



D&D Knowledge Management Information Tool Feasibility Study for Cross-Platform Mobile Applications



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Introduction

- The D&D Knowledge Management Information tool (D&D KM- IT) is a web-based knowledge management information tool built for the D&D user community. A feasibility study is being conducted on cross-platform application frameworks for their viability to the D&D KM-IT mobile needs.
- Currently, three main Operating Systems comprise the majority of the mobile market IOS, Android, and Windows, requiring a separate application for each device (Figure 2).
- Cross-development software allows the development of one application using one language, that can be ported or deployed on multiple devices with little effort (Figure 1).

Methodology

- Using Xamarin, a native cross-platform framework, create a shared mobile application using Visual Studio.
- Build a D&D KMIT mobile application designed for the three major mobile platforms
- Use Xamarin to compile the application into native applications for the three target platforms.
- Build and deploy the application on all three mobile platforms.
- Perform benchmark tests of the developed applications to analyze the performance on the three platforms.

Results

- A large portion of the business logic of the application has been shared, eliminating development redundancy and minimizing planning, design, and validation time.
- The user interface development could not fully be shared cross-platform and some platform specific code must be individually implemented for each device.



Figure 1. Cross-Development Software

Conclusion

- Maintenance, testing and design phases of the software engineering process were reduced from one for each device to having just one shared cycle processes.
- A less diverse skillset for developers is required with cross-platform development.
- Some processes within the development cycle still require redundant activities.

