

The Cybiko Computer: Precursor to Today's Mobile Devices?

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Abstract

Developed by Montfort and Bogost (2009) for their research on the Atari Video Computer System, platform studies analyzes the hardware and software environment through which media are interacted with. However, there needs to be more research in this area focusing on early mobile media platforms. This article considers the Cybiko Computer, a short-lived handheld computer marketed primarily to youth in the United States in the early 2000s. Featuring a monochrome LCD screen and a small QWERTY keyboard, the Cybiko was an early example of a device capable of various gaming, utility, and communication functions through numerous applications well before such multifunctionality became standard among mobile devices. These many applications were provided for free through Cybiko's website, similar to modern app stores. The device was further promoted as an open platform for developers, leading to a variety of 3rd party applications. The Cybiko could also serve as an MP3 player via an add-on accessory. These features, mirroring those of later smartphone devices, should have seemingly ensured Cybiko's success. However, ineffective and inconsistent marketing, lack of cellular connectivity, and the rapid release of an upgraded version one year after the device's debut led to its failure. Despite this, the Cybiko is a significant case study, providing insight into how a device ahead of its time in terms of features can fail to gain wide adoption.

Author Keywords

Portable game device, Cybiko, portable computing, platform studies, media history.

Introduction

With the ubiquitous presence of smartphones, multipurpose mobile devices seem a foregone conclusion in the history of portable media devices. Modern smartphones are expected to serve as access points to various social media platforms, web browsers, gaming devices, and word processors—occasionally, they are also used as telephones! Other portable devices such as tablets utilize similar software architectures and design philosophies. Even systems marketed as dedicated mobile gaming devices, such as the Nintendo Switch, feature some social communication functions.

However, this development of the modern multipurpose mobile device has been a long process that can trace its lineage through a variety of devices, including Palm and other personal digital assistants, increasingly multipurpose portable game systems, early Blackberry devices, and

others. One such branch in that lineage is the Cybiko computer. Released in 2000, the Cybiko featured many of the same design philosophies of modern devices, including wireless messaging, a dedicated application distribution service, and a platform open to development for third parties. In an era largely punctuated by single-purpose mobile devices, the Cybiko stands out as an outlier. Moreover, this device was marketed to young millennials, who now make up a significant portion of today's smartphone user base.

A key question regarding the Cybiko is why it ultimately failed despite some initial success. The Cybiko seems like a forward-thinking platform for its day, yet only lasted a few years before it vanished from the market. Why did such a forward-thinking device fail to grab consumer attention and adoption? Was it due to issues with the device itself, or perhaps poorly formulated marketing strategies? Perhaps the market was not yet ready for such a revolutionary design. Considering the history of the Cybiko can provide a deeper understanding of media platform development and adoption by consumers.

A second question worth considering is the legacy of this device. While it only saw short-term success, the Cybiko did have some exposure among United States youth within the millennial generation. That presence may have helped shape expectations of today's mobile device ecosystem. What design choices of the Cybiko computer are echoed in current mobile platforms? What choices and designs unique to the Cybiko platform may be helpful to consider when designing future software and hardware?

I will discuss the history, hardware, and software of the Cybiko using platform studies alongside a media history approach. Platform studies focuses on understanding a media platform based on hardware and software limitations and capabilities and how they work together to provide a basis for creative digital content. Media history will prove useful here because it emphasizes both the media and their larger social context. This approach will prove pivotal in understanding the specifics of the Cybiko computer platform, allowing an exploration of the technical factors that made it unique from other devices of the time, and of the impact its adoption and usage had on succeeding mobile media platforms and architectures.

