

Cross-Platform Tool Benchmarking 2014

Find the right tool for your app project

July 2014

Comparison of 40 Cross-Platform Tools
Tool ratings by 2,188 Cross-Platform Tool users
Top 10 Lists

Enterprise partner

Platform partner



Key takeaways

The second global benchmarking for cross-platform tools and services constitutes a detailed comparison of 40 CP Tools¹ based on 10 criteria which are essential for the selection of the right tool for an app project. In addition, the benchmarking report aggregates ratings and experience of 2,188 CPT users who have used more than 150 CP Tools. This makes the CPT Benchmarking the largest and most comprehensive evaluation of tools that support cross-platform app development.

Since the last year, the market for CP Tools and services has become significantly more crowded. CPT vendors have started to put more emphasis on catering for the enterprise segment. CP Tools fall into 5 categories: App Factories, Web App Toolkits, Cross-Platform Integrated Development Environments (CP IDEs), CP IDEs for Enterprise (CP IDEs Enterprise), CP Compilers and CP Services.

Android and iOS continue to be the most supported mobile platforms. WP8 is the platform which tops the wish list of CPT users. 36% state that they wish their CP Tool supported WP8.

Overall, users of CP Tools are satisfied with their choice. This becomes evident in the way they have rated the CP Tools they use. 93% of all CPT users would recommend their tools to other app developers.

One of the main reasons why app developers make use of CP Tools is to save time. 30% report they have realized 50%+ time savings thanks to their CP Tools.

For the vast majority of app developers the use of CP Tools does not come at the cost of app quality. 81% claim that the quality of the apps developed with CP Tools² is as good as or even better than apps developed with a native IDE³.

CP Tools are mainly used for app projects of shorter time span. 73% of app projects realized with a CP Tool last three months or less. 17% needed only a few weeks or even days to be completed.

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¹ In the report the following abbreviations have been used: CP Tool= cross-platform tool, CPT: used as an adjective which refers to "cross-platform tool's/tools'" and services that focus on cross-platform app development

² Quality being defined as the usability, design and performance of the app

³ IDE: Integrated Development Environment

Short project duration is in line with the average project budget that a CPT user spends. Over the course of last 12 months, 75% of CPT spent less than US \$ 5,000 for CPT license, support and training and less than US \$ 25,000 for app development and marketing.

CP Tools are on average easy to use, 28% of CPT users needed only days and 40% weeks to reach an expert user level.

The major market barrier for CPT vendors is low awareness of their tools and services among the global app developer community as well as among companies which have an interest in cross-platform app development. Only 16 CP Tools are known to 20% of the global app developer community. The rest of the 150+ tools is hardly known or unknown.

Well-known CP Tools report user numbers of up to 2.5 M (Unity), whereas challengers state they have a few hundred/thousand users.

The share of apps developed with a CP Tool is estimated to be more than 5%. The figure varies by app category, country and release date. For example, in the USA 11.8% (iOS) and 14.9% (Android) of the top 2,000 apps are developed with a CP Tool⁴.

The market outlook is positive. 34% of CPT users estimate that in three years more apps will be created with a CP Tool than by means of pure native app development.

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⁴ SourceDNA, May 2014

About research2guidance

research2guidance is a strategy advisor and market research company. We concentrate on the mobile app eco-system. Contact us for app strategy, market and competitor analysis and app market survey. Our mission is to give guidance in the app economy.

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Related content:

Report: CPT User Profiles and Market Leader Benchmarking 2014

A detailed evaluation of leading CP Tools by its users



Find out who uses the leading CP Tools and how users rate 14 leading CP Tools. Understand the strengths and weaknesses of the tools compared to the market benchmarks. The results are based on the largest global study on CP Tools based on feedback of 2,188 current CP Tool users.

The report in a nutshell:

- A comparison of 14 leading CP Tools
- 35 different benchmarking criteria
- User profile for each CP Tool
- CP Tools compared with each other and against market average
- User comments per CP Tool
- A data driven PowerPoint report
- Pages: 99

Which questions are answered in the report?



CP Tool user profiles: Who are the users of the tools? E.g. company type, location, programming experience and skills.



CP Tool usage profile: How are CP Tools used? E.g. app categories, % of apps developed with the CP Tool, # of CP Tools used, familiarization time, project length, time savings.



Typical budget spending: What is the typical project budget a user spends while working with a specific CP Tool? E.g. license spending, willingness to pay for training or consultancy.



Selection criteria: Which features and services really matter to the CP Tool users? E.g. platform supported, costs, support quality.



Marketing: What are the preferred information sources of CPT users? Which other type of tools (analytics, ad networks etc.) do they use?



Satisfaction: How satisfied are users with specific CP Tools? E.g. cost-performance ratio, support satisfaction rate, platform support.

[Find out more >](#)

Who should read this report?

- ✓ **CP tool vendors:** Gain access to customer insights: Learn how your customers rate your tools and company services. Identify strengths and weaknesses of your competitors
- ✓ **Investors:** Learn what developers think about the leading CP Tools and understand the market potential
- ✓ **Users:** Learn from your peers which tool is best for your app project

More info: Contact the team at CPT@research2guidance.com or call +49 (0)30 609 893 366

CP Tools covered:

Adobe Air
Corona SDK
Cocos 2D
jQuery Mobile
KonyOne
Marmalade
PhoneGap
Unity
Qt
Sencha Touch
Titanium
V-Play
Windows Visual Studio
Xamarin

The Cross-Platform Tool Benchmarking Report

This is our second benchmarking study about CP Tools and services that support app development on multiple platforms.

The objective of this benchmarking report is to allow app developers to identify the right CP Tool and services for their app projects. It also provides market monitoring information on the current state of the market.

The benchmarking includes only these tools and services that support the concept of “develop once and publish on multiple platforms”.

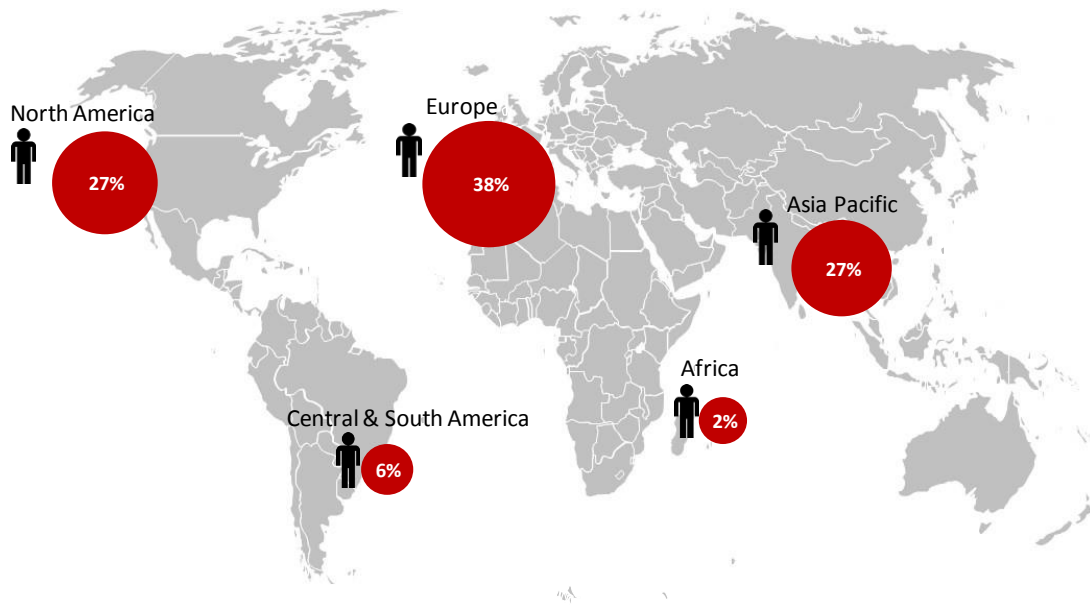
The benchmarking of cross-platform development tools is based on two research projects conducted between March and May 2014.

1. **Tool comparison:** research2guidance has invited CPT vendors and service providers to share information about their platform and device support, target developer groups, costs, etc. Vendors have been asked to fill in an online survey and thereafter to validate the results in the course of an interview. For the purpose of report, 40 vendors have presented their tools and solutions.
2. **User rating:** Developers, publishers and managers overseeing the app business in their companies have been asked to share their CPT experience. This year, 2,188 participated in the global online survey.

User survey participants mainly come from the US (26%), India (11%), Germany (6%) and the UK (4%).

Are you a CPT vendor and your tool or service is missing from the study? Make sure you will be included in the next year's edition of the report. Get in contact: cpt@research2guidance.com.

research2guidance 1: CPT user participation by region

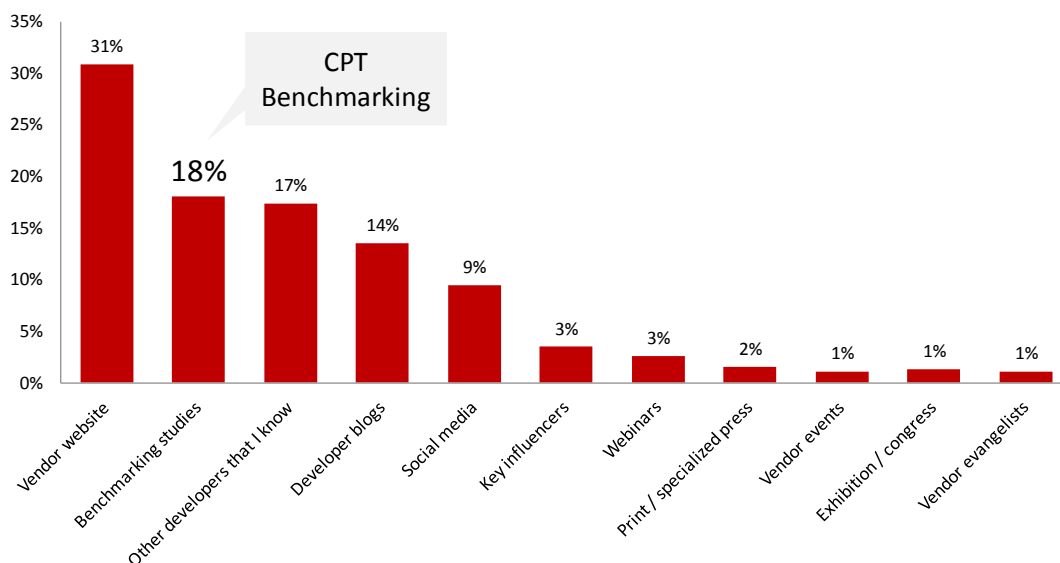


Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

18% of developers rate benchmarking studies as their most preferred source of information about CP Tools

CPT benchmarking reports are the second most preferred source of information for companies and individuals with an interest in cross-platform app development. 18% say that tool comparisons prepared by independent bodies are their No.1 information source about CP Tools. 31% of developers visit vendor websites to collect information about development tools. Peer recommendations and developer blogs are also highly ranked information sources.

research2guidance 2: Preferred information source for CP Tool selection



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

The CPT Benchmarking report includes both official vendor information and user (peer) experience.

The report will be distributed to a global audience of app developers and companies with an interest in CP Tools and services.

Media and association partners



The Cross-Platform Tool Landscape

Since the last year's CPT Benchmarking, the number of identified vendors and solution providers for cross-platform app development has increased from 100 to 150. This increase is due to the fact that vendors and solutions have become more visible and new vendors have been entering the market.

Today, small and medium size companies and even private persons publish apps which are simple representations of their activities. These groups ask for low-cost solutions that need no development skills. App Factories cater for this demand. They

Enterprises are targeted by more and more CPT vendors represent the largest share of available solutions in the CPT market. On the other hand, vendors have started to concentrate more on providing tools and services that allow enterprises to mobilize their processes and to connect their mobile solutions to the existing company databases. Since our last year's benchmarking, vendors seem to have both sharpened their marketing claims and adjusted their offerings to better serve this target group. The CPT Benchmarking report classifies these tools as Integrated Development Environments for Enterprise (CP IDEs Enterprise). Often, these tools come with a set of pre-defined APIs that make it easy to integrate services like SAP, Salesforce or Oracle databases. Typically such vendors also offer training and on-site app development support to speed up tool usage.

Lack of skilled labor is still a driving factor for the CPT market. For companies, finding developers skilled for iOS, Android and other mobile native SDKs is a challenge. Vendors respond with "drag & drop" solutions and ready-to-use templates. Today, not all allow the large number of traditional web developers to make use of their Java, HTML and CSS skills.

