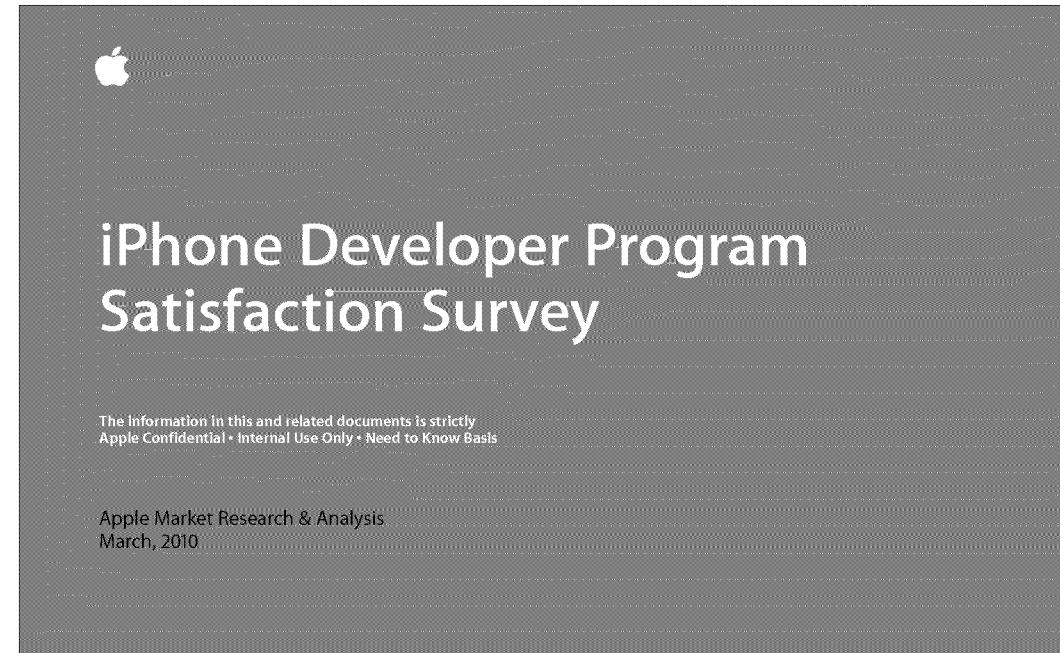


A DEFENDANT	United States District Court Northern District of California
	Case No. <u>4:20-cv-05640-YGR</u>
	Case Title <u>Epic Games, Inc. v. Apple, Inc.</u>
	Exhibit No. <u>DX-3877</u>
	Date Entered _____ Susan Y. Soong, Clerk By: _____, Deputy Clerk



Why this report?

Purpose: To measure satisfaction with the iPhone Developer Program (iDP) in order to provide the ADC team with recommendations on how to improve it

Key areas include:

- Overall satisfaction
- Importance of specific aspects of the iDP
- Satisfaction and reasons for dissatisfaction with specific iDP aspects
- Aspects of the iDP that have impeded app development/ distribution
- Satisfaction with other mobile platforms' developer programs
- Developer profiles

Understanding iDP developers

Collect

Online surveys among iDP developers in the US, UK, France, Germany, and Japan

Measure

Most important aspects of the iDP
Satisfaction overall and with specific elements of the iDP
Membership and satisfaction with other programs

Profile

Developers with apps on the store and those without

Examine

Areas of dissatisfaction and impediments for successfully submitting apps
Suggestions for improvement

Method: Developers were randomly selected from the Developer Database and invited to participate in a 15-minute Web survey. We conducted our research among a representative sample for both those who have successfully published Apps on the store and those who have not. Apple Market Research developed the questionnaire and used Chadwick Martin Bailey, an independent market research firm, to field the survey and tabulate results.

Statistical testing was conducted at a 95% confidence interval between developer groups (Apps vs. No apps). If data reported for one group is higher than the corresponding group for the same country, it is indicated with an upward arrow.

The term 'top-2 box' means the total percentage of the top 2 boxes of a 5-point scale.

4

Key Conclusions

- Most developers are generally satisfied with iDP, but 12-25% are dissatisfied
 - Members in Japan and Germany and those with no approved apps are slightly less satisfied with iDP
- App visibility in the App Store is the area of most dissatisfaction
 - Some specific complaints include: "too general" categories, search problems, and allowing too many "spam" apps in the store
- The App review process is also problematic for many, and it is the biggest deterrent for successfully developing and distributing iPhone/iPod Touch applications
 - Developers complain roughly equally about the time it takes to hear back from the app review team, unclear criteria for rejection, and lack of responsiveness

5

Key Conclusions

- While most developers were satisfied with the rest of the aspects of the iDP, other common complaints include (in decreasing order of mentions):
 - Many developers would like Apple to eliminate the store-specific purchase quotas (\$150), and simplify financial reporting in the website
 - Those dissatisfied with the application submission process find the legal requirements and documentation too daunting, confusing or time-consuming
 - Some have difficulty creating certificates and profiles
 - Although members are generally satisfied with the development resources on the website, many are clamoring for more sample code --and more relevant sample code-- that is more easily searchable (and integrated with the iPhone reference library)
 - Overall satisfaction with the enrollment process is generally high, but some didn't think the fee was recurring, and others complained about the time it took
 - Beginner developers find the SDK too complex, and many want integration across the SDK tools

6

Key Conclusions

- A quarter of iPhone developers also develop for Android, and are generally satisfied with the experience
 - They value how Android makes it easy to develop, test and distribute, and they like the robust API. Some find the range of devices, and the platform itself, a bit chaotic, however.
- Developers highly value WMDC for its documentation, but dislike their store and Windows in general
- Developers feel that the Blackberry mobile community and the app store lacks support and clear documentation

7

Overall Satisfaction with the iPhone Developer Program

5

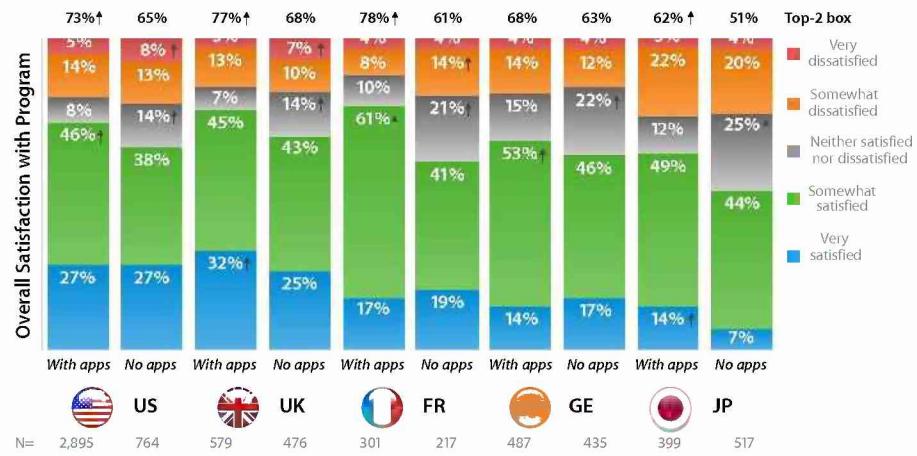


Most developers are generally satisfied with iDP, but 12-25% are dissatisfied

Members in Japan and Germany and those with no approved apps are slightly less satisfied with iDP

Most developers are generally satisfied with iDP

JP developers are more likely to be dissatisfied

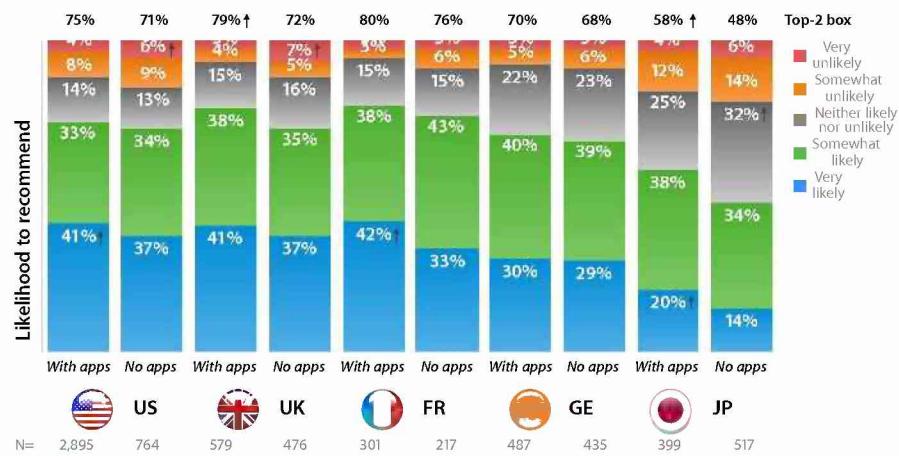


Base: all respondents. Q11 - Overall, how would you rate your satisfaction with the iPhone Developer program?

10

Most developers are likely to recommend

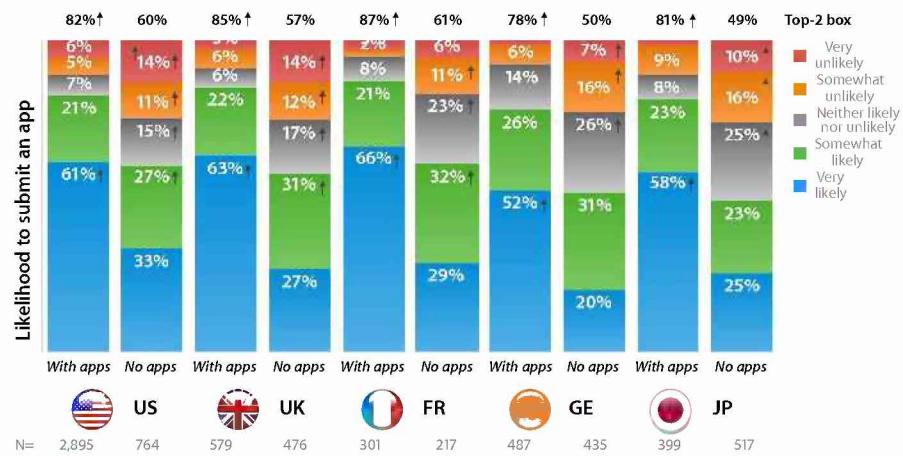
JP developers are less likely to recommend iDP to others



Base: all respondents. Q12 - How likely are you to recommend the iPhone Developer program to others?

11

Those with approved apps are twice as likely to submit apps in the next 3 months

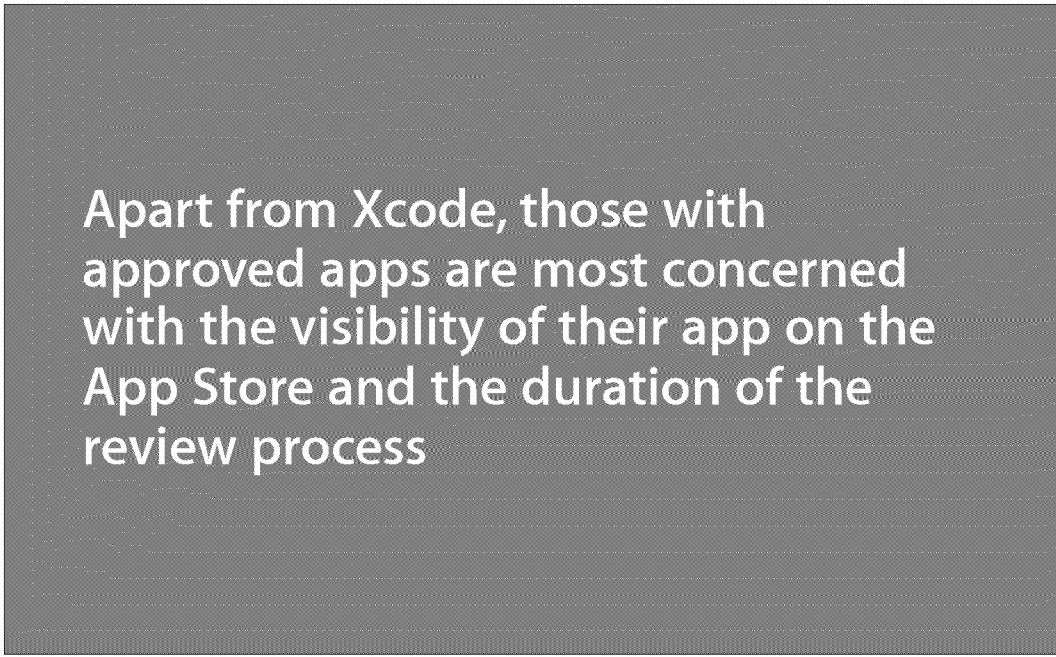


Base: all respondents. Q14 - How likely are you to submit a new application for approval within the next three months?