Theoretical Approach

To consider the specific architecture of the software and hardware of the Cybiko, the approach of platform studies will be utilized. As outlined by Ian Bogost and Nick Montfort (2009), platform studies is "a set of approaches which investigate the underlying computer systems that support creative work" (p. 1). This idea of platform encompasses both hardware and software platforms (Bogost and Montfort, 2009). Bogost and Montfort (n.d) further define a platform as "a foundational system that supports more or less general-purpose computing" (Platform Studies). Leorke (2012), suggests that a platform is "the formative level, the one that shapes or determines those above it" (p. 259). Some examples of platforms that have been analyzed utilizing the approach of platform studies include the Atari 2600, The Java programming language, and the Nintendo Wii. (Bogost and Montfort n.d.). Apperley and Jayemane (2012) suggest that Platform Studies even allows for a focus beyond the technical aspects of the platform itself, as an

outward-facing lens to consider the ecosystem surrounding the platform's development and production.

Platform studies proves an ideal lens through which to research the Cybiko. Exploring the platform's specific software, hardware, and development environment will contextualize the device, allowing for a measure of understanding of its design philosophy and unique characteristics. However, Leorke (2012) notes that the field of platform studies can prove limiting when focusing on broader effects, as its focus on a single platform can restrict reflections concerning the larger impact of a platform on media technology. Both Apperley and Parikka (2018) as well as Alberto (2020) argue that: the methodology of platform studies is deliberately open and vague; that while Montfort and Bogost focused on the technological (primarily how hardware shaped software), they also leave open the possibility of considering culture in discussions of platforms; and that their lack of definite boundaries provides avenues for other scholars to develop their own methodologies (or adapt existing ones) for their studies of platforms.

Alongside this, several scholars have either developed their own supplemental or competing definitions of platform. Alberto suggests this has resulted in two primary camps, "Platform Politics" (which would include Qiu's (2023) geopolitical approach to platforms as well as Srnicek's (2016) Platform Capitalism) and "Platform as Architectures," inspired by Montfort and Bogost's methods. Furthermore, both Apperley and Parikka (2018) along with Alberto (2020) argue for the potential of considering social and cultural elements. Particularly, the latter argues for a greater focus on the "embodied memory and experience of users" (p. 354). Lastly, Davis and Xiao (2021) argue that current Platform Studies approaches often assume a Western context (along with the underlying political economic systems that context is built on), which often overlooks differences in platforms that arise within different global contexts, such as China. Overall, platform studies alone leaves much to be desired when attempting to understand the place of a digital media platform in the larger context of related or competing media platforms, or the continuing legacy of such a platform on other media platforms. Thus, following Apperley and Parikka's (2018) example of incorporating outside methodology into platform studies (in their case, suggesting potential in connecting platform studies with media archaeological methods), I also draw on Gitelman's approach to media history.

While platform studies allows for an in-depth analysis of the Cybiko itself, the approach of media history will help provide a framework to understand the larger impact of the Cybiko platform on the development of related media platforms and conventions. Media history is described by Gitelman (2006) as a broad set of approaches to studying media, that include focusing on the technology itself, the ideas behind them, the social practices around them, or a combination of these factors. When conducting a media historical study, it is important to be aware of the effect media themselves have on the study of media. Gitelman (2006) states that "Our sense of history—of facticity in relation to the past—is inextricable from our experience of inscription" (p. 21). In this, Gitelman argues that media themselves shape the study of media, but also argues that media history is an important endeavor in spite of the challenges posed by this dynamic.

Gitelman further refines her approach to media history into one that encompasses the material (and technology) of media as well as their cultural context, keeping in mind the effect media have on media history research. This approach maps well onto the flexibility of platform studies, particularly as proposed by Alberto (2020). Gitelman's media history case studies focus on the "ways that new media emerge into and engage their cultural and economic contexts as well as the ways that new media are shaped by and help to shape the semiotic, perceptual, and epistemic conditions that attend and prevail" (p. 11). Thus, Gitelman's approach focuses on the process of how new media is used and understood by culture, and how that usage shapes and is in turn shaped by the culture in which it is used.

