

OSA: Cost and Schedule *Saver* or *Driver*?

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ICEAA INTERNATIONAL TRAINING SYMPOSIUM

BRISTOL, ENGLAND

OCTOBER 2016

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Definition: Open Systems Architecture

“An open architecture is a technical architecture that adopts open standards supporting a modular, loosely coupled and highly cohesive system structure that includes publishing key interfaces within the system and full design disclosure.”

(Source: Department of Defense Open Systems Architecture Guidebook)

Open System Initiatives

Industry:

National Cooperative Research Act 1984

Act promoted research and development, and modified antitrust laws to allow companies and corporations to share the burden of Research & Development costs

(Source: S.1841 - National Cooperative Research Act of 1984)

Department of Defense:

November 29, 1994

Undersecretary of Defense for Acquisition, Technology and Logistics directed that all DoD components and agencies use open systems specifications and standards for acquisition weapon systems

(Source: DoD Open Systems Architecture Contract Guidebook for Program Managers)

Goals of Open System

Cost Savings

Modular Design

Competition

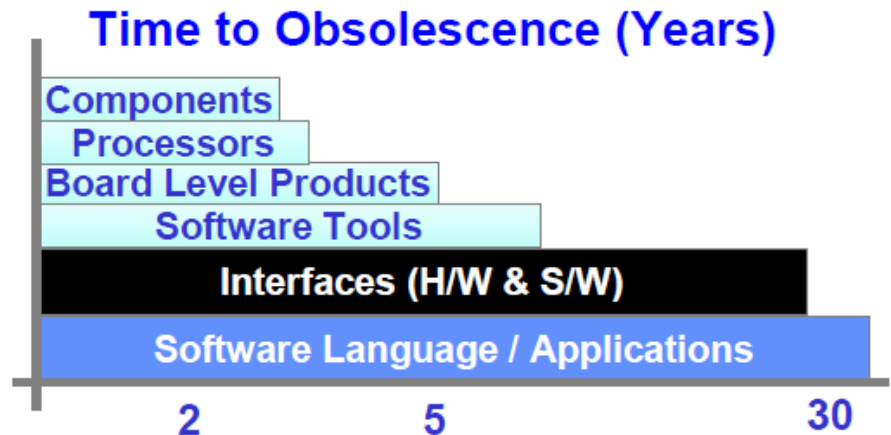
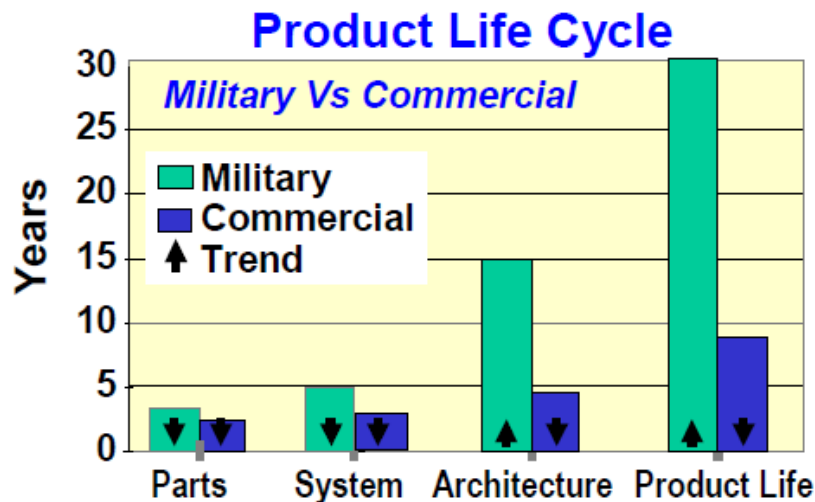
Flexibility

Benefits of Open Systems

EvansGroup Technology study ranked benefits among system buyers in the U.S., U.K. and Europe (*Source: The Business Case for Open Systems*):

Benefits of Open Systems
Flexibility
Freedom to choose IT from different vendors
Products from different vendors work together
Access across multi-vendor environments
Protect investment in existing computer system
Ability to use/share information anywhere in the world
Cost savings
Interoperability/portability across various platforms
Organizational change not constrained by IT system
Cost of ownership

Government Application



(Source: *The Modular Open System Approach to Defense Acquisition: OS vis-à-vis OA*)

- Alternative for obsolete technology
- Software hosted on multiple platforms and allows flexibility between contractors

A Current Example: Open vs. Closed System

THE CHOICE IS NOT CLEAR CUT

Cell Phone Software Platforms



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Overall Popularity

Worldwide Smartphone Breakout

Worldwide Smartphone Forecast by Region, Shipments, Market Share and 5-Year CAGR (units in millions)

