Windows Phone

Windows Phone (**WP**) is a family of mobile operating systems developed by Microsoft for smartphones as the replacement successor to Windows Mobile[5][6] and Zune.[7] Windows Phone features a new user interface derived from Metro design language. Unlike Windows Mobile, it is primarily aimed at the consumer market rather than the enterprise market.[8] It was first launched in October 2010 with Windows Phone 7.[9] Windows Phone 8.1 was the last public release of the operating system, released to manufacturing on April 14, 2014.[10][11] Windows Phone has been succeeded by Windows 10 Mobile, with the Windows Phone name being phased out in favor of branding the platform as an edition of Windows 10.

1 History

1.1 Development

Work on a major Windows Mobile update may have begun as early as 2004 under the codename "Photon", but work moved slowly and the project was ultimately cancelled.[12] In 2008, Microsoft reorganized the Windows Mobile group and started work on a new mobile operating system.[13] The product was to be released in 2009 as Windows Phone, but several delays prompted Microsoft to develop Windows Mobile 6.5 as an interim release.[14]

Windows Phone was developed quickly. One result was that the new OS would not be compatible with Windows Mobile applications. Larry Lieberman, senior product manager for Microsoft's Mobile Developer Experience, told eWeek: "If we'd had more time and resources, we may have been able to do something in terms of backward compatibility."[15] Lieberman said that Microsoft was attempting to look at the mobile phone market in a new way, with the end user in mind as well as the enterprise network.[15] Terry Myerson, corporate VP of Windows Phone engineering, said, "With the move to capacitive touch screens, away from the stylus, and the moves to some of the hardware choices we made for the Windows Phone 7 experience, we had to break application compatibility with Windows Mobile 6.5."[16]

1.2 Partnership with Nokia

Main article: Microsoft Mobile
Further information: Microsoft Lumia

On February 11, 2011, at a press event in London, Microsoft CEO Steve Ballmer and Nokia CEO Stephen Elop announced a partnership between their companies in which Windows Phone would become the primary smartphone operating-system for Nokia, replacing Symbian.[17] The event focused largely on setting up "a new global mobile ecosystem", suggesting competition with Android and iOS with the words "It is now a three horse race". Elop stated the reason for choosing Windows Phone over Android, saying: "the single most important word is 'differentiation'. Entering the Android environment late, we knew we would have a hard time differentiating."[18] While Nokia would have had more long-term creative control with Android (note that MeeGo as used by Nokia resembles Android more than it does Windows Phone 7 as both Android and MeeGo are based on the Linux kernel), Elop enjoyed familiarity with his past company where he had been a top executive.[19][20]

The pair announced integration of Microsoft services with Nokia's own services; specifically:[17]

- Bing would power search across Nokia devices

- integration of Nokia Maps with Bing Maps

- integration of Nokia's Ovi store with the Windows Phone Store

The partnership involves "funds changing hands for royalties, marketing and ad-revenue sharing", which Microsoft later announced as "measured in billions of dollars."[21] Jo Harlow, whom Elop tapped to run Nokia's smartphone business, rearranged her team to match the structure led by Microsoft's VP of Windows Phone, Terry Myerson. Myerson was quoted as saying, "I can trust her with what she tells me. She uses that same direct and genuine communication to motivate her team."[22]

The first Nokia Lumia Windows Phones, the Lumia 800 and Lumia 710, were announced in October 2011 at Nokia World 2011.[23][24]

At the Consumer Electronics Show in 2012 Nokia announced the Lumia 900, featuring a 4.3-inch AMOLED ClearBlack display, a 1.4 GHz processor and 16 GB of storage.[25] The Lumia 900 was one of the first Windows Phones to support LTE and was released on AT&T on April 8.[26] An international version launched in Q2 2012, with a UK launch in May 2012.[27] The Lumia 610 was

the first Nokia Windows Phone to run the Tango Variant (Windows Phone 7.5 Refresh) and was aimed at emerging markets.

On September 2, 2013, Microsoft announced a deal to acquire Nokia's mobile phone division outright, retaining former CEO Stephen Elop as the head of Microsoft's devices operation.[28][29] Microsoft managers revealed that the acquisition was made because Nokia was driving the development of the Windows Phone platform to better match their products.[30] The merger was completed after regulatory approval in all major markets in April 2014. As a result, Nokia's hardware division is now a subsidiary of Microsoft operating under the name Microsoft Mobile.

In February 2014, Nokia released the Nokia X series of smartphones, (later discontinued) using a version of Android forked from the Android Open Source Project. The operating system was modified; Google's software was not included in favour of competing applications and services from Microsoft and Nokia, with a user interface highly modified to resemble Windows Phone.[31]

2   Versions

Main article: Windows Phone version history

2.1   Windows CE

2.2   Windows Phone 7

Windows Phone 7.5 logo

Main article: Windows Phone 7

Windows Phone 7 was announced at Mobile World Congress in Barcelona, Catalonia, Spain, on February 15, 2010, and released publicly on November 8, 2010 in the United States.

In 2011, Microsoft released Windows Phone 7.5 *Mango*. The update included a mobile version of Internet Explorer 9 that supports the same web standards and graphical capability as the desktop version, multi-tasking of third-party apps,[32][33] Twitter integration for the People Hub,[34][35][36] and Windows Live SkyDrive access.[37] A minor update released in 2012 known as "Tango", along with other bug fixes, lowered the hardware requirements to allow for devices with 800 MHz CPUs and 256 MB of RAM to run Windows Phone.[38]

Since Windows Phone 7 devices could not be upgraded to Windows Phone 8 due to hardware limitations,[39] Win-

dows Phone 7.8 was released as a stopgap update in 2013 to include some of the features from Windows Phone 8. The update included a tweaked start screen, additional color schemes, and more wallpaper options.

2.3   Windows Phone 8

Windows Phone 8 logo

Main article: Windows Phone 8

On October 29, 2012, Microsoft released **Windows Phone 8**, a new generation of the operating system. Windows Phone 8 replaces its previously Windows CE-based architecture with one based on the Windows NT kernel with many components shared with Windows 8, allowing applications to be ported between the two platforms.

2.4   Windows Phone 8.1

Windows Phone 8.1 logo

Main article: Windows Phone 8.1

Windows Phone 8.1 was announced on April 2, 2014, after being released in preview form to developers on April 10, 2014.[40][41][42] New features added include a notification center, Internet Explorer 11 with tab syncing among Windows 8.1 devices and WP devices, separate volume controls, and the option to skin and add a third column of live tiles to the Start Screen. Starting with this release, Microsoft has also dropped the requirement that all Windows Phone OEMs include a camera button and physical buttons for back, Start, and Search.

Windows Phone 8.1 also adds Cortana, a voice assistant similar to Siri and Google Now. Cortana replaces the previous Bing search feature, and was released as a beta in the United States in the first half of 2014, before expanding to other countries in late 2014 and early 2015.[43]

2.5   Windows 10 Mobile

Main article: Windows 10 Mobile

Windows 10 Mobile was announced on January 21, 2015, as a mobile operating system for smartphones and

Windows 10 logo

tablets running on ARM architecture. Its primary focus is unification with Windows 10, its PC counterpart, in software and services; in accordance with this strategy, the Windows Phone name has been phased out in favor of branding the platform as an edition of Windows 10,[44][45][46][47] although it is still a continuation of Windows Phone, and Windows Phone 8.1 devices can be upgraded to the platform.[48][49][50]

Windows 10 Mobile emphasizes software using the Universal Windows Platform, which allows apps to be designed for use across multiple Windows 10-based product families with nearly identical code and functionality, and adaptations for available input methods.[51][52][53] When connected to an external display, devices can also render a stripped-down desktop interface similar to Windows on PCs, with support for keyboard and mouse input.[54][55] Windows 10 Mobile also features Skype messaging integration, updated Office Mobile apps, notification syncing with other Windows 10 devices, Microsoft Edge web browser, and other user interface improvements.[45][56][57] Microsoft also developed middleware to assist developers in adapting Objective C software written for iOS into Windows 10 apps.[58][59][60]

3   Features

3.1   User interface

Windows Phone features a user interface based on Microsoft's "Metro" design language,[61] and was inspired by the user interface in the Zune HD.[62] The home screen, called the "Start screen", is made up of "Live Tiles", which have been the inspiration for the Windows 8 live tiles. Tiles are links to applications, features, functions and individual items (such as contacts, web pages, applications or media items). Users can add, rearrange, or remove tiles.[63] Tiles are dynamic and update in real time – for example, the tile for an email account would display the number of unread messages or a tile could display a live update of the weather.[64] Since Windows Phone 8, live tiles can also be resized to either a small, medium, or large appearance.