This approach is critical in understanding the history of the Cybiko. Considering the cultural dynamics surrounding the release and uses of the Cybiko is central to the questions of this research, and Gitelman's media history also allows for the technological aspects of platform studies. Of course, given the current culture of multipurpose mobile devices, it is essential to remember, as Gitelman herself notes regarding lessons to be learned from Media Archaeology, the reality of "historical narrative as a cultural production of the present" (p. 11). Thus, current usage and understandings of mobile devices will influence any study of the Cybiko, at least in some respect. However, as one purpose of this paper is to reflect on the lessons this platform's history might teach, I find these comparisons useful in moderation. Understanding the cultural response and reception of the Cybiko computer can provide a fuller understanding of the eventual failure of the platform, and how the device may have shaped cultural expectations of media technology.

However, I am not the first to grapple with the idea of "failure" in relations to platforms; it is also important to discuss the use of this term in relation to Nicoll's (2019) research on what he calls "minor platforms." Nicoll argues that "failure" is often used uncritically by many media archaeologists, without recognizing the implications and underlying logics of the failures they discuss. Instead, Nicoll argues for using the term "minor platform" for discussing platforms that did not achieve broad adoption and/or financial success for the company that created and produced it. The Cybiko was indeed a "minor platform" according to Nicoll's definition; however, while I acknowledge Nicoll's critique, I use the term failure intentionally here to question the *why* of failure (in terms of the questions of adoption and economic success). While the device may have fulfilled specific goals of its creators and introduced significant (now ubiquitous) innovations and affordances, it indeed failed to achieve wide adoption (after some initial momentum) and was only on the market for a couple of years. Thus, I retain the term "failure" as a specific, intentional rhetorical/historiographical tool to frame the Cybiko's "failure" in contrast with "successful" platforms that featured (and popularized) similar affordances, such as, for example, iPhone and Android smartphones. My analysis of the Cybiko first focuses on the background of the platform's development, providing a base understanding of the design philosophies at work. This analysis will then shift to the hardware and software capabilities of the Cybiko, along with evaluating how those capabilities affected the development of applications for the platform, both through reports of the device's functionality and use. Throughout the article, my analysis considers how this platform was utilized in the context of its debut, and discusses why the platform failed, while reflecting on the elements of Cybiko use that presage and mirror present uses of mobile devices.

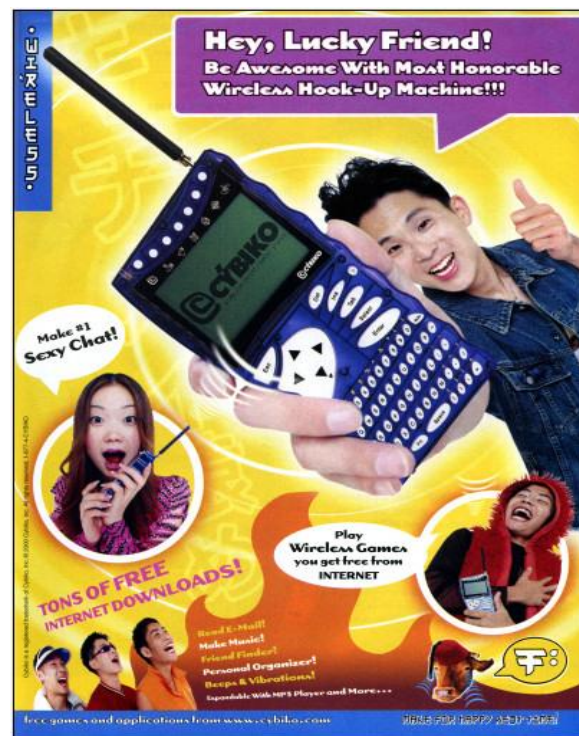
Cybiko: The Development and Marketing

The Cybiko was the brainchild of Russian software developer David Yang, who came up with the idea for a PDA-like device marketed to teens, while recovering in the hospital (Gwin, 2001). Yang brought together a small team to develop the device, and six months later, a group of just eighty engineers and designers built a working prototype (Stanton, 2001). However, if the device was to be marketed on a global scale, they would need the finances and marketing to do so. Eventually partnering with an American, David Wizniewski, in Illinois, Yang and Wizniewski initially attempted to find venture capital, but faced with a lack of commitment from backers, instead went ahead with marketing their own product (Stanton, 2001). Yang oversaw software development in Russia and Hardware production in Taiwan, while Wisniewski handled the marketing in the United States (Gwin, 2001).