12

Importance of Specific Aspects of the iPhone Developer Program

1



Apart from Xcode, those with approved apps are most concerned with the visibility of their app on the App Store and the duration of the review process

Those without apps are concerned with Xcode, while those with apps also care about visibility

N=	US	UK	FR	GE	JP					
	With Apps 2895	No Apps 764	With Apps 579	No Apps 476	With Apps 301	No Apps 217	With Apps 487	No Apps 435	With Apps 399	No Apps 517
Xcode	58%	66% ↑	66%	71%	65%	65%	67%	71%	52%	58%
Visibility of app on App Store	47% ↑	17%	50% ↑	20%	36% ↑	18%	46% ↑	24%	42% *	23%
Duration of review process	43% ↑	20%	40% ↑	13%	28% ↑	15%	38% ↑	19%	22% ↑	7%
iPhone Simulator	37%	49% ↑	38%	51% ↑	40%	47%	38%	46% ↑	27%	33% ↑
Sample Code	37%	53% ↑	34%	53% ↑	44%	51%	41%	49% ↑	41%	53% ↑
iPhone Reference Library	31%	44% ↑	33%	50% ↑	30%	40% ↑	34%	45% ↑	34%	48% ↑
Time it takes to get updates available on App Store	30% ↑	12%	30% ↑	11%	21% ↑	11%	12% ↑	8%	18% ↑	7%
Clarity of feedback from app review team	27% ↑	16%	24% ↑	13%	15%	11%	21% ↑	16%	20% ↑	10%
Responsiveness to inquiries from app review team	26% ↑	13%	22% ↑	12%	16% ↑	9%	17% ↑	8%	17% ↑	9%
Downloads and sales reports	20% ↑	3%	21% ↑	3%	28% ↑	3%	24% ↑	4%	22% ↑	9%
Interface Builder	20%	35% ↑	17%	33% ↑	18%	34% ↑	17%	32% ↑	19%	27% ↑

Base: all respondents. Q16 - What are the five most important aspects of the iPhone Developer Program for you?

15

Developer forums are more important to those who do not have approved apps

	 US	 UK	 FR	 GE	 JP						
N=	With Apps 2895	No Apps 764	With Apps 579	No Apps 476	With Apps 301	No Apps 217	With Apps 487	No Apps 435	With Apps 399	No Apps 517	
Developer Forums	18%	29%†	17%	27%*	15%	24%*	20%	30%†	7%	14%†	
Timeliness of receiving payments	16% ↑	5%	13% ↑	5%	10%	6%	11% ↑	6%	16% ↑	8%	
Ease of submitting binary data	15% ↑	9%	17% ↑	6%	20% ↑	12%	13% ↑	7%	10% ↑	5%	
Instruments	8%	12%↑	9%	12%	12%	14%	12%	13%	9%	13%	
Ease of submitting metadata	8% ↑	3%	10% ↑	1%	13% ↑	3%	11% ↑	2%	10% ↑	2%	
Accuracy of payments	8% ↑	4%	7% ↑	4%	7% ↑	1%	11% ↑	6%	15% ↑	8%	
Ease of creating certificates	7%	11%↑	6%	11% ↑	8%	17%↑	8%	10%	10%	15% ↑	
Process of receiving payments	6% ↑	2%	6% ↑	2%	7% ↑	2%	7% ↑	2%	13% ↑	7%	
Ease of creating profiles	6%	8% ↑	5%	7%	4%	10% ↑	3%	7% ↑	10%	15% ↑	
Ease of unrollment process	5%	16%↑	4%	15% ↑	15%	32%↑	10%	20% ↑	20%	27%↑	
General usability/organization	5%	15%↑	8%	14% ↑	9%	16%↑	9%	13% ↑	3%	4%	

Base: all respondents. Q16 - What are the five most important aspects of the iPhone Developer Program for you?

16

JP developers place more importance on assistance with tax forms, banking and contracts

N=	US With Apps 2895	US No Apps 764	UK With Apps 579	UK No Apps 476	FR With Apps 301	FR No Apps 217	GE With Apps 487	GE No Apps 435	JP With Apps 399	JP No Apps 517
Responsiveness to inquiries from the enrollment team	4%	6% ↑	4%	7% ↑	7%	8%	4%	8% ↑	12%	11%
Ease of managing devices	3%	8% ↑	3%	9% ↑	2%	7% ↑	3%	13% ↑	4%	6%
Getting Started Videos	3%	18% ↑	3%	19% ↑	6%	14% ↑	5%	17% ↑	1%	6% ↑
Clarity of feedback from the enrollment team	3%	6% ↑	3%	4%	3%	2%	5%	7%	11%	12%
Setting up tax form/banking information	2%	2%	4%	4%	6% ↑	2%	4%	2%	13%	19% ↑
Purchase process	2%	5% ↑	3%	4%	5%	7%	6%	4%	7%	8%
Ease of managing team members	1%	3% ↑	2%	3%	3%	4%	1%	3% ↑	2%	4%
Ease of managing contracts	1%	1%	1%	1%	2%	3%	2%	2%	13%	18% ↑
Explanation of program benefits before enrolling	1%	7% ↑	1%	9% ↑	4%	8%	1%	4% ↑	2%	6% ↑
Identity verification process	1%	3% ↑	1%	6% ↑	2%	4%	1%	4% ↑	1%	9% ↑

Base: all respondents. Q16 - What are the five most important aspects of the iPhone Developer Program for you?

17

Satisfaction and Reasons for Dissatisfaction with Specific Aspects of the iPhone Developer Program

19

App visibility in the App Store is the area of most dissatisfaction; followed by the time it takes to get updates on the store and the App review process

Conversely, developers are generally pleased with the SDK and development tools

When asked how to make the program better, developers prioritized improving the app review process (particularly those with no apps in the store)

Top mentions	%
More transparent/consistent rules/processes/rejection reasons for application review	17%
Faster response from application review team	11%
SDKs: provide more sample code; reorganize/simplify/update documentation; keep documentation current with SDK/reduce download sizes	8%
Simplify certificate management	8%
App Store: improve ratings system/more visibility for small apps/get rid of app spam/expanded categories	7%
Localize: documentation/interfaces/websites/certificates	6%
More communication during review process	6%
More accessible/localized/tester/support; more phone support	5%
More/better training tools/tutorials	5%

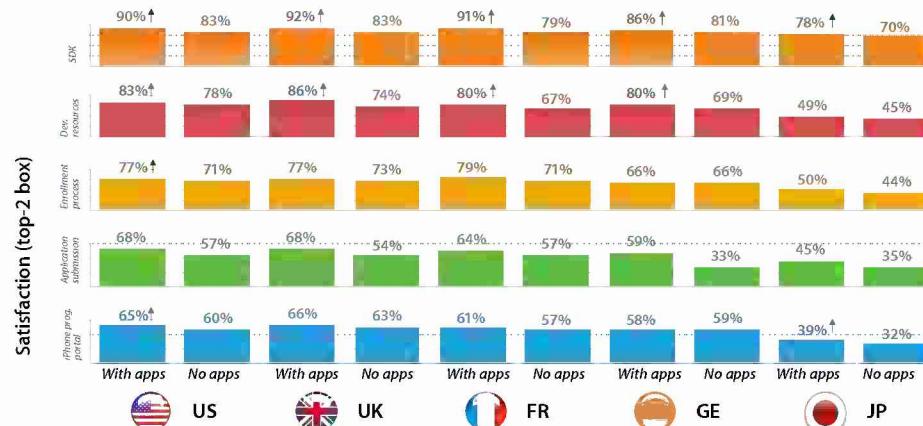
	%
Simplify provisioning profiles	5%
Allow distribution separate from the App Store/Ease enterprise distribution requirements/Open platform/Less Apple control	4%
Reduce/eliminate \$99 fee; make \$99 fee one time only	4%
Improve financial/analytical reporting features in iTunes Connect	4%
Improve design/functionality of iTunes Connect website	4%
Expand APIs, including private ones	4%
Simplify entire process	3%
Ability to respond to/manage/correct reviews	2%
Better promotion of my app	2%

Other mentions (2%) Improve payment process and fix tax issues, provide hardware discounts, make availability pre-release hardware, Improve Ad Hoc distribution
 Other mentions (1%) Improve testing procedures, prioritize processing for emergencies and updates, issues/bugs with Xcode, clarify error messages, drop/ease up on NDAs, ability to delete Apple IDs, issues with release dates, enable PromoCodes to work in any country, allow multitasking

Base: all respondents. Q13 - What one thing could Apple do to make the iPhone Developer Program better? (reporting N>20)

20

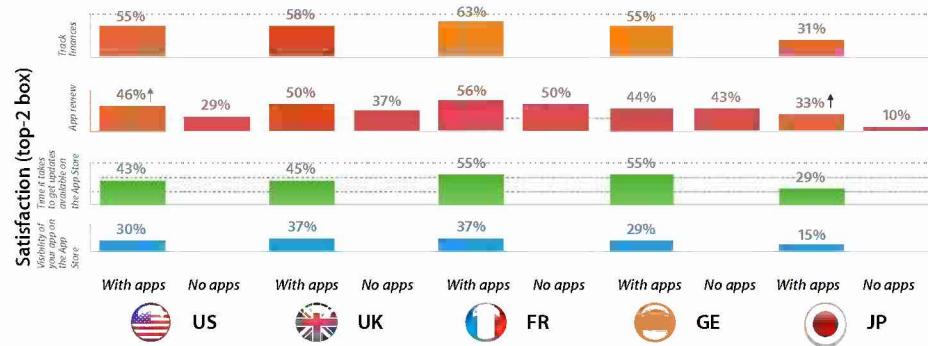
The software developer kit (SDK) and development resources are the areas of highest satisfaction



Base: all respondents, excluding don't know (Ns vary). Q18 - Please rate your level of satisfaction with each of the following aspects of the enrollment process.

21

Conversely, the visibility of apps in the App Store is the area of most dissatisfaction, followed by the time it takes to get updates available on the store, the App review process, and ability to track finances



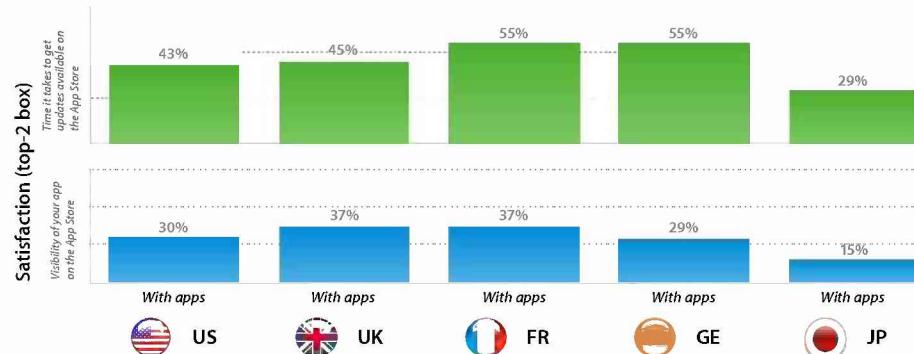
Base: those with apps approved, excluding don't know (Ns vary). Q25 - Please rate your level of satisfaction with the length of time it takes to get updates available on the App Store. Q26 - Please rate your level of satisfaction with the visibility of your app on the App Store. --Note Single country bars are those that only were asked for WITH APPS respondents

22

Most developers are not satisfied with the visibility of their App on the App Store

Some specific complaints include: "too general" categories, search problems, and allowing too many "spam" apps in the store

Very few developers are “somewhat” or “very satisfied” with the visibility of their apps in the App Store, and with the time it takes to get updates available in the store



Base: those with apps approved, excluding don't know (Ns vary). Q25 - Please rate your level of satisfaction with the length of time it takes to get updates available on the App Store.
Q26 - Please rate your level of satisfaction with the visibility of your app on the App Store.

24

Not surprisingly, those with published apps would like them to be more visible in the App Store

#1 App not visible enough

#2 App Store categories too broad (e.g., Music).

#3 Time it takes to make updates available

#4 Too many "spam" apps in the store

#5 Feel neglected as a small/independent developer

#6 More rotation/shuffling of apps in App Store lists (e.g., staff picks, what's hot, new releases)

#7 Ability to change app keywords after submission

Reasons for dissatisfaction: Visibility and Updates (in decreasing order of mentions)

Q27/28/29. What is the main reason you are dissatisfied with [AREA]. Q30. What could Apple do to make [AREA] better?