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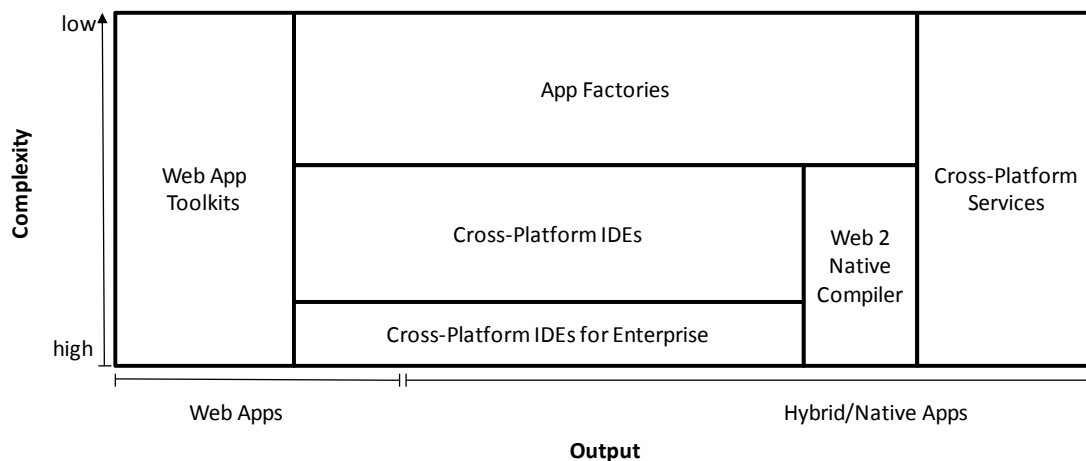
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Increased pressure for good quality apps and multi-platform availability are another CPT market driver. As a consequence, most of the CP Tools strive to reduce costs and app development time, while at the same time improving the quality of the output. In contrast, a smaller group of CP IDEs puts emphasis on the app quality that can be reached with the use of the tool. These tools are especially intended for certain app categories such as games.

Similar to last year's results, CP Tools and services are classified into 6 groups. The classification of tools in the report is based on the vendors' self-positioning.

research2guidance 3: Categories of cross-platform app development tools



Source: research2guidance, **CPT Benchmarking Study 2014**, n=2,188

Web App Toolkits: Tools that support the development process of web apps and mobile web pages. The development process is accelerated by pre-installed design templates, access to coding libraries, pre-defined APIs, automatic testing, prototyping and multi-screen adoption. The development skills necessary to manage these tools range from limited to advanced. Developers can use common web development languages.

Examples: Vaadin

App Factories: “Drag & drop” app development environments that allow “non-developers” to develop a mobile native or a web app within a few hours or days. Native apps are compiled to run on all major mobile platforms and app stores.

Examples: AppShed, AppYourself, Como, GameBuilder Studio, GameSalad, iGenApps, Magmito, Microstrategy, MobAppCreator, MobiForms, Vizi Apps, Weever Apps

Cross-Platform Integrated Development Environments (CP IDEs): Most of these facilitate the development of native apps and some also of web apps. . These tools use their own SDK or framework to develop the source code faster and compile it to meet native requirements. The strengths of CP IDEs might vary. Some tools excel in proving the most up-do-date development possibilities for their target app categories (mainly games). These specialists

tend to focus on fewer platforms to be able to keep up with the pace of innovation. On the other hand, the perceived strategy of generalists is to support as many platforms as possible.

Examples: Appcelerator, Embarcadero Appmethod, Marmalade, NeoMAD, Qt, Smartface App Studio, Titanium, Unity, V-Play, Xamarin

Cross-Platform Integrated Development Environments for Enterprises (CP IDEs Enterprise):

These tools support the workflow of app development and deployment in an enterprise environment. They provide more pre-installed APIs compared to standard ERP, CRM and shop systems. Some of these are also a part of a broader suite that enables device and app management as well as analytics.

Examples: AnyPresence, AppConKit, Appear IQ, EachScape, FeedHenry, Genero, GeneXus, IBM Worklight , Magic XPA, Service2Media M2Active

Cross-Platform Compilers: Tools that concentrate on translating a single source code into native applications. These tools bridge the requirements of the native device APIs with the chosen programming language of the single source code. Some CP IDEs (mentioned above) make use of these compilers and so do not need to create their own solution.

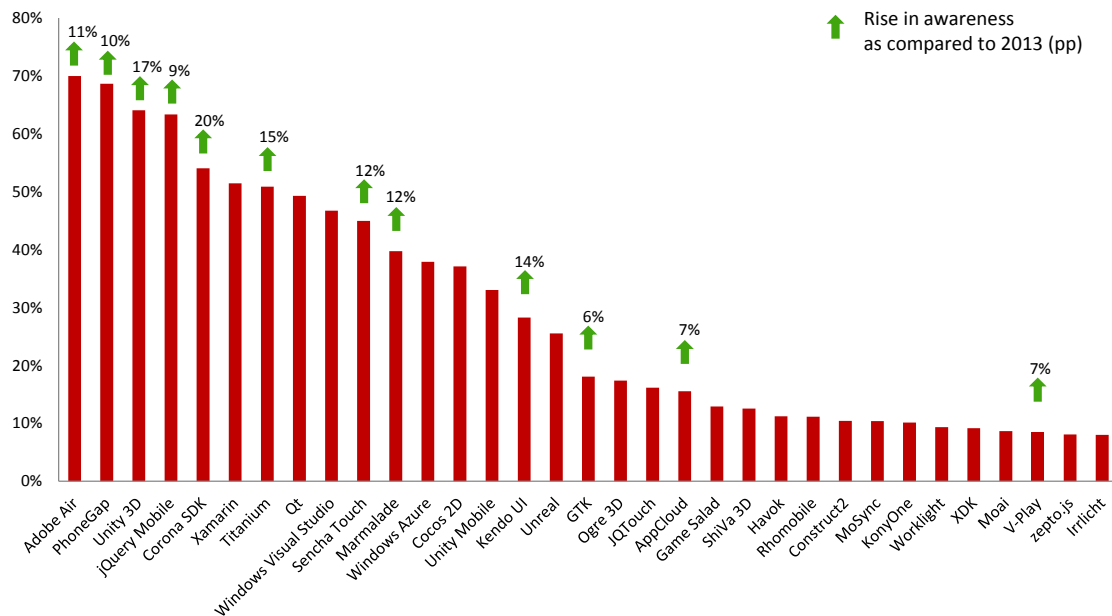
Examples: Alchemo, PhoneGap Build, Cocoon (Games)

Cross-Platform services (CP Services): Cloud services that enable easy integration of in-app-purchases, push notifications and in-app advertisements (to name a few) into apps developed for multiple mobile platforms. Services could also include multi-platform testing environment and analytics.

Examples: Appurify, Capriza, Codename One, MobileSmith

CP Tools have made some progress in raising awareness among the global app developer community. There are some well-known tools like Adobe Air, PhoneGap or Unity which have also managed to increase their market visibility since the last year. The vast majority is hardly known or unknown (not shown in the graph below).

research2guidance 4: Developers' awareness of CP Tools



Comment: An increase or decrease in awareness is assumed whenever there has been a 5% absolute change as compared with 2013.
Source: research2guidance, **CPT Benchmarking Study 2014**, n=2,188

The user base varies significantly between vendors. Established CPT vendors report 100,000 or more users of their tools (often incl. the free trial users).

The table below also gives some examples of “challengers” i.e. these CP Tools which have gained some traction in the market, but which are still expecting major break-through of their CPT offering.

Enterprise IDE vendors could be further split into two sub-groups which serve different number of users. The first group of vendors of CP IDEs for Enterprise concentrates on the product business. They provide a CP Tool or service that users have to subscribe to. It is similar to other CPT offerings, but includes special features for enterprises (e.g. EachScape, Genero). They report user numbers of a few thousands. The other group uses the CP Tools to develop their project business (consulting, training, system integration). Their primary revenue source is related to selling man-days (e.g. Service2Media). The user-base of these CPT vendors reaches dozens or hundreds rather than thousands.

research2guidance 5: User numbers by CP Tool and service (when disclosed by the vendor)

Big Players		Challengers		IDEs Enterprise	
Tools	# users	Tools	# users	Tools	# users
Unity	2.500.000	AppYourself	25.000	Magic XPA	200.000
GameSalad	700.000	Magmito	25.000	GeneXus	100.000
Qt	600.000	Smartface App Studio	25.000	EachScape	10.000
Appcelerator Titanium	600.000	CodenameOne	10.000	Genero	5.000
iGenApps	400.000	Weever Apps	8.000	FeedHenry	5.000
Appcelerator Titanium	400.000	Microstrategy	5.000	IBM Worklight	5.000
Como	260.000	V-Play	5.000	Service2Media M2Active	300
AppShed	200.000	MobiForms	3.000	AppConKit	80
Embarcadero Appmethod	100.000	ViziApps	1.200		
Vaadin	100.000	NeoMAD	500		
		MobAppCreator	100		
		MobileSmith	100		
		Appurify	30		

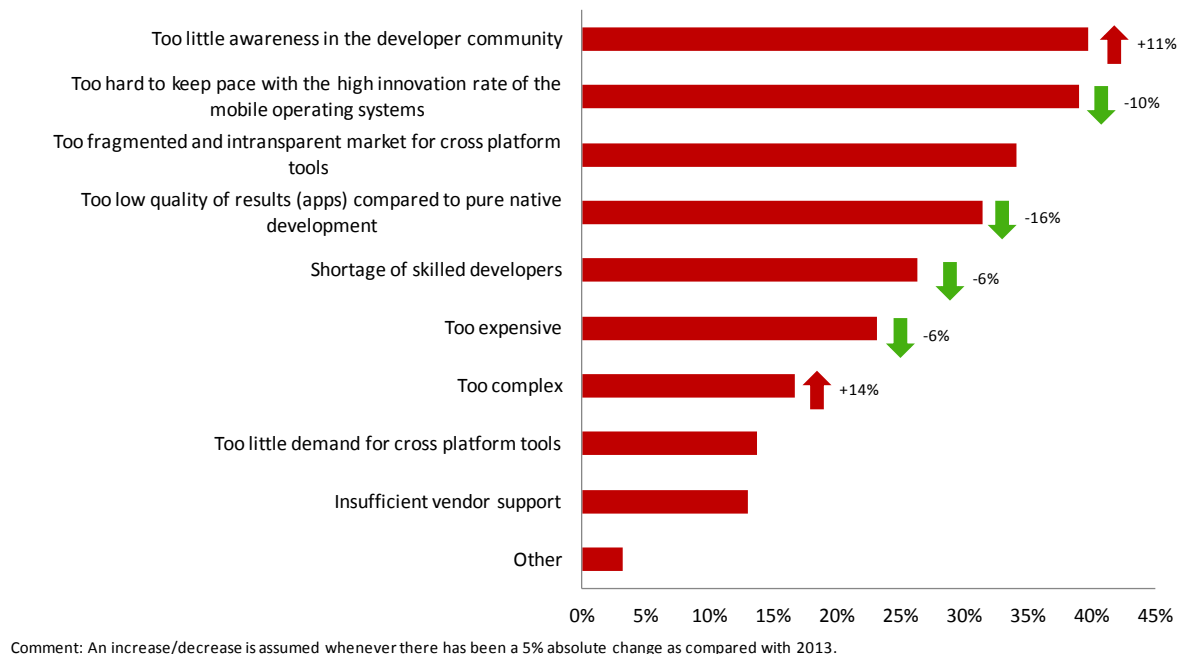
Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

Developers have a good understanding of the barriers CPT vendors are facing in the market. From their perspective the tools might work fine, but they are just not known well enough in the app industry. Apart from a few popular CP Tools, the main barrier for the CPT market is low awareness. Compared to last year, the increasing fragmentation of the market has become an even bigger challenge the market is facing.

The second biggest challenge of CPT industry is keeping up with the pace of frequent updates of mobile platforms. This year developers state that CPT vendors have made some progress in this area. In addition, with thousands of new APIs and features a new version of e.g. iOS/Android offers to their developer communities, CP Tools which mirror those changes tend to become more complex. This complexity is becoming increasingly problematic for the CPT market.

Quality outcome remains to constitute a barrier to market's growth. However, given the experience app developers have gained and improvements vendors have implemented, it seems that the quality issue of the outcome has lost some of its relevance over the course of the last year.

research2guidance 6: Market barriers



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

41% of CPT users have experience with more than 3 CP Tools

Although the majority of CPT users have a developer background (59%), there is a large share (28%) of companies which main business focus has nothing to do with app development. The majority of CPT users (51%) have up to three years of app development experience.

There is a high share (26%) of companies which belong to the group of multi-app developers. Multi-app developers develop more than 10 apps within one year. 68% of CPT users are specialists in the sense that they develop the majority of their apps with a CP Tool (more than 50% of all apps developed within the last year). The share of specialists has not changed since last year.

CPT users do not stick to one tool only. 41% have used more than 3 CP Tools since they started with their first app project. Changing a CP Tool always involves an effort as one needs to learn how the new tool works. 41% of app developers claim that they need a couple of weeks to familiarize themselves with a new tool. 28% need only a few days.

The average length of an app project developed with a CP Tool is rather short. 73% of all projects last only three months or less. There are CPT supported projects that last six months or longer. Marmalade (46%), KonyOne (43%) and Windows Visual Studio (38%) have the highest share of projects that last more than 6 months.

Most of the apps developed with a CP Tool are games (37%), followed by enterprise and business apps (25% and 23%).

The overall budget for an app project is mainly spent on app development and marketing. CPT vendors get only a minor share of the total app budget. Their paid services typically include licensing, training and additional support. A typical app project budget includes license cost of US \$ 1-5,000, no training and support fees and a development budget of up to US \$ 5,000.

