

**HYBRID MOBILE FRAMEWORK  
FOR CROSS PLATFORM MOBILE  
APPLICATION  
DECISION, ANALYSIS, RESOLUTION  
(DAR)**

**VER.2.2**

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## 1. Overview

Nowadays there are many technologies available for developing a cross platforms mobile application. Therefore, the purpose of this DAR is to analyse the possible decisions used for selecting the recommended hybrid framework to support our internal projects and trainings on mobile apps development.

## 2. Evaluated Platforms

| PLATFORM |              | VERSION                   |
|----------|--------------|---------------------------|
| 1        | PhoneGap     | v4.2.0                    |
| 2        | Titanium     | V6.0.0                    |
| 3        | Ionic        | V2.0.0                    |
| 4        | Telerik      | AppBuilder v2.9           |
| 5        | Xamarin      | v5.9.7(build 9)           |
| 6        | React Native | Version 0.25              |
| 7        | Kony         | v7.0 (Enterprise – Trial) |
| 8        | Sencha Touch | V2.4.2                    |
| 9        | Framework7   | v1.5.2                    |

Table 1 – Evaluated Platforms

## 3. Other Platforms

Other platforms which are not evaluated but may be included in the future are listed below:

- Onsen UI - <https://onsen.io/>
- Intel-XDK - <https://software.intel.com/en-us/intel-xdk>
- JQuery Mobile - <https://jquerymobile.com/>
- Mobile Angular UI - <http://mobileangularui.com/>
- Famo.us - <http://famous.org/>
- Triger.Io - <https://trigger.io/>

## 4. Evaluation Criteria

The evaluation criteria that will be used to assess the framework or tools mentioned at section 4 above, have been evolved through discussion with mobility developers at Mitrais in order to cover/ anticipate the important factors and common issues with cross-platform development. We put the coefficient for each criteria to reflect the relative importance of the criteria. The criteria and its weight (coefficient) we will look at are the following:

| CRITERIA                                                         | MITRAIS WEIGHTING |
|------------------------------------------------------------------|-------------------|
| Licensing (Cost)                                                 | 0.5               |
| Product Support (Update, community, Scheduler UI, documentation) | 1                 |
| Easy to adopt (Compliance with current development Tools)        | 1                 |
| Hardware and Sensor supported                                    | 1                 |
| Widget/ Component Supported                                      | 1                 |
| Big name(s) who support, develop & use the framework             | 1                 |
| Apps Showcase                                                    | 1                 |

Table 2 – Evaluation Criteria

## 5. Platform Evaluation

| PLATFORM     | 1   | 2   | 3   | 4 | 5 | 6 | 7   | TOTAL SCORE |
|--------------|-----|-----|-----|---|---|---|-----|-------------|
| Telerik      | 1.5 | 4.8 | 5   | 5 | 5 | 4 | 3   | 4.04        |
| ionic        | 2.5 | 4.2 | 4.5 | 5 | 5 | 4 | 4   | 4.17        |
| Titanium     | 2.5 | 4   | 5   | 3 | 5 | 4 | 4   | 3.92        |
| Xamarin      | 2.5 | 3.8 | 3   | 5 | 4 | 4 | 3   | 3.61        |
| PhoneGap     | 2.5 | 4.7 | 4   | 5 | 2 | 5 | 3   | 3.74        |
| React-Native | 2.5 | 4   | 4   | 5 | 4 | 5 | 4   | 4.07        |
| Kony         | 1.5 | 4   | 4   | 5 | 5 | 0 | 0   | 2.79        |
| Sencha Touch | 2.5 | 4.8 | 4   | 4 | 5 | 3 | 3   | 3.75        |
| Framework7   | 2.5 | 4   | 4   | 3 | 5 | 0 | 3.5 | 3.14        |