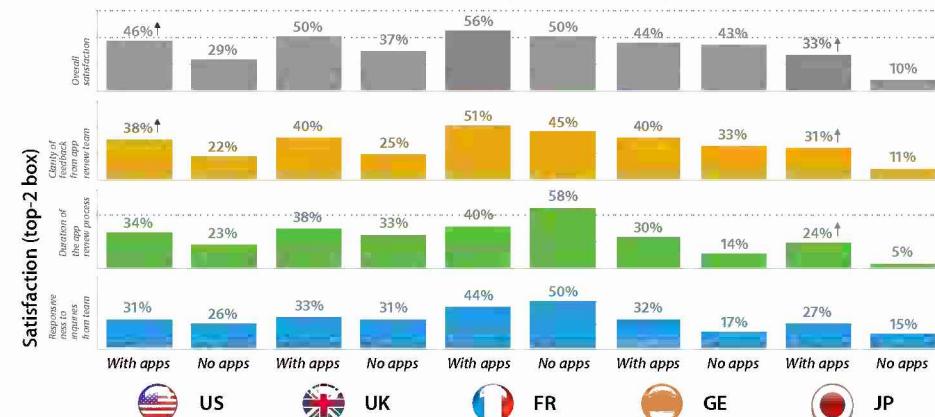
25

Many are dissatisfied with the App review process, particularly those that have not published any apps

Developers complain roughly equally about the time it takes to hear back from the app review team, unclear criteria for rejection and lack of responsiveness

The App review process is one of the areas with lowest satisfaction

Those with no apps are generally less likely to be satisfied



Base: those with apps submitted or approved, excluding don't know (Ns vary). Q23 - Please rate your level of satisfaction with each of the following aspects of the application review process.

27

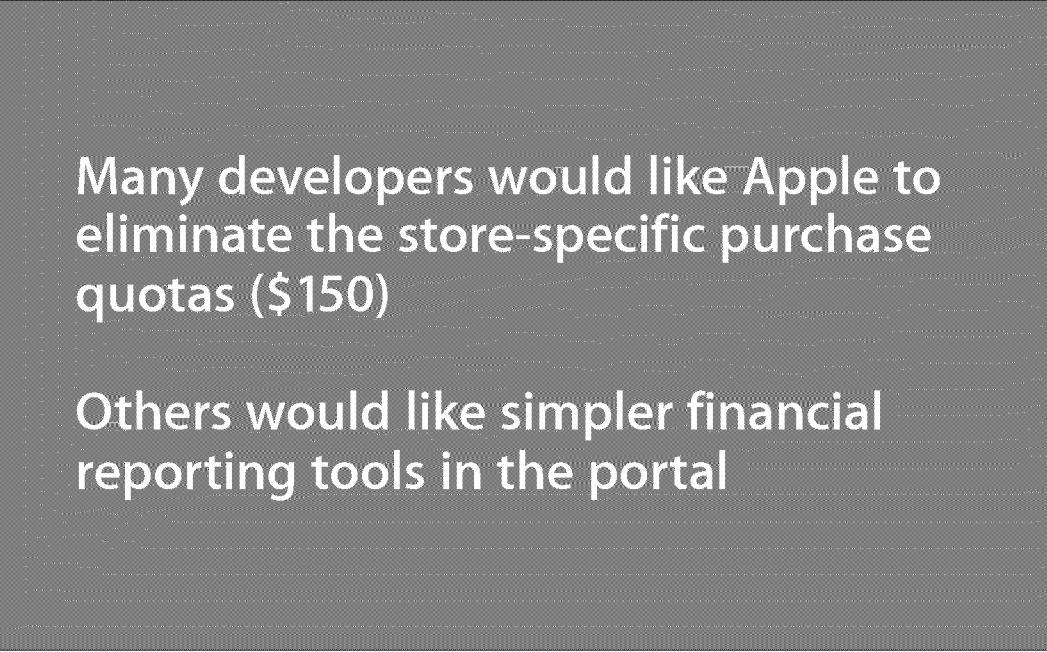
More specifically, developers complain about the time it takes to hear back and the quality of feedback

- #1 Time it takes to hear back, inconsistencies in response times
- #2 Feedback from app review team is not clear, use of boilerplate responses
- #3 Rejection criteria is inconsistent and/or not transparent
- #4 Would like more visibility in the process, and a ETA
- #5 Some have not yet heard back from App review team
- #6 Some complain that not all feedback is given at once

Reasons for dissatisfaction: App Review Process (in decreasing order of mentions)

Q27/28/29. What is the main reason you are dissatisfied with [AREA]. Q30. What could Apple do to make [AREA] better?

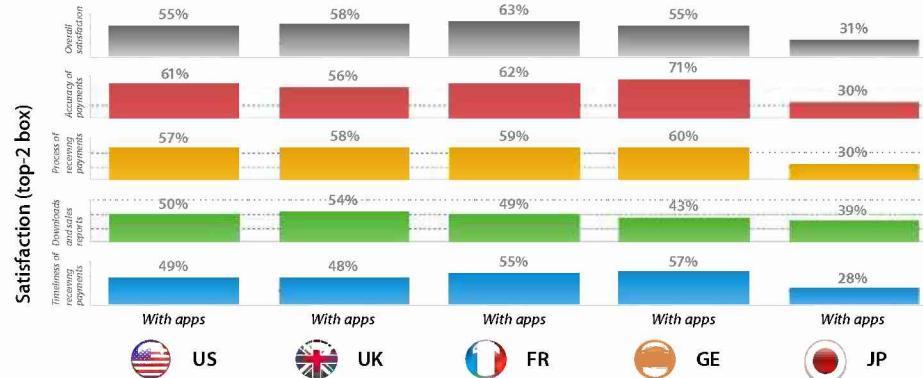
28



Many developers would like Apple to eliminate the store-specific purchase quotas (\$150)

Others would like simpler financial reporting tools in the portal

Many of those who complained about tracking and managing finances have either not been paid for the first time, or believe their payments are inaccurate



Base: those with at least one paid app, excluding don't know (Ns vary). Q24 - Please rate your level of satisfaction with each of the following aspects of tracking and managing finances.

30

Payment delays, the \$150 quota per store and reporting issues are the most common issues

#1 Delays in payments, or problems with 45-day billing cycle

#2 Dislike the \$150 quota per store

#3 Want better financial reporting on the site: Easier to read, other file formats, etc.

#4 Excessive wire transfer fees, want other forms of payment

#5 Mismatch between financials, reports and actual payments

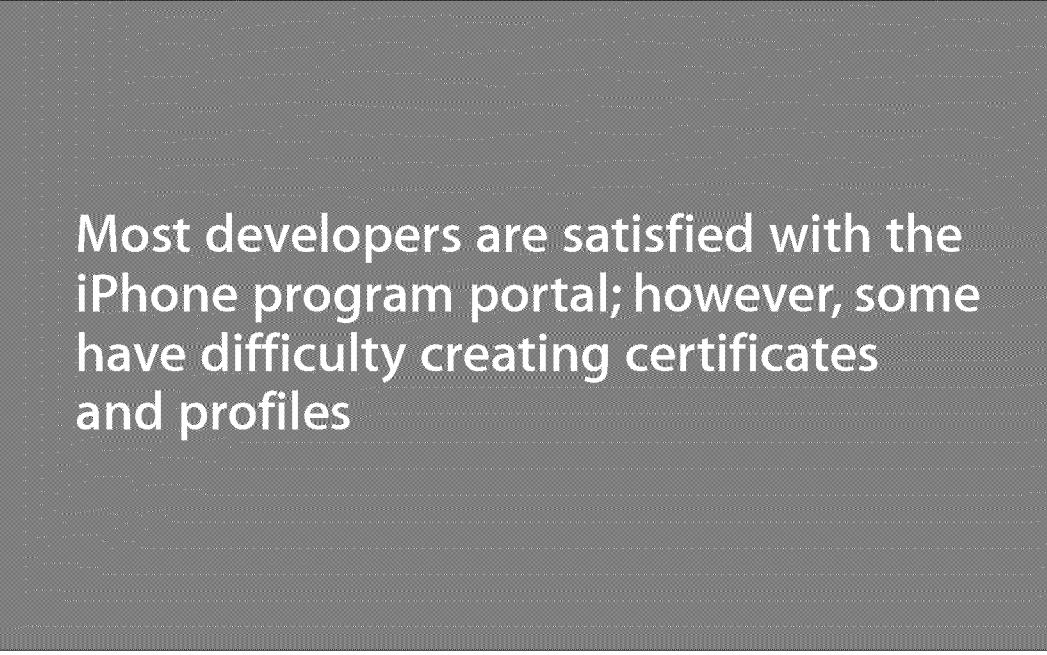
#6 Sales data should be stored for longer than 6-7 days

#7 Banks/credit unions not accepting SWIFT

Reasons for dissatisfaction: Tracking and Managing Finances (in decreasing order of mentions)

Q27/28/29. What is the main reason you are dissatisfied with [AREA]. Q30. What could Apple do to make [AREA] better?

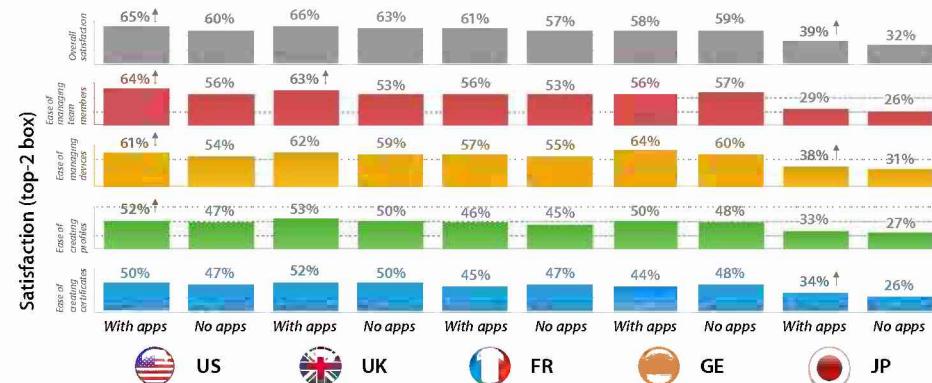
31



Most developers are satisfied with the iPhone program portal; however, some have difficulty creating certificates and profiles

Ease of creating and managing certificates is the most challenging aspect of the portal

Many find it too complicated, or think they expire too soon



Base: all respondents, excluding don't know (Ns vary). Q21 - Please rate your level of satisfaction with each of the following aspects of providing resources in the iPhone program portal.

33

Many believe the process for creating and managing certificates should be streamlined

#1 Too complicated to create certificates:
Too many steps, and they are rejected often

#2 Certificates expire too quickly and
renewal is complicated

#3 Lack of clear documentation on how to
create certificates

#4 Difficulty creating profiles, hard to install
in Xcode

#5 Profiles expire too quickly

#6 100-device limit is very constraining for
testing multiple apps

#7 Problems adding device IDs

#8 Complications managing team members
(e.g., assigning responsibilities)

#9 Want to add members to an individual
account

#10 Log-in to multiple accounts
cumbersome

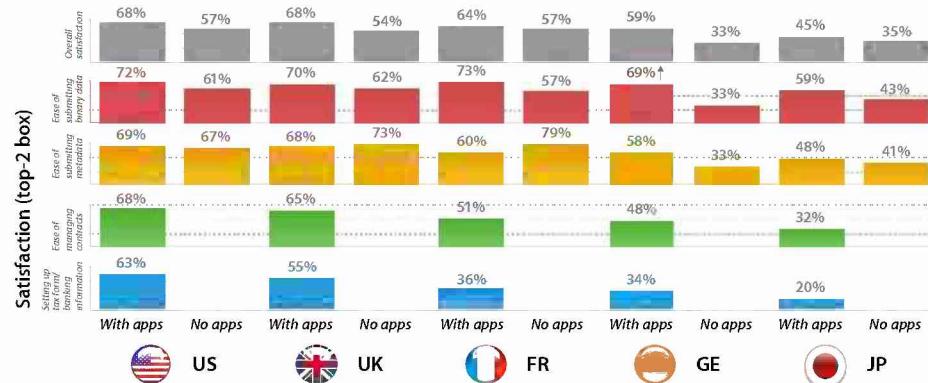
Reasons for dissatisfaction: iPhone program portal (in decreasing order of mentions)

Q27/28/29. What is the main reason you are dissatisfied with [AREA]. Q30. What could Apple do to make [AREA] better?