Several features of Windows Phone are organized into "**hubs**", which combine local and online content via Windows Phone's integration with popular social networks such as Facebook, Windows Live, and Twitter.[64] For example, the Pictures hub shows photos captured with the device's camera and the user's Facebook photo albums, and the People hub shows contacts aggregated from multiple sources including Windows Live, Facebook, and Gmail. From the hub, users can directly comment and 'like' on social network updates. The other built-in hubs are Xbox Music and Video, Xbox Live Games, Windows Phone Store, and Microsoft Office.[64]

Windows Phone uses multi-touch technology.[64] The default Windows Phone user interface has a dark theme that prolongs battery life on OLED screens as fully black pixels do not emit light. Alternatively, users may choose a light theme in their phone's settings menu.[65] The user may also choose from several accent colors.[66] User interface elements such as links, buttons and tiles are shown in the user's chosen accent color. Third-party applications can be automatically themed with these colors.[67] Windows Phone 8.1 introduces transparent tiles and a customizable background image for the Start screen. The image is visible through the transparent area of the tiles and features a parallax effect when scrolling which gives an illusion of depth. If the user does not pick a background image the tiles render with the accent color of the theme.

3.2   Text input

Users input text by using an on-screen virtual keyboard, which has a dedicated key for inserting emoticons,[68] and features spell checking[68] and word prediction.[69] App developers (both inhouse and ISV) may specify different versions of the virtual keyboard in order to limit users to certain character sets, such as numeric characters alone. Users may change a word after it has been typed by tapping the word,[70] which will invoke a list of similar words. Pressing and holding certain keys will reveal similar characters. The keys are somewhat larger and spaced farther apart when in landscape mode. Phones may also be made with a hardware keyboard for text input.[71] Users can also add accents to letters by holding on an individual letter. Windows Phone 8.1 introduces a new method of typing by swiping through the keyboard without lifting the finger, in a manner similar to Swype and SwiftKey.

3.3   Web browser

See also: Internet Explorer Mobile

Internet Explorer on Windows Phone allows the user to maintain a list of favorite web pages and tiles linking to web pages on the Start screen. The browser supports up to 6 tabs, which can all load in parallel.[72] Other features include multi-touch gestures, smooth zoom in/out animations, the ability to save pictures that are on web pages, share web pages via email, and support for inline search which allows the user to search for a word or phrase in a web page by typing it.[73] Tabs are synced with Windows 8.1 devices using Internet Explorer 11.

3.3.1   Microsoft Edge

With Windows 10, Microsoft introduced a new browser, Edge, which allows the users to draw and write on web pages and share them. It also adds the offline reading mode feature which allows the users to save web pages in reading mode and read them later on any of their Windows 10 devices.

3.4   Contacts

Contacts are organized via the "**People hub**", and can be manually entered into contacts or imported from Facebook, Windows Live Contacts, Twitter, LinkedIn, Google, and Outlook. A "What's New" section shows a user's Facebook news feed and a "Pictures" section show pictures from those social networks, while a "Me" section within the "People" hub shows a user's own social network status and wall and allows them to view social network updates. Contacts can also be pinned to the Start Screen. The contact's "**Live Tile**" displays their social network status and profile picture on the homescreen. Clicking on a contact's tile or accessing their card within the "People" hub will reveal their recent social network activity as well as the rest of their contact information.

If a contact has information stored on multiple networks, users can link the two separate contact accounts, allowing the information to be viewed and accessed from a single card.[74] As of Windows Phone 7.5, contacts can also be sorted into "Groups". Here, information from each of the contacts is combined into a single page which can be accessed directly from the Hub or pinned to the Start screen.
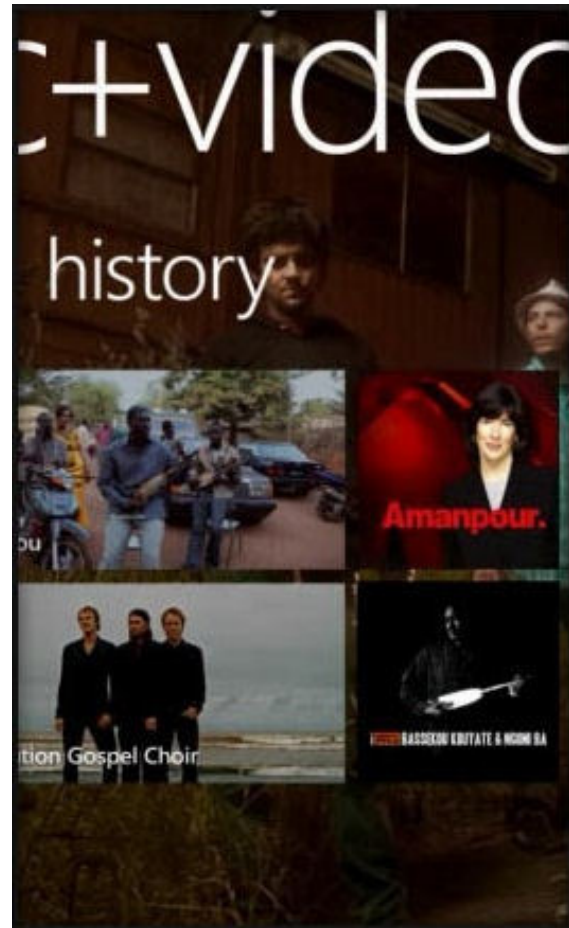
3.5   Email

Main article: Mail (Windows)

Windows Phone supports Outlook.com, Exchange, Yahoo! Mail and Gmail natively and supports many other services via the POP and IMAP protocols. Updates added support for more services such as iCloud and IBM Notes Traveler. Contacts and calendars may be synced from these services as well. Users can also search through their email by searching in the subject, body, senders, and receivers. Emails are shown with threads, and multiple email inboxes can be combined into a single view (a feature commonly referred to as "combined inbox") or can viewed separately.

3.6   Multimedia

See also: Xbox Music and Xbox Video

Xbox Music and **Xbox Video** are built-in multimedia hubs providing entertainment and synchronization ca-

The Music + Video Hub on Windows Phone.

pabilities between PC, Windows Phone, and other Microsoft products.[75] The two hubs were previously combined until standalone apps were released in late 2013, shortly before Windows Phone 8.1 debuted.[76] The hubs allow users to access music, videos, and podcasts stored on the device, and links directly to the "Xbox Music Store" to buy or rent music and the "Xbox Video Store" to purchase movies and TV episodes. Xbox Music also allows the user to stream music with an Xbox Music Pass. When browsing the music by a particular artist, users are able to view artist biographies and photos.[68] The Xbox Music hub also integrates with many other apps that provide video and music services, including, but not limited to, iHeartRadio, YouTube, and Vevo. This hub also includes Smart DJ which compiles a playlist of songs stored on the phone similar to the song or artist selected.

The **Pictures hub** displays the user's Facebook and OneDrive photo albums, as well as photos taken with the phone's built-in camera. Users can also upload photos to social networks, comment on photos uploaded by other people, and tag photos posted to social networks.[68] Multi-touch gestures permit zooming in and out of photos.

An official file manager app called **Files**, which is available for download from the Windows Phone Store, en-

ables users to move and rearrange documents, videos, music and other files within their device's hard drive or to an external SD card.[77]

3.6.1 Media support

Windows Phone supports WAV, MP3, WMA, AMR, AAC/MP4/M4A/M4B, FLAC (as of Windows 10 Mobile), and 3GP/3G2 standards. The video file formats supported on WP include WMV, AVI, MP4/M4V, 3GP/3G2 and MOV (QuickTime) standards.[78] These supported audio and video formats would be dependent on the codecs contained inside them. It has also been previously reported that the DivX and Xvid codecs within the AVI file format are also playable on WP devices.[79][80]

Note that Windows Phone does not support DRM protected media files that are obtained from services other than Xbox Music Pass.[81]

Windows 10 Mobile supports streaming videos in the WebM format in the Microsoft Edge browser.[82]

The image file formats that are supported include JPG/JPEG, PNG, GIF, TIF and Bitmap (BMP).[83][84]

Users can also add custom ringtones which are less than 1MB in size and less than 40 seconds long. DLNA streaming and steroscopic 3D are also supported.[76]

3.7 Games

Main article: List of Xbox Live games on Windows Phone
See also: Xbox Live

The "**Games hub**" provides access to games on a phone along with Xbox Live functionality, including the ability for a user to interact with their avatar, view and edit their profile, see their achievements and view leaderboards, and send messages to friends on Xbox Live. The hub also features an area for managing invitations and turn notifications in turn-based multiplayer games.[85] Games are downloaded from Windows Phone Store.

