Functional Research and Application Prospects of E-book Clients: Postprint

Authors: Jin Taixin

Date: 2023-10-08T00:00:00+00:00

Abstract

This paper first classifies e-book clients, selects 22 relatively mainstream PC-based reading software and mobile terminal reading software on the market for comparative analysis, compares and summarizes 19 commonly used functions of reading software, and from the two aspects of classification and functional characteristics, summarizes the application prospects of e-book clients: making full use of social media tools to enhance interactivity; protecting copyright and establishing unified e-book technical standards; appropriately increasing extended functions and innovative functions; attaching importance to personalized function construction to improve user experience; and utilizing new technologies to promote the development of e-book clients.

Full Text

Preamble

Research on E-book Client Functions and Application Prospects

Abstract: This paper systematically categorizes e-book clients and conducts a comparative analysis of 22 mainstream PC and mobile reading applications. By examining 19 commonly used functions across these platforms, we identify key patterns and propose future development directions: leveraging social media tools to enhance interactivity; strengthening copyright protection through unified e-book technical standards; incorporating extended and innovative features; prioritizing personalized function development to improve user experience; and harnessing new technologies to advance e-book client capabilities.

Keywords: e-book; client; function; prospect
Classification Code: G237.6
Document Code: A
Article ID: 1671-0134(2017)10-087-04
DOI: 10.19483/j.cnki.11-4653/n.2017.10.036

In recent years, rapid technological development has driven the transformation from traditional to new media. The continuous growth of the e-book industry has shifted reading habits from paper-based to electronic terminal consumption, yielding a diverse array of e-book reading software. E-book clients, available on both PC and mobile platforms, offer convenient operation, diverse functionality, real-time updates, strong interactive sharing capabilities, and excellent reading experiences, making them a crucial implementation form of mobile digital publishing.

1. Research on E-book Client Functions

This study selected 22 mainstream e-book clients currently available on the market, comprising 15 PC-based and 7 mobile-based reading applications. With the advancement of smartphone technology, Android and iOS have become the dominant mobile operating systems. Therefore, mobile samples were drawn from the most widely used Android and iOS platforms, selecting the top 8 applications by download volume. These samples are highly representative and reflect the general characteristics of current e-book clients.

1.1 E-book Client Function Types

Based on primary functions, e-book clients can be classified into seven categories: content aggregation, reading assistance, book management, social interaction, comprehensive, and academic/professional.

Content aggregation clients integrate massive book resources. For example, Kindle PC offers over 360,000 e-books available for free download or purchase. Reading assistance clients, such as Foxit Reader and Adobe Reader, focus on supporting and modifying e-books. Book management clients feature robust library organization capabilities for categorizing and managing collections. Social clients like ZAKER for Android prioritize interactive sharing through Weibo, WeChat, email, and other platforms. Comprehensive clients possess basic e-book functions plus additional features for library management, content aggregation, and social sharing. Academic/professional clients, such as CNKI's CAJViewer, rely on powerful academic databases and typically use proprietary full-text format readers that provide copyright protection for database literature.

1.2 Comparative Analysis of E-book Client Function Characteristics

A comparative analysis of functional characteristics across the 15 PC and 7 mobile applications reveals distinct patterns, summarized in Table 1 . Table 2 presents the percentage of clients supporting each function. Analysis of these 22 e-book readers yields several key findings regarding current market characteristics.

1.2.1 E-book Formats E-book format standards currently coexist between closed and open formats. Most clients support open formats including PDF, EPUB, TXT, HTML, PPT, and DOC, with PDF and EPUB emerging as the mainstream standards. PDF supports multimedia and interactive elements within documents, though only Adobe Reader fully supports such interactive PDFs among tested applications. Some clients maintain proprietary closed formats, such as Superstar's PDG, Founder Apabi's CEB, and CNKI's CAJ formats. This proliferation of formats creates compatibility issues across platforms, leading to redundant development efforts and resource waste that severely constrains industry development.

1.2.2 Copyright Protection Currently, 87% of e-book clients incorporate copyright protection features. Many vendors develop proprietary formats to protect copyrights, but this fragmentation results in poor cross-platform compatibility. Even within the same company's e-book ecosystem, "format barriers" may exist, preventing unified government copyright management and creating a fragmented "separate governance" landscape.

1.2.3 Basic Functions The majority of e-book clients provide essential features including bookmarking, page zooming, search functionality, and copyright protection (each exceeding 75% of sampled clients). Over half offer book management and annotation/commentary features. Registration and login functionality, which enables cross-device reading continuity and information sharing, is present in only 61% of clients, indicating that some developers have yet to recognize its importance.

1.2.4 Extended Functions Approximately 65% of e-book clients include built-in dictionary functionality, while about one-third support page rotation, display options, and font changing. However, very few offer text-to-speech (TTS) reading, auto-scrolling, OCR recognition, or reading time reminders. Audiobooks, which enable "reading by listening," offer advantages including time savings, reduced visual fatigue, and improved comprehension. Yet most clients lack TTS and multimedia playback/editing capabilities, demonstrating deficiencies in multimedia and interactive functionality. Only one client features OCR recognition, revealing underutilization of advanced technologies.

2. Application Prospects for E-book Clients

Based on our functional classification and comparative analysis, we propose the following recommendations for future e-book client development.