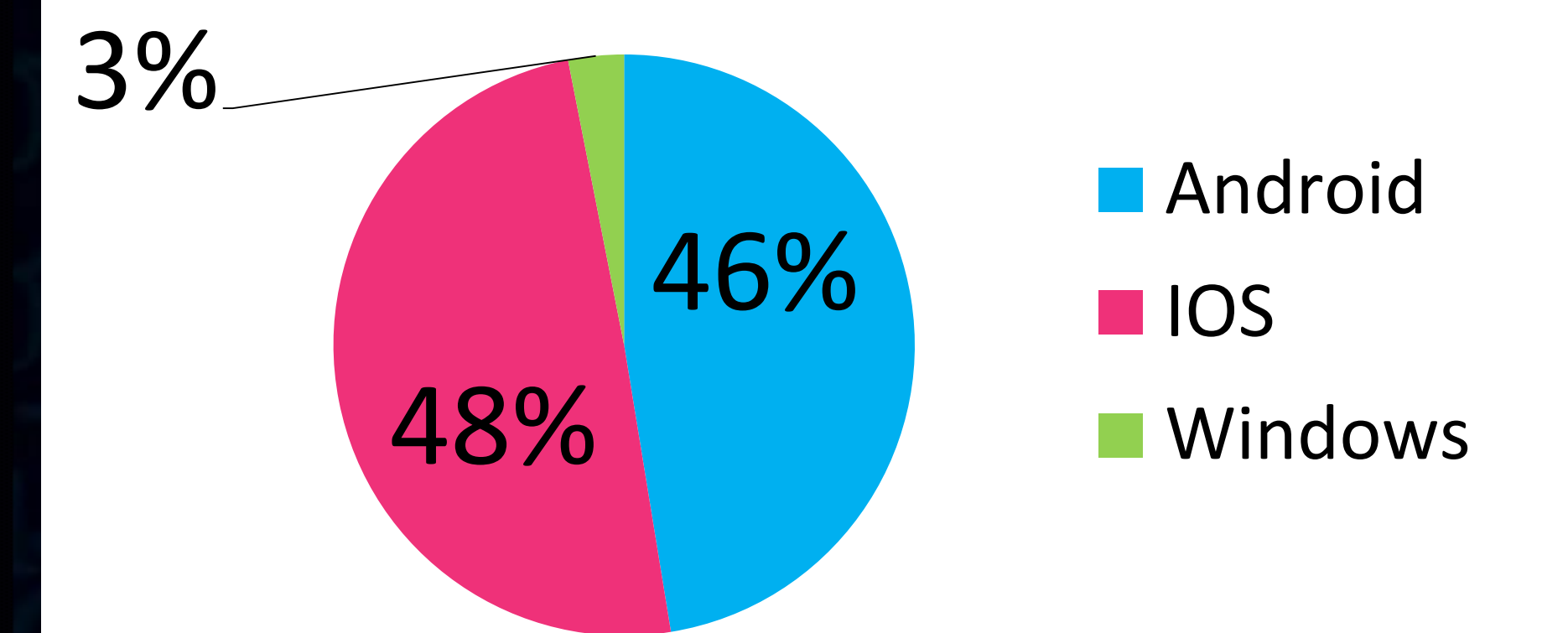


Figure 2. U.S. phone Market Share

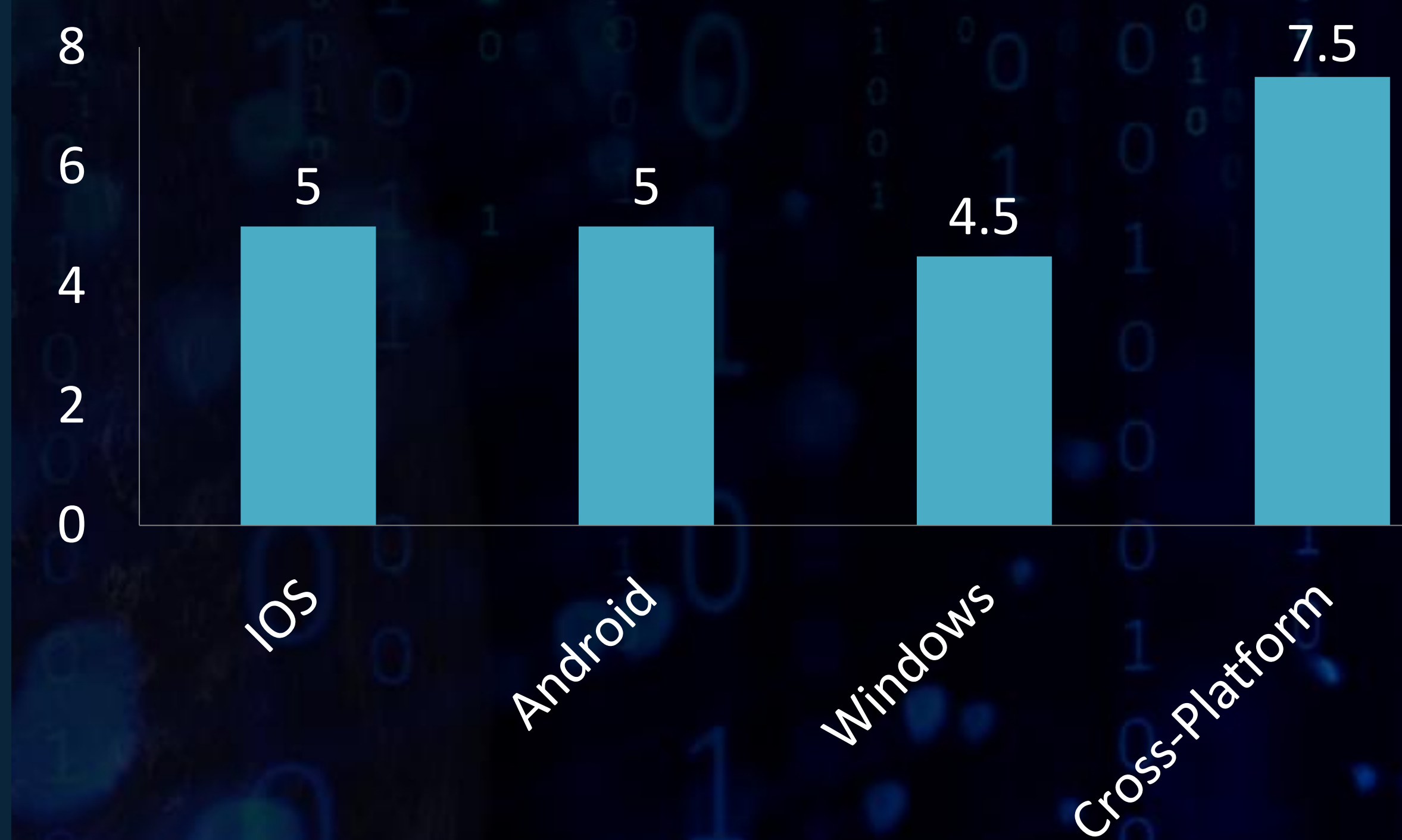
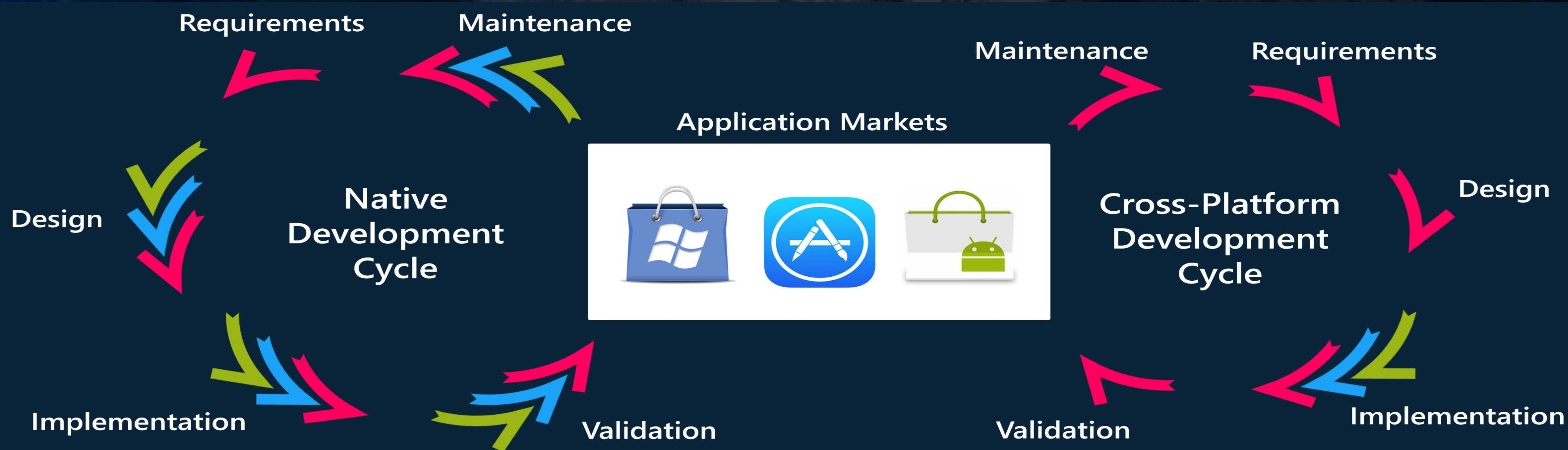


Figure 3. Minimum avg. development cost for app (amounts in tens of thousands of dollars)