

Closed Mobile Platforms Are Best For Healthcare App Development

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Everyone has a medical mobile app these days, and if they don't, they have an idea for one. Turning an idea into reality is easy in theory, and the mobile OS houses want you to believe this. But making an application that suits the users' needs in the healthcare environment, or at least what they think they need, by providing meaningful, reliable information and functionality that withstands user 'testing' and allows scalability is a challenge. There is also the chance that someone has tried to implement a similar idea and failed (and hopefully they know why and will tell you), or worse, someone has tried and succeeded. The latter may require a better idea, better infrastructure, or better marketing to be successful if you are trying to sell something.

What if you don't want to sell an app? What if you want something to "just work" in your environment? This is an opportunity to make an app and not owe anyone beyond your peers, anything. On the other hand, it is also an opportunity to buy, assuming the desired functionality can be found in an existing app. This buy versus build decision uncovers the benefits, risks, and costs of each approach.

Purchasing an app from a third party vendor may bring the app to your facility more rapidly but the implementation tail can be very long. Vendor responsiveness to each environment's unique nature varies and can lead to user frustration, confounding adoption. While some workflow changes may be required if an app is developed in-house, more extensive workflow changes to meet the app's functionality may be required. Conversely, if workflow changes are not possible (from either care or cultural reasons) implementation may be prolonged or suboptimal. During implementation, the expectations, requirements, and responsibility for third party vendors securing PHI is sometimes more than what they (and you) may want to assume. It can also prolong implementation since handling secure transfers and verifying the proper protocols are followed takes time. Once implemented support for the application, and continued development can cease abruptly if the market does not support the vendor's business model and their financial viability cannot be sustained.

Regardless of outcome of the build vs. buy decision, a platform, or platforms, must be decided upon - first. The platform decision may be fraught. At the time this was written, iOS and Android mobile operating systems were dominant, with Windows a distant third. 2011 saw Web OS go open source and unsupported by HP, and RIM deeply discounted their devices to get them off the shelves and ceased Playbook production. These are just two of the scores of mobile product failures. It seems that the mobile OS platform wars are consolidating to a fundamental binary choice. Ultimately, one must decide whether to use apps built on a "closed" platform, such as Apple's iOS, or on an "open" platform, such as Android or both.

We argue that in order to take advantage of process ownership, rapid cycle development, and to leverage existing infrastructure, enjoying the 'most favored nation' status of working inside your organization's IT framework, it is best to use a small development group to write your own mobile medical apps on a closed platform.

Building your own application costs very little from a hardware and software perspective, regardless of the platform. The bulk of the expense is the design, development hours, and testing that is required to implement it. Once implemented, supporting the application results in a software maintenance and update tail that will not likely end until the app is no longer useful. While this is daunting, it comes with a distinct advantage - the design of the application, implementation and maintenance requires investment and commitment from a great number of people to even start such work. No one generally wants his or her project to fail, so "buy-in", once achieved, is commonly longstanding.

Within the development realm itself, a small group of knowledgeable developers dedicated to the app's success is worth more than gold. The development shop should be organized so that discrete work is performed in small, manageable pieces that are tested and delivered to users on a regular basis. This allows iterative development - the first versions are not expected to do everything, which avoids kitchen sink development, and allows earlier implementation with basic functions and a promise of more to come that can be delivered. Rapid cycle development supports a cycle where the business owners of the app show their commitment to the app and the health care providers who use it. In turn, the care provider / clients respond to these improvements with more ideas as they see their suggestions manifest in the app.

Closed platform operating systems further enable this rapid cycle culture by keeping development overhead to a minimum. More fragmented, open platforms are run on a variety of hardware, which may have the most current, but often older, operating systems. More advanced users are also more likely to "hack" their device. This variation in a Bring Your Own Device (BYOD) environment can lead to app accessibility issues including installation, function, and inconsistent functionality between care providers. Adoption will suffer in the first two instances, where the final issue could lead to safety risks if communication or decision support is negatively impacted.

App integration with other hospital systems is often a key to success. Delivering an app that both (a) adds significant value in healthcare, and (b) operates in isolation from other institutional systems is rare. Intimate knowledge of the interfaces and protocols

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required to exchange data in real-time, and still uphold the required security to preserve and protect patient health information (PHI) is more easily leveraged when the requesting system lives inside the institution, and when the added headaches of platform fragmentation have been side-stepped. This argues again for the self-developed, closed platform approach.

Ultimately, the key criteria for establishing value in an app are user adoption and effectiveness. These are key, linked concepts. No one will take time to use an app that does not provide value to them in their work. Nor will they use an app that is effective but is difficult to use – as

long as there is an option not to adopt. Given that there are 5000 hospitals and several-fold more medical practices in the US alone, and each has its own personality and boutique style, the likelihood that an app developed one place will transfer to another with full value is virtually nil. Thus, to maximize the likelihood that an app will add value, one must develop or customize apps for their unique environment. This, in turn, requires a team, who will develop and more importantly maintain the app. To efficiently use that team, the one-and-done development cycle of a closed mobile OS is persuasive.