3.8 Search

See also: Bing (search engine), Bing Mobile, and Bing Maps

Bing is the default search engine on Windows Phone handsets because its functions are deeply integrated in the OS (which also include the utilization of its map service for location-based searches and queries). However, Microsoft has stated that other search engine applications can be used.[86][87]

In the area of location-based searches, Bing Maps (which is powered by Nokia's location services) provides turn-by-turn navigation service to Windows Phone users, and Local Scout shows interest points such as attractions and restaurants in the nearby area. On Nokia devices, Nokia's Here Maps is preinstalled in place of Bing Maps.

Furthermore, Bing Audio allows the user to match a song with its name, and Bing Vision allows the user to scan barcodes, QR codes, and other types of tags.
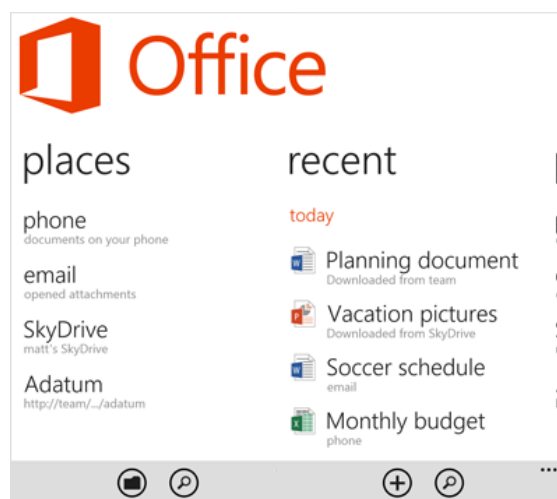
3.8.1 Cortana

Main article: Microsoft Cortana

Every Windows Phone has either a dedicated physical Search button or an on-screen Search button, which was previously reserved for a Bing Search app, but has been replaced on Windows Phone 8.1 devices in the United Kingdom and United States by Cortana, a digital personal assistant which can also double as an app for basic searches.

Cortana allows users to do tasks such as set calendar reminders and alarms, and recognizes a user's natural voice, and can be used to answer questions (like current weather conditions, sports scores, and biographies). The app also keeps a "Notebook" to learn a user's behavior over time and tailor reminders for them. Users can edit the "Notebook" to keep information from Cortana or reveal more about themselves.

3.9 Office suite

Microsoft Office Mobile on Windows Phone 8

See also: Microsoft Office Mobile

All Windows Phones come preinstalled with Microsoft Office Mobile, which provides interoperability between Windows Phone and the desktop version of Microsoft

Office. Word Mobile, Excel Mobile, PowerPoint Mobile, and SharePoint Workspace Mobile apps are accessible through a single "Office Hub," and allow most Microsoft Office file formats to be viewed and edited directly on a Windows Phone device. The "Office Hub" can access files from OneDrive and Office 365, as well as files which are stored locally on the device's hard drive. Although they are not preinstalled in Windows Phone's "Office Hub," OneNote Mobile, Lync Mobile, and OneDrive for Business can be downloaded separately as standalone applications from the Windows Phone Store.

3.10   Multitasking

Multitasking in Windows Phone is invoked through long pressing the "back" arrow, which is present on all Windows Phones. Windows Phone 7 uses a card-based task switcher, whereas later versions of Windows Phone utilize true background multitasking.

3.11   Sync

3.11.1   Windows Phone 7

Main article: Windows Phone 7 § Sync
See also: Zune Software

Zune Software manages the contents on Windows Phone 7 devices and Windows Phone can wirelessly sync with Zune Software.
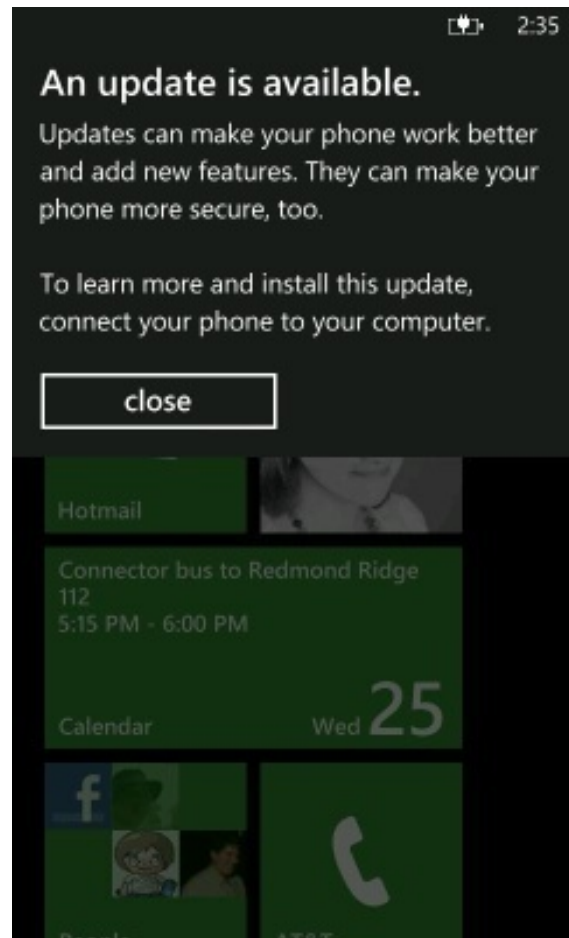
3.11.2   Later versions

Main article: Windows Phone 8 § Syncing

Syncing content between Windows Phone 8 and 8.1 and Windows PCs or Macs is provided through the Windows Phone App, which is available for both Windows and Mac OS X. It is the official successor to Zune software only for Windows Phone 8 and Windows Phone 8.1, and allows users to transfer content such as music, videos, and documents.

Users also have the ability to use a "Tap and Send" feature that allows for file transfer between Windows phones, and NFC-compatible devices through NFC.

3.12   Updates

Software updates are delivered to Windows Phone users via Microsoft Update, as is the case with other Windows operating systems.[88] Microsoft initially had the intention to directly update any phone running Windows Phone instead of relying on OEMs or wireless carriers,[89] but on

A test notification of an "update available" pop-up in the Windows Phone emulator.

January 6, 2012, Microsoft changed their policy to let carriers decide if an update will be delivered.[90]

While Windows Phone 7 users were required to attach their phones to a PC to install updates,[91] starting with Windows Phone 8, all updates are done via over-the-air downloads.[92] Since Windows Phone 8, Microsoft has also begun releasing minor updates that add features to a current OS release throughout the year.[93] These updates were first labeled "General Distribution releases" (or GDRs), but were later rebranded simply as "Updates".

All third-party applications can be updated automatically from the Windows Phone Store.[94]

3.13   Advertising platform

Microsoft has also launched an advertising platform for the Windows Phone platform. Microsoft's General Manager for Strategy and Business Development, Kostas Mallios, said that Windows Phone will be an "ad-serving machine", pushing advertising and brand-related content to the user. The platform will feature advertising tiles near applications and toast notifications, which will bring updating advertising notifications. Mallios said that Win-

dows Phone will be able to "preserve the brand experience by going directly from the web site right to the application", and that Windows Phone "enables advertisers to connect with consumers over time".[95] Mallios continued: "you're now able to push information as an advertiser, and stay in touch with your customer. It's a dynamic relationship that is created and provides for an ongoing dialog with the consumer."[96]

3.14   Bluetooth

Windows Phone supports the following Bluetooth profiles:[97]

1. Advanced Audio Distribution Profile (A2DP 1.2)

2. Audio/Video Remote Control Profile (AVRCP 1.3)

3. Hands Free Profile (HFP 1.5)

4. Headset Profile (HSP 1.1)

5. Phone Book Access Profile (PBAP 1.1)

6. Bluetooth File Transfer (OBEX) (from Windows Phone 7.8)

Windows Phone BTF support is available from Windows Phone 7.8, but is limited to the transferring of pictures, music and videos via a 'Bluetooth Share' app.[98][99]

3.15   Feature additions

Microsoft keeps a site where people can submit and vote on features they would like to see added to Windows Phone.[100]

4   Store

Main articles: Windows Phone Store, Xbox Music, and Xbox Video

The Windows Phone Store is used to digitally distribute music, video content, podcasts, and third party applications to Windows Phone handsets. The store is accessible using the Zune Software client or the Windows Phone Store hub on devices (though videos are not downloadable through the store hub and must be downloaded and synced through the Zune software).[101] The Store is managed by Microsoft, which includes an approval process. As of March 2012, the Windows Phone Store was available in 54 countries.[102]

In 2015, Microsoft announced that Windows Phone Store would be phased out and replaced by Windows Store

which would act as a "universal" store for all Windows-powered devices. As part of this process, the Windows Phone Store website was moved to a site that also contained the PC Store creating a single site for all applications.[103]

4.1   Music and videos

Xbox Music offers 50 million (approx) songs up to 320 kbit/s in DRM-free MP3 format from the big four music groups (EMI, Warner Music Group, Sony BMG and Universal Music Group), as well as smaller music labels. Xbox Video offers HD movies from Paramount, Universal, Warner Brothers, and other studios and also offer television shows from popular television networks.

