideas of both new as well as existing contributors.

Standards Compliance - Readium makes use of regression testing to ensure strict compliance and compatibility with the latest ePUB3 specifications. Moreover, it also provides feedback to the IDPF ePUB standards community and the broader W3C and web standards community by introducing the latest technologies and ensuring that the new standards can be implemented in their engine. Readium is not only compliant with all the applicable W3C specifications and with ePUB, but also with most of the other emerging digital publishing formats such as audio and comic books.

Compatibility – Along with ensuring its compatibility with the ePUB specifications, Readium also makes sure to comply with the latest emerging standards such as that of WebPub. Readium ensures that their compatibility with the ePUB reading systems does not come at the cost of standards compliance.

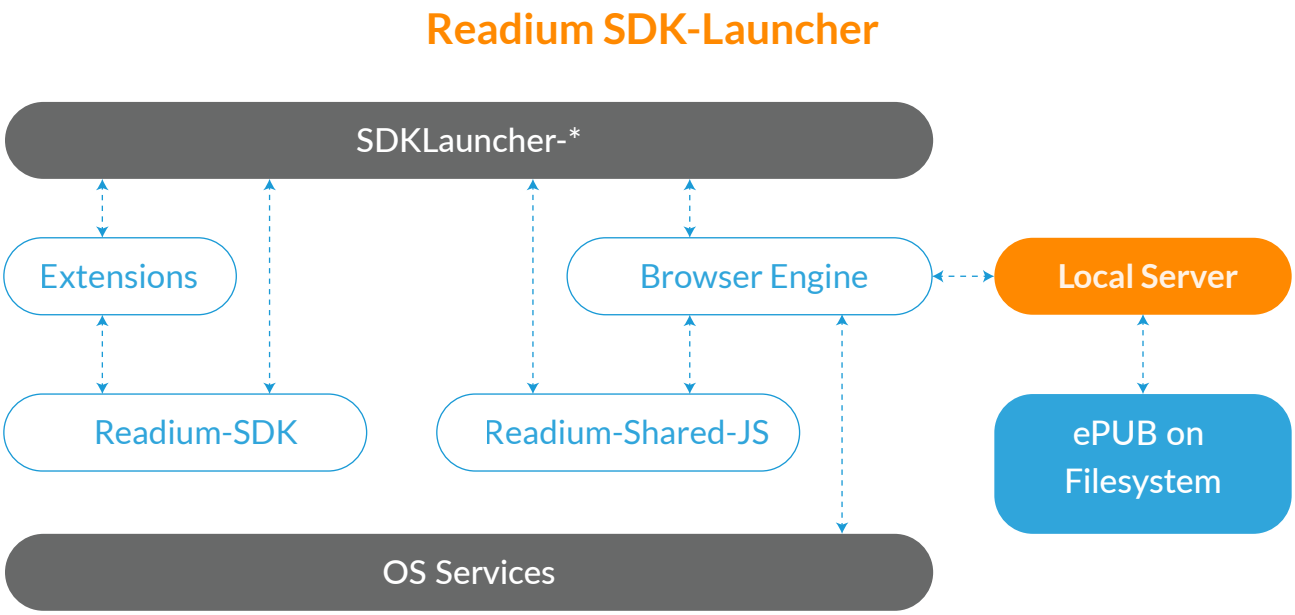
Stability - Readium maintains the highest degree of stability possible through a careful release process that closely monitors the issues reported by internal testing and external forums. It prioritizes instant fixes and releases for crashes, hangs, and regressions.

Performance - Readium constantly strives to improve its speed and memory efficiency.

Security - Readium strives to protect its users from security violations and threats by instant fixes of security issues.

Architecture of Readium

The relationship between the parts of the architecture of Readium is illustrated in the diagram below:



Readium-SDK

This is the platform-independent Core C++ code that manages the ePUB package, metadata, and various functions such as the navigation and fetching of resources.

Readium-shared-js

A layer of pure JavaScript, it offers interfaces and services between the application layer, the Core and the web-browser engine. You can use it across both the ReadiumJS sub-projects and SDK-based applications.
In addition to managing the messaging between the native layers, the layer also provides better management of views.