Yang himself believed that developing in Russia created a unique set of advantages and challenges, noting that while they were able to develop the prototype for only \$150,000, the device's Russian origins made investors hesitant (Stanton, 2001). However, early success led to an influx of investment from Sun Technology and America Online, among others (Gwin, 2001). On the consumer side, great effort was undertaken to hide the device's Russian origins.

Figure 1

The Cybiko's (stereotyped and Orientalist) Japanese-inspired Advertising (Edwards, 2011)



Instead of honestly disclosing its Russian origins, it was framed through marketing as a Japanese-made device, capitalizing on the popularity of Japanese-made electronics at the time (Watson, 2018). This was despite the fact that there was no Japanese investment in the company, nor even a corporate presence in Japan at the time (Stanton, 2001).

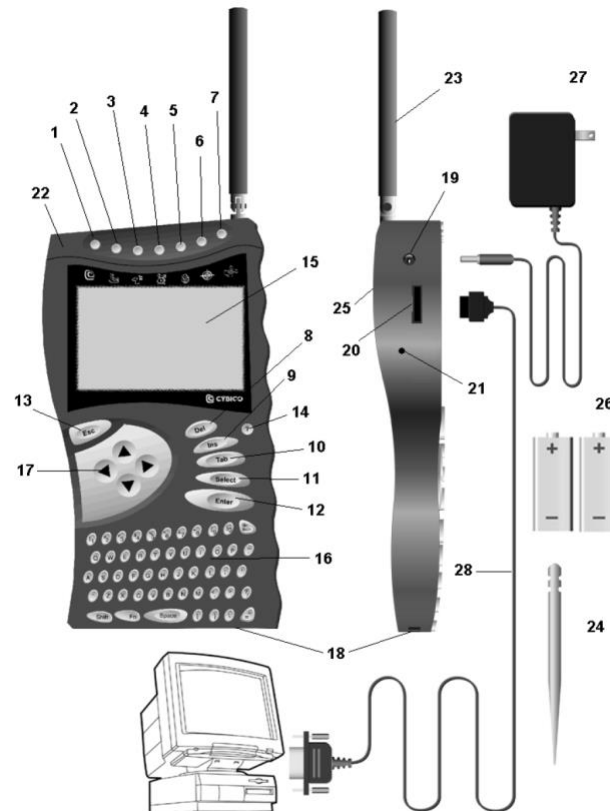
Analyzing the background of the Cybiko's development, it seems that the unorthodox nature of its creation presented an environment that allowed for unique design choices—choices that we now see as forward-thinking given their prevalence on modern mobile device platforms. The team behind the Cybiko worked outside of the usual development structure of either portable consoles or personal digital assistants of the time. In addition, it is significant to note that its development outside existing Western and Japanese platform development resulted in lower development costs, and may have contributed to incorporating different philosophies of platform development (such as the platform's open nature, which I discuss later), just as Davis and Xiao (2021) noted with platforms developed in China. This would have allowed the team to incorporate design elements of both into the device, while not being as confined to existing conventions of either device type. Thus, the Cybiko computer incorporated existing media platform designs, yet was able to combine them in a unique manner due to the unusual conditions of its development. This is most evident in the core design of the device.

The Hardware and Operating System

Internally, the Cybiko computer featured an 11-megahertz processor, 512 kilobytes of memory, and a 160 by 100-pixel grayscale display (Cybiko, 2000). For reference, the processing power of the Cybiko was only about twice as powerful as typical scientific graphing calculators of the time (Brown, 2006). The most unique feature of the device, however, was the wireless transmitter. Using similar technology as found in cordless handsets, the Cybiko's transmitter allowed the device to communicate with other Cybiko devices up to 150 feet away indoors, but that range was extended because each Cybiko would act as a relay point between other devices (Gwin, 2001). The device would also notify a user when another Cybiko was in range (Stanton, 2001). Released in an era before the wide adoption of Wi-fi and Bluetooth technology, such a function was truly novel.