34

Those dissatisfied with the application submission process find the legal requirements and documentation too daunting, confusing or time-consuming (this is more common for Non-English developers)

Managing contracts and setting up banking and tax information are the most challenging aspects of the app submission process



Base: those with apps submitted or approved, excluding don't know (Ns vary). Q22 - Please rate your level of satisfaction with each of the following aspects of the Application submission process.

36

Many developers (especially outside of the US) have issues with the contracts and legal requirements

#1 Complicated to manage and fill out contracts, hard to update info later

#2 Legal requirements are too US-centric (international developer)

#3 Local bank/credit union does not support Apple requirements (US)

#4 Hard to read English-only documents (international developer)

#5 Hard to submit metadata (e.g., platform is clunky, not enough documentation)

#6 Metadata upload is too slow

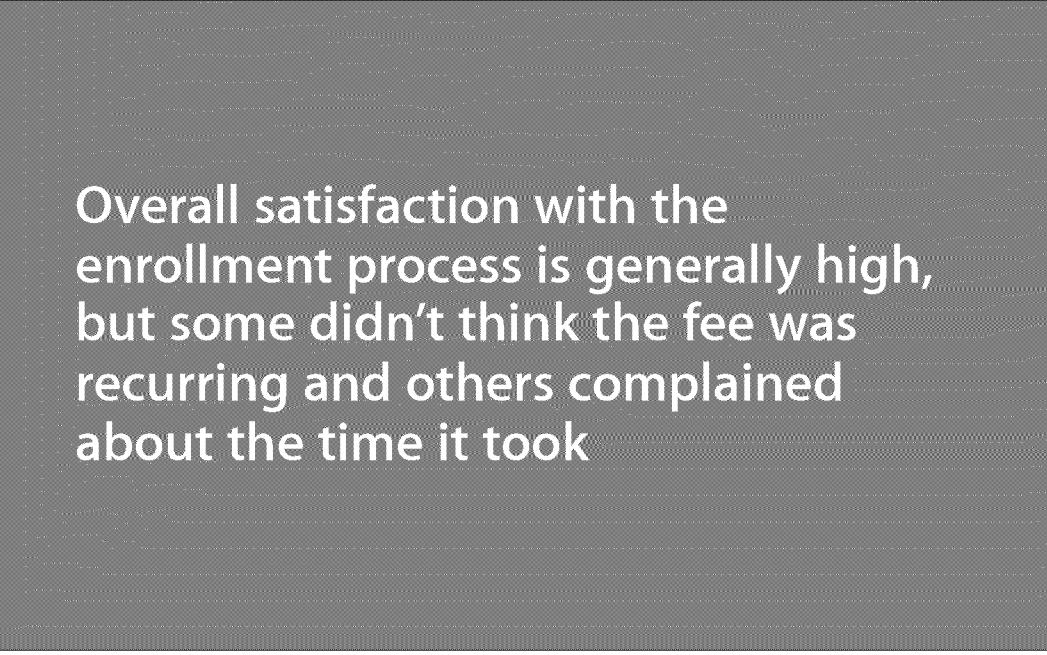
#7 Binary data gets rejected too often

#8 Binary upload is too slow

Reasons for dissatisfaction: Application submission process (in decreasing order of mentions)

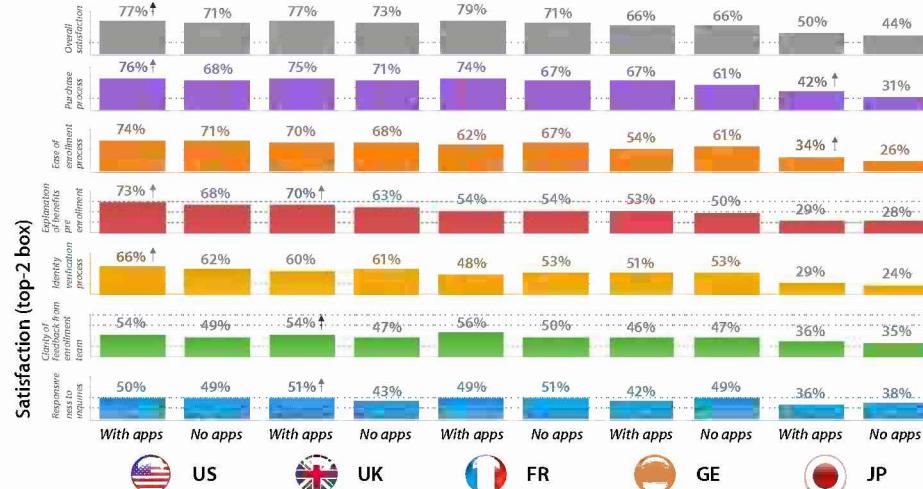
Q27/28/29. What is the main reason you are dissatisfied with [AREA]. Q30. What could Apple do to make [AREA] better?

37



Overall satisfaction with the enrollment process is generally high, but some didn't think the fee was recurring and others complained about the time it took

Most are satisfied with the enrollment process



Base: all respondents, excluding don't know (Ns vary). Q18 - Please rate your level of satisfaction with each of the following aspects of the enrollment process.

39

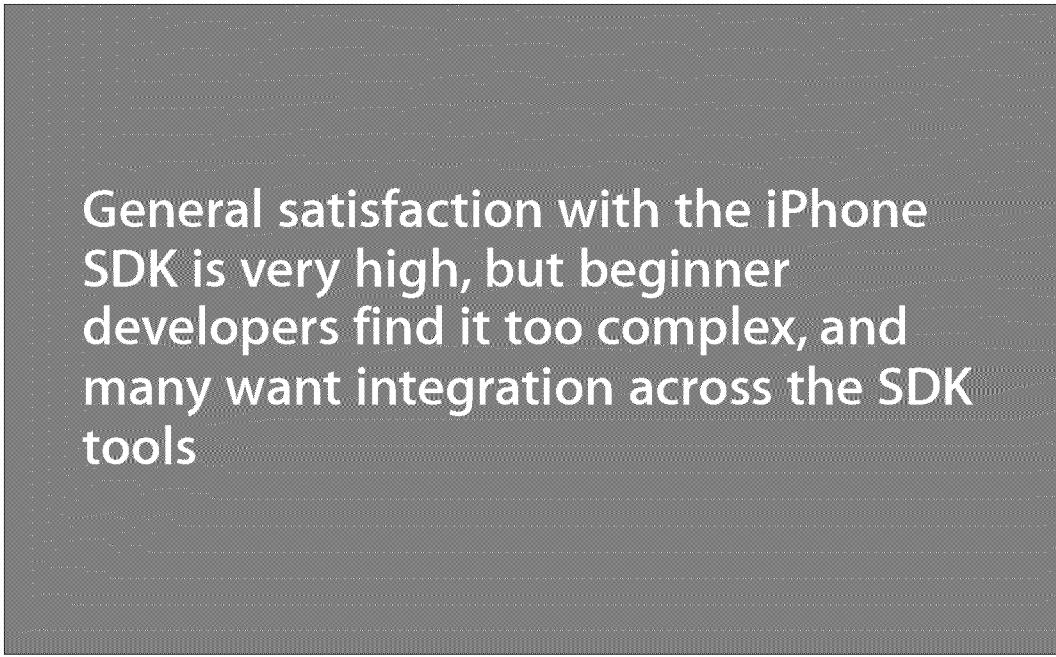
The time it takes to hear back from the enrollment team was the most common complaint

- #1 Takes too long to hear from the enrollment team
- #2 Did not know the enrollment fee was a recurring, annual fee
- #3 Feedback from enrollment team is not clear (e.g., canned responses, not relevant)
- #4 Identity verification takes too much time and effort
- #5 Process and requirements are too US-centric (international developers)
- #6 Lag between payment and activation
- #7 Problems using Apple IDs (UK/JP)
- #8 Problems registering single-proprietor companies (GE/UK)
- #9 Want other method of payment than credit card (GE)

Reasons for dissatisfaction: Enrollment process (in decreasing order of mentions)

Q27/28/29. What is the main reason you are dissatisfied with [AREA]. Q30. What could Apple do to make [AREA] better?

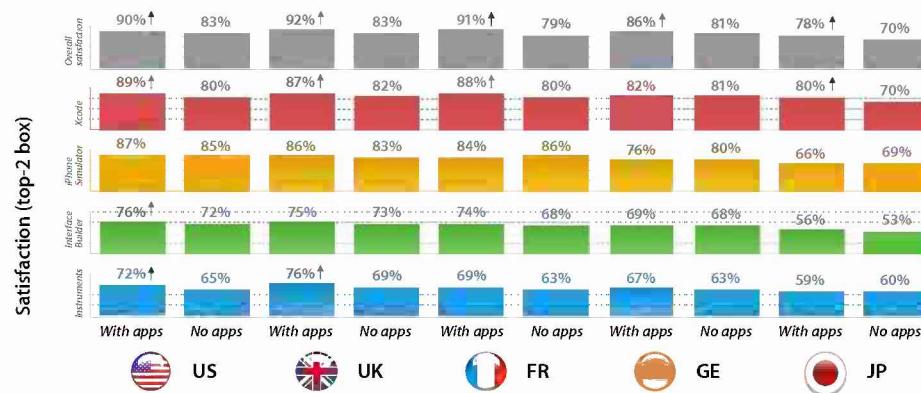
40



General satisfaction with the iPhone
SDK is very high, but beginner
developers find it too complex, and
many want integration across the SDK
tools

Most developers are satisfied with the SDK

Those who have published applications are generally more satisfied with the SDK



Base: all respondents, excluding don't know (Ns vary). Q19 - Please rate your level of satisfaction with each of the following aspects of the iPhone Software Developer Kit (SDK).

42

Some developers (particularly those new to Mac) find the SDK tools very complicated and unintuitive

#1 Tools are too complicated and hard to use (particularly for beginners)

#2 Would like more integration between tools (particularly Xcode and IB)

#3 Information from Instruments is too hard to interpret and use, particularly on memory leaks

#4 IB is too removed from code and/or hides too much information

#5 iPhone simulator does not accurately simulate camera, GPS, accelerometer, multi-touch gestures, and push notifications

#6 Xcode is too unstable

#7 Want a tabbed interface, more intuitive navigation and keyboard shortcuts for Xcode

#8 Have to download the full SDK when there is an update

#9 Do not like IB's drag-and-drop, and hard to know how to hook interface elements together

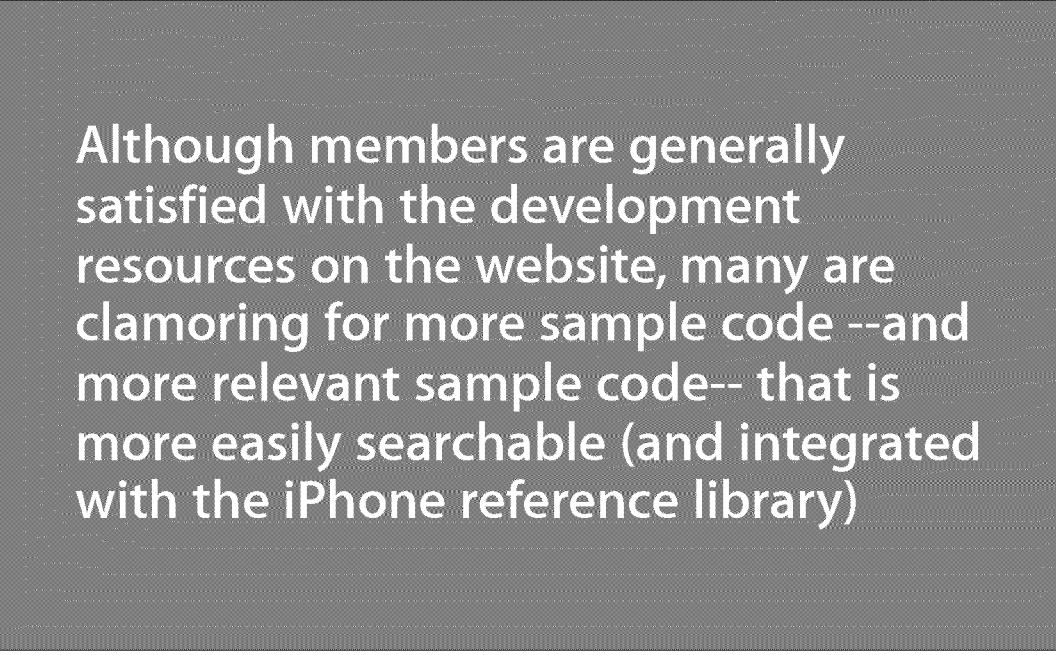
#10 Simulator is not accurate in resembling the device speed (i.e., app works well in computer, but slow on device)

#11 Can't run Xcode on Windows environment

Reasons for dissatisfaction: iPhone Software Development Kit (SDK) (in decreasing order of mentions)

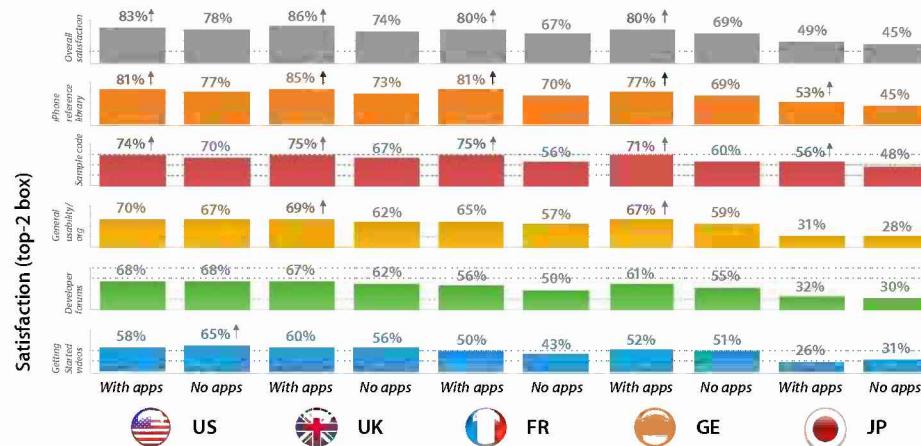
Q27/28/29. What is the main reason you are dissatisfied with [AREA]. Q30. What could Apple do to make [AREA] better?