The majority (75% line) of all app projects developed with a CP Tool has a rather small app budget with up to about US \$ 25,000 compared to the average of US \$ 37,000 of all app projects⁵.

research2guidance 7: Budget allocation for all apps developed with CP Tools (within last 12 months)

Budget Spending	CP Tools			Agency/Own Resources	
\$USD	License	Training	Support	Development	App Marketing
\$ 0	33%	64%	65%	19%	41%
\$ 1-5,000	45%	22%	20%	28%	28%
\$ 5,000-10,000	12%	9%	9%	14%	11%
\$ 10,000-15,000	3%	3%	3%	7%	4%
\$ 15,000-20,000	7%	2%	3%	6%	5%
\$ 20,000-25,000				5%	2%
\$ 25,000-50,000				7%	4%
\$ 50,000-100,000				4%	2%
\$ 100,000-200,000				5%	2%
\$ 200,000+				4%	2%

64%

Most common budget class for the given app project expenses

75% max. budget line: maximum budget which 75% of CP Tool users are likely to allocate to given app project expenses.

Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

In summary, developers use CP Tools to do more and short app projects with a limited budget.

To learn more about profiles of CPT users, typical budgets and projects please have a look at our [“CPT User Profiles and Market Leader Benchmarking 2014”](#).

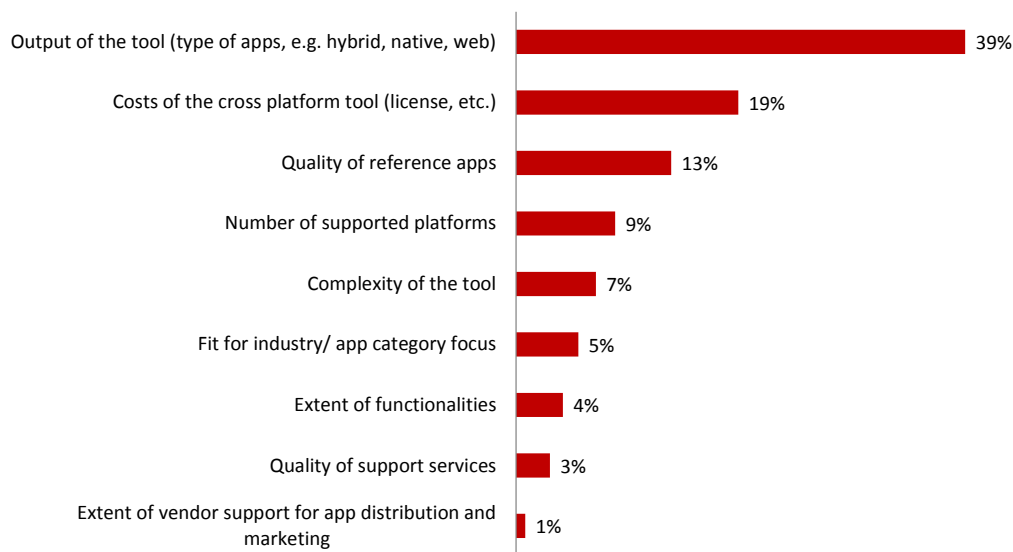
⁵ Research2guidance: „The Market for App Development Services“

"I must have the confidence that the tool will be developed/supported in the future by its vendor or by the community." CPT user

Although costs of a CP Tool are important, app developers would rather have the best tool for their app project rather than save on a tool they are to use. Being able to re-use existing programming skills is also important for some CPT users. Nevertheless, app developers tend to go for the better suited CP Tools instead of the having a chance to re-use own skills while using a tool. CPT users also prefer deeper platform integration to a broader platform support. For CPT vendors this means that the quality and quantity of supported hardware and software APIs for e.g. iOS or Android should be more important than availability of yet another mobile platform. When selecting a CP Tool, output it generates is the most significant quality of a CP Tool (39%). Its costs

are the second most important selection criterion (19%), followed by the quality of reference apps (13%). The number of platforms that are supported by the CP Tool is the most important selection criterion for only 9% of app developers. Due to the increasing competition within the CPT vendor landscape, some of the users are also looking for evidence that a CPT vendor is able to maintain tool support in the near future.

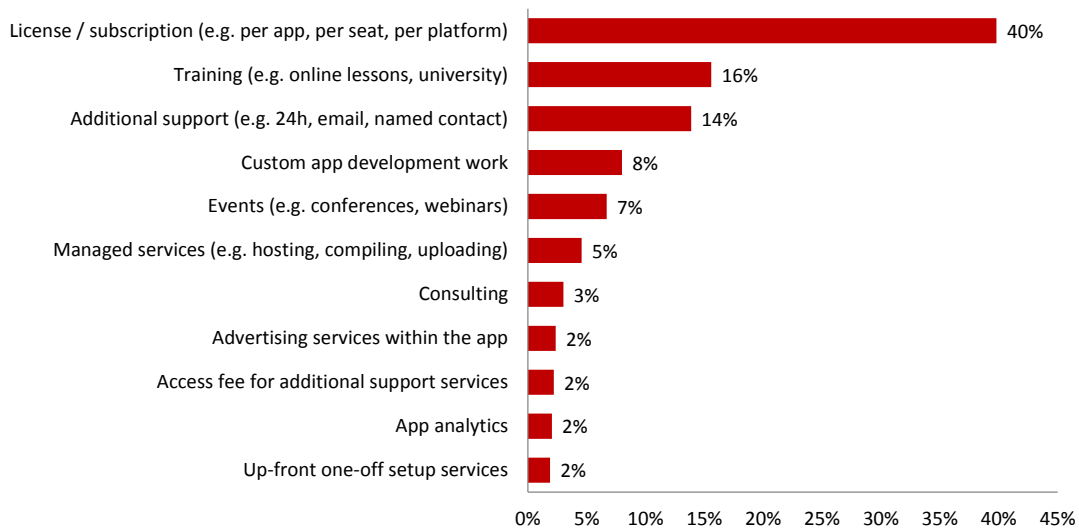
research2guidance 8: Primary selection criterion for choosing a CP Tool



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

If developers have to spend money for CPT vendor's services, they are most willing to pay for a license. 40% of app developers say that their preferred CPT vendor's business model is a subscription for a license. The second and third most preferable from the user perspective business models are additional trainings (16%) and support (14%).

research2guidance 9: Willingness to pay for vendor services



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

The willingness to pay for CPT vendor services varies from tool to tool. For a detailed analysis on a tool level you can find more information in the [“CPT User Profiles and Market Leader Benchmarking 2014”](#).

Currently, selling licenses is the primary revenue strategy of the CPT vendors. 80% claim that this is their main revenue source.

In the USA, among the top 2,000 paid and free apps 11.8% iOS and 14.9%⁶ Google Play have been developed with a CP Tool. Globally the share of apps which have been developed with a CP Tool is lower and is estimated to lie between 5% - 10%.

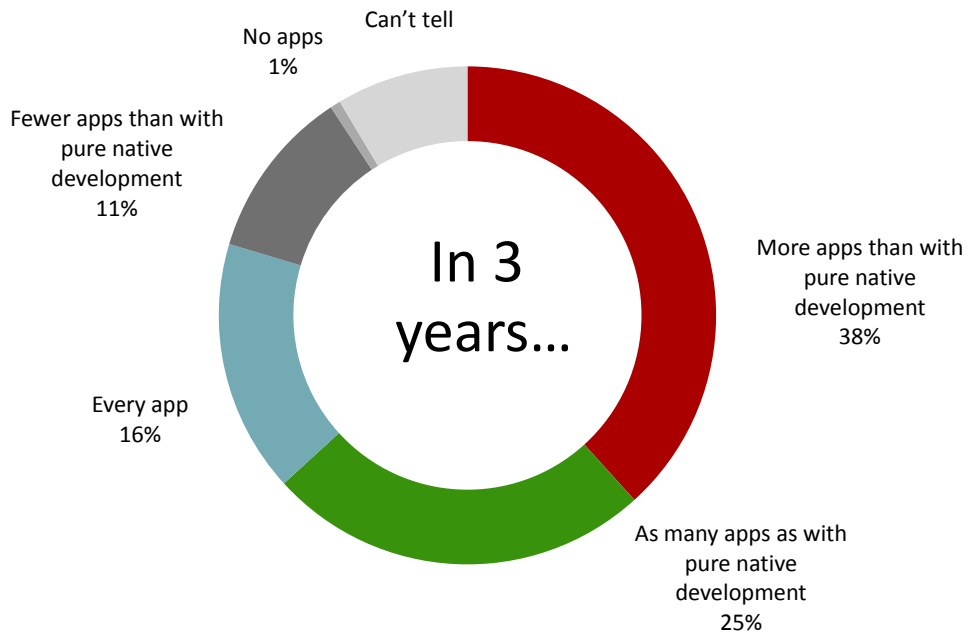
Of the top 2,000 apps in the USA, 11.8% (iOS) and 14.9% (Android) are developed with a CP Tool. (SourceDNA)

Given the 2.3 M apps listed only in the main stores: Apple App Store and Google Play, the number of CPT apps currently listed in one of these stores is approximately 200,000. CPT vendors claim much higher numbers due to the fact that they include apps that have not been published (non-public apps e.g. enterprise apps) as well as apps that are listed on other than Android/iOS stores.

This market share will increase. The app developer community has an optimistic view on the future of the CP Tools. 38% assume that in 3 years there will be more CPT apps than purely native apps. 16% even think that all apps will be CPT apps.

⁶ SourceDNA, May 2014

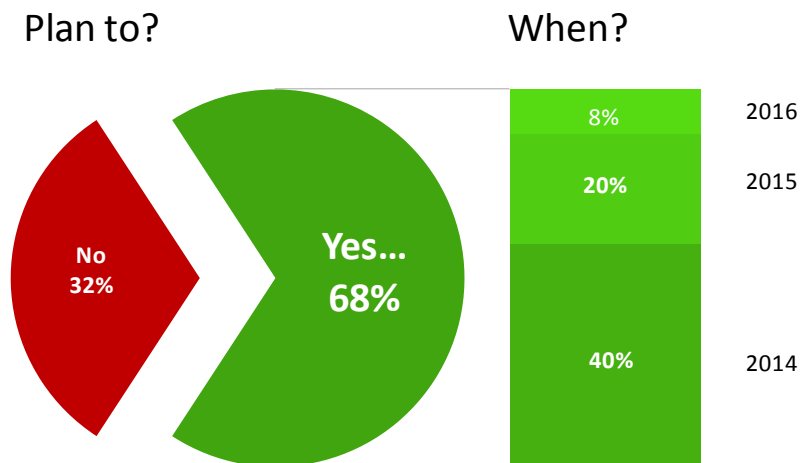
research2guidance 10: In 3 years CP Tools will be used to develop....



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

This positive outlook (for CPT vendors) is backed up by non-CPT users. The majority of them (68%) plans to use CP Tools within the next two years.

research2guidance 11: Intention of using a CP Tool for app development (non-CPT users)



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

This might be due to the fact that those who participated in the survey have a higher interest in the topic than a typical app developer. Nevertheless, it clearly shows that there is a major interest in the market for CP Tools.

Please share and spread the word



CP Tool and service comparison

Companies and app developers can rate CP Tools and services according to different criteria. The most important selection criterion to CPT users is the output of the tool (39%), followed by its costs (19%).

<i>The CPT Benchmarking compares 10 qualities of 40 CP Tools</i>	<p>This chapter presents and compares qualities of 40 CP Tools based on vendor information.</p> <p>The following tables allow for an easy comparison of the CP Tools. By matching tool features and services with one's own objectives and requirements, it should be possible to narrow down the number of top CPT options.</p>
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The CPT Benchmarking compares participating vendors' solutions according to the following 10 criteria:

1. **Output:** Service offerings of all CPT providers are concentrating on making it possible to "write-once-run-anywhere". The output varies between the tools and it is important to know which tools create native, hybrid, web apps or just mobile web pages.
2. **Platforms supported:** Although all of the tools allow for the development of apps that run on iOS and Android devices, an increasing number also supports other mobile platforms. In this way, the CPT users can reach out to a larger audience.
3. **Costs:** Vendors' pricing differs substantially. The most common pricing models include pay per seat, per app, per platform and duration. Those pricing models are supplemented with extra pricing options for support, quality, number of downloads, additional features etc. To reduce this pricing complexity, the CPT Benchmarking compares pricing of participating tools according to 3 scenarios. Select the scenario that best fits your business and compare the prices.
4. **Device type supported:** If you do not want to limit your app's reach to smartphones and tablets, find out which tool provides access to the users of other devices.
5. **Language needed:** Find out which tool can be used with the existing development skills of your team and for which tool you need no prior programming skills.
6. **User targeted:** Vendors develop their solutions with a clear view on who is going to use them. Find out which tools and services address experienced app developers, IT managers and other roles/positions.
7. **Company type targeted:** Some vendors target companies of a certain size. Exclude vendors that do not target your company size to avoid mismatch of expectations.
8. **Target app category:** Vendors tend to intend their solutions for certain app categories such as e.g. games. Find out which tool offers e.g. templates, features, graphics, APIs particularly well-suited for your app project.
9. **Tool complexity:** The complexity of a CP Tool can be linked to the time a user would need to reach an expert level. Complex tools need months of user's time to let them

leverage all the features available. Simple tools (in most cases App Factories) claim to require days or even hours of user's time. See which tool best fits to your time schedule.