Figure 2

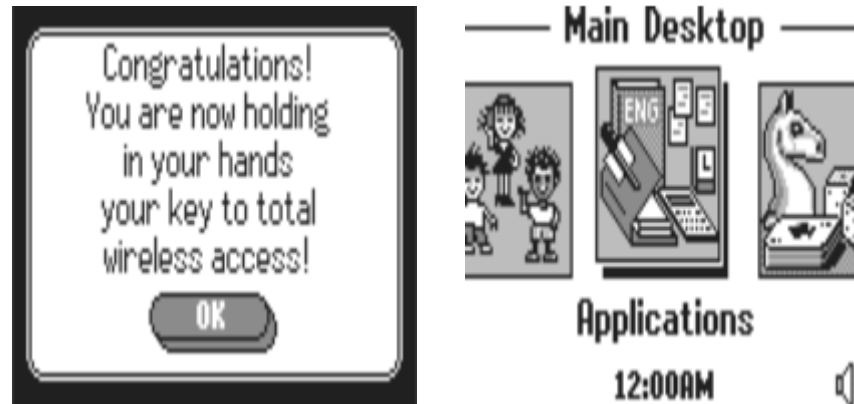
The Cybiko Computer. Note the stylus for the keyboard, #24 (Cybiko 2000)



As far as the Cybiko's external design, many aspects appear to be based on existing computer hardware, but miniaturized for the device's form factor. Released in a variety of translucent colors, the device mimicked the style of other popular electronics of the period, including Apple's iMac G3 and some variations of Nintendo's Game Boy Color. The device featured a full QWERTY keyboard, and major device buttons followed naming conventions of computer keyboard keys such as Enter, Esc (escape), and Del (delete), and served similar functions in applications as on a desktop computer (Cybiko, 2000). Due to the small size of some buttons, the device also featured a modified stylus for utilizing the keyboard (Manes, 2000; Cybiko, 2000). The Cybiko's antenna was incorporated as a folding design into the back of the device, allowing for wireless communication while keeping a manageable form factor in a large pocket or a bag (Cybiko, 2000). The device was also designed with several expansion slots. An MP3 player was sold separately that connected to one of these slots (Gwin, 2001). Another slot was set aside for an optional random-access memory (RAM) chip, which could improve the device's performance (Cybiko, 2001a).

Figures 3 and 4

Screenshots of Cybiko's CyOS, taken by the author using hardware emulation



A custom operating system called CyOS was programmed for the machine (Cybiko, 2000). A key feature built into the device was entering one's name, age, gender, and interests during initial start-up, which could then be shared through wireless chat messaging as well as other applications (Gwin, 2001). The operating system's file manager was also built to utilize this wireless connectivity, allowing users to send files directly to another Cybiko, which the recipient could then accept (Cybiko, 2000). Users could even send MP3 music files through the Cybiko's file-sharing function (Gwin, 2001).

The official user's manual from the company refers to the Cybiko as a "multifunctional communications computer" (Cybiko, 2000, p. 10). This chosen ancestry from computers is clear in its design, as the device's overall design philosophy is clearly an attempt to squeeze the input capabilities and conventions of a fully functional computer into a portable form factor while adding features to facilitate mobile interactivity between users. This led to some compromises in usability, necessitating the added stylus. The wireless functionality of the Cybiko certainly fulfills the "communications" aspect of the device's design philosophy. The wireless capability was carefully balanced with the device's portability, resulting in an extendable antenna. Wireless connectivity was also integrated into the core operating system through a chat application, public user profiles, and file sharing. Finally, add-ons such as an MP3 player and supplemental memory help establish greater variability of its intended usage. However, it was the software available for download that allowed the Cybiko to truly fulfill the third aspect of its design, "multifunctional."