43



Although members are generally satisfied with the development resources on the website, many are clamoring for more sample code --and more relevant sample code-- that is more easily searchable (and integrated with the iPhone reference library)

Most developers are satisfied with the development resources on the website (except JP)



Base: all respondents, excluding don't know (Ns vary). Q20 - Please rate your level of satisfaction with each of the following aspects of the Development resources on the website. 45

Developers are most likely to be dissatisfied with the amount of code available

#1 Too little sample code, want more snippets and examples

#2 Site is poorly organized, lacks structure

#3 Getting Started videos are too vague and/or superficial

#4 More multi-language documentation and support (international developers)

#5 Developer forums' content is incomplete and/or outdated, and there is no Apple involvement

#6 Developer forums should have more functionality (e.g., like PHPBB)

#7 Add more commentary and examples to existing code

#8 More code snippets per function

#9 Better search capabilities for code

Reasons for dissatisfaction: Development resources on the website (in decreasing order of mentions)

Q27/28/29. What is the main reason you are dissatisfied with [AREA]. Q30. What could Apple do to make [AREA] better?

46

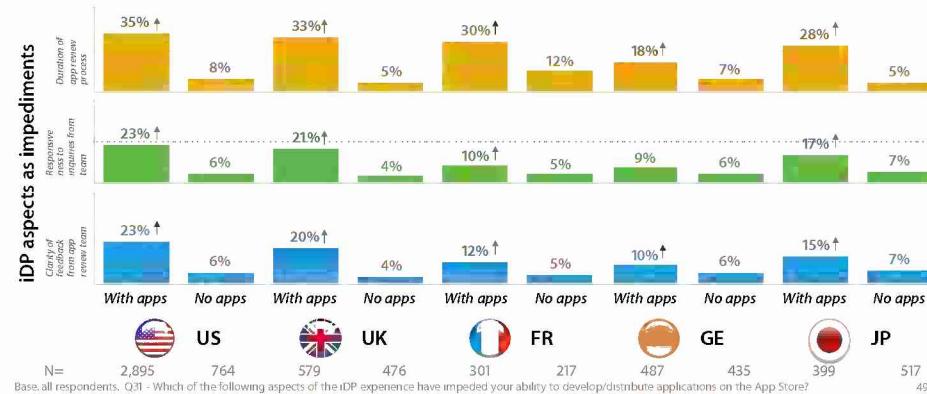
Aspects of the iDP that Have Impeded App Development/Distribution

49

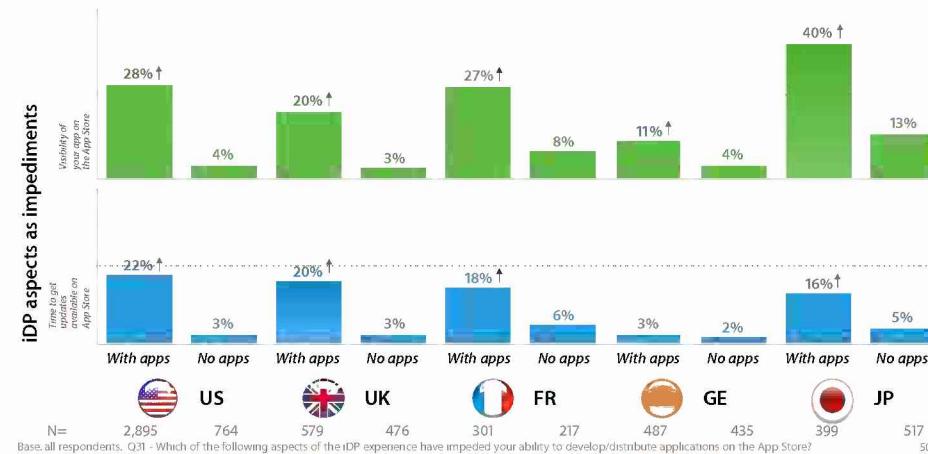


The App review process, and in particular, its duration, is the biggest deterrent for successfully developing and distributing iPhone/ iPod Touch applications

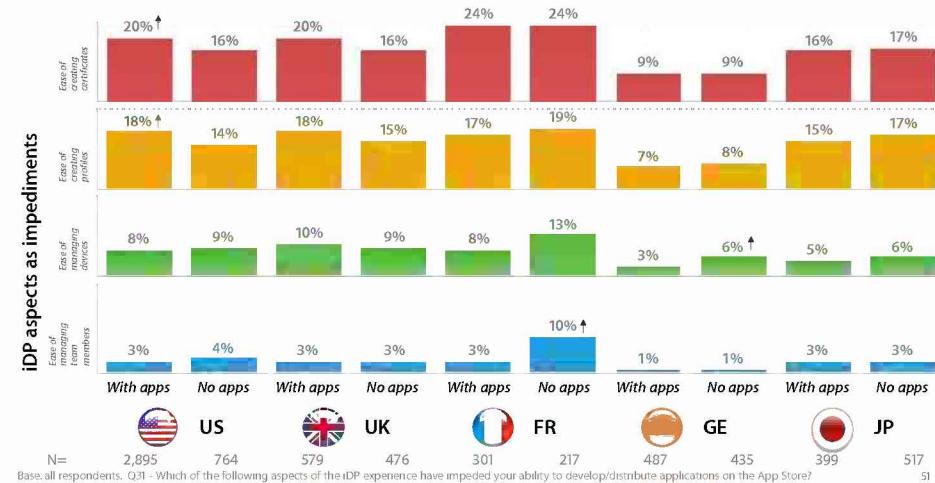
Roughly one-third of developers consider that the duration of the app review process has impeded their ability to develop and distribute applications on the App Store



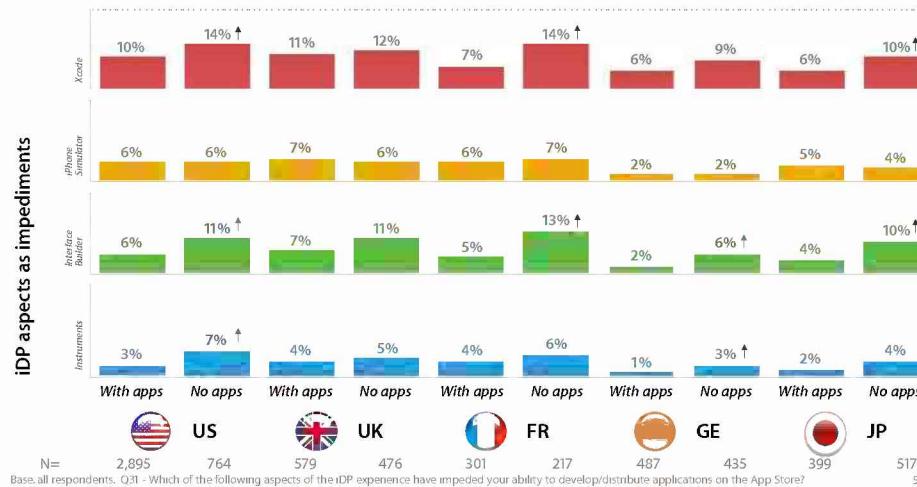
For developers with applications on the App Store, the time it takes to get updates available and the visibility of their apps are very important



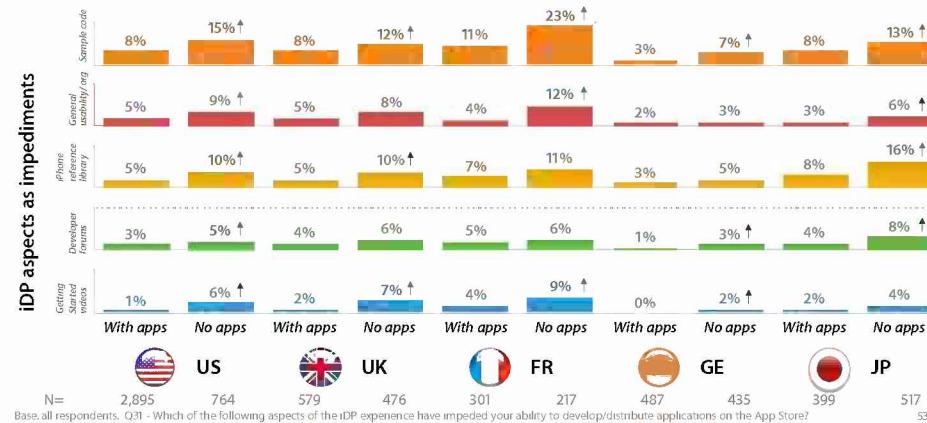
Ease of creating certificates and profiles is an issue for roughly one in every five developers



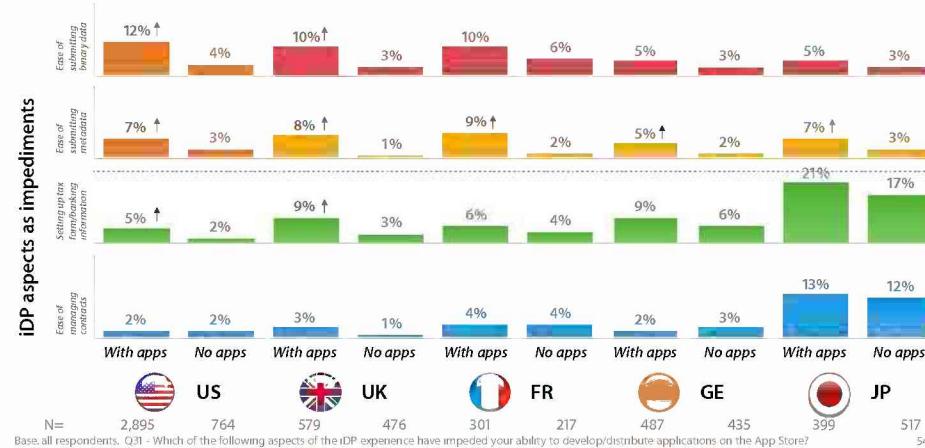
Very few developers think the SDK has impeded their ability to create applications



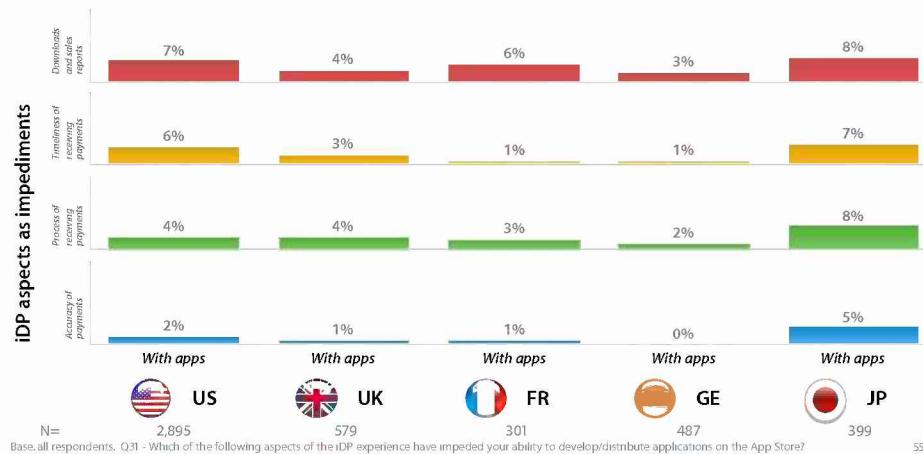
Not surprisingly, those with no apps are more likely to be impeded by the quality and quantity of programming resources on the website