10. **Support:** The majority of vendors provide online and hotline support. A few among the participating companies offer more.

The diversity of tools and solutions is big and CPT users might have very specific tool requirements e.g. a certain hardware sensor that they want to address or the ability to build an app directly on the mobile screen. [Please contact us for a more detailed tool analysis at cpt@research2guidance.com.](mailto:cpt@research2guidance.com)

CP Tools and services support the development of different types of outputs. In the context of the CPT Benchmarking the output formats are defined in the following way:

1. **Native applications:** Native apps run only on platforms they have been developed for. Their performance and appearance of the output is best compared to all other output formats and can be deployed to app stores. Native apps have the best access to device and software APIs of a given platform.
2. **Web applications/mobile webpage:** Web apps and mobile websites use standard web technologies—typically HTML5, JavaScript and CSS. They run on all devices, but have some limitations regarding e.g. secure offline storage and access to native device functionalities (camera, calendar, geo location, etc.) Their content is searchable on the web but they cannot get into the app stores for native apps. Web apps differ from mobile websites in their intended use. Apps are supposed to perform specific actions, whereas web pages provide more general information.
3. **Hybrid apps:** Hybrid apps make it possible to embed web content and apps inside a thin native container, combining the pros and cons of native and web apps.

The output of the tools varies significantly and prior to selecting a CP Tool it is important to understand what the best-suited format for your app project is.

Please share



research2guidance 12: Output by CP Tool and service

Tools	Native app	Web app	Hybrid app	Mobile web page
Web App Toolkits				
Vaadin				
CP IDEs				
Appcelerator Titanium				
Embarcadero Appmethod				
Marmalade				
NeoMAD				
Qt				
Smartface App Studio				
Unity				
V-Play				
CP IDEs Enterprise				
AnyPresence				
AppConKit				
Appear IQ				
EachScape				
FeedHenry				
Genero				
GeneXus				
IBM Worklight				
Magic XPA				
Service2Media M2Active				
App Factories				
AppShed				
AppYourself				
Como				
GameBuilder Studio				
GameSalad				
iGenApps				
Magmito				
Microstrategy				
MobAppCreator				
MobiForms				
ViziApps				
Weever Apps				
CP Services				
Appurify				
Capriza				
Codename One				
MobileSmith				

Research2guidance, CPT Benchmarking 2014

The majority of CP Tools enable users to develop native apps that can be stored on devices and distributed in the public app stores.

Most of the CP Tool vendors support more than one output format. Some do this within the same CP Tool, whereas other use a suite of tools e.g. Marmalade.

CP Tools that target enterprises tend to have a broader range of output formats compared to other CP IDEs. They provide mobile access to company data which must be accessible via all employees' devices. For companies, the provision of multi-device access is often more important than of state of the art user interfaces, design etc.

The top 5 platforms which are supported by CP Tools and service providers are iOS, Android, WP8, BlackBerry 10 and HTML5. iOS and Android are the must have output platforms for a CPT vendor. Over the course of a year, WP8 has made a significant progress in terms of the number of tools which support native WP8 app output. HTML5 is also supported by most of the CPT vendors. Access to the Kindle Fire OS as a custom version of Android is provided by 13 CPT providers.

The incorporation of the mobile operating platform from Mozilla is still relatively low, but CPT vendors show an increased interest in supporting this new mobile platform. Before they implement the APIs into their tools, the majority of vendors want a clear signal that Firefox-powered handsets reach mass market shipments.

After the merger of Tizen and Bada and the reinforced backing by Samsung and Intel, Tizen has also made some progress in the mindshare of the CPT vendors. New device classes such as watches that run on Tizen might also help it get more attention from the CPT users and vendors.


















Ubuntu has managed to get support of CPT IDEs with a focus on high quality consumer apps (V-Play, Qt, and Unity).

CPT vendor support for Symbian and Bada will most likely be withheld in the near future.

The convergence of mobile and desktop operating systems, started by Microsoft, is supported by the majority of CPT vendors.

Are you a CPT vendor and your tool or service is missing from the study? Please let us know and make sure you are included in the next year's edition of the report. Get in contact: cpt@research2guidance.com

research2guidance 13: Platform support by CP Tool and service

	mobile															desk-top			
																			
Tools	iOS	Android	WP 8	HTML 5	BlackBerry 10	Kindle Fire	Firefox OS	Tizen	Java ME	Ubuntu	WP 7	BlackBerry 7	Sailfish	Symbian	Bada	Windows	Apple OS X	Other and comments	
Web App Toolkits																			
jQuery																			
Vaadin																			
CP IDEs																			
Adobe Air																		Facebook	
Appcelerator Titanium																			
Corona SDK																			
Embarcadero Appmetho																			
Marmalade																		1)	
NeoMAD																		Nokia Asha	
PhoneGap																			
Qt																		2)	
Smartface App Studio																			
Unity																		3)	
V-Play																		Facebook	
Xamarin																			
CP IDEs Enterprise																			
AnyPresence																		Facebook planned	
AppConKit																			
Appear IQ																		Firefox OS support is planned eoy.	
EachScape																			
FeedHenry																		HTML5 Browsers (Chrome/Safari/IE1	
Genero																		Linux	
GeneXus																		Facebook, AS400, .Net Mobile	
IBM Worklight																			
Magic XPA																			
Service2Media M2Active																			
App Factories																			
AppShed																			
AppYourself																			
Como																			
GameBuilder Studio																		Facebook	
GameSalad																		limited to Windows 8 Metro apps.	
iGenApps																		Facebook planned	
Magmito																		with a HTML5 app	
Microstrategy																			
MobAppCreator																			
MobiForms																			
ViziApps																			
Weever Apps																			
CP Services																			
Appurify																		cross-platform testing services	
Capiza																			
Codename One																			
MobileSmith																		4)	

Research2guidance, CPT Benchmarking 2014

Support

Planned support

1) LG TV, Roku, Windows Store, Win RT, Android (x86)

2) Planned: X11/Linux, embedded Linux, QNX, INTEGRITY, VxWorks

3) Facebook, WebGL, Windows Store, Win RT, PS3/4/Vita, Xbox 360/ One, Wii U, Linux

4) HTML5 as applet within native apps. No support for HTML5-only apps.

Most CPT vendors offer a free trial version of their tools. The pricing mechanism of the paid services differs much. Pricing models which charge per seat, per app and duration of use are the most common ones. Besides these, there exist other pricing models (e.g. pay per download, upload, additional support), which makes it difficult to compare the costs of CP Tools and services.

To make a cost comparison possible, CPT vendors have been asked to provide cost information for three different scenarios. The scenarios differ in the number of users, apps and support type required.

research2guidance 14: Three exemplary CP Tool cost scenarios

1	2	3
Indie developer	App studio / agency	Enterprise
<ul style="list-style-type: none">• 1 app developer• 1 app project• Duration: 1 year• Publishing on 2 platforms• Deployment to commercial app stores• No additional support requested	<ul style="list-style-type: none">• Company with 10 developers• 10 app projects• Duration: 1 year• Publishing on 4 platforms• Deployment to commercial app stores• Advanced support requested: e.g. tutorial/ training, email and phone support	<ul style="list-style-type: none">• 20 app developers• 50 app projects• Duration: 1 year• Publishing on 4 platforms• Deployment of 25 apps to commercial app stores and 25 internal• Advanced support services requested: e.g. on-site project support, initial training / tutorial and other

Source: research2guidance, CPT Benchmarking Study 2014, n=2188

The information provided by the CPT vendors shows that the yearly cost for an Indie app developer who wants to develop one app with a CP Tool, ranges from a few hundred USD to up to US \$ 12,000.

The price range is getting wider the more users are involved and the more app projects are to be delivered. Moreover, additional support also increases the price an agency or enterprise has to pay. Yearly costs range from a few thousand USD to more than US \$ 100,000 per Scenario 2 and US \$ 200,000 for Scenario 3.

A cost comparison of the tools is more representative if confined to a certain category of tools (e.g. CP IDEs Enterprise). In fact, even within a given category of tools, there are many differences in the feature-richness which is another price determining factor.

As one could expect, App Factories charge the lowest price for their services, whereas CP IDEs for Enterprise the highest.

In addition to the pricing information, CPT vendors have provided additional remarks explaining the three different cost scenarios in detail. All these are in the appendix.

research2guidance 15: Cost comparison of CP Tools and services

Tools	Scenario 1:	Scenario 2:	Scenario 3:
	Costs	Costs	Costs
CP IDEs			
Embarcadero Appmethod	\$ 598	\$ 30.590	\$ 66.175
Marmalade	\$ -	\$ 15.000	\$ 70.000
NeoMAD	\$ 675	\$ 13.500	\$ 27.000
Qt	\$ 1.308	on request	on request
Smartface App Studio	\$ -	\$ 97.000	\$ 210.000
Unity	\$ 2.700	\$ 24.000	on request
V-Play	\$ 168	\$ 11.990	\$ 47.980
CP IDEs Enterprise			
AppConKit	\$ 7.000	on request	on request
EachScape	\$ 11.880	\$ 180.000	\$ 260.000
Genero	\$ 1.000	on request	on request
GeneXus	\$ 2.000	\$ 64.400	\$ 200.000
Magic XPA	\$ 8.098	\$ 32.860	on request
App Factories			
AppShed	\$ -	\$ 1.800	\$ 9.000
AppYourself	\$ 168	\$ 4.000	on request
Como	\$ 390	on request	on request
GameBuilder Studio	\$ 200	on request	on request
GameSalad	\$ 299	\$ 3.388	\$ 5.378
iGenApps	\$ 55	\$ 500	\$ 2.500
Magmito	\$ 99	\$ 990	\$ 4.950
MobAppCreator	\$ 999	\$ 19.000	\$ 20.000
MobiForms	\$ 166	\$ 1.660	\$ 3.320
ViziApps	\$ 995	\$ 7.550	\$ 32.600
Weever Apps	\$ 900	\$ 14.000	on request
CP Services			
Appurify	\$ 6.000	\$ 50.000	\$ 100.000
Codename One	\$ 108	\$ 8.490	\$ 105.000
MobileSmith	\$ 12.000	\$ 78.000	on request

Research2guidance, CPT Benchmarking 2014

Most CP Tools focus on supporting app development for smartphones and tablets. Only few address the needs of desktop PCs, TV-sets, game consoles, in-Car devices or feature phones.

This is not a surprise as CP Tools have emerged at a time when the smartphone mobile apps have reached fewer pitch. However, as soon as car drivers, TV viewers, console gamers and PC users demand access to apps, publishers will get their apps to reach these target groups, creating a demand for CP Tools to address the need.

CP IDEs cover a broad spectrum of devices. App Factories and enterprise offerings support smartphones and tablets.

research2guidance 16: Device support by CP Tool and service

Tools	Smart-phones	Tablets	Feature phones	Smart TVs	Game consoles	In-car devices	Desktop / PC	Other
Web App Toolkits								
Vaadin								
CP IDEs								
Appcelerator								
Corona SDK								
Embarcadero Appmethod								Google Glasses
Marmalade								
NeoMad								1)
Qt								Web embedded
Smartface App Studio								Google Glasses
Unity								Web embedded
V-Play								
Xamarin								
CP IDEs Enterprise								
AnyPresence								2)
AppConKit								
Appear IQ								
EachScape								Google Glasses
FeedHenry								Web embedded
Genero								
GeneXus								IBM AS/400 servers
IBM Worklight								
Magic XPA								
Service2Media M2Active*								
App Factories								
AppShed								
AppYourself								
Como								
GameBuilder Studio								
GameSalad								
iGenApps								
Magmito								
Microstrategy								
MobAppCreator								
MobiForms								
ViziApps								
Weever Apps								
CP Services								
Appurify								
Capriza								
Codename One								
MobileSmith								

Research2guidance, CPT Benchmarking 2014

1) SmartTV, In-Car Devices, Google Glasses

2) Google Glasses, wearables, etc.

The majority of tools can be used without any programming skills. “Drag & drop” solutions allow anyone to develop an app. Web developers experienced in using Java Scrip, HTML and CSS are targeted by a larger share of CPT vendors. Some CP Tools like GeneXus and Magic XPA require their users to learn their propriety language and commands.