SDKLauncher

These platform-specific applications facilitate the testing of the rest of the SDK and provide a rudimentary demonstration of how to integrate the native applications within the SDK. They are made deliberately limited and crude, as Readium does not want to compete with its own members.

Parts of Readium SDK

Readium SDK consists of three major parts: Model, View, and Controller.

Model - This part handles most of the ePUB3 data and generates its corresponding data structures

View - This part is essentially a customized browser engine

Controller - An interface between the data and the renderer, this part is crucial as it is used to create new reading systems

Platforms Supported by Readium SDK

iOS 7 and above

Android 4.x and above

OSX 10.7 and above

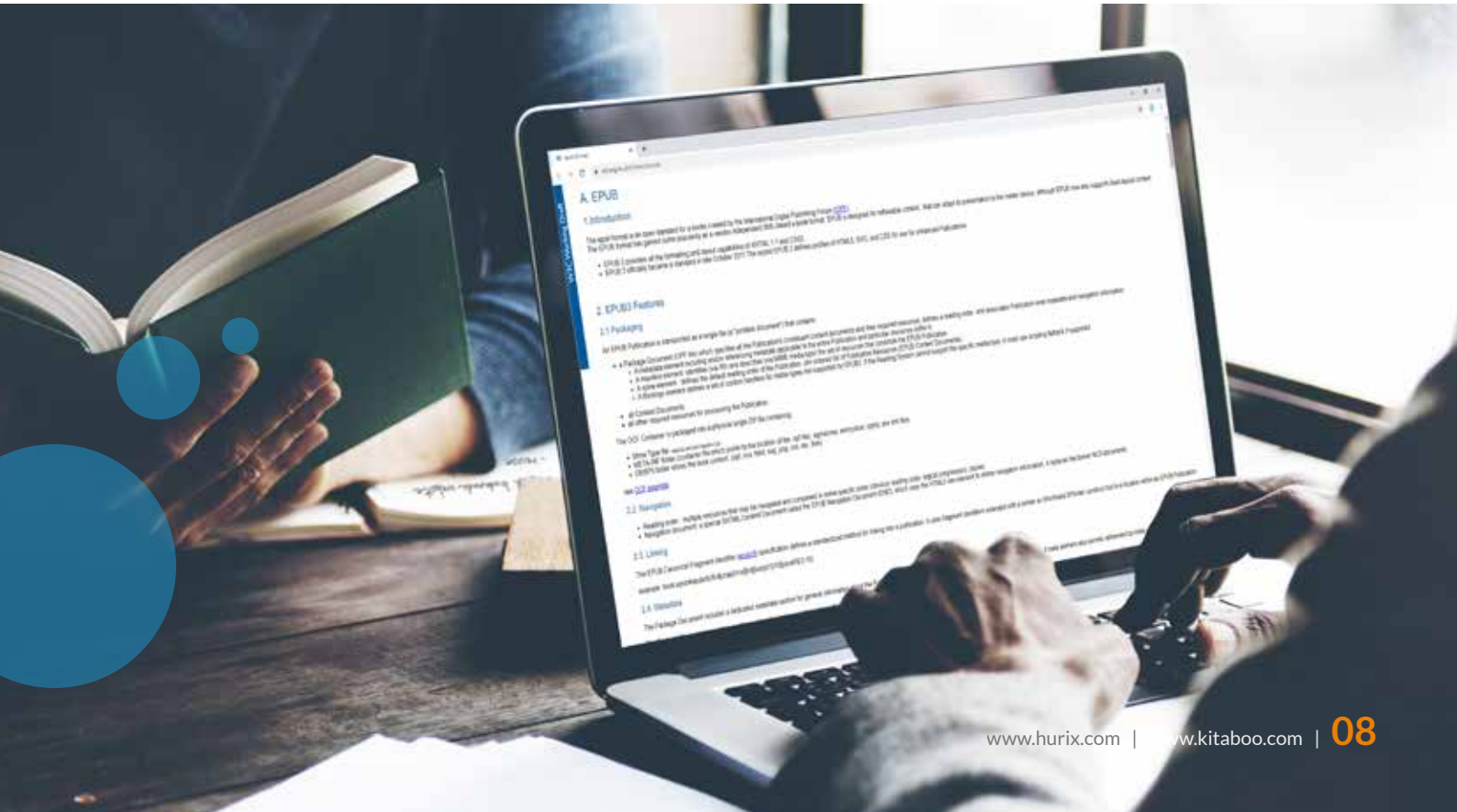
Publication Standards and Practices

The Readium community has strived to develop the best standards and practices for digital publications. These include:

Readium Licensed Content Protection (LCP) - This technology strives to distribute protected publications in a reliable and user-friendly manner. The apps that employ LCP can easily open all eBooks - even those protected with DRM technology. LCP ensures the protection of user data and statistics from third party providers. In addition, it also supports online projects such as library lending. LCP is considered the first commercially successful DRM based on open-source software.

Readium Web Publication Manifest - It's an attempt to connect both ePUB and Web Publications, by creating various extension points that fully support the specific features of ePUB.

License Status Document - This is a document that represents the DRM license status as well as the interactions which may influence this status. Through such interactions, it aims to create the responsibilities of the Content Providers and the Reading Systems.



Readium Current Projects and Their Development Status

Readium SDK – It is primarily aimed at native mobile and desktop apps.

Readium JS – It aims to enable websites in browsers to render ePUB3. This includes a Chrome Application and a CloudReader. While the Chrome extension can only be used with Google Chrome, CloudReader works in most browsers such as Safari, Firefox, Opera and Microsoft Edge.

Readium DRM – Though ePUB is the most widely used format for e-books, it lacks a significant feature called DRM. This has limited its use to a great extent. It is in this context that Readium DRM was developed to create an open-source, collaborative, and non-profit environment for DRM.

At present, the Readium codebase is maintained mainly by the open-source community of ReadiumGithub. 0.30 is the current stable version of both Readium SDK as well as JS.

Members of Readium

Readium comprises of over fifty members from around the world.
Some of the key members include Google, Adobe, IBM, Intel, and Sony.

Applications Based on Readium

To the dismay of many loyal users around the world, Google recently revealed that it is planning to disable the use of Readium soon. One of the major reasons is that Google's recent changes to their security rules —such as no inline scripts — have ended up in partially crippling the application. Google had stated back in 2017 about the changes.

As a result, the Readium Foundation has decided to cease supporting and releasing the app. Furthermore, Readium recently released the version 0.31 — its latest and final release of the Readium Chrome application.

Google states that deprecated Chrome apps will no longer be updated after the final update on October 01.

You can still access the Readium CloudReader, though no new features are planned for the future. It's all in maintenance mode as of now.

As a result, the digital publishing industry is currently facing a great challenge and is actively searching for alternate solutions to substitute Readium. There are a number of alternative reading systems based on Readium technology (ReadiumJS, Readium SDK and/or Readium LCP) available. Furthermore, there is a new Readium browser-based app in the works called 'Readium Web'.

The app's function includes several tasks such as saving the essential bits of the ReadiumJS stack, adding interfaces, cleaning up library management, and so on. The development of this desktop app is a rather tedious and time-consuming task, as its verification will require it to be tested across a large number of platforms.

As Readium becomes obsolete, these organizations and products based on Readium can be used as a substitute.

Applications Based on Readium

Readium Test Apps

These are some of the recent, native Readium test apps on mobile platforms created to demonstrate the current Readium technology. However, these full-fledged apps are currently under active development.

Some of the popular ones are:

R2 Reader

R2 Reader is a free reading app for accessing ePUB2 and ePUB3 publications. It is currently available on both the App Store for iPhone and iPad as well as on Google Play Store. It is compatible with Readium LCP.

Bluefire

A co-founder of the Readium Foundation, Bluefire helps all iOS and Android mobile apps to add ereader features to it.

Evident Point

Evident Point is one of the major contributors of Readium Architecture and Readium Web. As the primary developers of both Readium JS as well as Readium for Chrome, it provides numerous plugins for Readium. Evident Point strives to make sure that Readium always stays ahead in terms of technological development.