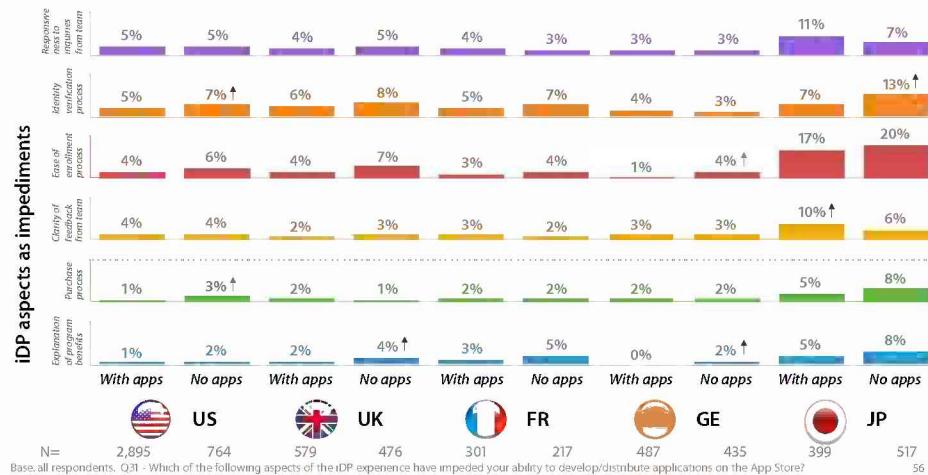
Difficulty in setting up tax forms and banking information is a significant impediment for a fifth of all Japanese developers



While tracking and managing finances (e.g., accuracy of payments) is an issue for some, it seldom deters them from developing applications



Japanese developers find it particularly difficult to enroll in the iDP program





Satisfaction with other mobile platforms' developer programs

37

A quarter of iPhone developers also develop for Android, and are generally satisfied with the experience. They value how Android makes it easy to develop, test and distribute, and they like the robust API.

Some find the range of devices, and the platform itself a bit chaotic, however.

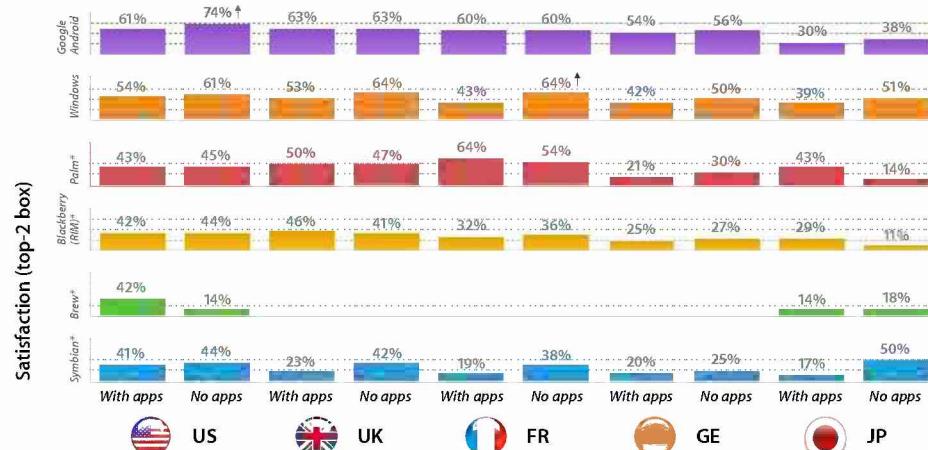
The most common mobile dev platform for those with approved apps is Google Android

N=	US		UK		FR		GE		JP	
	With Apps 2895	No Apps 764	With Apps 579	No Apps 476	With Apps 301	No Apps 217	With Apps 487	No Apps 435	With Apps 399	No Apps 517
Google Android	26% *	20%	24% †	17%	31% †	20%	21%	17%	26%	25%
Windows	13%	22% †	20%	23%	18%	23%	14%	18%	20%	31% †
Blackberry (RIM)	9% †	6%	9% †	5%	11% †	5%	6% †	3%	2%	2%
Palm	7%	6%	5%	4%	5%	6%	6% †	2%	3%	3%
Symbian	3%	2%	10% †	5%	9% †	4%	6%	5%	6% †	2%
Brew	2%	1%	1%	1%	1%	1%	0%	0%	7%	6%
Other	4%	7% †	9%	7%	9%	7%	7%	9%	10%	9%
None	63%	60%	61%	62%	57%	60%	65%	64%	57% †	48%

Base: all respondents. Q10 - What other mobile platforms do you develop for?

59

Google's Android program generally has high satisfaction ratings



Base: those who develop apps for other mobile platforms (Ns vary). Q15 - You mentioned you also develop applications for other mobile platforms. Overall, how would you rate your satisfaction with the development program from these platforms? Caution: *Small base for all except Google Android and Windows.

60

Interestingly, not having an application review process is a pro for some, and a con for others

Google Android

Reasons for satisfaction...

No application review process—easy process

"Easy of development. No hoops to jump through to get to the API docs, community forums, blog, etc."

"Simple submission, update process"

"Easy to deploy apps for testing, evolution, etc."

"Simple setup of developing environment - No license required for device tests."

Free and open source

"~Free - Open Source - No approval process - Mightier API (Camera access etc.)"

"Because it is open source and the phone is not tied to a single service with contractual obligations."

Flexible

"open architecture - supports development on non-Mac OS X machines (it would be great if Xcode was available for Ubuntu/Linux - for iPhone/iPad/iPod development)"

Inexpensive

"price of entry tokens is very low (don't have to buy a mac just for coding) a lot of freedom of development and display of applications."

Rich API

"A rich API!"

Base, those who develop with Google Android, excluding non-members. N=1574. Q15A/B - What are the main reasons you are satisfied/dissatisfied with the [PLATFORM] Development program?

Reasons for dissatisfaction...

All over the place

"Not so much the program as the multitude of devices have different requirements and feature sets, which means a lot of extra time is required for (especially) graphic and UI development."

"Varying screen sizes and phones, more complicated than iPhone development."

"Android involves much trial-and-error... Documentation is all over the place. Too many version changes."

Dislike Java

"Java development environment is terrible, not as broad of a reach or as good APIs as Apple's program."

No app review process

"1. No review process. Yes, it's easier on the developer but it's detrimental to the whole ecosystem. 2. Various screen resolutions. 3. Lack of documentation."

Poor visibility

"Android market apps have very poor visibility. Google doesn't do any marketing for Android apps. The Android Market interface is not so user friendly."

61

Developers highly value WMDC for its documentation, but dislike the store and Windows in general

They also feel that the BlackBerry mobile developer community and app store lacks support and clear documentation

Those that like the Windows Mobile developer program cite good documentation

Windows

Reasons for satisfaction...

Lots of help available, better documentation (and more in Japanese)

"A lot of books for development"

"a lot of demos and tutorials"

"Better tool support, clearly better documentation available"

"Better documentation and more reliable development environment"

Open market/collaboration, more flexible, no approval process

"A more open market if you can sell the products on my own, not through a specific store). More open collaboration among developers."

"Ability to distribute apps with more flexibility - i.e. free trial periods before purchase, cross promotion via TrialPay, lower transaction fees, more advertising to purchase process analytics."

"Fewer hoops to jump through to get an app distributed. More channels to distribute through. Familiar language (.NET) to develop on."

Better for business applications

"Better development environment, more advanced language and framework for business applications."

Reasons for dissatisfaction...

Poor API

"APIs are incomplete - too scattered and not enough concise information. Marketplace not well-supported"

"Horrible APIs"

No marketplace

"Application distribution is a huge pain compared to the simplicity of the App Store."

Generally dislike Windows

"General failure to keep up with the state of the art in mobile application development."

"General lack of a standard platform. Lots of work to make basic features work. Lack of innovation (although this may change with V7)"

"Lack of developer support primarily. Development information is sparse and disjointed. The change in Windows Mobile platforms makes it hard to support all of the iterations and permutations consistently."

"Microsoft's lack of interest in application development on the platform. Poor hardware."

Base: those who develop with Windows, excluding non-members. N=1161. Q15A/B - What are the main reasons you are satisfied/dissatisfied with the [PLATFORM] development program?

63

Those that like the Blackberry developer program cite ease of use and no costs as main reasons Blackberry

Reasons for satisfaction...

Easy to use and free, Java-based

"Developing Java-based web apps is easy and free and there is no delay in submission of updates."

"It's free. Based on Java, a language that everyone knows."

"It's free. Apart from one-time \$99 fee for a code-signing certificate, well documented and their tech support is excellent."

Flexible

"Applications do not need to be approved before being distributed."

"With BlackBerry I can sell or give away upgrades to my product whenever I want or feel it is better for my business. I can control exactly how I deliver the app"

Reasons for dissatisfaction...

Overly complex

"The programming language isn't intuitive in my opinion and the community support is lacking."

Steep learning curve

"The development strategy is less uniform than on the iPhone. There are too many phone models with different capabilities. The app store is not as concrete and usable as the iPhone app store, etc."

Difficult to use/navigate

"Documentation is harder to find (both official and unofficial)."

Base: those who develop with BlackBerry, excluding non-members. N=450. Q15A/B - What are the main reasons you are satisfied/dissatisfied with the [PLATFORM] development program?

64

Palm detractors think it is out-of-date

Palm

Reasons for satisfaction...

Open source

"All APIs are open and easy to find."

"No approval required for applications. No restrictions on what applications are allowed to do. Applications are allowed to run in the background."

Free

"Developing for Palm OS doesn't cost me a dime, it's free (that means you don't pay...) and there is no approval commission to broadcast/disseminate."

Easy to use

"Easy platform to develop for, learning curve is easy."

"It gave me both the required information to develop my application and the freedom to use them as I want."

"There is a web app to manage the apps. It's very useful when there is no wifi or apple"

Reasons for dissatisfaction...

Out of date

"Because API can direct access to OpenGL ES pipeline is not today. May change in the future."

"Shrinking audience. Tools not available on Xcode."

Bad tools, API

"Developer tools and APIs are painful to use"

"Development tools lacking."

"Incomplete and buggy API"

No sales channel

"No visible app store to get the list of existing palm apps."

Base: those who develop with Palm, excluding non-members. N=370. Q15A/B - What are the main reasons you are satisfied/dissatisfied with the [PLATFORM] development program?

65

Appendix: Developer Profiles

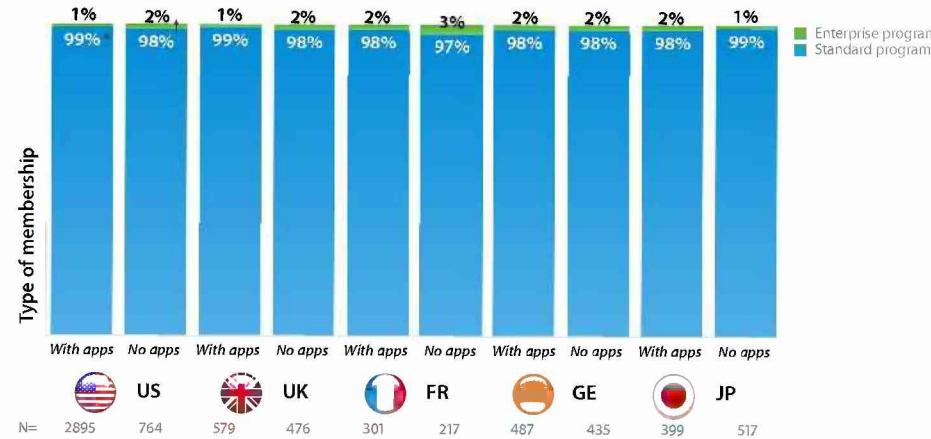
66



The majority of developers have started developing apps

Most US developers have had at least one app approved; only about half of non-US developers have

Nearly everyone has the standard membership



Base: all respondents. Q0 - Which type of iPhone developer program (IDP) membership do you have?