The Software and Uses

Figure 3

Screenshot of archived Cybiko Website. (Cybiko, 2001b)



The Software Distribution Platform

An unusual strategy for the time, Cybiko did not charge for any of its applications, but instead distributed the additional applications for their portable computer for free on their website, www.cybiko.com (Cybiko, 2001a). Alongside this, Cybiko pushed a policy of constant updates, promising regular operating system updates as well as a new game available every day on the website (Cybiko, 2001a). By 2001, Cybiko had made over 400 applications available from their website that could be downloaded for free to a personal computer; the applications could then be transferred to a Cybiko device (Stanton, 2001).

This system of distribution meant that any user could access any of the games and applications available from Cybiko at no additional cost. This made the device an affordable option beyond its initial cost, as it didn't require additional investments after purchase. The only exceptions were the RAM chip and MP3 Player: optional external upgrades to the Cybiko hardware (Cybiko, 2001a). Such a system was quite unusual in its day, as game systems in the early 2000s usually required purchasing games at an additional cost. However, this lack of monetization of the device's applications also meant they could not provide additional revenue to the company.

Official Applications

Regarding the number of applications at their fingertips, users were only limited by the amount of storage space on their Cybiko. Of the applications available on the Cybiko website, over 80% were games (Planet Cybiko, n.d.). These games covered a variety of genres, including first-person shooters, racing, and board games, among others (Cybiko, 2000). Many games took advantage of the wireless functionality of the Cybiko. One application, Cylandia, featured a virtual pet that could wirelessly visit other Cybiko devices. “The game’s goal is to raise happy, productive Cy-Bs that live long and prosper; players accomplish this by training the Cy-Bs, sending them over a local wireless network to visit other players’ Cy-Bs to improve their social skills, and helping them find jobs” (Montfort, 2002).

The Cybiko provided a variety of games that comprised the majority of applications on the device. However, the remaining applications, though small in number, gave the Cybiko computer other potential uses besides a chat and gaming machine. Core applications out of the box included an organizer, a text editor, and an address book (Cybiko, 2000). Notable applications available for download included several fitness applications, a scientific calculator, a variety of language dictionaries, bill-tracking applications, and an advanced text editor with spell-check capabilities (Cybiko, 2001b).

Given the youth demographic the device was marketed to, it is unsurprising that the vast majority of the Cybiko’s applications were video games. That said, the platform was also home to various utilitarian applications, fulfilling the device’s purported multipurpose design. Not only that, but some of these applications also seem a strange fit for the youth audience (such as bill-tracking), perhaps suggesting that Cybiko saw the potential for their portable computer to expand beyond children to an adult market. These utility applications suggest avenues of use outside of entertainment, perhaps even as an educational device. However, the device’s gaming and chat functions meant the device could be as much a distraction as a useful tool, limiting its potential in such contexts.

Third-Party and Homebrew Development

While the hundreds of official applications provided myriad ways to use the Cybiko computer, Cybiko supported an open platform that fueled additional homebrew development. Cybiko encouraged development in either the established C programming language or a proprietary programming language called CyBasic, based on BASIC (Edwards, 2011). A small but significant movement, homebrew developers created their original titles and knockoffs of popular games. Asteroids, Pac-Man, Tetris, and a number of other game properties were appropriated for unofficial ports or adaptations by the Cybiko homebrew community (Frohwein, n.d.). Homebrew development also extended beyond games to other types of applications. One teacher developed applications for the Cybiko computer to provide to his students for an organic chemistry class (Salvador, n.d.). Homebrew developers also created a flashcard application, a web browser, and a media player (Frohwein, n.d.; SSJX, 2024).