Learning Ally

This app is primarily for the use of differently-abled students who are visually impaired, blind or dyslexic. The app offers a large number of audiobooks is known as the largest human-read audiobook library. This is also the first app that supports Readium DRM.

The End of an Era in Publishing

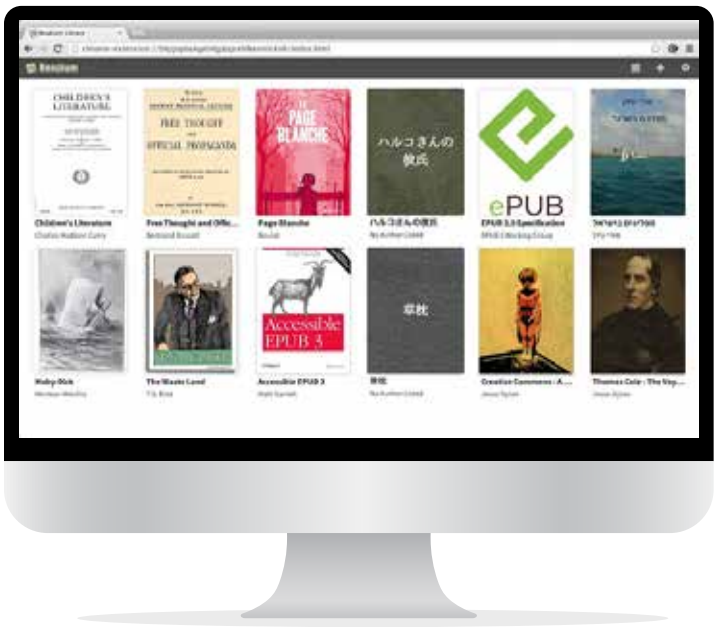
The final release of the Readium chrome app will affect users all around the world. People who used to depend on it can no longer expect any updates or upgrades in the future.

The End of Readium Foundation

The Readium Foundation was vital in developing the ePUB3 standard in collaboration with bodies such as IDPF. Technological developments around the standard and digital publishing in general by Readium was also under W3C. This is to say, Readium played a significant role in the development of international standards.

But with Google deciding to deprecate the app, we can no longer expect Readium to contribute towards the development of any international standards.