Microsoft also offers the *Xbox Music Pass* music subscription service, which allows subscribers to download an unlimited number of songs for as long as their subscription is active and play them in current Microsoft devices.

4.2   Applications and games

4.2.1   Development

Third party applications and games for Windows Phone can be based on XNA, a Windows Phone-specific version of Silverlight, the GUI-based Windows Phone App Studio, or the Windows Runtime, which allows developers to develop an app for both the Windows Store and Windows Phone Store simultaneously.[104][105][106] App developers can develop apps using C# / Visual Basic.NET (.NET), C++ (CX) or HTML5/Javascript.

For Windows Phone apps to be designed and tested within Visual Studio or Visual Studio Express, Microsoft offers Windows Phone Developer Tools, which run only on Windows Vista SP2 and later, as an extension[107] Microsoft also offers Expression Blend for Windows Phone for free. On November 29, 2009, Microsoft announced the Release to web (RTW) version of its Visual Basic .NET Developer Tool, to aid development of Windows Phone apps in Visual Basic.

Later versions of Windows Phone support the running of managed code through a Common Language Runtime similar to that of the Windows operating system itself as opposed to the .NET Compact Framework. This, along with support for native C and C++ libraries, allows some traditional Windows desktop programs to be easily ported to Windows Phone.[108]

4.2.2   Submission

Registered Windows Phone and Xbox Live developers can submit and manage their third party applications for the platforms through the App Hub web applications.

The App Hub provides development tools and support for third-party application developers. The submitted applications undergo an approval process for verifications and validations to check if they qualify the applications standardization criteria set by Microsoft.[109] The cost of the applications that are approved is up to the developer, but Microsoft will take 20% of the revenue (the other 80% goes to the developer).[110] Microsoft will only pay developers once they reach a set sales figure, and will withhold 30% tax from non-US developers, unless they first register with the United States Government's Internal Revenue Service. Microsoft only pays developers from a list of thirty countries.[111] A yearly fee is also payable for developers wishing to submit apps.[112]

In order to get an application to appear in the Windows Phone Store, the application must be submitted to Microsoft for approval.[111] Microsoft has outlined the content that it will not allow in the applications, which includes content that, among other things, advocates discrimination or hate, promotes usage of drugs, alcohol or tobacco, or includes sexually suggestive material.[113]

5 Hardware

Main article: List of Windows Phone devices

Windows Phone 7 devices were first produced by HTC, LG and Samsung. These hardware partners were later joined by Acer, Alcatel, Fujitsu, Toshiba, Nokia, and Chinese OEM ZTE.

Windows Phone 8 devices were being produced by HTC, Huawei, Nokia, and Samsung.

At the 2014 Mobile World Congress, Microsoft announced that upcoming Windows Phone 8.1 devices would be manufactured by Celkon, Gionee, HTC, Huawei, JSR, Karbonn, LG, Lenovo, Longcheer, Micromax, Microsoft Mobile, Samsung, Xolo, and ZTE among others.[114] Sony (under the Xperia or Vaio brand) has also stated its intention to produce Windows Phone devices in the near future though this never materialised.[115] Yezz announced two smartphones in May, and at Computex 2014 BYD, Compal, Pegatron, Quanta and Wistron were also named as new Windows Phone OEMs.[116] In August 2014, Huawei said it was dropping support for Windows Phone due to low sales.[117]

Windows 10 mobile devices would be manufactured by a number of OEM's.

6 Reception

6.1 User interface

The reception to the Metro UI and overall interface of the OS has also been highly praised for its style, with ZDNet noting its originality and fresh clean look.[118] Engadget and ZDNet applauded the integration of Facebook into the People Hub as well as other built-in capabilities, such as Windows Live, etc. However, in version 8.1 the once tight Facebook and Twitter integration has been removed so that updates from those social media sites must be accessed via their respective apps.[119]

6.2 Market share

6.2.1 Windows Phone 7 (2010–2012)

According to Gartner, there were 1.6 million devices running Microsoft OS sold to customers in Q1 2011 worldwide.[120] 1.7 million smartphones using a Microsoft mobile OS were sold in Q2 2011, for a 1.6% market share.[121] In Q3 2011, Microsoft's worldwide market share dropped slightly to 1.5%.[122] In Q4 2011 market share increased to 1.9%,[123] and it stayed at 1.9% for Q1 2012.[124] However it should be noted that such reports for Q2, Q3 and Q4 of year 2011 include both Windows Phone and small part of Windows Mobile marketshare under the same "Microsoft mobile OS" banner, and do not make the distinction of separating the market-share values of the two. According to Nielsen, Windows Phone had a 1.7% market share in Q1 2012,[125] and then dropped back to 1.3% in Q2 2012.[126]

6.2.2 Windows Phone 8 (2012–2015)

After the release of Windows Phone 8, Gartner reported that Windows Phone's marketshare jumped to 3% in Q4 2012, a 124% increase over the same time period in 2011.[127]

In mid-2012, IDC had suggested that Windows Phone might surpass the faltering BlackBerry platform and potentially even Apple iOS, because of Nokia dominance in emerging markets like Asia, Latin America, and Africa, as the iPhone was considered too expensive for most of these regions and BlackBerry OS possibly going to feature a similar fate as Symbian.[128][129] IDC's projections were partially correct, as in Q1 2013 Windows Phone shipments surpassed BlackBerry shipment volume for the first time.[130] IDC had to slash the Windows Phone predictions once again, to 7 percent of total market in 2018, because of the slow growth.[131]

As of the third quarter of 2013, Gartner reported that Windows Phone holds a worldwide market share of 3.6%, up 123% from the same period in 2012 and outpacing Android's rate of growth.[132] According to Kantar's October 2013 report, Windows Phone accounted for 10.2% of all smartphone sales in Europe and 4.8%

of all sales in the United States.[133] Some analysts have attributed this spike in sales to both Windows Phone 8 and Nokia's successful push to market low and mid-range Windows Phones like the Lumia 520 and Lumia 620 to a younger audience.[134] Gartner reported that Windows Phone market share finished 2013 at 3.2%, which while down from the third quarter of 2013 was still a 47% improvement from the same period in 2012.[135]

IDC reported that Windows Phone market share, having peaked in 2013 at 3.4%, had dropped to 2.5% by the second quarter of 2014.[136] Windows Phone market share further dropped to 1.6% at the end of 2015.[137][138] By mid 2016 Windows Phone market share dropped to all-time low of 0.7%.[139]

6.3   Developer interest

Developers may be less interested in developing for Windows Phone because of lower ad revenue when compared to competing platforms.[140] The main criticism of Windows Phone is still the lack of applications when compared to iOS and Android.[141][142][143][144] Developers are backing out of the platform and retiring apps because of the low market share.[145][146]

7   See also

- Comparison of mobile operating systems

8   References

[1] Lextrait, Vincent (February 2010). "The Programming Languages Beacon, v10.0". Retrieved February 12, 2010.

[2] "Announcement: April Cumulative Update for Windows 10 Mobile". *Microsoft Community Forums*. Microsoft. April 12, 2016.

[3] Petersen, Palle (June 20, 2012). "Windows Phone 8 announced today: will support 50 languages". *Microsoft Language Portal Blog*. Microsoft. Retrieved July 21, 2012.

[4] Ziegler, Chris (2014-02-11). *Windows central*. Vox Media http://m.windowscentral.com/windows-store. Missing or empty |title= (help)

[5] Koh, Damian (February 18, 2010). "Q&A: Microsoft on Windows Phone 7". *CNET Asia*. CBS Interactive. Retrieved June 3, 2010.

[6] Ziegler, Chris (March 4, 2010). "Microsoft talks Windows Phone 7 Series development ahead of GDC: Silverlight, XNA, and no backward compatibility". *Engadget*. AOL. Retrieved October 27, 2011.

[7] Bell, Donald (16 February 2010). "Zune services going global with Windows phone". *CNet*.

[8] Bright, Peter (March 16, 2010). "Windows Phone 7 Series in the Enterprise: not all good news". *Ars Technica*. Condé Nast Digital. Retrieved November 20, 2010.

