INFO5992 Introduction to IT Innovations

Week 3

Tutorial 3: Dominant Design in the Smartphone Market

In our lecture this week, we discussed the concept of **Dominant Design** in IT. In this tutorial, we will reinforce our learning through a group discussion on the dominant design with smartphones operating systems (OS). We will then explore a related topic on Virtual/Augmented Reality (VR/AR) strategy with smartphones.

1. Android OS architecture is appearing to be the dominant design in the smartphone OS market. What are the main reasons that led to this?
    - An open source platform – Beneficial for both software developers and phone manufactures
    - Diversified vendors and products (with different styles, specs, and purposes)
    - Fast second (second disruptive) – after iOS – this could be argued that iOS has established the smartphone App market – and then Android got in before there was a dominant design. But we need to take into consideration that Fast second, normally, does not introduce a competing product, but rather takes an existing one to become the dominant one.
    - Android becoming dominant, perhaps, in the OS market share only. Apple can already be considered a dominant design with most of developers choosing Apple as the lead platform as it has more users in the high-end market. However, a developer cannot ignore the volume of Android and it is becoming less likely to see exclusives on iOS.
    - Range of prices, different to Apple focusing on the high end market, many Android phones are more affordable
    - Challenge with Android OS is the issue with fragmentation and 'forking' of the OS which are adding complexity to the developers. For example, Fire OS is a fork of Android customised for Amazon. Compatibility of Apps is becoming more problematic where there are so many variants of Androids
    - Apps developed for android are not required to be "approved" by google (unless it's in google play store)
    - Google does not charge developer for app publications (attract more developers) and license to develop is a one-time small fee, compared to Apple's annual fee. However, with Apple, you get Apps validated and there are other benefits. Nevertheless, the fact that Google is free makes it much more accessible.
    - Learning effects – more Android users means more Dev and vice versa

2. In the short article, Android's strategy for the VR is following similar principles to what made Android the dominant design for the smartphone OS. Do you think this strategy will become the dominant design in the VR space? You may think about this in the context of concepts learned in the class including 'architecture', 'standards', 'network effect' and 'self-reinforcing cycle'.

    Advantages:
    - Mobile (handy) for VR devices

- Diversified vendors and products (with different styles, specs, and purposes)
- Open architecture/open source
- Compatibility can be an advantage, but its interesting to note that a lot of Google VR devices work with iPhone.
- Connection sponsorship (as in BBC and other big companies want to participate)
- Strong network effect: many would easily try their VR product.
- More accessible price – most people already have a good enough smartphone, so the VR addition is relatively cost-effective
- Simplicity as there is no need to 'setup' anything – just another App on your smartphone

Disadvantages:

- Less powerful in computations than PC -> cannot provide intuitive interaction VR environment
- Safety / usefulness – people cannot wear VR devices while they are moving (even through VR software are implemented with mobile devices)
- Smartphones and VR are very different and Android not a VR specialist;
- The smartphone VR user experience might not be as good as a solution from a company specialising in VR, e.g. Oculus, therefore users might not adopt Android VR
- Hardware performance is still a major issue and PCs have a performance advantage
- They entered a bit late (already large companies in Oculus/Facebook, HTC/Sony and Samsung)

3. Apple recently launched their AR strategy – as with other Apple products, it is a closed system, e.g., a part of the Apple ecosystem. Apple has a massive user base, and the AR technology is strong. Do you think they can become the dominant design of 'Reality' technology for smartphones? It's interesting to note that Apple is not getting into VR and instead focusing on AR. AR with smartphones is been around for a long time.
   Advantages:

   - Network effects
   - Learning effects
   - Huge customer base
   - AR technology (in software / hardware (e.g., tracking devices)) is matured
   - AR well fits to mobile
   - A few number of devices – can optimize AR software on them (like console)
   - ARKit does not require separate AR sensors;
   - Incredibly simple to use but lacks in depth. Does not have accurate 3D motion tracking or depth perception compared with Google's Tango.
   - Apple has made AR possible in software which will probably cause software-based innovation to happen much faster; on the other hand, Google only has a hardware solution which cannot be upgraded.

   Disadvantages:

   - Is not an open source platform, although Apple is generally moving towards supporting open platforms (more in later lectures).

- Price might be too expensive
- More barriers for new developers to entre

4. Do you need to be a smartphone OS to dominate in VR? Facebook is a massive social platform and they have many of the services that smartphone OS has e.g, Apps, network effect, and architecture. With Oculus GO becoming 'standalone' device, and therefore a mobile device, could they become the dominant design?

   Opinion: Yes

   - A smartphone-based VR has limited rendering quality compared to a standalone VR such as Oculus Rift. However, such high quality VR equipment is much more expensive than the smartphone-based VR and therefore it is difficult to be adopted broadly. Oculus GO, priced at rumoured AUD$250 could make it widely acceptable.

   Opinion: No

   - The top three market leaders in VR don't own any OS. However, they own major App ecosystem e.g. Google Playstore and Android which are used to build Apps. Oculus has Rift Experiences (and soon, Facebook's ecosystem), which can then be used to build dominant design strategies.

   Recently, Facebook introduced a new standalone VR, named Oculus Go, which claims to be both affordable ($200) and have high rendering quality.

   - Oculus Go must be exceptionally better in VR compared to the smartphone-based VR so that people would not mind buying both equipment.
   - High quality of apps and contents should be available in Oculus Go.
   - With Facebook's large user base, Oculus will have to penetrate a huge pre-existing market but it has potential to become a dominant design.

5. [Optional / Homework] In the short article on Windows 10, the author suggests "*Windows 10's Smartphone Failure Is Microsoft's Greatest Opportunity"*. Do you agree with this comment? Can you answer in terms of the dominant design concepts, in regards to Android and iOS platforms?

   Opinion: Yes

   - Microsoft is currently focusing on Cloud as a service which have better opportunities; dominant designs for Cloud has not yet emerged in regards to multiple services that MS is providing.
   - Provides easy integration of cloud services with other OSs including Android and Mac.
   - Applications such as One Drive and One Note are popular and have strong features.
   - Microsoft hololens has the most technically capable platform in VR&AR compared to Google's Tango or Apple's ARKit.

   Opinion: No

   - Many of Applications (e.g. Microsoft Office) are not free, which may make people hesitate to use. There are however Free for smartphones and Tablets, an attempt to get traction in the mobile market.

- Lack of third party support might make it difficult when considering traditional smartphone OS. As a comprehensive e.g., productive software provider, they can be leaders.