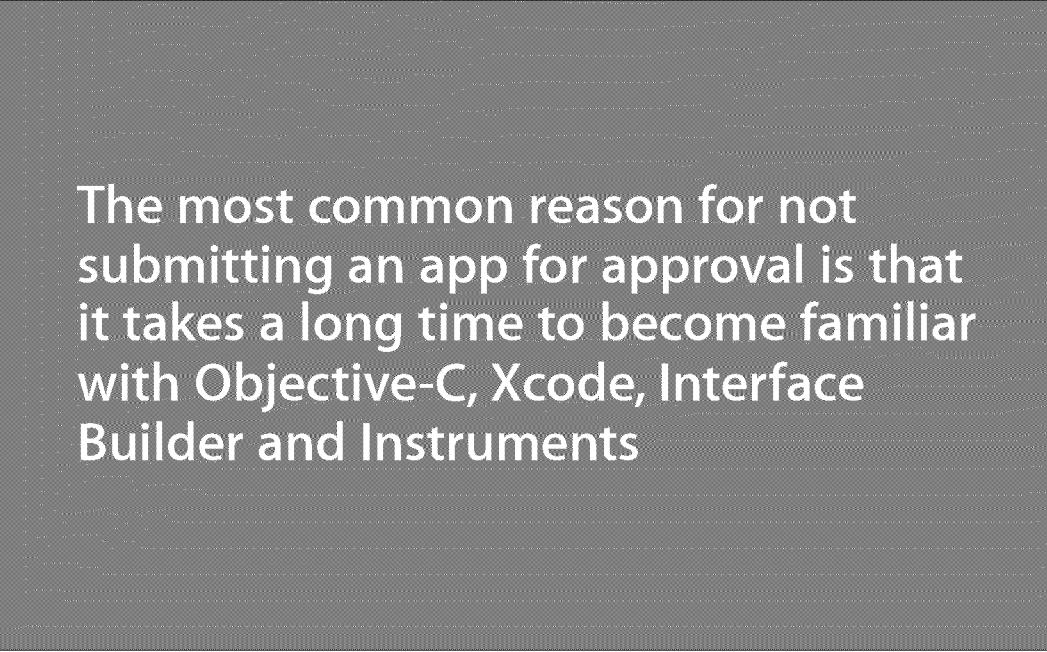
68

Nearly everyone has at least started developing apps

N=	US With Apps 2895	US No Apps 764	UK With Apps 579	UK No Apps 476	FR With Apps 301	FR No Apps 217	GE With Apps 487	GE No Apps 435	JP With Apps 399	JP No Apps 517
Had an app approved	100% ↑	0%	100% ↑	0%	100% ↑	0%	100% ↑	0%	100% ↑	0%
Submitted an app for approval	99% ↑	6%	99% ↑	5%	99% ↑	6%	99% ↑	2%	99% ↑	4%
Started developing apps	99% ↑	93%	99% ↑	93%	95%	96%	98% ↑	95%	99% ↑	92%
Created a dev profile	98% ↑	74%	97% ↑	80%	97% ↑	85%	97% ↑	80%	96% ↑	79%
Created a dev certificate	98% ↑	75%	98% ↑	82%	97% ↑	89%	99% ↑	84%	96% ↑	80%
Created a distribution certificate/profile	97% ↑	35%	97% ↑	32%	98% ↑	37%	97% ↑	34%	92% ↑	18%
Tested apps	97% ↑	71%	97% ↑	72%	92% ↑	78%	98% ↑	81%	98% ↑	74%
Used ad hoc distribution	58% ↑	21%	56% ↑	20%	56% ↑	23%	63% ↑	24%	22% ↑	3%
Used in house distribution	17% ↑	8%	16% ↑	7%	29% ↑	12%	25% ↑	11%	10% ↑	3%
None of these	0%	6%	0%	6%	0%	2%	0%	3%	0%	5%

Base: all respondents. Q1 - Which of the following, if any, have you done in the iPhone Developer Program?

69



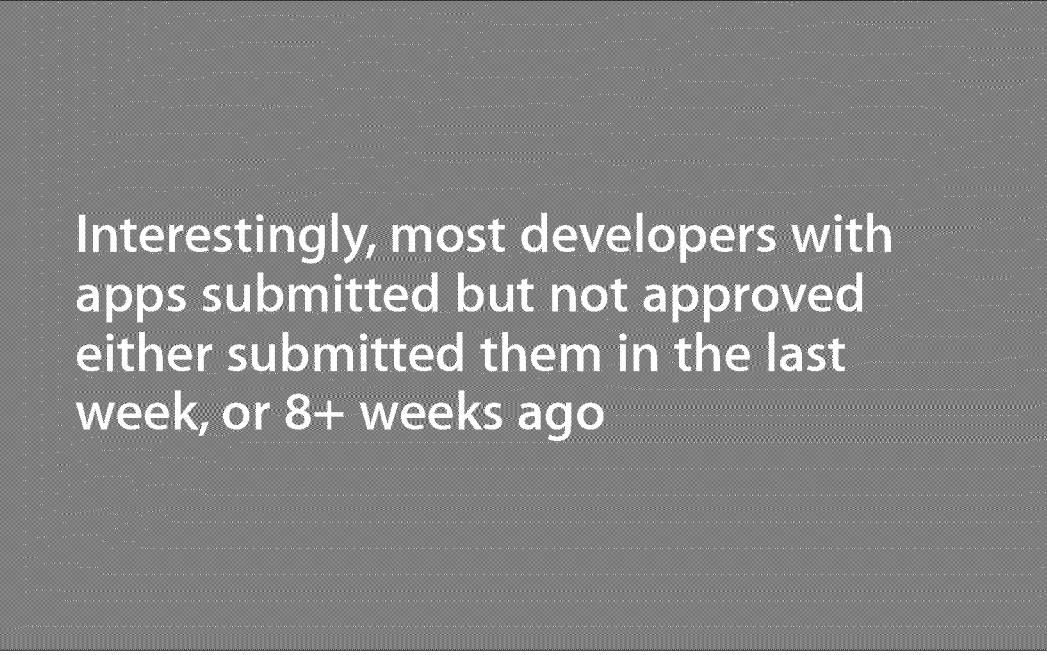
The most common reason for not submitting an app for approval is that it takes a long time to become familiar with Objective-C, Xcode, Interface Builder and Instruments

Two-thirds of US/UK developers feel it takes a long time to become familiar with Objective-C

N=	US No Apps 503	UK No Apps 328	FR No Apps 139	GE No Apps 293	JP No Apps 440
Becoming familiar w/Objective-C	63%	63%	49%	43%	58%
Becoming familiar w/Xcode	46%	41%	24%	24%	48%
Becoming familiar w/entire Buildbot	35%	32%	29%	15%	36%
Becoming familiar w/instruments	25%	26%	18%	14%	12%
Difficulty creating/managing provisioning profiles	19%	16%	24%	19%	33%
haven't found what I needed in the Sample Code	16%	9%	25%	13%	23%
Becoming familiar w/iPhone Simulator	15%	12%	4%	1%	13%
I haven't found what I needed in iPhone Reference Library	14%	9%	15%	11%	15%
haven't found what I needed in Getting Started Video	13%	11%	19%	16%	9%
Difficulty w/Security and permissions	8%	5%	17%	7%	12%
Difficulty creating all needed resources	6%	3%	15%	7%	15%
Problems w/compilation process	4%	3%	7%	5%	12%

Base: those who have started developing apps but have not submitted for approval. Q5 - What are the main reasons you have not yet submitted an application for approval?

71



Interestingly, most developers with apps submitted but not approved either submitted them in the last week, or 8+ weeks ago

Half of UK developers with apps not approved, submitted them in the last week

	US N= 46*	UK N= 26*	FR N= 14*	GE N= 9*	JP N= 23*
Within the last week	28%	50%	29%	33%	43%
Within the last 2 weeks	9%	12%	7%	0%	17%
Within the last 3 weeks	0%	4%	0%	11%	4%
Within the last 4 weeks	11%	0%	7%	0%	0%
Within the last 5 weeks	0%	0%	7%	0%	0%
Within the last 6 weeks	4%	0%	7%	0%	0%
Within the last 7 weeks	2%	0%	0%	0%	4%
8 or more weeks	46%	35%	43%	56%	30%

Base: those with apps submitted but not yet approved. Q4 - You mentioned you've submitted an application for approval—how long ago did you submit the original application?

*Caution: small base

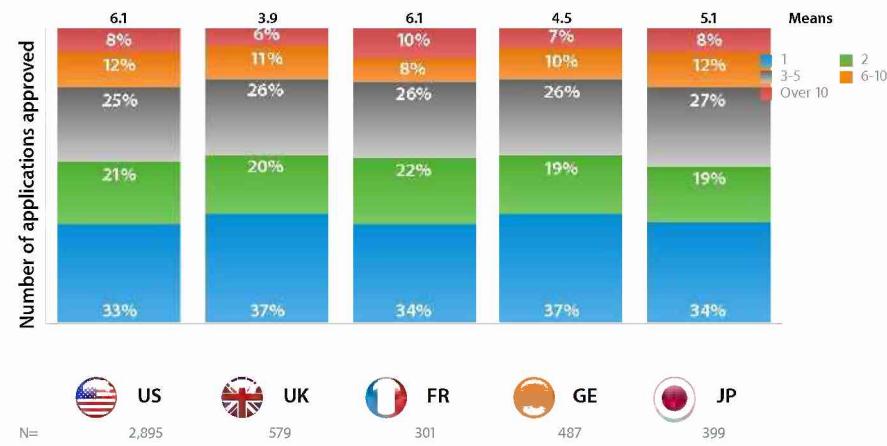
73



Developers in the US are slightly more likely to have only paid apps, and less likely to have rejected apps

About a third per country have 1 app approved

Another quarter have 3-5 approved

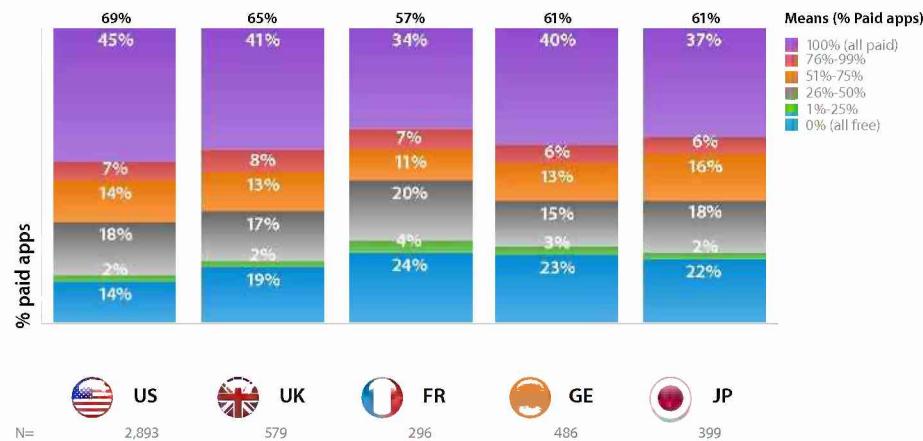


Base: those with apps approved. Q6 - How many applications have you had approved for distribution on the App Store?

75

At least three quarters have some paid apps

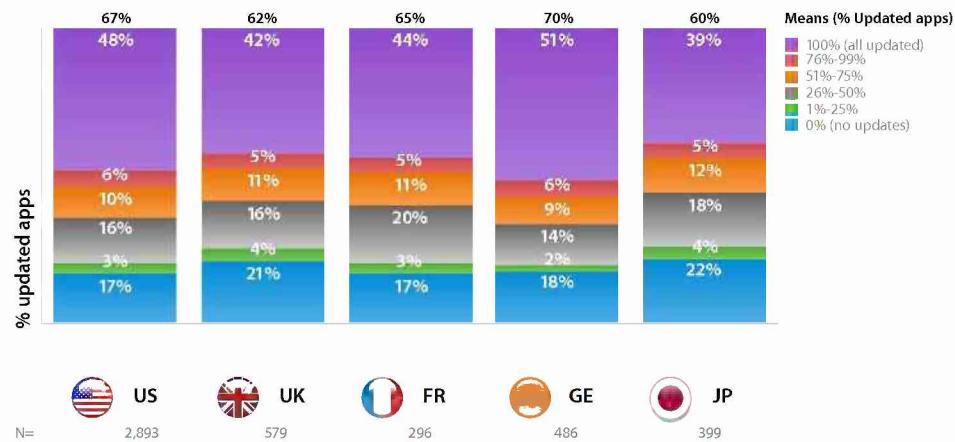
US developers tend to have more paid apps



Base: those with 1+ approved app. Q6a - How many of these (# of APPS) applications are paid (i.e., not free)?