[9] Hollister, Sean (September 26, 2010). "Microsoft prepping Windows Phone 7 for an October 21 launch? (update: US on Nov. 8?)". *Engadget*. AOL. Retrieved September 29, 2010.

[10] Microsoft Unveils Phone Software With Rival to Apple's Siri, *Bloomberg*, April 2, 2014

[11] Windows Phone 8.1 is now available for developers, *The Inquirer*, April 14, 2014

[12] Herrman, John (February 25, 2010). "What Windows Phone 7 Could Have Been". *Gizmodo*. Gawker Media. Retrieved June 5, 2010.

[13] Miniman, Brandon (February 17, 2010). "Thoughts on Windows Phone 7 Series (BTW: Photon is Dead)". *Pocketnow*. Retrieved June 5, 2010.

[14] "Steve Ballmer wishes Windows Mobile 7 had already launched, but they screwed up". *MobileTechWorld*. September 24, 2009. Retrieved July 21, 2012.

[15] Kolakowski, Nicholas (March 15, 2010). "Microsoft Explains Windows Phone 7 Lack of Compatibility". *eWeek*. Ziff Davis Media.

[16] Valdez, Augusto; Myerson, Terry (June 7, 2010). *Windows Phone 7: A New Kind of Phone*. Microsoft. Event occurs at 36:47. Retrieved September 9, 2010.

[17] "Nokia and Microsoft Announce Plans for a Broad Strategic Partnership to Build a New Global Mobile Ecosystem" (Press release). Microsoft. February 10, 2011. Archived from the original on April 1, 2011. Retrieved October 27, 2011.

[18] Cheng, Roger (2012-12-18). "Nokia on the edge: Inside an icon's fight for survival | Mobile - CNET News". News.cnet.com. Retrieved 2013-06-14.

[19] Weintraub, Seth (2011-02-08). "Nokia's Elop drops bomb: the platform is on fire - Google 24/7 -Fortune Tech". Tech.fortune.cnn.com. Retrieved 2013-06-14.

[20] Latest Video (2011-06-01). "Nokia CEO Stephen Elop Chooses Microsoft Windows Phone OS Over Android - John Paczkowski - D9". AllThingsD. Retrieved 2013-06-14.

[21] "Nokia and Microsoft Sign Definitive Agreement Ahead of Schedule" (Press release). Microsoft. April 21, 2011. Retrieved October 27, 2011.

[22] Lev, Michal. "Can the Lumia smartphone save Nokia? - Fortune Tech". Tech.fortune.cnn.com. Retrieved 2013-06-14.

[23] Cellan-Jones, Rory (October 26, 2011). "Nokia's First Windows Phone 7 Handset". *BBC News Online*. BBC. Retrieved July 21, 2012.

[24] Haeger, Charlotte (October 31, 2011). "Nokia's Windows Phone announced alongside the 800, hitting select markets by end of year". *Governor Technology*. Retrieved October 31, 2011.

[25] "Detailed specifications for the Nokia Lumia 900". Nokia. Retrieved July 21, 2012.

[26] Harris, Jason (March 26, 2012). "Mark your calendars: Nokia Lumia 900 available for purchase in the US". *Conversations by Nokia*. Nokia. Retrieved July 21, 2012.

[27] Gibbs, Sam (March 1, 2012). "Nokia Lumia 900 Priced and Dated For a May Landing in the UK". *Gizmodo UK*. Future Publishing. Retrieved July 21, 2012.

[28] "The Next Chapter: An open letter from Steve Ballmer and Stephen Elop". *The Official Microsoft Blog*. Retrieved 3 September 2013.

[29] "Microsoft buys Nokia's Devices and Services Unit, unites Windows Phone 8 and its hardware maker". *The Verge*. Retrieved 3 September 2013.

[30] "The Real Reason Microsoft Bought Nokia. Transactions Costs."

[31] Brandom, Russell (2013-09-30). "This is Nokia X: Android and Windows Phone collide". The Verge. Retrieved 2014-02-24.

[32] Stevens, Tim (February 14, 2011). "Windows Phone 7's multitasking uses zoomed-out cards to check on your apps". *Engadget*. AOL. Retrieved March 24, 2011.

[33] Cha, Bonnie (February 14, 2011). "Multitasking, IE9 coming to Windows Phone". *CNET*. CBS Interactive. Retrieved March 24, 2011.

[34] Bright, Peter (February 14, 2011). "Windows Phone 7's future revealed: multitasking, IE9, Twitter". *Ars Technica*. Condé Nast Digital. Retrieved October 27, 2011.

[35] Mathews, Lee (February 14, 2011). "Windows Phone 7 update to bring Twitter and SkyDrive integration, webOS style multitasking". *Switched*. AOL. Retrieved October 27, 2011.

[36] Stevens, Tim (February 14, 2011). "Windows Phone 7's multitasking uses zoomed-out cards to check on your apps". *Engadget*. AOL. Retrieved March 24, 2011.

[37] Ponder, George (February 14, 2011). "New features heading to Windows Phone 7: Multi-tasking, IE9, Skydrive and more". *WPCentral.com*. Mobile Nations. Retrieved October 27, 2011.

[38] Warren, Tom (February 27, 2012). "Windows Phone 7.5 update will support 256MB RAM and slower processors in April". *The Verge*. Vox Media. Retrieved 21 June 2012.

[39] Miles, Stuart. "Windows Phone 8: New hardware specs offer a new start". Pocket Lint. Retrieved 5 February 2013.

[40] Ziegler, Chris. (2014-02-10) Microsoft begins sharing Windows Phone 8.1 with developers. The Verge. Retrieved on 2014-05-25.

[41] Windows Phone 8.1 Leaks: JavaScript, new apps, SD card installation. BGR (2014-02-11). Retrieved on 2014-05-25.

[42] "Nokia Lumia 630 running Windows Phone 8.1 reportedly makes video debut". *TechRadar*. Retrieved March 29, 2014.

[43] "Windows Phone 8.1 features". *WPCentral*. Retrieved March 29, 2014.

[44] "Windows Phone 10 to be called just Windows 10". *GSMArena*. Retrieved 21 January 2015.

[45] Savov, Vlad. "Windows 10 makes its phone debut". *The Verge*. Vox Media. Retrieved 21 January 2015.

[46] "Windows Phone just died". *Techradar*. Future PLC. Retrieved 21 January 2015.

[47] "Windows 10 for mobile detailed with PC syncing, better voice commands". *Techradar*. Future PLC. Retrieved 21 January 2015.

[48] Andrew Cunningham (January 21, 2015). "Our first look at Windows 10 on phones, and Universal Apps for touchscreens". *Ars Technica*. Retrieved 23 January 2015.

[49] "Microsoft reneges on Windows 10 upgrades for all current Lumia phones". *PC World*. IDG. Retrieved 23 January 2015.

[50] "Microsoft reveals Windows 10". *Seattle Times*. Retrieved September 30, 2014.

[51] "Microsoft previews universal apps for Windows 10 PCs, tablets, and phones". *The Verge*. Retrieved February 7, 2015.

[52] "Microsoft's touch-friendly Office apps now available to download for Windows 10". *PC World*. IDG. Retrieved February 6, 2015.

[53] "The next chapter of Office on Windows". *Office Blog*. Microsoft. Retrieved February 6, 2015.

[54] "A PC in Your Pocket: Continuum for Windows Phones". *Windows IT Pro*. Penton. Retrieved May 16, 2015.

[55] "Your Windows 10 phone can turn into a full PC". *The Verge*. Retrieved April 29, 2015.

[56] "This is Windows 10 for phones". *The Verge*. Vox Media. Retrieved January 22, 2015.

[57] "Project Spartan and the Windows 10 January Preview Build". *IEBlog*. Microsoft. Retrieved January 23, 2015.

[58] "How will Android support work in Windows 10 for Phones?". *TechRadar Pro*. Retrieved May 22, 2015.

[59] "Microsoft brings Android, iOS apps to Windows 10". *Ars Technica*. Retrieved April 30, 2015.

[60] "Microsoft releases iOS-to-Windows app maker Windows Bridge to open source". *PC World*. IDG. Retrieved 6 August 2015.

[61] "Windows Phone Design System - Codename Metro" (PDF). Microsoft.

[62] Melanson, Donald (2010-02-06). "Rumored Windows Phone 7 details surface ahead of MWC launch: Zune-like UI, no multitasking". Engadget.com. Retrieved 2013-06-14.

[63] Topolsky, Joshua (February 15, 2010). "Windows Phone 7 Series is official, and Microsoft is playing to win". *Engadget*. AOL. Retrieved February 15, 2010.