Table 3 – Platform Evaluation

## 6. Platform Recommendation

### 6.1. License

| HYBRID FRAMEWORK | LICENSE | SUMMARY               | SCORE |
|------------------|---------|-----------------------|-------|
| PhoneGap         | Free    | Open source           | 5     |
| Titanium         | Free    | Open Source           | 5     |
| Ionic            | Free    | Open Source           | 5     |
| Telerik          | Paid    | License               | 3     |
| Xamarin          | Free    | Acquired by Microsoft | 5     |
| React Native     | Free    | Open Source           | 5     |
| Kony             | Paid    | License               | 3     |
| Sencha Touch     | Free    | License               | 5     |
| Framework7       | Free    | License               | 5     |

### 6.2. Product Support

| FRAMEWORK    | PROJECT ACTIVE | WEBSITE                                                                                                       | SCORE |
|--------------|----------------|---------------------------------------------------------------------------------------------------------------|-------|
| PhoneGap     | Yes            | <a href="http://phonegap.com/">http://phonegap.com/</a>                                                       | 5     |
| Titanium     | Yes            | <a href="http://www.appcelerator.com/titanium/">http://www.appcelerator.com/titanium/</a>                     | 5     |
| Ionic        | Yes            | <a href="http://www.ionicframework.com/">http://www.ionicframework.com/</a>                                   | 5     |
| Telerik      | Yes            | <a href="http://www.telerik.com/">http://www.telerik.com/</a>                                                 | 5     |
| Xamarin      | Yes            | <a href="https://xamarin.com/">https://xamarin.com/</a>                                                       | 5     |
| React-Native | Yes            | <a href="https://facebook.github.io/react-native/">https://facebook.github.io/react-native/</a>               | 5     |
| Kony         | Yes            | <a href="http://www.kony.com/products/mobility-platform">http://www.kony.com/products/mobility-platform</a>   | 5     |
| Sencha Touch | Yes            | <a href="https://www.sencha.com/products/touch/#overview">https://www.sencha.com/products/touch/#overview</a> | 5     |
| Framework7   | Yes            | <a href="https://framework7.io">https://framework7.io</a>                                                     | 5     |

| FRAMEWORK | DOCUMENTATION                                                                                                                                                                                                                                                                                        | SCORE | PLATFORM/ LANGUAGE                      | SCORE |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------------------------------|-------|
| PhoneGap  | PhoneGap documentation contain steps how to install, setting environment platform support, platform guides & API Reference. The Documentation is simple and easy to follow. Although PhoneGap using HTML, CSS & JavaScript, the documentation doesn't contain material about HTML, CSS & JavaScript. | 5     | HTML, CSS, JavaScript, jQuery, Angular. | 5     |

| FRAMEWORK    | DOCUMENTATION                                                                                                                                                                                                                                                                                                                                                                                               | SCORE | PLATFORM/<br>LANGUAGE                                                                   | SCORE |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------|-------|
| Titanium     | Titanium documentation contain a lot of information & material about Installation, configuration, titanium SDK and Studio. But, every item in the documentation is less detail and making confuse because there is no detailed step from begin to end.                                                                                                                                                      | 4     | JavaScript, Alloy Framework                                                             | 3     |
| Ionic        | Ionic have complete guidance and well documented. So the developer could make it as reference to develop the application                                                                                                                                                                                                                                                                                    | 5     | HTML5, CSS, JavaScript, Angular, jQuery                                                 | 5     |
| Telerik      | Telerik have a complete documentation and projects example. Also have some forum to discuss about Telerik itself.                                                                                                                                                                                                                                                                                           | 5     | HTML5, CSS, JavaScript                                                                  | 5     |
| Xamarin      | Documentation cover basic syntax, language feature but still lack regarding setting up project, configuring android and iOS, developer ended up need to search in forum. There's a lot of code example, recipes and API documentation though. Also not enough documentation for building complex UI.<br><br>Xamarin also have Xamarin Universities, which is paid, that provide training and certification. | 3     | Mono (Xamarin.Forms), MonoTouch, CLI, Xamarin.Android, Xamarin.IOS                      | 5     |
| React-Native | Has complete documentation from the following link complete with quick start or tutorial:<br><a href="https://facebook.github.io/react-native/docs/tutorial.html#content">https://facebook.github.io/react-native/docs/tutorial.html#content</a><br><br>But mostly it's covered only the basic practices.                                                                                                   | 4     | HTML5, CSS, JavaScript                                                                  | 5     |
| Kony         | Kony documentation contain step to install the tools, platform guides, and API reference. Kony also have sample projects and community.                                                                                                                                                                                                                                                                     | 3     | JavaScript, mostly WYSIWYM (What you see is what you mobilize) where all actions can be | 3     |

