

# INFO5992 Introduction to IT Innovations

## Week 4

### **Tutorial 4: Cognitive IT Services and its Value Chain / Network**

In this week's Lecture, we studied the concept of 'Disruptive Innovation' defined by Christensen to mean an innovation that, i.e. *"they create new markets or change the value network in an existing market"* and discussed several examples, such as Canon, Cisco and Airbnb. In all these examples, they were possible to become disruptive through the emergence of new technologies.

In this tutorial, we will explore the state-of-the-art technology in **Cognitive services**. We will study the underlying technology in these services, with focus on Vision, Speech, and Language Application programming interface (APIs). We will use Microsoft as an example, but your group is free to pick either Google or IBM or other services. Microsoft cognitive services are below:

- Cognitive Services: <https://azure.microsoft.com/en-gb/services/cognitive-services/>
- Custom vision (Learning from your image data): <https://azure.microsoft.com/en-gb/services/cognitive-services/directory/vision/>
- Video Indexer (Analysing Video): <https://azure.microsoft.com/en-gb/services/cognitive-services/video-indexer/>
- Language (Understanding): <https://azure.microsoft.com/en-gb/services/cognitive-services/directory/lang/>

Within your group, try the different cognitive services and discuss the following questions and then select one technology. Each group should try to pick a different technology.

1. Can you describe the underlying technology, the idea/invention, and how it is used to provide the above cognitive services?
2. Can you identify how existing companies that are using the technology? There are many cognitive service companies with some example in <https://www.microsoft.com/cognitive-services/en-us/applications>
3. Can you think of a new business model using the cognitive service (technology)? Does it have the attributes to be a disruptive innovation? Answer this in terms of
  - a. Does it gain a foothold in a low-end market that has been ignored in favour of more profitable customers?
  - b. Does it create an entirely new market, turning non-customers into customers?
  - c. Does it begin with low-quality offerings, then eventually captures the mainstream market by improving quality?
  - d. Consider the features and usability of the APIs. Where are APIs typically involved in a value chain?
  - e. Do you think MS cognitive services will be easy to use the service and innovate with it for a new business? Is it creating a new value network?
4. [Optional / Homework] There are other competing services, including IBM Watson (<https://www.ibm.com/watson/>), Google upcoming deep mind (<https://deepmind.com/>), etc. Referring back to the innovation concepts we discussed last week, do you think there is an agreed 'Product Category', and an emergence of a dominant design? Note here that dominant design does not necessarily mean only one product has to win, e.g., Apple and Android.