[64] Ziegler, Chris (March 18, 2010). "Windows Phone 7: the complete guide". *Engadget*. AOL. Retrieved September 19, 2010.

[65] Rubenstein, Benjamin (March 17, 2010). "Interview: Windows Phone 7 battery life, copy/paste, multitasking, and more". *Neowin*. Retrieved August 21, 2010.

[66] Sullivan, Greg (July 27, 2010). *The Most Comprehensive Windows Phone 7 Demo to Date*. Retrieved September 19, 2010.

[67] Foy, Laura; Mckenna, Sean (August 4, 2010). *Windows Phone 7: Applications & Tools*. Microsoft. Retrieved September 19, 2010.

[68] Topolsky, Joshua (July 19, 2010). "Windows Phone 7 in-depth preview". *Engadget*. AOL. Retrieved September 4, 2010.

[69] Gullhaug, Roger (September 8, 2010). "AutoCompleteBox in Windows Phone 7". *Roger Gullhaug's Blog*. Retrieved September 21, 2010.

[70] Nguyen, Chuong (August 10, 2010). "Windows Phone 7 Keyboard Demoed, Deemed Fast, Responsive, Accurate". *Pocketnow*. Retrieved September 19, 2010.

[71] Miniman, Brandon (August 17, 2010). "Windows Phone 7 Series Text Entry: Strict Hardware Requirements". *Pocketnow*. Retrieved September 19, 2010.

[72] Miniman, Brandon (August 23, 2010). *Exclusive: Windows Phone 7 Web Browser Comparison*. Pocketnow. Event occurs at 1:21. Retrieved October 27, 2011.

[73] Miniman, Brandon (March 15, 2010). *First Look: Internet Explorer on Windows Phone 7 Series*. Pocketnow. Retrieved September 19, 2010.

[74] "Linking two or more contacts". Microsoft. Retrieved September 6, 2011.

[75] "Xbox Entertainment on Windows Phone".

[76] Ziegler, Chris. (2013-12-18) Xbox Video app finally arrives on Windows Phone. The Verge. Retrieved on 2014-05-25.

[77] http://www.windowsphone.com/en-in/store/app/files/762e837f-461d-4847-8399-3526f54fc25e

[78] Miniman, Brandon (September 21, 2010). "Windows Phone 7: Which Video and Audio File Formats are Supported?". *Pocketnow*. Retrieved August 6, 2011.

[79] "Updates codec support list for Windows Phone 7 released, XVID and DIVX supported". *WMPoweruser.com*. September 18, 2010. Retrieved August 6, 2011.

[80] "AVI/DivX support". *Microsoft Answers*. Microsoft. October 21, 2010. Retrieved August 6, 2011.

[81] "Sync music, ringtones, and podcasts using my computer". Retrieved 2 January 2015.

[82] "Microsoft Edge to support Google's open-source WebM video format - Windows Central". Retrieved 13 May 2016.

[83] "Supported Media Codecs for Windows Phone". *Microsoft Developer Network (MSDN)*. Microsoft. Retrieved August 6, 2011.

[84] "Audio file formats supported by the Zune software". *Microsoft Support*. Microsoft. October 12, 2010. Retrieved August 6, 2011.

[85] "Games Hub for Windows Phone 7". Microsoft. Retrieved July 24, 2012.

[86] Foley, Mary Jo (February 15, 2010). "Will all Xbox games work on Windows Phone 7 devices?". *ZDNet*. CBS Interactive. Retrieved July 24, 2012.

[87] Miles, Stuart (July 21, 2010). "Windows Phone 7: Bing only default search option". *Pocket-lint*. Retrieved July 24, 2012.

[88] Thurrott, Paul (April 19, 2010). "Windows Phone OS 7.0 Architecture Guide". *Windows Phone Secrets*. Retrieved September 9, 2010.

[89] Daou, M. (April 11, 2012). "Microsoft talks Windows Phone 7 features, native code, multi-tasking and update process". *MobileTechWorld*. Retrieved July 24, 2012.

[90] Hautala, Eric (January 6, 2012). "New maintenance release for Windows Phone". *Windows Phone Blog*. Microsoft. Retrieved July 24, 2012.

[91] Daou, M. (May 16, 2010). "Confidential Windows Phone 7 Development Guides leaked". *MobileTechWorld*. Retrieved June 3, 2010.

[92] Dunn, Jason (October 20, 2010). "Windows Update for Windows Phone: This is What You've Been Waiting For". *Windows Phone Thoughts*. Thoughts Media. Retrieved July 24, 2012.

[93] Fried, Ina (October 11, 2010). "Ballmer talks Windows Phone 7 with CNET (Q&A)". *CNET*. CBS Interactive. Retrieved July 24, 2012.

[94] Ziegler, Chris (March 15, 2010). "Windows Phone Marketplace for Windows Phone 7 Series unveiled". *Engadget*. AOL. Retrieved June 3, 2010.

[95] Levine, Barry (June 25, 2010). "MS Sees Windows Phone 7 as an 'Ad-Serving Machine'". *NewsFactor*. Retrieved July 25, 2012.

[96] Methvin, Dave (June 25, 2010). "Microsoft's Ad-Serving Machine". *InformationWeek*. UBM TechWeb. Retrieved July 25, 2012.

[97] "Bluetooth profiles supported by Windows Phone". *Microsoft Support*. Microsoft. February 13, 2012. Retrieved March 14, 2012.

[98] "Can i send or receive files through bluetooth on windows phone 7.5 mango?". *Microsoft Answers*. Microsoft. October 4, 2011. Retrieved July 25, 2012.

[99] "Send photos, Docs via Bluetooth". *Microsoft Answers*. Microsoft. October 28, 2012. Retrieved July 25, 2012.

[100] "Have a new Windows Phone feature idea? Try Suggestion Box". Windowsteamblog.com. September 28, 2011. Retrieved 2013-12-16.

[101] "Get music, videos, and podcasts from Marketplace". Microsoft. Retrieved August 17, 2012.

[102] Mohammed, Mazhar (March 28, 2012). "Marketplace arrives in 13 new countries". *Windows Phone Blog*. Microsoft. Retrieved August 17, 2012.

[103] Allison, Michael (17 July 2015). "(Update: It's not the new unified Windows Store) Microsoft's universal app store for Windows 10 goes live on the web.". *Windows Mobile PowerUser*.

[104] "Features Differences Between Silverlight and Silverlight for Windows Phone". *Microsoft Developer Network (MSDN)*. Microsoft. Retrieved October 27, 2011.

[105] Leaked images show Universal Store of apps for Windows and Windows Phone. WinBeta.org. 2014-02-13

[106] Windows App Studio - Microsoft. Appstudio.windowsphone.com. Retrieved on 2014-05-25.

[107] "Installing the Windows Phone SDK". *Microsoft Developer Network (MSDN)*. Microsoft. September 23, 2011. Retrieved October 27, 2011.

[108] Gallo, Kevin (June 29, 2012). "Recapping Windows Phone 8 developer news". *The Windows Phone Developer Blog*. Microsoft. Retrieved August 17, 2012.

[109] Brix, Todd (October 11, 2010). "Introducing App Hub for Windows Phone & Indie Game Developers". *The Windows Phone Developer Blog*. Microsoft. Retrieved December 16, 2010.

[110] Kindel, Charlie (March 15, 2010). "The Right MIX". *The Windows Phone Developer Blog*. Microsoft. Retrieved October 27, 2011.

[111] "App Hub – faq: answers at a glance". *Microsoft Developer Network (MSDN)*. Microsoft. Retrieved October 27, 2011.

[112] "App Hub – how it works". *Microsoft Developer Network (MSDN)*. Microsoft. Retrieved October 27, 2011.

[113] "Windows Phone Marketplace – Content policies". *Microsoft Developer Network (MSDN)*. Microsoft. July 26, 2012. Retrieved August 17, 2012.

[114] Molen, Brad. (2014-02-23) Microsoft announces new Windows Phone hardware partners, including LG and Lenovo. Engadget.com. Retrieved on 2014-05-25.

[115] "The new Windows Phone 8 manufacturer... that you've probably never heard of". Neowin. Retrieved 2013-07-11.

[116] http://www.gsmarena.com/blu_prestigio_and_yezz_launch_windows_phone_handsets-news-8699.php

[117] http://www.neowin.net/news/huawei-drops-windows-phone-citing-lack-of-profit

[118] Miller, Matthew (July 18, 2010). "Microsoft Windows Phone 7 technical preview: A definitive guide". *ZDNet*. CBS Interactive. Retrieved October 23, 2010.