With a series of tools, Marmalade addresses differently skilled developer groups.

research2guidance 17: Compatible programming skills by CP Tool and service

Tools	No programming skills	Java Script	HTML	CSS	Java	Lua	C++	C	Other	Comments
Web App Toolkits										
Vaadin										
CP IDEs										
Appcelerator Titanium										
Embarcadero Appmethod									Pascal	
Marmalade									Objective C	
NeoMAD									XML	
Qt									QML	
Smartface App Studio										
Unity									C# Boo	Users choose between C#, Javascript & Boo
V-Play									QML	QML & JavaScript for scripting with Qt Quick; Mixing with C++ possible
Xamarin									C#	
CP IDEs Enterprise										
AnyPresence										
AppConKit										
Appear IQ										
EachScape									Action Script	
FeedHenry										
Genero										
GeneXus									GeneXus Language and IDE	1)
IBM Worklight										
Magic XPA									Magic Meta data Paradigm	2)
Service2Media M2Active										
App Factories										
AppShed									PHP	
AppYourself										
Como										
GameBuilder Studio										
GameSalad										
iGenApps										
Magmito										
Microstrategy										
MobAppCreator										
MobiForms										
ViziApps										
Weever Apps										
CP Services										
Appurify										
Capriza										
Codename One										
MobileSmith										

Research2guidance, CPT Benchmarking 2014

1) Model driven development through knowledge-representation with proprietary language

2) Proprietary metadata based development paradigm focusing on the business process rather on the technology allowing quick realization of complex projects

A typical user of a CP Tool or solution is also a good indicator of whether or not a tool potentially fits a similar app projects. Generally, CP IDEs target experienced app developers, whereas App Factories are more open to developers that have no or only little app development experience.

research2guidance 18: Target user type by CP Tool and service

Tools	Experienced mobile app developers	Novice mobile app developers	Enterprise software developers	Enterprise system administrators	Web developers	Other
Web App Toolkits						
Vaadin						
CP IDEs						
Adobe Air						Designers
Appcelerator Titanium						
Corona SDK						Designers
Embarcadero Appmethod						
Marmalade						
NeoMAD						
Qt						
Smartface App Studio						
Unity						Artists, Designers, Students, Educators
V-Play						
Xamarin						
CP IDEs Enterprise						
AnyPresence						Experienced mobile app devs
AppConKit						Designers
Appear IQ						
EachScape						
FeedHenry						
Genero						
GeneXus						
IBM Worklight						
Magic XPA						
Service2Media M2Active						
App Factories						
AppShed						Students, line-managers
AppYourself						End users
Como						1)
GameBuilder Studio						
GameSalad						
iGenApps						Non-programmers
Magmito						
Microstrategy						
MobAppCreator						
MobiForms						
ViziApps						
Weever Apps						
CP Services						
Appurify						
Capriza						
Codename One						
MobileSmith						Marketers, graphic designers, line-managers

Research2guidance, CPT Benchmarking 2014

1) Line managers, marketers, small business owners

CPT vendors target app developing companies, SMBs with no in-house app development skills and enterprises.

App Factories target small and medium-sized companies. CP IDEs also include enterprises in their preferred customer list.

research2guidance 19: Target company type by CP Tool and service

Tools	App developing companies/ISV	SMBs (Non-developing companies)	Enterprises	Other
Web App Toolkits				
Vaadin				
CP IDEs				
Adobe Air				Consumers
Appcelerator Titanium				
Corona SDK				Consumers
Embarcadero Appmethod				
Marmalade				
NeoMAD				
PhoneGap				Consumers
Qt				Embedded device creators
Smartface App Studio				
Unity				1)
V-Play				
Xamarin				
CP IDEs Enterprise				
AnyPresence				
AppConKit				
Appear IQ				
EachScape				
FeedHenry				
GeneXus				Startups, Government institutions
Magic XPA				
Service2Media M2Active				
Genero				
IBM Worklight				
App Factories				
AppYourself				Consumers
AppShed				Schools, colleges and universities
Como				
GameSalad				
iGenApps				
Magmito				
Microstrategy				
MobAppCreator				
MobiForms				
ViziApps				
Weever Apps				
GameBuilder Studio				
CP Services				
Appurify				
Capriza				
Codename One				
MobileSmith				

Research2guidance, CPT Benchmarking 2014

1) Hobbyists, Students, Universities, Educators, Government

The app category which a CPT vendor targets implies which features of the resulting apps are going to be best executed.

research2guidance 20: Target app categories by CP Tool and service

Tools	Enterprise	Business	Games/ Entertainment	Special
Web App Toolkits				
Vaadin				
CP IDEs				
Adobe Air				General
Corona SDK				Utility
Embarcadero Appmethod				
Marmalade				
NeoMAD				
PhoneGap				General
Smartface App Studio				
Unity				1)
V-Play				
Xamarin				General
CP IDEs Enterprise				
AnyPresence				
AppConKit				
Appear IQ				
FeedHenry				
Genero				
IBM Worklight				
Magic XPA				
Service2Media M2Active				News
App Factories				
AppShed				Books
Como				Education /F&B
GameBuilder Studio				
GameSalad				
iGenApps				Education
Microstrategy				
MobAppCreator				Travel
MobiForms				
ViziApps				
Weever Apps				Education
CP Services				
MobileSmith				Health& Fitness

Research2guidance, CPT Benchmarking 2014

The growing importance of apps for enterprises is reflected in the number of CPT vendors who claim to provide solutions for enterprise and business apps. On the other hand, there are game specialists like V-Play or Unity which strengths are: advanced graphics and user interface support. It is also interesting to see which tools support other app categories: health & fitness (Mobile Smith), news (Corona SDK, Service2Media) or education (iGenApps, Como and Weever Apps).

The complexity of solutions can be estimated by the time needed to get familiar with a tool and to develop an app.

research2guidance 21: CP Tools' complexity by CP Tool and service

Tools	Time to become an expert		
	Days	Weeks	Months
Web App Toolkits			
Vaadin			
CP IDEs			
Appcelerator Titanium			
Corona SDK			
Embarcadero Appmethod			
Marmalade			
NeoMAD			
Qt			
Smartface App Studio			
Unity			
V-Play			
Xamarin			
CP IDEs Enterprise			
AnyPresence			
AppConKit			
Appear IQ			
EachScape			
FeedHenry			
Genero			
GeneXus			
IBM Worklight			
Magic XPA			
Service2Media M2Active			
App Factories			
AppShed			
AppYourself			
Como			
GameBuilder Studio			
GameSalad			
iGenApps			
Magmito			
Microstrategy			
MobAppCreator			
MobiForms			
ViziApps			
Weever Apps			
CP Services			
Appurify			
Capriza			
Codename One			
MobileSmith			

Research2guidance, CPT Benchmarking 2014

Vendors of App Factories and Web App Toolkits claim that it takes weeks or days to get familiar with their tool. Cross-platform development usually requires more familiarization time. According to vendors, familiarization with feature-rich CP IDEs might take months.

As shown in the previous section, CPT vendors' self-estimates do correlate with the experience their users have made.

CPT vendors offer a broad range of support options, ranging from online community support to on-site services. The more complex the tools, the more support options are offered by the vendors.

On-site support, trainings as well as a personal phone contact, are either included in the commercial offers or have to be paid for separately. Online support is usually free and available to non-commercial users.

The support channels of App Factories and Web App Toolkits are impressively broad, but vendors of this category tend to offer not as much personal support options.

In all cases, support services are available in English but some offer their support services in other languages as well. Big players like IBM Worklight or Microstrategy leverage their international presence by offering support in up to 8 languages.

research2guidance 22: Available support by CP Tool and service

Tools	On-site project support	On-site training/tutorials	Personal phone contact	Real time online support	Time-delayed online support	Online community	Support available in languages
Web App Toolkits							
jQuery							
Vaadin							
CP IDEs							
Adobe Air							
Appcelerator Titanium							
Corona SDK							
Embarcadero Appmethod							
Marmalade							
NeoMAD							
PhoneGap							
Qt							
Smartface App Studio							
Unity							
V-Play							
Xamarin							
CP IDEs Enterprise							
AppConKit							
Appear IQ							
EachScape							
FeedHenry							
Genero							
GeneXus							
IBM Worklight							
Magic XPA							
Service2Media M2Active							
App Factories							
AppShed							
AppYourself							
Como							
GameBuilder							
GameSalad							
iGenApps							
Magmito							
Microstrategy							
MobAppCreator							
MobiForms							
ViziApps							
Weever Apps							
CP Services							
Appurify							
Capriza							
Codename One							
MobileSmith							

Research2guidance, CPT Benchmarking 2014

CPT user ratings: Top 10 lists

The CPT Benchmarking also includes the user side of CPT vendor offerings. Find out how more than 2,100 users rate CPT vendors and their offerings.

User ratings are provided for the following dimensions:

- Comprehensiveness of platform support
- Overall app quality rating as well as satisfaction with the app quality's building blocks (performance, usability, design)
- CP Tool's features including access to various device hardware features, pre-installed apps and cloud API services
- Complexity rating of a tool
- Estimated time savings
- Responsiveness of the implementation of platform functionality changes
- Cost-performance ratio of developing apps with CP Tools
- Quality of vendor's support
- Preferred tool to develop for a certain platform
- Recommendation

For each of the above listed dimensions, the CPT Benchmarking provides ratings for all tools as well as each category's Top 10 lists.

In addition, the chapter includes the most popular CP Tools for publishing across specific platforms.

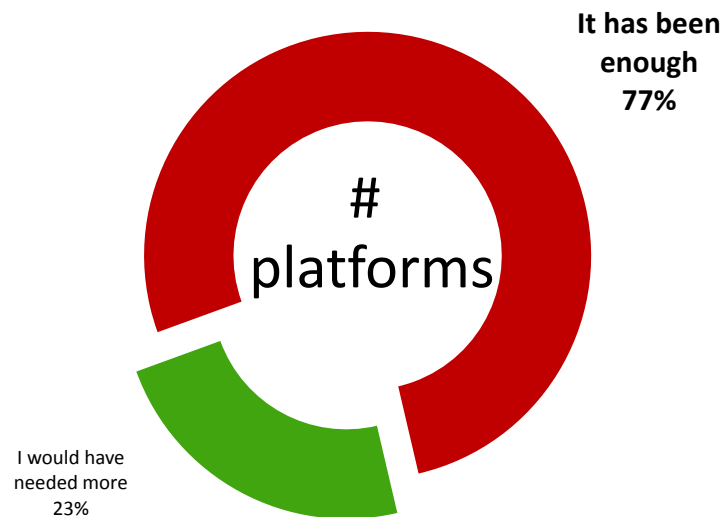
The CPT Benchmarking includes only tools in the Top 10 list for which more than 50 user responses have been collected. **If you are interested in the user feedback for a specific tool, please get in contact: cpt@research2guidance.com.**

For sharing



Even though the majority of CPT users is satisfied with the core value proposition of the CP Tools they use (77%), almost one quarter of the users wishes that the CP Tool they use let them publish apps on more platforms.

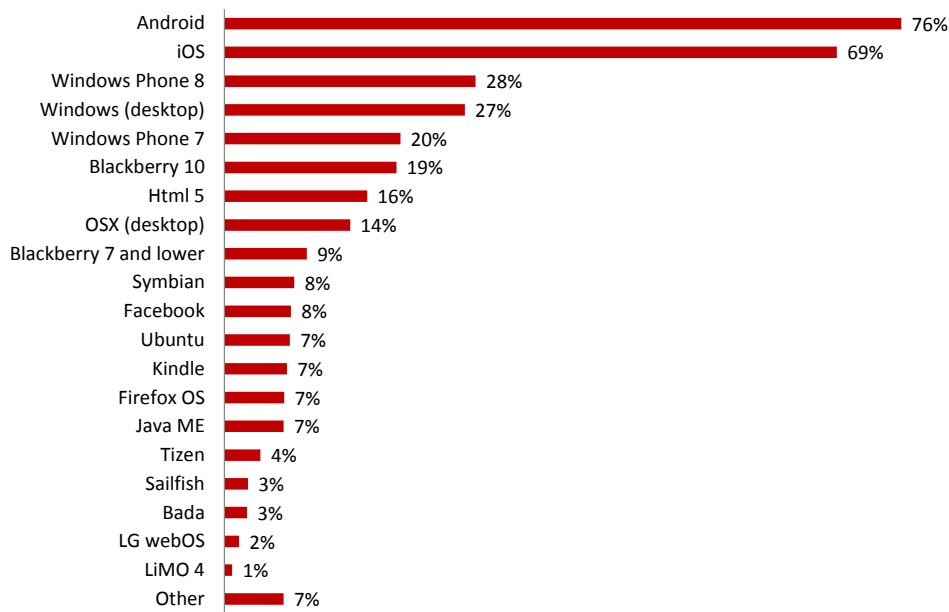
research2guidance 23: Satisfaction with the number of platforms supported



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

Currently, Android and/or iOS are the two dominant platforms CPT users publish their apps on. About 70% of the users publish their apps on Android and iOS: 77% on Android and 69% on iOS. Windows Phone 8, Windows (desktop) and Windows Phone 7- are accordingly placed on the 3rd-5th positions in terms of the output platform among the CPT users.