| FRAMEWORK    | DOCUMENTATION                                                                                                                                                                                                   | SCORE | PLATFORM/<br>LANGUAGE            | SCORE |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------|-------|
|              |                                                                                                                                                                                                                 |       | set up from the IDE tools.       |       |
| Sencha Touch | Sencha Touch has a complete documentation on installation, core concepts, application architecture, app styling, debugging, and best practices. In addition, they also have forum and commercial online course. | 5     | Javascript: Ext JS, jQT, Raphael | 5     |
| Framework7   | The documentation covers all F7 components, layouts, API, and how to control every part of the application. F7 also provides tutorial, example layouts, and discussion forum.                                   | 4     | HTML5, CSS, JavaScript           | 5     |

| FRAMEWORK    | COMMUNITY                                                                                                                                                                                                                                                         | SCORE | PROFESSIONAL<br>SUPPORT                                                                    | SCORE |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------------------------------------------------------------------------------|-------|
| PhoneGap     | Seems there are a lot of discussion about PhoneGap, searched Stackoverflow with keyword PhoneGap and resulting more than 170.000 results                                                                                                                          | 5     | No                                                                                         | 3     |
| Titanium     | Seems there are a lot of discussion about Titanium, searched Stackoverflow with keyword Titanium and resulting more than 15.000 results                                                                                                                           | 4     | No                                                                                         | 3     |
| Ionic        | Ionic have an active discussion forum, worldwide slack, and searched Stackoverflow with keyword "Ionic" and resulting more than 31.700 results                                                                                                                    | 4     | No                                                                                         | 3     |
| Telerik      | Telerik have their own developer forum and the support person is quite responsive about the issue. If we search in Stackoverflow with keyword "Telerik" the result around 20.200 results.                                                                         | 4     | Yes                                                                                        | 5     |
| Xamarin      | Xamarin has their own forum which is pretty active; also on Stackoverflow (Xamarin tag around 9013). So far I see not all question got answer in Xamarin forum, and the respond time (either from other member or from Xamarin's staff itself) is around 2-3 days | 3     | Yes, but only for Visual Studio Professional and Enterprise (included in the subscription) | 4     |
| React-Native | Have only GitHub discussion and the codes mostly                                                                                                                                                                                                                  | 3     | No professional support as it is open-source.                                              | 3     |

| FRAMEWORK    | COMMUNITY                                                                                                                                                                                                                     | SCORE | PROFESSIONAL SUPPORT                                                                                                                                                                             | SCORE |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|              | maintained by community/ React-Native developers                                                                                                                                                                              |       | React Native is worked on full-time by Facebook's product infrastructure user interface engineering teams. They're often around and available for questions in other forum, i.e. Stack Overflow. |       |
| Kony         | Kony have their own discussion forum, but not quite active where there are many unanswered questions. And if we searched in Stackoverflow with keyword "Kony" resulting more than 200 results.                                | 3     | Yes, depends on license type                                                                                                                                                                     | 5     |
| Sencha Touch | Sencha have their own developer forum with large numbers of threads. And the support person is quite responsive with new question. If we search in Stackoverflow with keyword "Sencha Touch" the result around 8.500 entries. | 4     | YES. They have premium forum, support portal, and nightly builds                                                                                                                                 | 5     |
| Framework7   | The discussion forum is quite active. The question got answered and resolved within a day. If we search in Stackoverflow with keyword "Framework7" the result is around 600 entries.                                          | 3     | NO                                                                                                                                                                                               | 3     |