[119] Windows Phone 8.1: A bittersweet update that appeals to the mainstream. Zdnet (2014-04-25). Retrieved on 2014-05-07.

[120] "Gartner Says 428 Million Mobile Communication Devices Sold Worldwide in First Quarter 2011, a 19 Percent Increase Year-on-Year" (Press release). Gartner. May 19, 2011. Retrieved August 17, 2012.

[121] "Gartner Says Sales of Mobile Devices in Second quarter of 2011 Grew 16.5 Percent Year-on-Year; Smartphone Sales Grew 74 Percent" (Press release). Gartner. August 11, 2011. Retrieved September 29, 2011.

[122] "Gartner Says Sales of Mobile Devices Grew 5.6 Percent in Third quarter of 2011; Smartphone Sales Increased 42 Percent" (Press release). Gartner. November 15, 2011. Retrieved February 7, 2012.

[123] "Gartner Says Worldwide Smartphone Sales Soared in Fourth Quarter of 2011 With 47 Percent Growth" (Press release). Gartner. February 15, 2012. Retrieved August 18, 2012.

[124] "Gartner Says Worldwide Sales of Mobile Phones Declined 2 Percent in First Quarter of 2012; Previous Year-over-Year Decline Occurred in Second Quarter of 2009" (Press release). Gartner. May 16, 2012. Retrieved August 18, 2012.

[125] "America's New Mobile Majority: a Look at Smartphone Owners in the U.S.". *Nielsen Wire*. Nielsen. May 7, 2012. Retrieved August 18, 2012.

[126] "Two Thirds of New Mobile Buyers Now Opting For Smartphones". *Nielsen Wire*. Nielsen. July 12, 2012. Retrieved August 18, 2012.

[127] "Gartner Says Worldwide Mobile Phone Sales Declined 1.7 Percent in 2012". Gartner.com. 2013-02-13. Retrieved 2013-06-14.

[128] Chang, Alexandra (June 6, 2012). "Why IDC Predicts Windows Phone Will Surpass iOS by 2016". *Wired*.

[129] Microsoft's Windows Phone Beats iOS by 2015: Analyst

[130] Miller, Matthew. (2013-08-07) IDC: Windows Phone sees largest year-over-year increase, Android still dominates. ZDNet. Retrieved on 2013-12-09.

[131] Windows Phone forecast slashed once again | SiliconBeat

[132] New research says Windows Phone has blowout growth, is the "winner of the quarter" | Computerworld Blogs. Blogs.computerworld.com (2013-11-15). Retrieved on 2014-05-25.

[133] Edmonds, Rich. (2013-12-02) Windows Phone hits 10% sales across Europe, but still struggles in China and the US | Windows Phone Central. Wpcentral.com. Retrieved on 2014-05-25.

[134] Windows Phone nears double digit share across Europe, Samsung begins to feel pressure from resurgent Sony, Nokia and LG - Kantar. Uk.kantar.com (2013-09-30). Retrieved on 2014-05-25.

[135] "Gartner Smart Phone Marketshare 2013 Q4". Gartner, Inc. Retrieved 2014-01-13.

[136] IDC: Smartphone OS Market Share 2014, 2013, 2012, and 2011

[137] Windows Phone is dead | The Verge

[138] Windows market share

[139] Windows Phone market share sinks below 1 percent

[140] Microsoft Windows Phone ad revenue less than Black-Berry, Symbian | BGR

[141] Microsoft Endlessly Disappoints With 'New' Windows Phone Apps | Gadget Lab | Wired.com

[142] Windows Phone has an app problem, but don't tell that to Microsoft | News | TechRadar

[143] Nokia frustrated with lack of apps, progress on Windows Phone - latimes.com

[144] The Biggest Problems with Windows Phone/

[145] Windows Phone keeps on losing major apps

[146] The exodus from the Windows Phone Ecosystem | Windows Phone content from SuperSite for Windows

