



## 5.6 Research and Development

**Google (R&D 6.7 Billion):** For such a young company, Google has already built an impressive R&D effort, much of it focused on mobile and AI applications, such as Project Glass and autonomous cars. Its vaunted Google X lab is so secret that no one even knows where it is.

Artificial intelligence is already an important part of their core search and mapping businesses and they are working quickly to expand those capabilities with Google Now. As Fred Wilson of Union Square Ventures described in a recent post, Google seems to be pulling ahead to an early lead in the race to integrate AI into our daily lives in a meaningful way.

**Microsoft (R&D 9.8 Billion):** The dark horse in the race is Microsoft, which ruled the 90's but is coming off of a decade of decline in influence and prestige. Lately, however, they have been showing signs of a resurgence with a small but growing global mobile share and Windows 8, which provides the only unified platform for the desk, handset and living room.

Their \$9.8 billion of R&D is larger than any of the other companies competing to win the AI race and, as PC World recently reported, a lot what they're coming up with is impressive. From a holodeck to real-time voice translation, they're developing some of the coolest technology on the planet.

While other competitors will surely emerge (Nuance, for example, is a strong candidate), these three appear to be at the forefront of bringing AI into the consumer experience.

What's interesting is how absent Apple and Samsung appear to be. Apple's relatively paltry \$3.4 billion R&D budget will do little to bolster their current offering and Samsung, which reportedly has a massive \$41 billion R&D budget, is mostly focused on chips and screen technology.

Source: [www.BusinessManagementIB.com](http://www.BusinessManagementIB.com)

### 25 MARKS, 45 MINUTES

1. Explain the following types of innovation:

  - i. Product
  - ii. Process
  - iii. Positioning

**[6 marks]**
3. Distinguish between **adaptive creativity** and **innovative creativity**

**[6 marks]**
4. Explain how the pace of change effects the research and development practices of companies operating in the technology industry

**[4 marks]**
5. Discuss the importance of research and development for the businesses identified in the case study

**[9 marks]**