### 6.3. Easy to Adopt

| FRAMEWORK | DEVELOPMENT LANGUAGE                                                                                                                                   | SCORE | RUNNING                                                                      | SCORE |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------|-------|
| PhoneGap  | Developer does all the coding in HTML, CSS & JavaScript file and compile or run the code. Phone gap doesn't need specific IDE or tool to write a code. | 4     | Fairly easy, with terminal or command prompt to build app in IOS and Android | 4     |
| Titanium  | Developer does all the coding in JavaScript & Alloy Framework. Developer creates & run the code using Titanium Studio.                                 | 5     | Easy, with embedded runner.                                                  | 5     |
| Ionic     | Developer does all the coding in HTML, CSS & JavaScript file in command prompt or with text                                                            | 5     | Need to type some code to build, and run the                                 | 4     |

| FRAMEWORK | DEVELOPMENT LANGUAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SCORE | RUNNING                                                                                                                                                                                                                                              | SCORE |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|           | <p>editor.</p> <p>Developers needs to Build and run the app with command Line or IDE with PhoneGap Cordova debugging tool (e.g. JetBrains WebStorm, IntelliJ IDEA, Visual Studio 2015, Visual Studio Code with Cordova Tool plugin)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       | application in the command prompt.                                                                                                                                                                                                                   |       |
| Telerik   | <p>To develop the application in Telerik, there is some way to do that.</p> <ol style="list-style-type: none"> <li>1. Telerik provide Mobile Platform desktop and Online to build your app.</li> <li>2. Add Telerik as Extension to Visual Studio, so the developer develop the app in VS.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5     | Easy to Run the application                                                                                                                                                                                                                          | 5     |
| Xamarin   | <p>Xamarin provide 2 ways to develop</p> <ol style="list-style-type: none"> <li>1. Using Xamarin studio. Android can be developed both on OSX and Windows. However, iOS and Windows Phone development can only be developed in their respective OS (iOS on OSX and Windows Phone on Windows machine).</li> <li>2. Visual Studio add on We can develop, Android, iOS and Windows Phone, however for iOS, developer still need Mac machine with "Xamarin.iOS Build host" to compile the project.</li> </ol> <p>The development language is C, but they still use native app lifecycle logic (although the method is in different name that the native to avoid copyright issue). A veteran Android/iOS developer can use the Xamarin to make their respected platform app pretty quickly, leaving just the need to learn a bit of C# syntax (mostly LINQ and object oriented concept). Most of the method is the same with the native method, just with different name.</p> <p>The same cannot be said to veterans in C# since learning android/iOS is something really</p> | 3     | Easy to run but quite difficult to configure. Different target requires different project configuration With many configuration options each specific to target device, it will take quite some time at the beginning before we can run the project. | 3     |

| FRAMEWORK    | DEVELOPMENT LANGUAGE                                                                                                                                                                                                                   | SCORE | RUNNING                                                                                                                                                                             | SCORE |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|              | new to them and most likely will took a very long time to master.                                                                                                                                                                      |       |                                                                                                                                                                                     |       |
| React-Native | Developer does all the coding in HTML, CSS & JavaScript file in command prompt or with text editor.                                                                                                                                    | 4     | Need native development tool, XCode or Android Studio to build and run the application                                                                                              | 4     |
| Kony         | Developer does all the UI/UX functionality using Kony Visualizer IDE                                                                                                                                                                   | 5     | Fairly easy to configure as all property are visible. But deeper knowledge is needed to understand how to implement the logic of each screen and their interaction to other screen. | 3     |
| Sencha Touch | Developer does all the coding in Ext JS.<br>Developer creates & run the code using Sencha cmd.                                                                                                                                         | 4     | Fairly easy to run the app. Need an integration with cordova to access the native api in mobile device                                                                              | 4     |
| Framework7   | Developer does all the coding in HTML, CSS & JavaScript file and compile or run the code.<br>F7 doesn't need specific IDE or tool to write a code.<br>F7 provides the kitchen sink and simple 2 page application as the base template. | 5     | Need to be integrated with phonegap to create the native application.                                                                                                               | 3     |