9 External links

- Official website
- Windows Phone at DMOZ

10 Text and image sources, contributors, and licenses

10.1 Text

- **Windows Phone** *Source:* https://en.wikipedia.org/wiki/Windows_Phone?oldid=750106994 *Contributors:* Edward, Pnm, KAMiKAZOW, Glenn, Cherkash, Rl, Bevo, Alan Liefting, Andries, Joaopaulo1511, Pinnecco, Utcursch, J~enwiki, Icairns, Histrion, Moxfyre, DmitryKo, Mernen, Hydrox, Pmsyyz, WGFinley, WikiPediaAid, Bender235, TerraFrost, Trevj, Rodwac, Gary, Anthony Appleyard, Guy Harris, Yamamoto114, Fourthords, Dismas, Woohookitty, Pol098, WadeSimMiser, PeterJohnson, Fleetham, Xizer, Qwertyus, Plau, Ryan Norton, Crazynas, LjL, Ysangkok, Brianreading, Czar, Bgwhite, Sceptre, Cyberherbalist, Stephenb, Rsrikanth05, Kasajian, Crumb, Futurix, RayMetz100, Xpclient, Gregzeng, JLaTondre, ViperSnake151, Markbenecke, TLSuda, Cumbiagermen, Attilios, SmackBot, Elonka, Ma8thew, Dminott, Shamalyguy, Elk Salmon, Portillo, Ohnoitsjamie, Starless~enwiki, Mdwh, Seifip, Racklever, Madman2001, Cybercobra, EVula, Colinwheeler, DMacks, Ohconfucius, Lester, Soumyasch, Stevennic, Minna Sora no Shita, Stefan2, RomanySaad, PRRfan, Dr.K., Scottxbenson, Hu12, Norm mit, S-Ranger, JDubman, 1mac4u, Pi, RaviC, FleetCommand, Mika1h, DanielRigal, Sahrin, JamesNK, AndrewHowse, Cydebot, Mblumber, L daruwala, Gogo Dodo, Myscrnnm, UberMan5000, DumbBOT, ErrantX, Hervegirod, Second Quantization, Hcobb, EdJohnston, Nick Number, Eb.eric, JRRobinson, Damaster98, Uturnaroun, Pro crast in a tor, Superzohar, JAnDbot, NapoliRoma, Barek, MER-C, Fetchcomms, Vinokirk, Magioladitis, Solidsnake1211, Appliance matt, DjiXas, Lachliggity, Chris Ssk, Philg88, Rhoadrunner, Haleme, Paracel63, Jim.henderson, CommonsDelinker, ASDFGH, Tgeairn, Pharaoh of the Wizards, Trusilver, .:Alex:., Coolaaron88, Brianhama, Acalamari, It Is Me Here, Frostedglcok, Shagna, Tragic romance, Joshua Issac, Hcaandersen, PeSHIr, VolkovBot, Maghnus, Ai4ijoel, Philip Trueman, TXiKiBoT, Computergeek1507, Curb Safe Charmer, Caygill, Rps5, Entegy, Typ932, Finnrind, Coilgunman222, Pradeepviswav, WereSpielChequers, Jerryobject, Abhishikt, Flyer22 Reborn, Manway, Diego Grez-Cañete, Mr White, Silvergoat, Gav235, TheHoax, ImageRemovalBot, YSSYguy, MenoBot, Martarius, Sfan00 IMG, Aquegg, Fadesga, Plastikspork, EoGuy, Wysprgr2005, Frmorrison, SuperHamster, Boing! said Zebedee, Iuhkjhk87y678, Niceguyedc, Pointillist, Ktr101, Excirial, TMV943, John Nevard, Computerwizkid, C628, InternetMeme, XLinkBot, Privateboz, TaalVerbeteraar, Venkatarangan, Rreagan007, Galzigler, AbelNightroad26, Airplaneman, Antonyh3, Addbot, Mortense, Some jerk on the Internet, Chambo622, Surfo, Darwin-rover, Btx40, Leszek Jańczuk, PPCInformer, Looie496, Download, Golf1052, Doniago, Seefrank, Dayewalker, Technologov, Okungnyo, Luckas-bot, BaldPark, Yobot, Fraggle81, Maxí, KamikazeBot, Ffooxx 2006, Bryan.burgers, 4th-otaku, Koman90, AnomieBOT, Andrewrp, Jim1138, Davidpar, Jbreckenridge, Materialscientist, Lkt1126, Wreiad, GB fan, ArthurBot, LilHelpa, Cameron Scott, Ziggy3055, Xqbot, MewMeowth, Intelati, Meewam, 1wolfblake, Franz710, James2894, LordArtemis, User931, CaptainStack, Mark Schierbecker, SassoBot, House, Ccontinisio, A Quest For Knowledge, BenBen1234, Manuelt15, Basileias, Jamiebijania, Kmiki87, A.amitkumar, FrescoBot, Lonaowna, D'ohBot, Hay264, Newbie82, Kwiki, Ahmer Jamil Khan, Dogcatrabbit, Aaaaplay, HRoestBot, Enterprise12, Modamoda, Sebculture, Skyerise, Hoo man, RedBot, Tahir mq, Taz789, SLBoy.Ivo, Pcuser42, Banej, December21st2012Freak, Enemenemu, SENS11, Eskimo.the, Josephers, Slavon37, Rixs, Dinamik-bot, Linkerro, TheWeirdMouse, TheTechFan, Uszoninyc, The Perfection, Jaz246, Canuckian89, Diannaa, Ivanvector, Fabsss, Chronulator, Casey boy, Iceman247, Chabgo, Tbhotch, RobertMfromLI, Hfrmobile, KoziK, Mean as custard, Hoseabrown, Yehiahassan, RjwilmsiBot, MJF2000, Born2bgratis, Electricjolt, Rollins83, Sergius-eu, EmausBot, Nezdek, Interframe, WikitanvirBot, JayCoop, AQFK, Nuujinn, France64160, Dewritech, Mrmarchi, G&CP, Pipodj, Artifact2008, Лишь человек, ZirconiumTwice, Tenomk, TuHan-Bot, Wikipelli, Dcirovic, Jrkart99, Robert Varga, Shearonink, Kkm010, 15turnsm, Monzoone, John Cline, Jason24589, Pushpinder86, Usman956732, Alpha Quadrant, Dainapeter, H3llBot, Lesser hoo hoo, Onyxqk, Tolly4bolly, Vivid-NinjaScar, Kellyselden, Tomy9510, NonStick, CalumCookable, EndlessCoffee54, Gsarwa, Kenny goo, Jhripley, Huandy618, AgentTheGreat, ChuispastonBot, Sirall, Rogerwt123, Salilshukla, Dorsal Axe, Arghya139, Coriolus, INTPnerd, JohnJamesWIlson, Nick lovel04, Heimis90, Apega71, Quilnux, Petrb, Kypr8, ClueBot NG, Ghodannywahyudi99, เอร์ก, Adityahbk, ZigZagZoug, Bardicunderlord, Jolio81, Kethn, Mushroom9, MelbourneStar, MbdSeattle, Pak1standby, Wikiwriter, Millermk, YannickFran, Sadams90, WPSamson, Sainath468, Wwmarket, Loppyloplop7, Moritz37, Cyborg4, Luca Ghio, Widr, Nickbedford, ToolSidOF3, Pyasin16, NoKiweatL2, Helpful Pixie Bot, Mayhaymate, Wpguru, Shangho, Zquinn3, Lowercase sigmabot, BG19bot, Islam almasri, Greendude33, Chriscatto, N4931, ChromeFirst, Softdevusa, True Tech Talk Time, MusikAnimal, Dr. Nishant Singh, AvocatoBot, Bazingamast007, Radear2, Rhodri22, Compfreak7, NotTarts, Turdburglar15, Bnkumar.k, Dipankan001, Arunvinud, Ianteraf, VirusKA, Khanayub1986, Sibtain85, SonnaGab, Gwickwire, Adrianzrul, Glacialfox, IJerkNerd, HereticKiller6, Bening1, Flagpolewiki, Godseditor, Markmassad, Finncamper, RichardMills65, I says, Ytic nam, Abledsoe78, Myphonefactor, ChrisGualtieri, Penguinguy95, YFdyh-bot, Khazar2, KumardipSarkar, Ekren, AK456, Iczelion0, Jprasadh, Stantan, Smartmo, Emmetmclaughlin, Codename Lisa, Mogism, Vookid, 12Danny123, Makecat-bot, Nozomimous, Cerabot~enwiki, Sri555666, WinEuro, 12Daanny123, Sarbagyastha, UNOwenNYC, Touranushertz, Gautamh, Sriharsh1234, KiwiBird97, Rajraowiki, Algedrez609, Kdskamal, Winphone8, Stanleyyork11, CrustyZuniga, Howicus, Michipedian, Arthurhkt, Josh blumberg, Tentinator, Jowiso, PaulRhimes, NYBrook098, DavidLeighEllis, Comp.arch, Pyscowicz, Dimsar01, Jvangeel, Acc12345acc, Ginsuloft, Planetguy2345, Quenhitran, MatosKap, SanketRJDave, Deblake5, Cowpig33, Majid661, Bhelekazi, Monkbot, Filedelinkerbot, Patricia3543, Gamer9832, Horizon286, Coffeedrinker115, Waggie, Heycameron, UltraGold, Manojbandari143, HM-SLavender, Akki.sakpal, MRD2014, Mon.mukherjee, PremiumBananas, Wanscr, NeoGeneric, Girish9537, Julietdeltalima, Zppix, Aytk, CSlayer1064, Some Gadget Geek, Anonymouswikiuser619, StePAhi, Joshuarshah, Namlong618, Lumia930uploader, Sro23, Android guy 12345, CAPTAIN RAJU, Dream Amma, Csalas77, Hoang the Hoangest, Jlijana, Bkh.edu, Cookie Nguyen, Jonhmackirise, MediaKill13, Johnmillor36, Powet996, Aatib khan, Marquis de Faux, Pbilk, Jmm212, Manifest Truth, TheUSConservative, Graduateandyou, Mittens131, Wikichandu20000, Lawlsherpderp, Beni Bavuwu Lunkeba, Spockload and Anonymous: 752

10.2 Images

- **File:Commons-logo.svg** *Source:* https://upload.wikimedia.org/wikipedia/en/4/4a/Commons-logo.svg *License:* CC-BY-SA-3.0 *Contributors:* ? *Original artist:* ?
- **File:OfficeMobile2013_WP8.png** *Source:* https://upload.wikimedia.org/wikipedia/en/2/27/OfficeMobile2013_WP8.png *License:* Fair use *Contributors:*
  "Office Hub". *WindowsPhone.com*. Microsoft. Retrieved 2 February 2014. (Direct link) *Original artist:* ?
- **File:WPZuneHub.jpg** *Source:* https://upload.wikimedia.org/wikipedia/en/8/86/WPZuneHub.jpg *License:* Fair use *Contributors:*
  Microsoft Windows Phone website
  Original artist: ?
- **File:WinPhoneUpdate.jpg** *Source:* https://upload.wikimedia.org/wikipedia/en/0/08/WinPhoneUpdate.jpg *License:* Fair use *Contributors:*

The official Windows Phone 7 emulator created by Microsoft for anyone to use for free.

Original artist: ?

- **File:Windows_10_Logo.svg** *Source:* https://upload.wikimedia.org/wikipedia/commons/0/05/Windows_10_Logo.svg *License:* Public domain *Contributors:* Converted the PNG version of the logo uploaded by RainingFlight to SVG. *Original artist:* Microsoft

- **File:Windows_10_Mobile_homescreen.png** *Source:* https://upload.wikimedia.org/wikipedia/en/7/74/Windows_10_Mobile_ homescreen.png *License:* Fair use *Contributors:* Screenshot of Windows 10 Mobile taken from Microsoft Lumia 535 by User:Babbark *Original artist:* Microsoft

- **File:Windows_Phone_8_logo_and_wordmark.svg** *Source:* https://upload.wikimedia.org/wikipedia/commons/8/8a/Windows_Phone_ 8_logo_and_wordmark.svg *License:* Public domain *Contributors:* http://www.buildwindows.com/ *Original artist:* Microsoft

- **File:Windows_Phone_8_logo_and_wordmark_(purple).svg** *Source:* https://upload.wikimedia.org/wikipedia/commons/c/c2/ Windows_Phone_8_logo_and_wordmark_%28purple%29.svg *License:* Public domain *Contributors:* windowsphone.com/en-us (Direct link) *Original artist:* Microsoft

- **File:Windows_Phone_logo_(red).png** *Source:* https://upload.wikimedia.org/wikipedia/commons/2/21/Windows_Phone_logo_ %28red%29.png *License:* Public domain *Contributors:* http://blogs.msdn.com/b/shintak/archive/2011/08/01/10191547.aspx *Original artist:* Microsoft Corporation

- **File:Windows_logo_–_2012_(dark_blue).svg** *Source:* https://upload.wikimedia.org/wikipedia/commons/e/ee/Windows_logo_%E2% 80%93_2012_%28dark_blue%29.svg *License:* Public domain *Contributors:* Windows 10 *Original artist:* File:Windows 10 Logo.svg: Multiple editors; see image description page

10.3 Content license

- Creative Commons Attribution-Share Alike 3.0