2.1 Leveraging Social Media Tools to Enhance Interactivity

Nielsen argues that "social media is characterized by participation, openness, communication, dialogue, community, and connectivity. Any internet service lacking social features and interactive participation will eventually be eliminated

by users and the era." This underscores the critical importance of "social networking" for e-book client development. By fully utilizing social media tools' participatory, communicative, and connective functions to encourage active user engagement, information sharing, and feedback, e-book clients can significantly enhance development and user retention. ZAKER's "one-click sharing" feature enables forwarding to WeChat, Weibo, and email, while Orange County's mobile library leverages social media tools by offering a dedicated Social section with nine applications including Blog, Facebook, Goodreads, Instagram, Pinterest, Podcasts, RSS, Twitter, and YouTube.

2.2 Establishing Unified E-book Technical Standards

Internationally, e-book format standards remain divided between closed formats (dominated by Amazon Kindle's proprietary format) and open formats (represented by EPUB). Most Chinese e-book clients feature copyright protection, but format fragmentation—primarily controlled by technology vendors without publisher input—hinders industry coordination. Establishing unified technical standards requires government-led collaboration between publishers and technology providers to develop reasonable standards, potentially drawing from EPUB's open standard model. Only through standardization can resources be efficiently utilized and sustainable development achieved.

2.3 Adding Extended and Innovative Functions

Beyond basic functions, e-book clients should incorporate extended features such as page rotation, display options, TTS reading, built-in dictionaries, autoscrolling, and reading time reminders. Multimedia resource development deserves greater attention, integrating text, audio, video, and animation throughout the reading experience. Clients can leverage self-media to transform users into content publishers and participants, enabling upload and sharing of text, images, audio, and video resources.

Innovative functions can further enhance client appeal, including QR code-triggered animations, shake-for-recommendations, book gifting, and check-in point systems. These features increase engagement by integrating animation and recommendations into reading contexts. In 2012, JD's LeBook introduced a book gifting function allowing users to write personalized messages when gifting e-books to friends and family via personal accounts, email, or SMS—strengthening user loyalty while promoting the platform.

2.4 Focusing on Personalized Function Development to Improve User Experience

Big data technology enables efficient analysis of massive user datasets to identify correlations and predict future trends. By leveraging big data and cloud computing to collect and mine user data, analyze behavior and preferences,

e-book clients can optimize personalized functions, implement customized recommendations and on-demand publishing, and establish user growth systems to enhance reading experiences. Additional personalization features should include customizable bookshelves, adjustable reading modes based on individual habits, changeable backgrounds, font and brightness adjustment, page-turning effects, and scene customization.

Duokan Reader exemplifies this approach by offering gender-specific options, customizable bookshelf styles, and a "reading experience" dashboard displaying reading duration, completed books, total books read, and note counts—enhancing user participation and experience.

2.5 Utilizing New Technologies to Promote E-book Client Development

While most e-book clients include copyright protection, few utilize OCR recognition technology, indicating insufficient adoption of advanced technologies. Beyond these, other technologies including e-paper display technology, cloud computing, haptic feedback, virtualization, and synchronized audio can be integrated into e-book client development for functional innovation and enhanced user experiences. "E-paper books" using advanced e-ink technology closely mimic paper reading effects while offering note-taking, bookmarking, translation, and TTS functions. Some e-paper devices support third-party software installation, expanding functionality. E-book client development must continuously incorporate new technologies to align with technological progress and promote long-term industry development.

3. Conclusion

Through comparative analysis of mainstream mobile e-book reader functions, we observe that despite the relatively short development history, e-book clients have experienced rapid growth. Many mobile clients now possess most functions previously limited to PC software, even extending into novel features unavailable in traditional e-book readers—such as location-based services, which represent promising innovations. As mobile terminal technology and internet connectivity continue advancing, online reading and e-book purchasing via smartphones may become an irreversible trend. Current e-book clients must leverage these advantages, continuously optimize and expand functions using new technologies, provide distinctive personalized services, and drive industry progress.

References

[1] Wang Zheng. Comparing IOS to Explore the Advantages of Android Systems[J]. Intelligence, 2013(20).
[2] Zheng Yingyu, Cong Ting, Miao Jie. Research on E-book Format Standards[J]. Publishing Science, 2010(04): 90-93.
[3] He Ziyue. Exploring the Development Direction of Online Publishing from

Diversified Reading[J]. Publishing Science, 2006(2): 55-57.
[4] Shen Yiyuan, Yuan Xilin. Research on the Construction of a Library User Reading-Aloud Book Sharing Platform[J]. Library Journal, 2015(04): 52-56.
[5] Yu Tingting. Innovation in Marketing Communication Strategies Based on Social Media Word-of-Mouth[J]. Journalism University, 2013(03): 115-120.
[6] OCLS Social[EB/OL].[2015-03-10].http://www.ocls.info/social/default.asp.
[7] Zheng Yingyu, Cong Ting, Miao Jie. Research on E-book Format Standards[J]. Publishing Science, 2010(04): 90-93.
[8] Qin Rongsheng. Research on the Impact of Big Data and Cloud Computing Technologies on Auditing[J]. Auditing Research, 2014(06): 23-28.

(Author Bio: Graduate Student, University of Shanghai for Science and Technology)

Note: Figure translations are in progress. See original paper for figures.