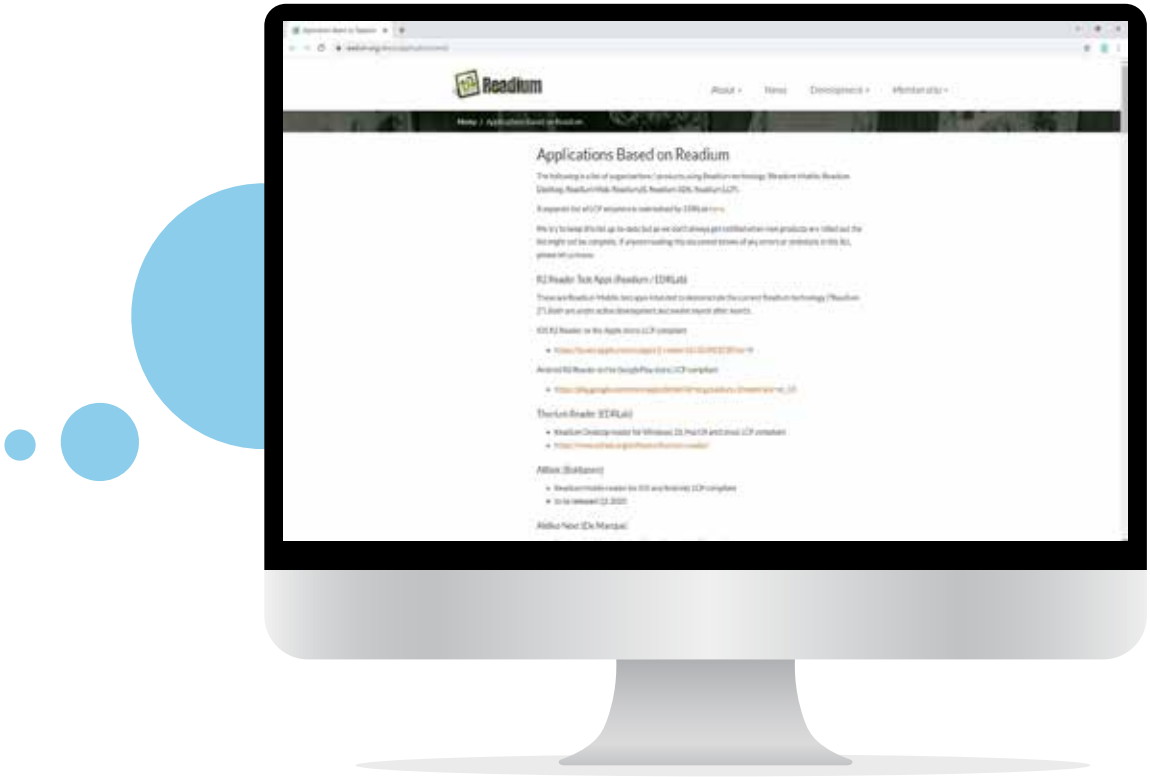
Readium Web as the New Extension



Readium was working on a replacement for its ReadiumJS implementation. The old ReadiumJS architecture would work on any HTML5 browser. We also had the

Readium Chrome Application and support for Firefox, Opera, Safari, and Microsoft Edge. Another option was to use the Readium Cloud Reader.

We can also use the Readium Web that is fully functional. But that's where it stops! Readium Web may not see any upgrades and lose its significance with the advance in digital publishing technology.



Unrestricted Use of Readium Code

Users will still be able to use the Readium source code and Readium Web even if things are coming to an end. Users can easily deploy Readium Web on their websites without problems or compatibility issues.

Anyone can also use the Readium source code without a commercial license. It's totally free and permissively licensed. You will no longer need to pay any license fees like you had to do earlier.

The Future

As a comprehensive reference system for ePUB that promotes digital publications for the Open Web, Readium plays a crucial role in the world of digital publishing. On the whole, the final release of Readium 0.3 signifies a marked change in the history of the digital publishing industry.

Readium strived to provide a solid foundation for an open-source ePUB3 reader built on a web kit. Developed in partnership with IDPF, Readium leads the game in the digital publishing community, with some of the best developers at its organization. It is generally considered to be a very lightweight and user-friendly ebook reader. Its popularity is also due to its high level of compliance with the ePUB3 features.

As one of the key elements of the ePUB platform is its Readium rendering software, the ePUB platform itself might be heavily compromised with the end of this platform. Moreover, ePUB3 continues to drive the expansion of ePUB adoption beyond the limits of trade publishing to address the requirements of

mobile devices. For sustaining an open and accessible digital publishing ecosystem, more platforms such as Readium are essential.

Readium has laid the foundation for a common standard that can make most eBooks accessible to readers. It still has a huge number of members and developers willing to make an effort so that we can see new applications based on the source code.

Many open-source applications like Readium has experienced the same fate. But not all of them have become obsolete. Readium has the potential to contribute towards the future of digital publishing, and can still stay relevant for many years to come. We just have to stay on top of the developments! Kitaboo eBook platform and Kitaboo SDK find favor with many leading publishers. Kitaboo is an epublishing platform designed for publishers to create and deliver eBooks. It lets you add enrichments such as multimedia and other interactivities, and deliver an engaging eBook to the readers.

The Kitaboo SDK framework can be integrated on any platform - Android, iOS, Windows and HTML. It lets you customize and integrate all its functionalities into your system of choice, helping you create a robust ePUB reading system for mobile and desktop devices. All of Kitaboo's advanced interactive features such as text highlights, bookmarks, notes, pen-tool, thumbnail, search and more can be leveraged using the Kitaboo SDK.

About Hurix Digital

HurixDigital is a pioneer in delivering digital content solutions for publishers and enterprises globally. We enable multinational corporations in their digital transformation journey with our cloud-based platforms, leading-edge products and solutions. We also deliver digital marketing solutions that help clients stay ahead of the curve. At HurixDigital, we foster thought leadership and innovation that help us add value to our clients' business.