The open platform of the Cybiko computer established by official support for homebrew provided the setting where various homebrew games and applications could be developed. . . Once again, this philosophy may have been influenced by the non-Western development of the device, though the homebrew apps were produced by users in the United States. In this, we see

Gitelman's (2006) assertion that media shape and are shaped by culture; the open platform enabled users to create their own apps for the device. As often happens with an open platform, many early homebrew releases were simply copies of popular games on other systems. However, some original content was also developed. Had the Cybiko garnered a more extensive user base, the homebrew community would have only grown over time. Furthermore, a means to monetize these apps through official recognition by the manufacturer might have also encouraged more third-party development (a model which would later prove successful for app stores on smartphones). Unfortunately, the limited audience for Cybiko applications meant development was limited to a niche set of personal projects.

Early Success, But Eventual (Commercial) Failure

Despite its utility and large number of games, the Cybiko computer never fully caught the attention of teenagers. The device's early sales of 500,000 units as of December 2000 generated enough confidence in the Cybiko brand to allow the company to gather additional funding from British-based Vesta GROUP in Early 2001 (Ringshaw, 2001). However, this financial backing would precede what may have been Cybiko's biggest blunder. In September 2001, Cybiko elected to release a successor to the Cybiko computer, the Cybiko Xtreme, a little more than a year after the original device's debut (Son of Cybiko, 2001). The new device featured a stronger processor and USB support, though the low-resolution grayscale display remained the same (Heasley, 2001). The device failed to gain traction in the market, and Cybiko as a company began quickly shifting its focus, announcing a partnership to make mobile phone games in late 2002, and then was bought out by a rival mobile developer a year later (Superscape and Cybiko, 2002; Dudley, 2003).

One challenge was that, from the beginning, the marketing of the Cybiko computer was inconsistent. The first types of stores to stock Cybikos were toy stores such as Toys R' Us and office supply stores such as Office Depot (Cybiko, n.d.). This left the device with an uncertain identity for consumers, as they were not sure whether to think of the Cybiko as a toy or as a serious portable computer. The device's marketing campaign and application design were occasionally at odds as well, with some applications, such as the aforementioned bill-tracking program, clearly intended for adult users. In contrast, the device was marketed to teens and tweens through its internet advertising campaign. Additionally, its translucent design, while not unusual for portable gaming devices at the time, made it seem more like a toy than an affordable PDA for older consumers. Had the device had a clear identity as either a children's toy or a serious computer device, it would have carved out a clearer portion of the market and likely seen larger adoption rates. In addition, it would have been beneficial to the device's usability for children and teens if development resources devoted to applications more suited to adults had instead been dedicated to making more games or youth-friendly applications. Instead, the Cybiko's unclear marketing made it difficult for consumers to decide on its place in their lives.

The short development cycle between the original device and its successor barely allowed the original Cybiko to gain wide exposure and adoption before the second-generation device was released. In addition, the differences between the original and the Xtreme were minor enough to make justifying an upgrade from the original device difficult for those who already owned an original Cybiko device. As a point of comparison, in March 2001, Nintendo's Game Boy Advance was released, providing significant graphical and technical improvements over their

previous generation, the Game Boy Color (Copetti, 2018). It is also notable that Nintendo's new portable gaming device was direct competition for the Cybiko in terms of games, with the Game Boy and Game Boy Color dominating the portable gaming market in the US at the time. Indeed, the comparison of the iterations of the Cybiko and the iterations of the Game Boy: The latter's update (the Game Boy Color), while only marginally more powerful, added a color display that made the device a more compelling upgrade from the original. Perhaps if the Cybiko Xtreme had itself included a color display or significant new features, like the option to utilize cellular connectivity with a provider contract, the new device would have grabbed more consumer interest. This lesson of "was the upgrade worth it?" that seemed to doom the Cybiko is still relevant in today's era of constant upgrades to mobile devices.