#### 6.4. Hardware and Sensor Supported

| FRAMEWORK | HARDWARE AND SENSOR SUPPORTED                                                                                                                                                  | SCORE |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| PhoneGap  | Use Cordova.JS<br>Camera<br>Accelerometer<br>Capture<br>Compass<br>Connection<br>Contacts<br>Events<br>File<br>Geolocation<br>inAppBrowser<br>Media<br>Notification<br>Storage | 5     |

| FRAMEWORK    | HARDWARE AND SENSOR SUPPORTED                                                                                                                                                                                                     | SCORE |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Titanium     | Use Cordova.JS<br>Camera<br>Accelerometer<br>Capture<br>Compass<br>Connection<br>Contacts<br>Events<br>File<br>Geolocation<br>inAppBrowser<br>Media<br>Notification<br>Storage                                                    | 5     |
| Ionic        | Use Ionic Native which is a wrapper for Cordova/Phonegap plugins:<br>Camera<br>Accelerometer<br>Capture<br>Compass<br>Connection<br>Contacts<br>Events<br>File<br>Geolocation<br>inAppBrowser<br>Media<br>Notification<br>Storage | 5     |
| Telerik      | Use Cordova.JS<br>Camera<br>Accelerometer<br>Capture<br>Compass<br>Connection<br>Contacts<br>Events<br>File<br>Geolocation<br>inAppBrowser<br>Media<br>Notification<br>Storage                                                    | 5     |
| Xamarin      | Native API, support all device sensors and API.                                                                                                                                                                                   | 5     |
| React-Native | Native API, support all device sensors and API.                                                                                                                                                                                   | 5     |
| Kony         | Use Kony Visualizer API:<br>Camera<br>Accelerometer<br>Compass<br>Connection<br>Contacts<br>Events<br>File                                                                                                                        | 5     |

| FRAMEWORK    | HARDWARE AND SENSOR SUPPORTED                                              | SCORE |
|--------------|----------------------------------------------------------------------------|-------|
|              | Geolocation<br>Media<br>Notification<br>Storage                            |       |
| Sencha Touch | Cordova or Phonegap native API. But it requires some integration processes | 4     |
| Framework7   | Need Phonegap integration to access the native API                         | 3     |

## 6.5. Widget/ Components supported

| HYBRID MOBILE FRAMEWORK | COMPONENT SUPPORTED                                                                                                                                                                                                                                                                       | SCORE |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| PhoneGap                | Developer has to develop their own control using HTML, JavaScript, jQuery or CSS. For example: Navigation bar, Dropdown Field, etc.                                                                                                                                                       | 2     |
| Titanium                | Titanium has several controls with native looking such as Alert, Android Menu, Picker, Popover, etc                                                                                                                                                                                       | 3     |
| Ionic                   | Ionic already have their own control or component like Navigation bar, Side Menu, Tab etc. Since Ionic is built on Angular JS v1, it can also use Available Angular JS v1 web components, if it is necessary.                                                                             | 5     |
| Telerik                 | Telerik already have their own control or component like Navigation bar, Side Menu, Tab etc.                                                                                                                                                                                              | 5     |
| Xamarin                 | Xamarin has component (separate download) accessible from this URL <a href="https://components.xamarin.com">https://components.xamarin.com</a> ; The component can be user published or from Xamarin team, because of that the quality is a bit unpredictable. Not all component is free. | 4     |
| React-Native            | React-native already have their own control or components commonly used in iOS or Android Apps like Navigation bar, Side Menu, Tab, DatePickers, etc.                                                                                                                                     | 4     |
| Kony                    | Kony already have their own control or components commonly used in mobile Apps like Navigation bar, Side Menu, Tab, DatePickers, etc.                                                                                                                                                     | 5     |
| Sencha Touch            | Sencha Touch have their own components (over 50 built-in UI components and native looking themes) commonly used in Mobile Apps like Carousel, Chart, DataView, Floating Components, Forms, List, Navigation, Nested List, Tab Panel,                                                      | 5     |
| Framework7              | Framework7 is focused on iOS and Google Material Design. F7 provides native-like widgets and components such as Floating button, List, Search bar, Swipe to delete, Tabs, Side panels, etc.                                                                                               | 5     |