Operating System	2014 Shipment Volumes*	2014 Market Share	2018 Shipment Volumes*	2018 Market Share	2013-2018 CAGR
Android	997.7	80.2%	1,401.3	77.6%	12.0%
iOS	184.1	14.8%	247.4	13.7%	10.0%
Windows Phone	43.3	3.5%	115.3	6.4%	28.1%
BlackBerry	9.7	0.8%	4.6	0.3%	-25.0%
Others	9.3	0.7%	37.7	2.1%	31.5%
Total	1,244.1	100%	1,806.3	100%	12.3%

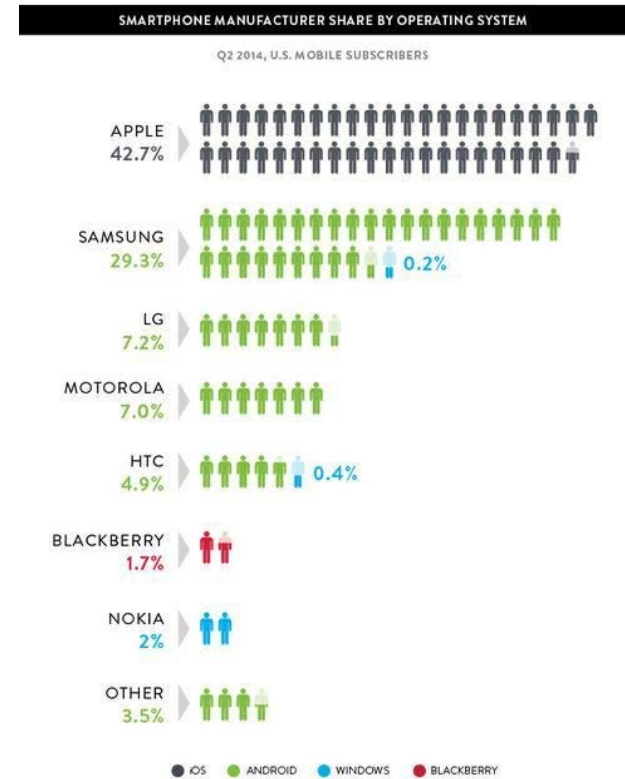
(Source: Business Insider, *The iPhone 6 Better Be Amazing and Cheap, Because Apple is Losing the War to Android*) 10

United States Breakout



U.S. Average:

iOS	42%
Android	52%



(Source: Yahoo! Tech, By the Numbers: iPhone vs. Android)

Key Differences

AS APPLICABLE TO A GOVERNMENT
ENVIRONMENT

Customization

ANDROID

- By virtue of being an open system
→ greater ability to customize
- Goes beyond home screen
- Allows user to add widgets
- HW OEMs are able to make modifications

iOS

- Little room for customization
- Interface is locked down

**OVERALL
WINNER:**



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Software Upgrades

ANDROID

- Multiple platforms and providers, sometimes not all hardware receive latest software upgrades
- Not all updates are compatible across all devices
- Even an issue with new devices
- More difficult to fix bugs across all platforms

iOS

- Advantage of one Original Equipment Manufacture (OEM) and a couple hardware variations
- iOS upgrades are generally offered to all devices
- Easily can push updates

**OVERALL
WINNER:**



(Source: Diffen, Android vs. iOS)

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Security

ANDROID

- More popular software system, leads to greater security hack attempts
- Application developers have access to software baseline
 - Provides greater ability to access personal information

iOS

- Apple controls all updates and baseline software
- Restrict what is available to public
- Limit what application developers can access within phone software
- Historically stronger security

**OVERALL
WINNER:**



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(Source: Diffen, Android vs. iOS)

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Cost

ANDROID

- Samsung 32GB Galaxy S6 \$549
- Multiple OEMs fosters competition: Samsung, LG, Motorola, and HTC
- Android manufacturers offer sales, discounts and other promotions

iOS

- iPhone 6s 32GB \$649
- iPhone 6s Plus 128GB \$949

**OVERALL
WINNER:**



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(Source: Diffen, Android vs. iOS)

Government Applications: Open Systems

ADVANTAGES

- Potential Long-Term Cost Savings
- Customizability
- Fosters competition & promotes flexibility
- Removes dependencies on single OEM
- Products from different vendors work together

DRAWBACKS

- Security Concerns
- Software Upgrades inconsistent across multiple platforms/hardware
- Baseline Ownership
- Development costs

BOTTOM LINE: Answer is not clear cut

Future Work

Open Systems Architecture, is it truly the less expensive alternative for government applications over the life cycle?

Does open systems accelerate overall program schedules or only during specific periods of time?

Lessons learned from past program successes and failures both in industry and government

Questions?

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