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Introduction

Government organizations deal with most critical, real-time and data oriented decision-making in the world. Their ability to respond to the emergency situations and their efficiency in processing large amounts of data efficiently within short span of time, are critical success factors for a stable community.

Technology adoption has been driving the capabilities of organizations across the world. While some of the organizations have been leading the technology adoption and innovation, some of them were lagging behind and trying to catch up. Though there are political decision-making, policies and budget allocation issues, which hold the public organizations from adopting the technologies immediately, it is very evident that the organizations that sit back and watch will loose out in their short term and long term capabilities to service the general public.

One of the most happening areas in the technological landscape is the adoption of mobile devices for improving the productivity of workforce. Organizations have been adopting mobile devices for their daily work ever since the introduction of Blackberry devices in 1999. During those days, the security and feature set available through those devices were within the control of the organization, as they had to concentrate on only one type of device, which has high-end security features available. The introduction of iPhone in 2007 changed the entire smart phone landscape. The device and feature set choice have been increasing exponentially. This has also led to a situation where organizations realizing an opportunity as well as security threat at the same time.

Bring Your Own Devices (BYOD) and Bring Your Own Application (BYOA) are two important initiatives which many organizations (mainly private organizations) have been trying to adopt in order to reduce procurement cost and to increase productivity. But challenges in enrolling these devices and applications to organization's network through a highly secured environment have put many of them in a wait and watch mode. It is important to note that in an unmanaged environment, both the initiatives may increase the cost and risk for the organization. Still many organizations have been trying to find out work-around to reap the rewards that the mobile revolution has been bringing to the productivity of the work force. Mitigating the risks and reaping the benefits can go hand-by-hand with a very good *mobile devices and applications adaptation* strategy of the organizations. As part of this strategy organizations may have to take decisions between Ready-made mobile applications as well as custom build mobile applications. This white paper

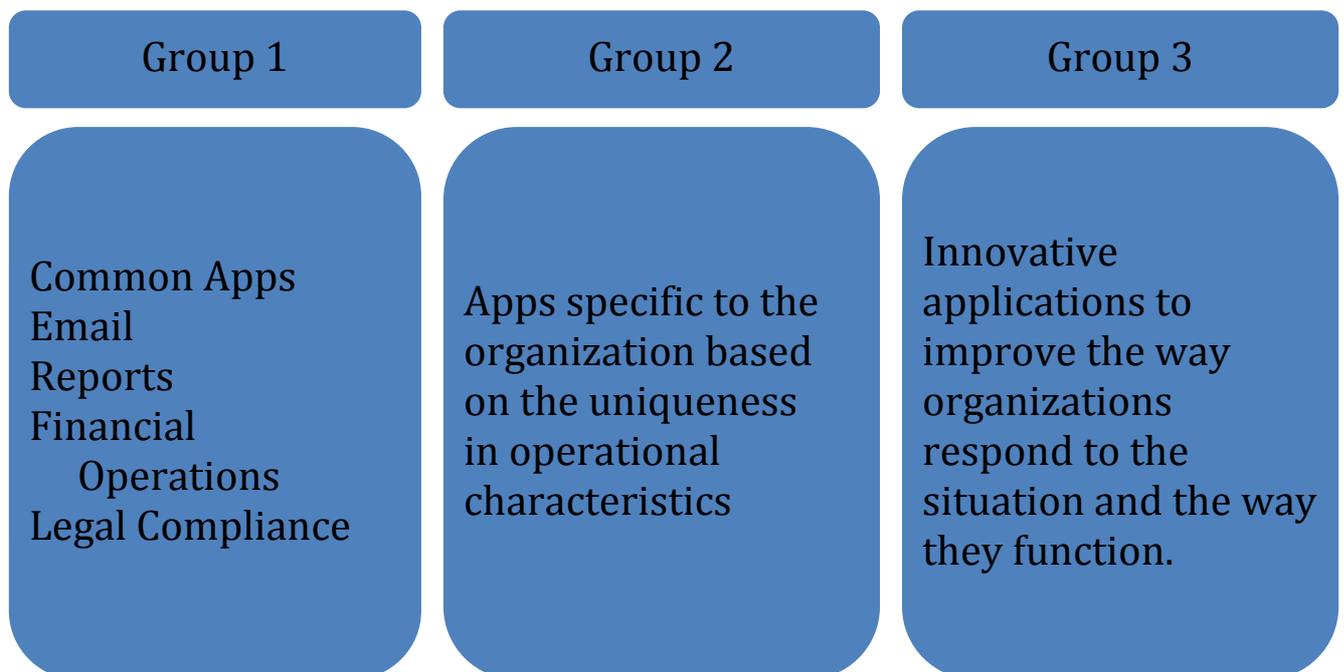
tries to find out an evaluation criteria while deciding between Ready-made and custom mobile application.

What are the kinds of mobile applications organizations deal with?

Based on the day-to-day functions of the organization, there are different kinds of mobile applications that organizations can deal with. While ready-made solutions provide easy and immediate adaptability to mobile technology, there are many advantages that custom solutions bring in. It is important to evaluate the pros and cons of ready-made solutions and custom mobile applications before adapting any of them.

The applications can be mainly divided into three groups.

1. Applications which are common across different organizations (Group 1)
2. Applications which are unique in an organization (Group 2)
3. Innovative applications to change the way organization function (Group 3)



Group 1: Applications, which are common across organizations

In this group the requirements for the application are common across organizations. The readily available mobile applications, which are built specifically for these purposes are enough to satisfy the end users. As the requirements are consistent

and there are large user base, they come with the advantage of lower cost of acquisition. They are also easy to use and they come with a familiar interface for the end users. The applications would have gone through multiple cycles of enhancements to solve many problems end users might face. It will be easier for the organizations to integrate these applications to the organization's secured network, because of the maturity of the applications they deal with.