76

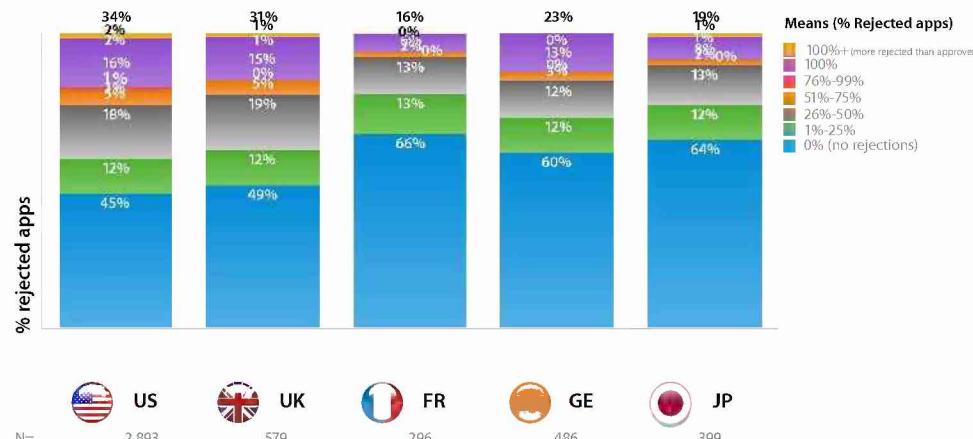
About half of developers have all their approved apps updated



Base: those with 1+ approved app. Q7 - How many of these [PIPE IN # of APPS FROM Q6] applications have been updated?

77

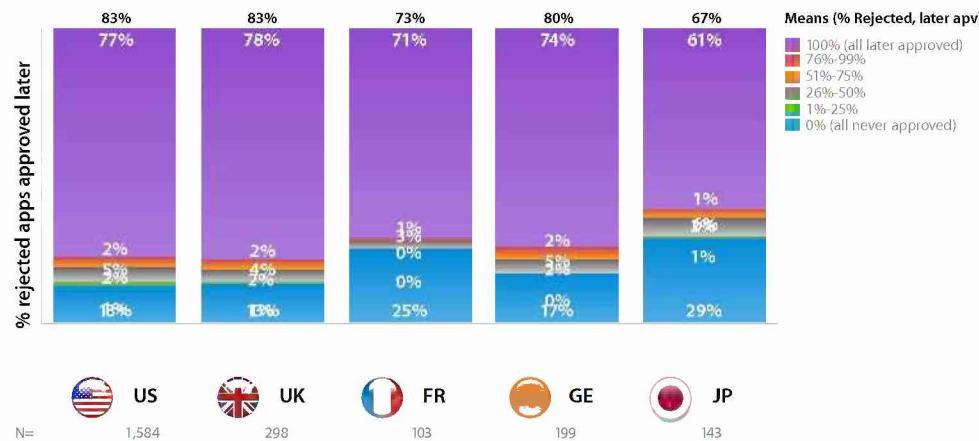
Non-English developers more commonly have apps rejected than developers in the US and UK



Base: those with apps submitted or approved. Q8 - How many applications, if any, have you had rejected by the application review team?

78

Japan has more developers with submitted apps that never get approved



Base: those with rejected apps. Q9 - How many of these (# REJECTED APPS) rejected applications, if any, were approved at a later date?

79



Half of developers have been
developing for the iPhone for a
year or more

Most work independently

Developers promote their apps on their own websites, on blogs, or w/social network ads

	US N= 2895	UK With Apps 579	FR With Apps 301	GE With Apps 487	JP With Apps 399
Promoted on my/our own website	68%	70%	66%	67%	46%
Blogging	44%	50%	50%	36%	50%
Advertising through social networks	41%	41%	45%	40%	31%
Viral marketing	36%	34%	31%	38%	2%
Promoting through participation in online user forums	32%	36%	36%	34%	13%
PR outreach efforts	30%	29%	32%	31%	12%
Search engine related advertising	21%	19%	12%	14%	11%
Banner ads/links on web versions of your/your company's apps	19%	21%	22%	16%	17%
Banner ads in iPhone apps you/your company develops	18%	16%	20%	13%	20%

Base: all respondents. Q33 - What, if anything, are you doing to promote and market your applications?

SI

They are less likely to promote their apps on TV or on the radio

	US N= 2895	UK N= 579	FR N= 301	GE N= 487	JP N= 399
Online banner ads	16%	15%	15%	17%	7%
Banner ads on third-party phone applications	11%	8%	10%	8%	9%
Promoted through magazine ads	5%	6%	8%	9%	7%
Promoted through Newspaper ads	2%	3%	8%	4%	2%
Promoted through outdoor advertising	2%	2%	5%	2%	2%
Promoted through Radio ads	1%	2%	4%	1%	1%
Promoted through TV ads	1%	2%	4%	2%	2%
Other	11%	10%	7%	8%	10%
None of the above	13%	13%	12%	14%	16%

Base: all respondents. Q33 - What, if anything, are you doing to promote and market your applications?

82

Though most have been developing for Mac for less than 3 years, some are in the 10+ range

N=	US	UK	FR	GE	JP					
	With Apps	No Apps								
Less than one year	2895	764	570	476	301	217	487	435	399	517
1 to less than 2 years	23%	43%↑	31%	48%↑	33%	50%↑	20%	38%↑	34%	44%↑
2 to less than 3 years	33%↑	21%	38%↑	23%	33%↑	18%	33%↑	21%	31%↑	24%
3 to less than 4 years	13%↑	7%	12%↑	7%	12%↑	6%	14%	11%	7%	7%
4 to less than 5 years	4%	4%	4%	4%	5%	3%	6%	5%	3%	2%
5 to less than 6 years	3%	4%	3%	2%	3%	4%	4%	5%	3%	2%
6 to less than 7 years	2%	2%	1%	2%	2%	2%	4%↑	2%	3%	2%
7 to less than 8 years	1%	1%	1%	1%	0%	1%	1%	1%	1%	0%
8 to less than 9 years	1%	1%	0%	0%	1%	1%	1%	2%	1%	0%
9 to less than 10 years	1%	1%	1%	1%	1%	0%	1%	1%	1%	1%
10 years or more	17%	15%	8%	13%↑	10%	15%	13%	13%	16%	17%

Base: all respondents. Q34 - Approximately how many years have you been developing software, hardware, and/or digital media for Mac?

83

About half with apps have been developing for iPhone for a year or more

N=	US	UK	FR	GE	JP					
	With Apps 2895	No Apps 764	With Apps 579	No Apps 476	With Apps 301	No Apps 217	With Apps 487	No Apps 435	With Apps 399	No Apps 517
Less than 1 month	1%	9% ↑	1%	9% ↑	4%	9% ↑	2%	6% ↑	4%	16% ↑
1 to less than 3 months	3%	15% ↑	4%	15% ↑	4%	13% ↑	3%	15% ↑	10%	26% ↑
3 to less than 6 months	7%	19% ↑	8%	20% ↑	8%	19% ↑	9%	17% ↑	18%	18%
6 to less than 9 months	12%	16% ↑	16%	19%	14%	13%	9%	14% ↑	15% ↑	10%
9 to less than 12 months	18%	20%	20%	17%	17%	17%	16%	17%	14% ↑	9%
1 year or more	59% ↑	21%	52% ↑	20%	52% ↑	29%	60% ↑	31%	39% ↑	20%

Base: all respondents. Q35 - Approximately how many months have you been developing for the iPhone OS?

84

Most work independently or for companies with 2-5 employees

	 US	 UK	 FR	 GE	 JP					
N=	With Apps 2895	No Apps 764	With Apps 579	No Apps 476	With Apps 301	No Apps 217	With Apps 487	No Apps 435	With Apps 399	No Apps 517
One or work independently)	59%	60%	57%	63%	59%	65%	57%	59%	48%	44%
2-5 employees	27%↑	18%	26%↑	16%	17%↑	10%	20%	18%	20%↑	13%
6-10	5%↑	3%	4%	5%	6%	6%	5%	5%	5%	5%
11-25	3%	4%	4%	4%	7%	4%	5%	3%	7%	8%
26-50	2%	2%	3%	2%	2%	4%	4%	4%	6%	6%
51-100	1%	2%↑	1%	2%	1%	2%	3%	2%	5%	4%
101-500	1%	4%↑	2%	3%	3%	3%	2%	3%	4%	8%↑
501-999	0%	1%	1%	0%	1%	0%	0%	1%	1%	2%
1,001 to 10,000	1%	3%↑	1%	3%	2%	4%	1%	3%	2%	7%↑
Over 10,000	1%	3%↑	1%	3%↑	2%	3%	1%	3%↑	2%	3%

Base: all respondents. Q36 - How many people does your company employ worldwide (including yourself)?

85

About two-thirds work as independent software developers

	 US	 UK	 FR	 GE	 JP					
N=	With Apps 2895	No Apps 764	With Apps 579	No Apps 476	With Apps 301	No Apps 217	With Apps 487	No Apps 435	With Apps 399	No Apps 517
One (I work independently)	63%	70% ↑	62%	69% ↑	57%	68% ↑	59%	63%	55%	62% ↑
2-5	31% ↑	22%	30% ↑	23%	33% ↑	22%	31%	30%	33% ↑	25%
6-10	3%	4%	4%	4%	6%	6%	5% ↑	3%	6%	3%
11-25	2%	2%	3%	1%	3%	3%	3%	3%	3%	5%
26-50	0%	1%	1%	1%	0%	0%	1%	0%	2%	1%
51-100	0%	0%	1%	0%	0%	0%	0%	0%	1%	1%
Over 100	0%	0%	1%	2%	1%	0%	0%	2%	1%	2%

Base: all respondents. Q37 - How many people are active members of your software development team?

86

They most common do iPhone OS software development independently

N=	US		UK		FR		GE		JP	
	With Apps 2895	No Apps 764	With Apps 579	No Apps 476	With Apps 301	No Apps 217	With Apps 487	No Apps 435	With Apps 399	No Apps 517
I do SW dev by-for myself, not my primary source of income	47%↑	40%	41%	38%	38%	38%	39%	42%	46%↑	38%
I do SW dev by-for myself, is my primary source of income	20%↑	11%	19%↑	11%	14%↑	8%	20%↑	13%	15%↑	6%
I do SW dev for my full time employer	12%	15%↑	16%	18%	20%	16%	20%	18%	15%↑	9%
I do contract SW dev work for others	11%	11%	12%	9%	11%	11%	6%	5%	4%	4%
I am a hobbyist	10%	22%↑	12%	24%↑	16%	27%↑	15%	23%↑	20%	42%↑

Base: all respondents. Q38 - Which of the following best describes your software development work for the iPhone OS?

87

Key Conclusions

- Most developers are generally satisfied with iDP, but roughly a fifth to one-quarter are dissatisfied
 - Non-English speaking countries (especially Japan) and those with no approved apps are slightly less satisfied with iDP
- App visibility in the App Store is the area of most dissatisfaction
 - Some specific complaints include: "too general" categories, search problems, and allowing too many "spam" apps in the store
- The App review process is also problematic for many, and it is the biggest deterrent for successfully developing and distributing iPhone/iPod Touch applications
 - Developers complain roughly equally about the time it takes to hear back from the app review team, unclear criteria for rejection and lack of responsiveness

88

Key Conclusions

- While most developers were satisfied with the rest of the aspects of the iDP, other common complaints include (in decreasing order of mentions):
 - Many developers would like Apple to eliminate the store-specific purchase quotas (\$150), and simplify financials reporting in the website
 - Those dissatisfied with the application submission process find the legal requirements and documentation too daunting, confusing or time-consuming
 - Some have difficulty creating certificates and profiles
 - Although members are generally satisfied with the development resources on the website, many are clamoring for more sample code --and more relevant sample code-- that is more easily searchable (and integrated with the iPhone reference library)
 - Overall satisfaction with the enrollment process is generally high, but some didn't think the fee was recurring and others complained about the time it took
 - Beginner developers find the SDK too complex, and many want integration across the SDK tools

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Key Conclusions

- A quarter of iPhone developers also develop for Android, and are generally satisfied with the experience
 - They value how Android makes it easy to develop, test and distribute, and they like the robust API. Some find the range of devices, and the platform itself, a bit chaotic, however.
- Developers highly value WMDC for its documentation, but dislike their store and Windows in general
- Developers feel that the Blackberry mobile community and the app store lacks support and clear documentation

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