Implications and Legacy of the Cybiko Computer

Nicoll (2019) argued that "minor platforms are valuable as epistemic tools because they compel us to question what we think we know about videogames and their histories" (p. 32). Given this, what lessons about the history of games and mobile platforms can be gleaned from the development, usage, and ultimate commercial failure of the "Minor Platform" that was the Cybiko computer? Viewed through the lens of platform studies, the Cybiko computer platform provided a unique development ecosystem when compared to other mobile devices of the time. The Cybiko was developed independently of the major hardware developers of its time, yet the device incorporated many existing design philosophies of present-day devices. Some of these philosophies actually created additional challenges for device design, such as incorporating a full QWERTY keyboard into a handheld device. This challenge would result in a number of hardware innovations in the mobile phone space once the use of text messaging increased, with the variety of keyboard solutions eventually giving way to the now-ubiquitous touch-screen keyboard. On the other hand, a number of features of the Cybiko computer truly do bring original concepts and ideas together, such as the wireless connectivity functionality with other Cybikos implemented both through hardware and software design. Implications for future mobile platform design are twofold. First, platform design should attempt to avoid outdated or unnecessary designs unless it is clear that utilizing them will better facilitate interaction with the platform by its users. Second, while development outside of established structures for device and software innovation may allow for greater innovation when developing a new device or software platform, such environments may also lack the established marketing and sales advantages that a larger corporation would provide.

The software structure of the Cybiko computer was another clear example of how this platform was an early incarnation of the current mobile device ecosystem. Although such apps are often supported by advertising, today's app stores on both iOS and Android devices are overflowing with free applications and games spanning a wide variety of functions and genres. The relative ease of adding functionality through new apps made the Cybiko a versatile portable device, a core functionality that underpins the usefulness of modern smartphones.

The Cybiko's design philosophy mirrors the current expectations of current mobile devices. For most consumers today, it is unacceptable for a phone to be just a phone; it must also have texting, web connectivity, games, and a variety of other practical and entertainment functions fulfilled by applications easily accessed through online software distribution (generally via a

dedicated app store). Of course, given the limited sales of the device, it is difficult to argue that the Cybiko computer was alone (or even primarily) responsible for setting these standards, but nevertheless, it was a device ahead of the curve in terms of its multipurpose functionality.

Modern mobile devices are also set up for easier development to encourage more applications for that platform, though this is now coupled with greater curation of their “app stores” to reduce the instances of bootleg or other intellectual property-infringing applications. The support by smartphone platform creators for application development echoes the open development structure of the Cybiko, where the simple programming languages allowed users to easily develop homebrew software. However, the added prospect of financial gain provided by modern app store structures is a useful incentive that might well have benefited the infrastructure of the Cybiko’s software distribution.

One primary lesson to be learned from the Cybiko’s ultimate failure is that new mobile devices must ensure that they justify the upgrade from a previous version. If a device does not appear to be significantly different than its predecessor, consumers will perceive no compelling reason to buy the latest edition. However, comparing the Cybiko to a gaming contemporary, the Game Boy, it is also clear that such changes need not be revolutionary, but can simply be evolutionary (which is also supported by the ongoing iteration of phones and other mobile devices). Having a clearly outlined marketing strategy and development will assist in the process of consumers’ negotiation of the capabilities and uses of a new device, particularly if such a device does not fit into an established framework of other existing devices. This continues to be a major concern for virtual reality headsets, for example.

Conclusion

The Cybiko computer checked many of the boxes for what we’ve come to expect from a mobile device. It provided wireless interconnectivity, a robust variety of applications easily accessed through online distribution, and hardware features and interfaces that allowed full use of its chat, gaming, and utility features. That said, the Cybiko had two significant shortcomings. The first was that its successor was released too soon after the original with only minimal upgrades, limiting the market exposure, consumer excitement, and potential for growth. Second, the marketing, from advertising to store sales, wasn’t quite certain how to sell the device. Despite this, more than half a million people bought Cybiko devices during their brief time on the market. For those who used one, it provided a combination of functions and capabilities unlike any device on the market at the time, and surely altered their expectations of what a mobile device could and should do. In the process, its functionality and ultimate “failure” demonstrate that a device ahead of its time must also be positioned to fulfil a clear need for an audience situated in its time, or else even the most innovative design will struggle to succeed in the market.

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