Group 2: Applications, which are unique to an organization

In this group the application requirements differ significantly across organizations or they are unique to the organization. For example a mobile solution carried by census agents or the solutions carried by survey agents are specific to those departments or organizations. They can differ in their steps and processes across same departments in different countries or districts as well. In this case the organizations may have to go for custom solutions, as there may not be any ready-made solutions available to perfectly match the requirements of the organization.

Group 3: Innovative applications to improve the way organizations respond to situations and to improve the way they function

These are applications mainly intended towards breaking the traditional approaches. In this, the solution requirement may be extremely unique and may bring impactful change in the way organizations function. As these solution ideas are new, organizations will have to go for custom mobile solutions. Some of the applications in this category include

- Public safety applications which tracks users exact locations in an emergency situation to provide the help required as soon as possible. The safety agencies may improve the presence in the field through rapid information sharing, real-time reporting and information exchange.
- A mobile application that provides information about epidemic diseases in nearby area, the precautions to be taken and the way you can help any person with the disease you come across etc. improves the public awareness about the diseases and help governments to avoid any panic situations.
- A dashboard application that provides real-time performance data to top executives, that track the key performance metrics of various federal agencies and programs

Is it worth going for custom made solutions?

The decision-making depends on the uniqueness of the data and the systems. If the purpose and the complexity of the systems are unique to the organization, there is high chance that the organization will end up developing a custom mobile application for its intended purpose. It also depends on the way in which the organization will be trying to use the application for strategic improvements in its performance level.

On the other hand, Ready-made applications help organization in reducing the cost of developing new applications, while serving the exact purposes it is trying to cover. There are large numbers of applications that are well-built and well suite specific requirements of an organization. But there are many drawbacks as well that are associated with Ready-made solutions. The drawbacks and risks associated with them need to be carefully evaluated before selecting them for organization's use. Some of the risks of Ready-made solutions include

- The security of the ready-made solution may not go hand in hand with the security architecture followed in the organization. There will be limitations to the limit to which the applications can be configured to match the security layers of the organization. Unmatched security may expose organizations to data leaks and serious consequences.
- Ready-made solutions will have limited support offered by the developers. It will be difficult to get quick fixes for the issues faced in an organization.
- The cost of ownership may vary from the initial amount that needs to be spent. There will be cost associated with training, support, upgrades etc.
- If there is large number of employees or departments who choose their own applications through a BYOA initiative, there is chance that the application landscape may get distributed. There will be different applications being used for the same purpose. This will result in large number of applications to be supported by the IT departments in an organization.

It is important to make sure the organization's interests are protected always. It will be a challenge to overcome the risks exposed, without affecting end user's enthusiasm and involvement.

Custom mobile solutions help in developing applications with unique user interfaces, functionalities and other aspects suitable for the organization and its users. Some of the benefits of custom mobile solutions include

- The features and functionalities can be custom made for organization’s requirements
- Application can be tightly integrated with the secured systems in the organization. It is possible to provide maximum security.
- User interface can be customized for the organization’s needs
- Maintenance and support are easy and can be made available as and when required

As the end users, mainly the employees, have been experiencing large number of mobile applications available in the open market, there are standard expectations to be met while developing the custom mobile applications. Some of the important ones are listed below.

1. In normal circumstances, employees expect to use their own devices as much as possible. Challenge for organization lies in supporting multiple operating systems and devices, along with maximum security.
2. 3. Apps need to use its own intelligence in order to present information in the best possible way. Use of augmented reality to present information of about user’s surroundings is a good example of such intelligence.
3. Whenever connectivity is not available the applications need to work on offline mode. The applications need to connect back to online data as soon as connectivity is available.
4. Apps need to recognize user’s locations and provide them options more suitable for their current location. Etc.

Criteria to decide between ready-made and custom mobile applications

The following are some of the important criteria to decide on whether to go for ready-made mobile solution or a custom mobile application

Ready-made mobile solutions

Criteria	Comments
Functionality	Pre-decided functionalities. Very less customizable.
User Interface	Standard user interfaces. Very less customizable.

Performance	Fixed performance in standard conditions and on standard criteria.
Scalability	Scalability depends on the way the application is built.
Security	Security depends on the in-built security within the application and on the way in which these security features interact with enterprise systems.
Development timeframe	Very minimal
Deployment timeframe	Very minimal
Development cost	Very minimal
Ownership cost	Depends on the support required.
Integration with enterprise systems	Fixed integration capabilities, most of the time very limited.

Custom mobile solutions

Criteria	Comments
Functionality	Fully customizable as per the requirements of the enterprise
User Interface	Fully customizable as per the requirements of the enterprise
Performance	Can be optimized for the specific requirements in an organization
Scalability	Highly scalable within the organization
Security	Very high security as the security requirements are decided before the development of the application, in order to have tight coupling with the organization's security architecture
Development timeframe	High, as the application needs to be built afresh
Deployment timeframe	Depends on the functionalities of the application and its deployment architecture. Usually more than the ready-made solutions.
Development cost	High, as the application needs to be built afresh
Ownership cost	Depends on the support required
Integration with enterprise systems	Possible to have very tight coupling with

Conclusion

Mobile strategy has now become an integral part of almost all the organizations. The organizations will keep on facing increasing pressure in mobilizing key internal and external applications through their mobile strategies. Ready-made solutions may look attractive in many cases, as the initial investment cost is minimal. But compromise, if there is any, in terms of functionality, user interface and security requirements need to be carefully evaluated before making a final call. The cost of ownership involved in order to get training, customization and support for the application also needs to be weighed in. As the custom mobile applications provide perfectly customized solution for the organization's use, the long-term advantage may stand in favor of custom mobile solutions.