research2guidance 24: Platforms CPT users publish apps on

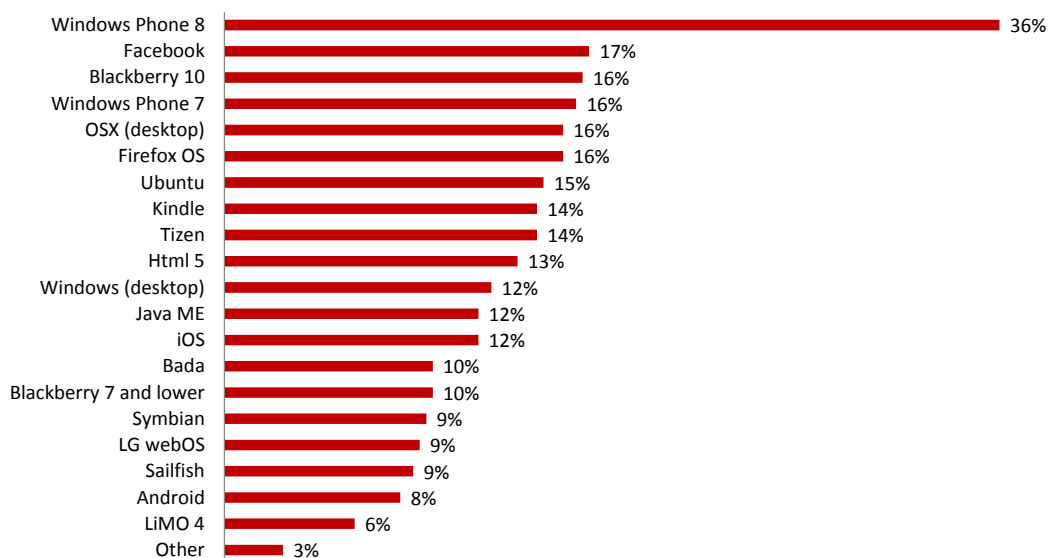


Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

Windows 8 tops the wish list for “to be” supported platforms

Windows 8 is clearly on top of the users’ wish list of platforms to be included into the service offering of CPT vendors. 36% of CPT users want to have Microsoft’s platform’s support. Other missing and most desirable platforms are: Facebook, Blackberry 10, Windows Phone 7, OSX (desktop), Firefox OS, Ubuntu, Kindle & Tizen. 14%-17% of the CPT community believes that CP Tools should, but do not support these platforms.

research2guidance 25: Platforms missing

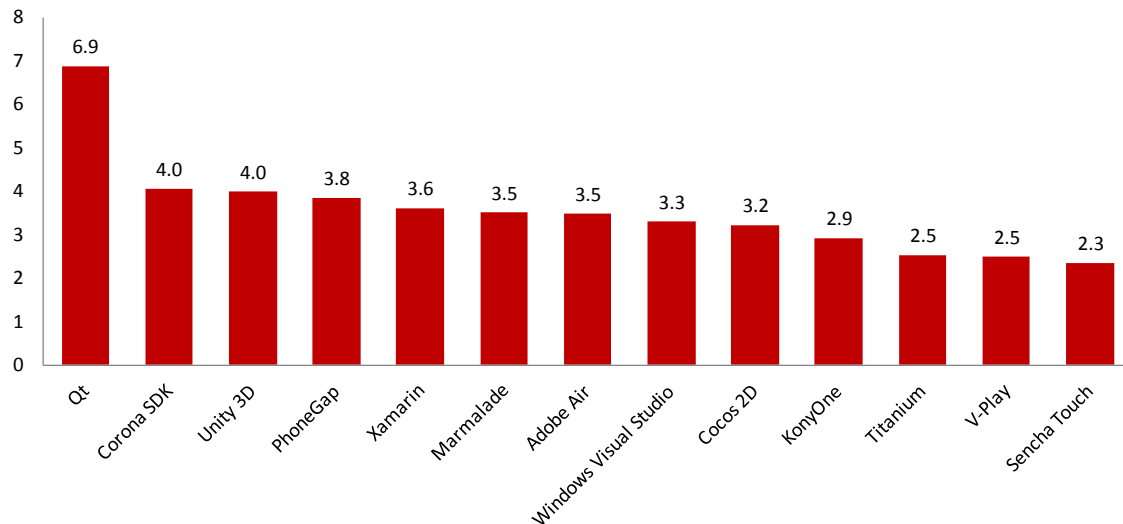


Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

Qt is the leader of cross-platform app development

Qt is the leader in true cross-platform app development. Users of Qt publish their apps on almost 7 different platforms, whereas all the other users release their apps on 4 or less platforms.

research2guidance 26: Average number of platforms which users publish their apps developed with a CP Tool on

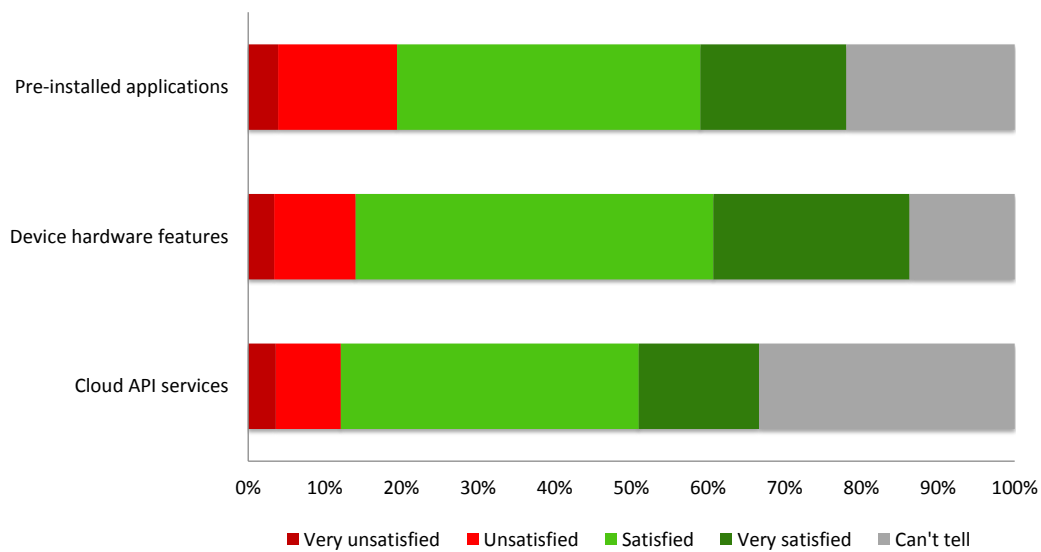


Source: research2guidance, **CPT Benchmarking Study 2014**, n=2188

All CP Tools score reasonably high in user satisfaction with regards to the way they support pre-installed applications, available device hardware features and cloud API services.

Between 54%-73% of users is either satisfied or very satisfied with these features. 14%-34% have not rated these tool features, stating they have not used such functions.

research2guidance 27: Satisfaction with CP Tool features



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

The leaders of the overall satisfaction with the CP Tool's attributes are Windows Azure, KonyOne & Titanium. About 80% of their users have stated that they are satisfied/very satisfied with the tool features. User satisfaction for other vendors such as V-Play, Xamarin, Windows Visual Studio and Adobe Air is also very high: between 72%-76% are pleased with their pre-installed applications, access to device hardware features and Cloud API services.

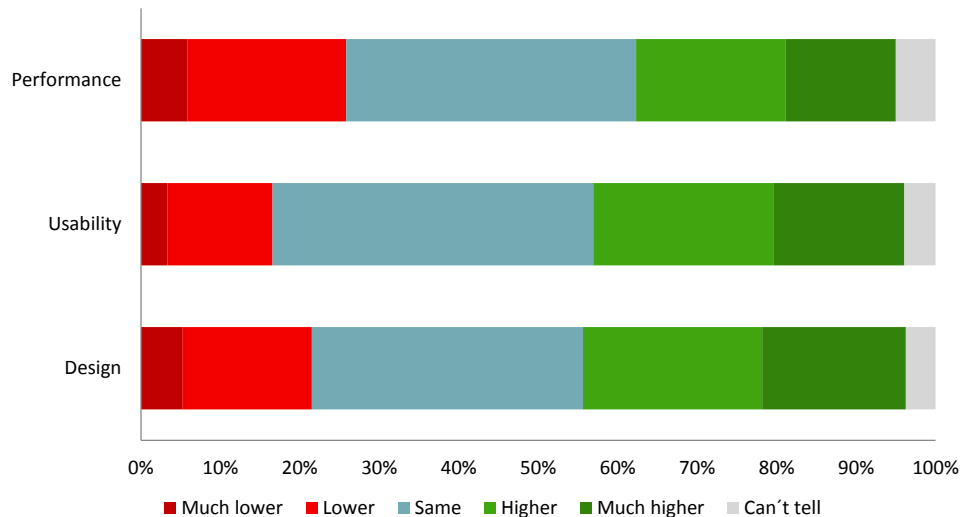
research2guidance 28: Top 10 Satisfaction with hardware features, pre-installed apps & API services

Rank	Tool	Very unsatisfied/unsatisfied	Satisfied/very satisfied	Can't tell	# Ratings
1	Windows Azure	-4%	84%	12%	99
2	KonyOne	-4%	81%	15%	159
3	Titanium	-8%	80%	12%	168
4	V-Play	-1%	76%	23%	137
5	Xamarin	-5%	75%	20%	305
6	Windows Visual Studio	-12%	74%	14%	214
7	Adobe Air	-16%	72%	12%	256
8	Marmalade	-9%	62%	29%	300
9	Corona SDK	-20%	60%	21%	319
10	PhoneGap	-22%	58%	21%	292
Benchmark (Average all tools)		-14%	73%	13%	

Research2guidance, CPT Benchmarking 2014

CP Tools are always compared with pure native app development. This is especially true for performance, usability and design of the apps (altogether defined as quality) that are developed with a CP Tool. Overall, users are satisfied with the quality of apps they produce. Only 18% to 25% of CPT users rate the quality of the output lower or much lower than of a project that uses solely the development environments of platform vendors such as Apple or Android. The majority states that the quality of the results is the same or even better than of natively developed apps.

research2guidance 29: Quality rating of apps developed with CP Tools - compared to native development



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

The leaders of the resulting app quality, as judged by the CPT users, are Qt, Windows Visual Studio and Cocos 2D. Around half of their customers claim the quality of apps developed with the tool is higher or much higher than of the natively developed. Within the Top 10 list JQuery and Sencha Touch are the tools that have the highest share of users who rate the quality of apps to be comparably lower.

research2guidance 30: Top 10 App quality (design, usability and performance cum.)

Rank	Tool	Much lower/ lower	Same	Much higher/ higher	Can't tell	# Ratings
1	Qt	-6%	35%	56%	3%	342
2	Windows Visual Studio	-8%	32%	51%	9%	201
3	Cocos 2D	-14%	29%	50%	6%	171
4	Unity	-17%	27%	48%	9%	312
5	Windows Azure	-8%	32%	47%	12%	99
6	Adobe Air	-23%	30%	45%	2%	255
7	Marmalade	-20%	36%	39%	5%	297
8	V-Play	-1%	49%	39%	11%	138
9	jQuery Mobile	-34%	22%	37%	7%	128
10	Sencha Touch	-35%	27%	33%	4%	147
Benchmark (Average all tools)		-16%	40%	41%	3%	

Research2guidance, CPT Benchmarking 2014

When looking at the leaders just from the app's performance perspective, a slight change in the top ranks is noticeable. Now, it is Windows Visual Studio, Cocos 2D, Qt, Marmalade and

Adobe Air which top the ranks. 42%-52% of their users rate the performance of apps developed with the tool as higher/much higher as compared with natively developed. The fact that Windows Visual Studio is ranked highest is due to the fact that is they concentrate on Windows 8. Nevertheless, they are included in the classification as with Windows Visual Studio one can develop mobile websites which are compatible with other platforms.

research2guidance 31: Top 10 CP Tools by app performance quality

Rank	Tool	Much lower/ lower	Same	Much higher/ higher	Can't tell	# Ratings
1	Windows Visual Studio	-10%	28%	52%	9%	67
2	Cocos 2D	-16%	26%	49%	9%	57
3	Qt	-6%	43%	46%	5%	114
4	Marmalade	-16%	36%	42%	6%	100
5	Adobe Air	-29%	26%	42%	2%	85
6	KonyOne	-33%	35%	33%	0%	55
7	Unity	-27%	32%	31%	11%	104
8	Corona SDK	-24%	49%	23%	4%	103
9	Xamarin	-13%	64%	20%	4%	102
10	Titanium	-56%	28%	17%	0%	54
Benchmark (Average all tools)		-16%	40%	40%	4%	

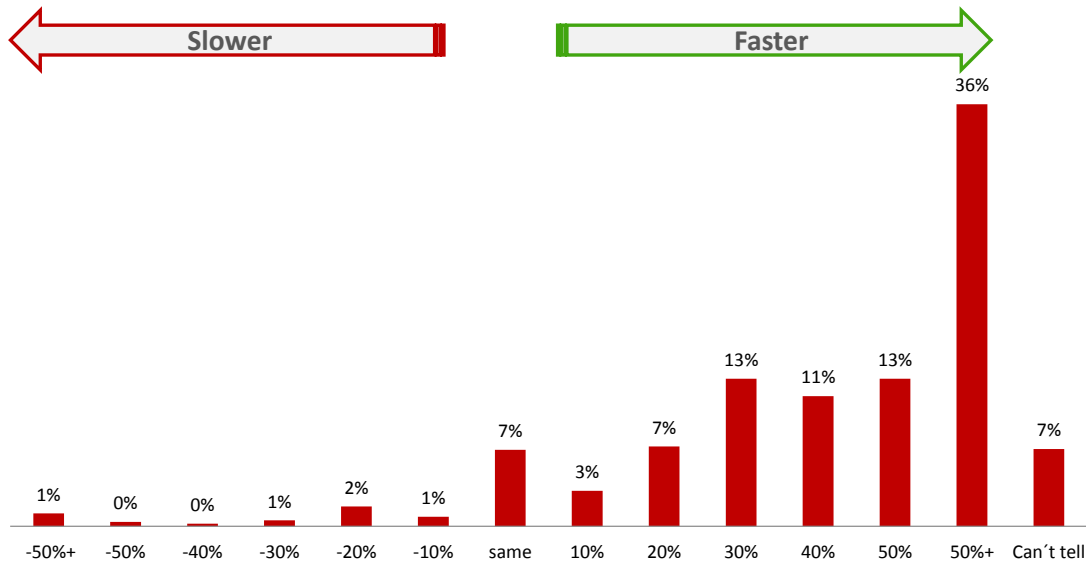
Research2guidance, CPT Benchmarking 2014

36% of CPT users report times savings of 50% or more

Users report substantial time savings for the CPT-supported app projects. 83% estimate that the use of a CP Tool led to time savings of 10% or more. 36% report time savings of even 50% and more. The time savings depend on the number of platforms the app will be distributed on. The more often the source code is reused, the higher the overall time savings.