## 6.6. Big name(s) who support, develop & use the framework

The big names who support, develop and use the framework based on our research are as below:

| HYBRID MOBILE FRAMEWORK | BIG NAME COMPANIES                | SCORE |
|-------------------------|-----------------------------------|-------|
| PhoneGap                | Adobe, Salesforce, IBM, Microsoft | 4     |
| Titanium                | eBay, Cisco, PayPal               | 4     |

| HYBRID MOBILE FRAMEWORK | BIG NAME COMPANIES                                                                            | SCORE |
|-------------------------|-----------------------------------------------------------------------------------------------|-------|
| Ionic                   | Moodle and Angular JS                                                                         | 4     |
| KendoUI                 | Telerik                                                                                       | 4     |
| Xamarin                 | Microsoft, Berkshire Hathaway, World Bank, USAF, UK Parliament, Dutch Tax Office, Halliburton | 5     |
| React-Native            | Facebook, Soundcloud, Microsoft, Discovery Channel                                            | 5     |
| Kony                    | Unknown                                                                                       | 0     |
| Sencha Touch            | Sencha                                                                                        | 3     |
| Framework7              | Unknown                                                                                       | 0     |

### 6.7. Apps Showcase & Number of developed apps in Google play & apple app's store

Number of mobile apps that are developed using the framework based on our research are as below.

| HYBRID MOBILE FRAMEWORK | # APPS DISPLAYED ON APP SHOWCASE PAGE | SCORE |
|-------------------------|---------------------------------------|-------|
| PhoneGap                | <a href="#">13</a>                    | 3     |
| Titanium                | <a href="#">840+</a>                  | 4     |
| Ionic                   | <a href="#">520+</a>                  | 4     |
| KendoUI                 | <a href="#">44</a>                    | 3     |
| Xamarin                 | <a href="#">18</a>                    | 3     |
| React-Native            | <a href="#">137</a>                   | 3.5   |
| Kony                    | -                                     | 0     |
| Sencha Touch            | <a href="#">17</a>                    | 3     |
| Framework7              | <a href="#">97</a>                    | 3.5   |

## 7. Conclusion

We can see from the Platform Evaluation that Ionic is probably the tool that will fit most developers to use for hybrid application development, since it has the highest score following by React-Native.

However, we would recommend the following:

- We would like to recommend React-Native when the following conditions met:
  - We want to embrace the future's opportunities to provide resources who will be able to write Universal Windows Application while also able to write Web SPA, Android and iOS Mobile application.
  - Develop the application that displaying or dealing with lots of data
  - We do have available Java Scripts resources with sufficient ReactJS knowledge.
- We would like to recommend Ionic Framework when these following conditions met:

- We do want to build hybrid application which runs on Android, iOS, Web SPA or even desktop application using 1 (one) single code base.
- We do have available Angular JS resources
- For the version selection, we would like to recommend the following:
  - If the resource is completely new to Ionic, start with Ionic 2.
  - If the existing project is created with Ionic 1, stick with Ionic 1 and switch them over later.
  - Use Ionic 1 for mission critical project or complex project that need to be released soon.
- We would like to recommend Xamarin when these following conditions met:
  - We do have available resources with .NET background that have little to moderate experience in developing native Android and/ or iOS Apps.
- We would like to recommend Sencha Framework when these following conditions met:
  - We do want to build hybrid application which runs on Android, iOS, Windows Phone, Blackberry, Web SPA or even desktop application using 1 (one) single code base.
  - We do want to build hybrid application with native looking themes.
  - We do have available Javascript resources with sufficient Ext JS knowledge.

Those candidates are free to use (no license fees need to be paid to use the framework). Supports can be obtained through participating in the framework's github's forum or gitter and Big names are supporting these candidates except Sencha: Facebook, Google, and Microsoft.

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