"For 1 platform, it's not much different. For 2 platforms, you save ~60%. For 3rd and beyond your economy is greatest, maybe ~80%." CPT user

research2guidance 32: Estimated time savings with CP Tools



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

V-Play and Unity have the biggest share of users who have realized the most sizable time savings with the CP Tool. More than 60% of their users benefited from 50%+ time savings thanks to the use of the tool.

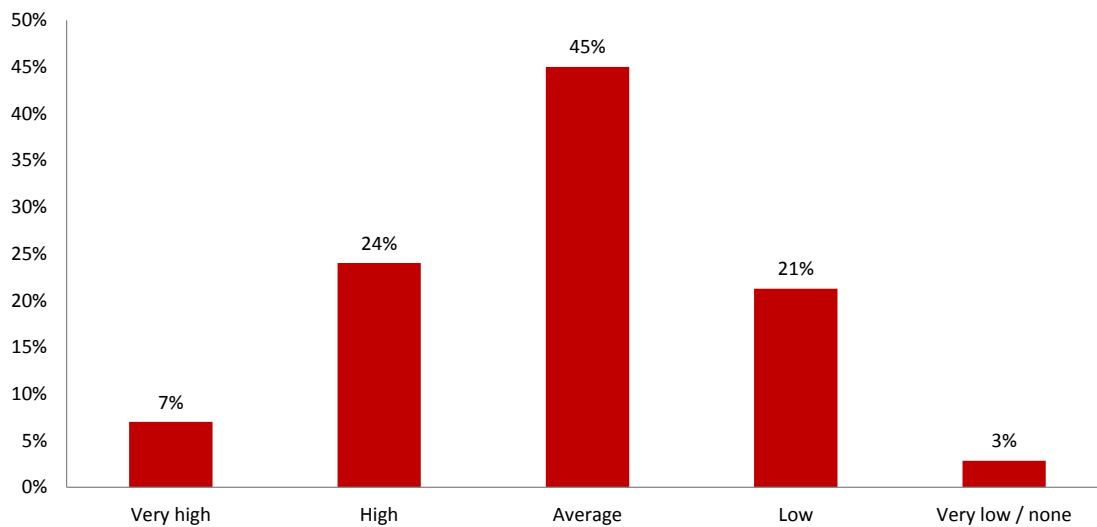
research2guidance 33: Top 10 CP Tools by time savings

Rank	Tool	50%+ slower	10-50% slower	Same	10-50% faster	50%+ faster	Can't tell	# Ratings
1	V-Play	0%	0%	0%	31%	69%	0%	62
2	Unity	0%	0%	5%	25%	62%	8%	106
3	Qt	0%	-1%	2%	34%	56%	8%	122
4	Corona SDK	-2%	-5%	3%	39%	50%	2%	106
5	Xamarin	-2%	-1%	10%	43%	37%	8%	105
6	Cocos 2D	0%	-5%	7%	40%	28%	20%	60
7	Windows Visual Studio	0%	0%	14%	49%	26%	11%	73
8	Adobe Air	-5%	-3%	7%	54%	25%	6%	87
9	KonyOne	0%	0%	11%	67%	22%	0%	55
10	PhoneGap	-3%	-6%	8%	57%	22%	5%	102
Benchmark (Average all tools)		-1%	-1%	7%	48%	36%	7%	

Research2guidance, CPT Benchmarking 2014

CPT user ratings regarding the complexity of tools show mixed results. 31% admit that the CP Tool they have been using is rather complex (high/very high complexity), whereas 24% claim that their tool is of low complexity. This picture is not surprising, because the summary includes simple to use App Factories as well as feature-rich CP IDEs for games and enterprise apps.

research2guidance 34: Complexity rating of CP Tools



Source: research2guidance, **CPT Benchmarking Study 2014**, n=2,188

In fact, complexity is not “even”. The initial “get started” is supported very well by most of the CPT vendors. As some of the CP Tools have become very feature-rich, one needs a while to familiarize oneself with all the possibilities.

“These tools have a sharp learning curve. It's easy-intermediate to learn the basics, then much more difficult to expertise.”
CPT user

The Top 10 analysis does not include any App Factories. Top 10 CP Tools are only CP IDEs, which makes the comparison viable. The leader of “simplicity” is V-Play which 60% of users claim that the tool’s complexity is low/very low. The rating of all the other CP Tools’ complexity is less promising. Corona SDK is attributed the second rank with 47% of its users claiming that the tool’s complexity is low/very low. Users of all the other tools have predominantly stated that complexity is average (at best) or high/very high.

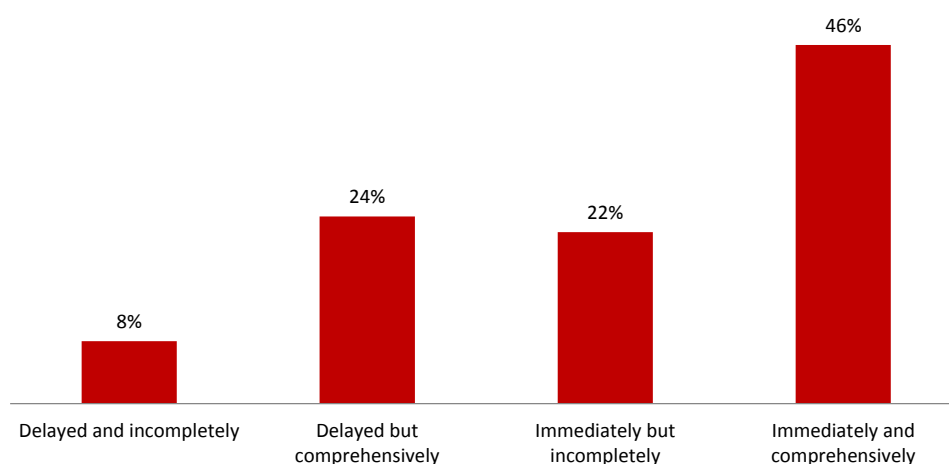
research2guidance 35: Top 10 CP Tools of lowest complexity

Rank	Tool	Very high & high	Average	Very low & low	Basis (n)
1	V-Play	0%	40%	60%	62
2	Corona SDK	-15%	38%	47%	105
3	KonyOne	-22%	44%	35%	55
4	Qt	-16%	52%	32%	124
5	PhoneGap	-16%	55%	29%	103
6	Unity	-23%	51%	26%	105
7	Xamarin	-17%	63%	19%	104
8	Titanium	-39%	43%	18%	56
9	Cocos 2D	-21%	63%	16%	57
10	Windows Visual Studio	-39%	48%	13%	75
Benchmark (Average all tools)		-31%	45%	24%	

Research2guidance, CPT Benchmarking 2014

Keeping up with the speed of innovation such as updates of mobile platforms is one of the main challenges CPT vendors have to handle. For this reason, rate & comprehensiveness of this service on the part of a vendor is an important purchase-decision factor. Overall, 46% of users declare that for the CP Tool they use, platform functionality changes are implemented immediately and comprehensively. Still, 32% of users are unsatisfied with either the rate or comprehensiveness of the refinements.

research2guidance 36: Rate and comprehensiveness of platform functionality changes



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

Xamarin, Marmalade, Titanium lead in terms of user satisfaction with the rate and comprehensiveness of platform functionality changes. More than 70% of their users are

content with the vendor's support in this area. On the other hand, within the Top 10 list, almost 50% of the users of Windows Visual Studio, PhoneGap and Corona wish to have new features and APIs implemented more quickly and comprehensively.

research2guidance 37: Top 10 Rate and comprehensiveness of platform functionality changes

Rank	Tool	Delayed and/or incomprehensively	Immediately and/or comprehensively	# Ratings
1	Xamarin	-18%	82%	103
2	Marmalade	-28%	72%	97
3	Titanium	-29%	71%	55
4	KonyOne	-33%	67%	55
5	Cocos 2D	-35%	65%	57
6	Adobe Air	-36%	64%	86
7	Unity	-37%	63%	104
8	Corona SDK	-45%	55%	107
9	PhoneGap	-48%	52%	97
10	Windows Visual Studio	-49%	51%	75
Benchmark (Average all tools)		-32%	68%	

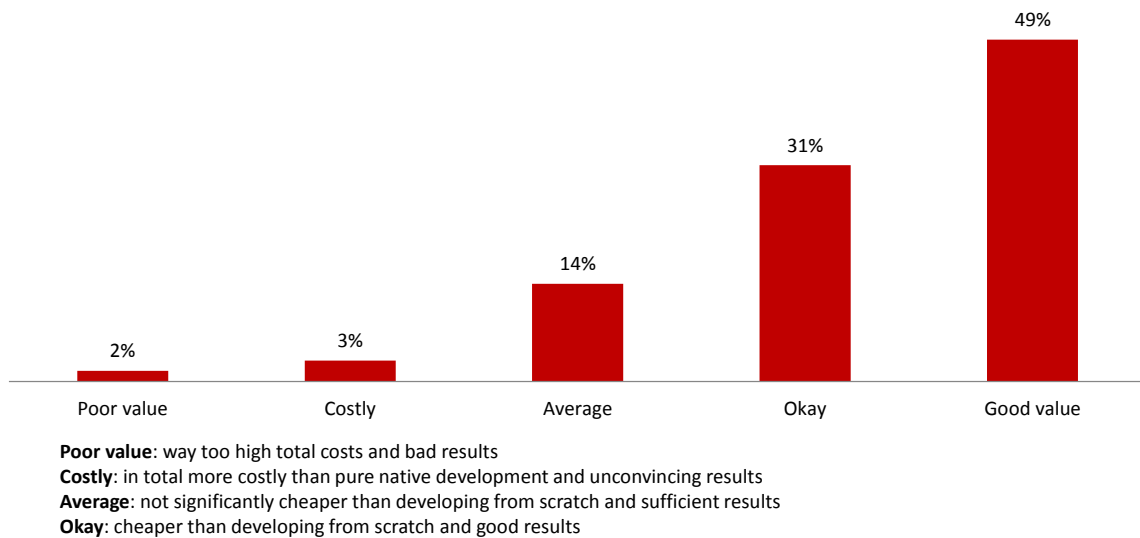
Research2guidance, CPT Benchmarking 2014

The cost-performance ratio summarizes how satisfied CPT users are with the value they get out of the tool as compared to the money spent on it. The results are very positive. 80% of CPT users are satisfied with the cost-performance ratio.

90% of CPT users are satisfied with the cost-performance ratio of their CP Tool

Only 5% claim that they do not get an adequate value out of their CP Tool.

research2guidance 38: Cost-performance ratio of developing apps with CP Tools



Source: research2guidance, CPT Benchmarking Study 2014, n=2,188

Qt, Titanium, Unity and Corona SDK are the leaders of cost-performance ratio with more than 90% of their users being very pleased with it. Differences between tools are relatively minor; all the tools have scored highly.

research2guidance 39: Top 10 Cost performance-ratio

Rank	Tool	Poor value or costly	Average	Okay or good value	# Ratings
1	Qt	-2%	0%	98%	104
2	Titanium	-6%	2%	92%	51
3	Unity	-4%	5%	91%	103
4	Corona SDK	-7%	2%	91%	97
5	Windows Visual Studio	0%	16%	84%	64
6	Cocos 2D	0%	17%	83%	54
7	Adobe Air	-4%	13%	83%	82
8	Xamarin	-7%	13%	80%	99
9	PhoneGap	-3%	17%	80%	88
10	KonyOne	-11%	11%	78%	55
Benchmark (Average all tools)		-5%	14%	81%	

Research2guidance, CPT Benchmarking 2014

Satisfaction with vendor's support is in general satisfactory. 51% of all CPT users say that they are satisfied/very satisfied with it. V-Play is the leader of satisfaction with support: with

94% positive ratings. The rating combines the user feedback for all support channels offered by the CPT vendor. This includes on-site, telephone and online support.

research2guidance 40: Top 10 Satisfaction with vendor's support

Rank	Tool	Never satisfied/ not satisfied	Average	Satisfied/ very satisfied	# Ratings
1	V-Play	-6%	0%	94%	158
2	KonyOne	-5%	18%	78%	240
3	NeoMAD	-18%	12%	70%	83
4	AppCloud	-5%	26%	69%	85
5	Qt	-7%	26%	67%	298
6	Xamarin	-9%	34%	56%	326
7	Unity 3D	-15%	30%	55%	313
8	Windows Azure	-15%	34%	52%	190
9	Sencha Touch	-14%	35%	51%	127
10	Adobe Air	-12%	37%	51%	374
Benchmark (Average all tools)		-15%	34%	51%	

Research2guidance, CPT Benchmarking 2014

*93% of all CPT
users
recommend
their tools*

The overall satisfaction with the CP Tools and services has earned them loyalty of their users. When asked if they would recommend the tool to other developers, 93% of CPT users would be happy to do so. Only 7% would not do so.

All of Qt's, Marmalade's and Windows Visual Studio's users would recommend to other developers.

research2guidance 41: Top 10 CPT user groups most willing to recommend a CP Tool to others

Rank	Tool	No	Yes	# Ratings
1	Qt	0%	100%	109
2	Marmalade	0%	100%	100
3	Windows Visual Studio	0%	100%	64
4	Unity	-4%	96%	104
5	Cocos 2D	-6%	94%	54
6	Titanium	-6%	94%	50
7	Corona SDK	-7%	93%	100
8	Xamarin	-8%	92%	102
9	V-Play	-8%	92%	50
10	PhoneGap	-8%	92%	86
Benchmark (Average all tools)		-7%	93%	

Research2guidance, CPT Benchmarking 2014














Most used tools vary across mobile platforms. The following table shows the CPT user preference of app developers that develop apps for a certain platform.

The most preferred CP Tools for Android app development are PhoneGap, Corona SDK and Unity. 9% of app developers have chosen one of these tools for their Android app project. 77% of all CPT users have developed for the Android platform, making Android the most popular mobile platform among CPT users.

68% of CPT users develop their apps for iOS. Their most used CPTs among those users are Xamarin (10%), Corona SDK and Unity (both 9%).

Among smaller mobile platforms like Ubuntu, Sailfish or Tizen there often seems to be a clear leading CP Tool which takes a substantial share of the market.

research2guidance 42: Top 10 most used, platform-specific CP Tools

Platform/OS	Mobile platform share	Preferred CPT	CPT share
Android 	77%	PhoneGap Corona SDK Unity	9% 9% 9%
iOS 	69%	Xamarin Corona SDK PhoneGap	10% 9% 9%
Windows Phone 8 	28%	Marmalade KonyOne Xamarin	13% 11% 10%
Windows Phone 7 	20%	Qt Windows Visual Studio PhoneGap	20% 13% 8%
BlackBerry 10 	20%	Marmalade Qt PhoneGap	21% 16% 8%
HTML 5 	16%	PhoneGap KonyOne Sencha Touch	17% 14% 8%
BlackBerry 7 	9%	KonyOne PhoneGap NeoMAD	24% 12% 10%
Symbian 	8%	Qt KonyOne V-Play	30% 16% 12%
Firefox OS 	7%	KonyOne PhoneGap Windows Azure	19% 11% 11%
Java 	7%	NeoMAD KonyOne Adobe Air	16% 15% 13%
Ubuntu 	7%	Qt V-Play Adobe Air	55% 13% 6%
Tizen 	4%	Marmalade Qt V-Play	47% 17% 7%
Sailfish 	3%	Qt Adobe Air V-Play	64% 10% 10%

Research2guidance, CPT Benchmarking 2014

For more details please see the [“CPT User Profiles and Market Leader Benchmarking 2014”](#).

In summary, user satisfaction with CP Tools is positive. The results of the last year's CPT Benchmarking have been reinstated. The main challenge for CPT vendors is to get this positive message out to the millions of app developers and enterprises with a potential interest in cross-platform app development.

research2guidance

Sponsoring partners



Firefox OS

Firefox OS is the platform partner of this year's CPT Benchmarking. If you're interested in having your CP Tool or service featured Mozilla Developer Network, contact Mozilla at:

<http://mzl.la/1n6SEVV>



Founded in 2001, [Appear Networks](http://www.appearhq.com/) provides the software tools and expertise to extend enterprise software to the mobile world. The company offers Appear IQ - an innovative cloud based MADP that focuses on the needs of independent software vendors (ISVs). The product is designed to help companies quickly mobilize their existing software assets and to create compelling enterprise grade mobile propositions.

<http://www.appearhq.com/>



Unity is a full-featured integrated development environment and engine for developers seeking to create interactive applications in 3D and 2D across 19 platforms that include mobile, desktop, web and console systems. Unity is deployed to create a wide variety of applications including games, architecture visualizations, product configurators, simulations, training programs, art productions, interactive books, discovery apps, data visualizations, fitness programs, and more.

To grab the free version of Unity and a free trial of Unity Pro, visit:

<https://unity3d.com/unity/download>

<http://unity3d.com>



V-Play allows rapid cross-platform 2D game development within days. V-Play Game Engine comes with full sample games published in mobile app stores for the most successful genres like strategy, action, arcade or puzzle games. To further save development time, V-Play Level Editor simplifies content creation and allows in-game level creation, in-game balancing and user-generated content. V-Play also offers cross-platform plugins to monetize Qt 5 apps with AdMob, Chartboost and in-app purchase plugins and Qt plugins for analytics and social networks.

V-Play offers a 10% discount for all license types for the first 100 developers entering this discount code: CROSS-PLATFORM-TOOLS-REPORT-2014

<http://v-play.net/pricing/cpt2014-discount>



Qt is the leading cross-platform application, UI and device creation development framework. With Qt, you can reuse code efficiently to target over 15 operating systems with one code base. The modular C++ class library and developer tools easily enable developers to create applications for one operating system and easily build and run to deploy on another operating system or processor architecture. Qt makes development for small and enterprise-level deployments easy and efficient with extensive development tools shortening your learning curve and significantly speeding up time to market for cross-platform and multi-screen development.

Qt offer: Get 2 free months on a monthly subscription for multi-desktop and multi-mobile deployment.

qt.digia.com



Marmalade is a powerful cross-platform SDK, which enables developers to create and deploy native performance apps and games across multiple platforms and devices from a single code base in C++, Lua, HTML or Objective-C. Marmalade can be used to develop for iOS on Windows, and it's available as a free download.

<https://www.madewithmarmalade.com/download>



Neomades provides software solutions to help mobile content developers to address cross technologies portability (Android, iPhone, BlackberryOS, WindowsPhone 7 & 8, Windows 8, Nokia Asha and Java).

The main product, NeoMAD, is a complete Framework to design, develop, test, produce and distribute NATIVE applications for all mobile and tablet devices starting from a single Java code. NeoMAD assists you to produce high level performance applications for all technologies and the tremendous number of mobile phones and tablets available on the market without to be obliged to be an expert.

Neomades also offers a specific solution to migrate existing iPhone or Android applications to other technologies.

<http://neomades.com/>



Use this powerful platform to share all your PDF documents to the web or directly into your own customized publishing App for iOS, Android and Windows. Enrich your publications with interactive features - your readers will enjoy it!

As the creators of page2flip, the wissenswerft provides an API which other developers can use to create their own cross device publishing solutions.

<http://www.page2flip.de>

Appendix

Vendors provided additional information about their pricing for the considered scenarios. The following table lists comments per cost scenario. Scenarios are labelled as S1, S2 and S3.

CP IDEs

Embarcadero Appmethod	S2: Support included/ 4 platform discount!/ 10 user discount! Support includes maintenance and email support S3: Support included / 4 platform discount! / 20 user discount! / Enterprise Mobility Services for 50 devices ("Silver pack") Support includes maintenance and e-mail support
Marmalade	S1: \$0 with the Marmalade Free licence S2: Marmalade's Plus license provides access to all supported platforms and access to Marmalade's professional support ticketing system. At plus level support is limited to 3 tickets per seat per year, so in this scenario the studio would have up to 30 tickets. S3: Marmalade Professional license includes access to all supported platforms and up to 5 support tickets per developer per month.
Qt	S1: Monthly subscription is USD 109 including 3 mobile platforms with developer support and no additional deployment costs. S2 +3: Tailored offer based on company needs.
Unity	S1: based on Unity Pro pricing including upgrade for iOS and Android. S2: based on Unity Pro pricing including upgrade for 5 upgrades for iOS and Android plus 10 team licenses, no advanced service included in pricing
V-Play	S3: One Enterprise license including advanced support is \$2400 per year.

CP IDEs Enterprise

Appear IQ	S1/S2/S3: Appear IQ business model is based on platform use and reflects our partners' growth. The subscription is therefore based on usage (e.g. a user / month fee). Developers have free access and are charged for their app users when they "go-live".
EachScape	S1: Indie developer can start with our \$149 monthly license and use online help to learn EachScape
FeedHenry	S1: No commercial offering for an indie developer. S2: revenue share S3: Typically starting point is \$5k per month for the platform, with costs rising based on server-side resource usage (data, hosting RAM etc). In large enterprise accounts focusing on internal apps a per end-user seat model is often used, with an agreement for a surcharge for consumer apps that consume significant additional server-side resources. 24/7 platform monitoring and support is built-in to the subscription price. App development and solutions support would be charged in addition.
GeneXus	S1: This is for ISVs, 1 license per year. Prices are for USA. They might change in other markets. S2/S3: License maintenance fee after 1st year: 20%+ additional services. Price is illustrative and may vary depending on modules from the suite and target market.
Magic XPA	S1/S2: minimum of 5000 devices, price is per subscription, subscription model requires a minimum of 24 months, number of platform does not matter.

App Factories

AppShed	S1: AppShed is open source. All apps can be exported by developers and distributed as hybrid apps to any app store for no cost. MIT open source license applies, giving the developer great freedom to distribute and monetize. S2-S3: AppShed is open source. There is no charge for use of the platform, creating or exporting apps. Support costs vary based on requirements but the stated cost provides an indication. Costs do not include upload to app
Como	S1: Go!ld yearly plan (\$390 per year) includes unlimited native app installs, submission to the app stores, push notifications, and customer support. S2-S3: Would be applicable for our Reseller program - costs are provided upon registration: http://mobile.conduit.com/Reseller.aspx
GameBuilder Studio	S1: Based on the \$100 PRO license or a PRO Plan Subscription that comes with free additional support, more free plugins, & early builds.
GameSalad	S1: Yearly license costs are 299 USD covering all platforms per user. S2-S3: includes yearly license fees plus 199 USD per incident up to 3 hours for advanced support. Assuming 2 support incidents for advanced support.
Magmito	S1: It's free to create an app. To publish an app, it's \$9.99 per month or \$99 per year.
MobAppCreator	S1: 3 plans are available: 39, 99 and 199 dollars a month with discounts for one year subscription. We also have 2 add-ons: White label: 300 (one payment per app) App design: 999 (one payment per app), S3: We only publish Android
MobiForms	S1: Note this is a one off licence fee. S2: Licence includes unlimited free email support for one year. Currently additional training or phone support is not offered. S3: Licence includes unlimited free email support for one year. Currently no additional training, phone support or on site consultancy is offered.
ViziApps	Each app can have unlimited number of users (seats) and unlimited complexity (number of pages) S1: Subscription fees are fixed fee per published app, per month. S2: Per app fee for one year is \$995. 10 apps for one year fee is \$7,550. S3: Per app fee for one year is \$995. 50 apps for one year fee is \$32,600.
Weeverapps	S1: (Pro) \$ 199 x 1 app + 2 platforms x \$ 375 = \$ 950 >> \$ 900 incl. Discounts S2: (Pro) \$ 199 x 10 apps + 4 platforms x 10 apps x \$ 375 = \$ 16990 >> \$ 14000 incl. Discounts All scenarios: max. 1000 visits/app and month due to "Pro" tier

CP Services

Codename One	There is no cost per platform. S1: Price are based on standard basic subscription although free subscription can be used as well. S2: Based on an annual pro subscription cost which is priced per developer seat only, all platforms are included. There is no per-project cost either. S3: This is an annual enterprise subscription cost which is priced per developer seat only, all platforms are included. There is no per-project cost either. Added an additional 10k USD for costs of on-site training/support. The rest is included in the enterprise account.
IBM Worklight	Worklight pricing is \$173,000 per consumer app (x25) with unlimited mobile end user devices. Pricing for apps deployed to internal users only is \$39,600 per install (unlimited apps) plus \$168 per client device. Same price if native apps are created for iOS, Android, etc. IBM enterprise clients have additional volume pricing options.
MobileSmith	S1: \$1000 per month for up to 2 apps live at any one time. S2: \$6,500 per month, unlimited apps, S3: Costs are not published for enterprise agreements.