

Theory 8 Ambiguity 2 & Network Effect

What do you know about science in action connects with black box?

Science somehow can be effected by ambiguity since they shape our way to think.

The first principle of ambiguity is *the fate of facts and machines is in later users' hands; their qualities are thus a consequence, not a case, of a collective action.*

Discussion part: if you target a specific system, what the differences between Android system and IOS system to develop an application. Some answers from students: 1/ you need a license in IOS while Android is not. 2/ if you download from IOS users need to pay more compare with Android.

Relates to our first principle: what the connection between our discussion topic with the first principle? It is a consequent or a cost.

For most applications, devices, softwares we made, the quality we assigned to them is a consequence not a cost. The quality and values of products will change while we update them. Thus, the costumers of products user will change too.

The first rule of method: *we study science in action and not read made science or technology.*

Scientific literature

How do citations work? Why is an article cited often? Why is an article never cited?

The frequency of an article cited also relates the consequence. Even as a researcher, there are different cost to access to library, database.

Thus we can go to the second principle and second rule of method.

Second principle: *Scientists and engineers speak in the name of new allies that they have shaped and enrolled; representatives among other representatives, they add these unexpected resources to tip the balance of force in their favour.*

Second rule of the method: *To determine the objectivity or subjectivity of a claim, the deficiency or perfection of a mechanism, we do not look for their intrinsic qualities but all the transformations they undergo later in the hands of others.*

How does this relate to I&E? Why do we choose Uber?

Black swans

The black swans means a large scale, unexpected events. The name came from swans are always white what happens if you observe a black swan? What would you do?

Options: Maybe somebody color it, or maybe more unexpected things will happen it is only a beginning, or it is only a shadow. A black swan is not a swan, we are observing an outlier, our definition is wrong.....

Mediocristan vs Extremistan

Mediocristan means normally distributed, good for natural parameters, high predictability, uncertainty- bases like all swans are white.

Extremists means peaked distributions, good for artificial phenomena, low predictability, ambiguity-based like black swans can exist.

They are two different modules regarding to definitions. trump is a very good example of black swan.

The fallacy of induction: *According to our observation, we can draw hasty but hasty inductive generalization might lead to false conclusion.*

How does this relate to I&E? if we can forecast the risk and crisis during process, we can win from real market. Foreseeing is a part of abilities to management and strategies.

Network Effect

In 1876, Bell made the first telephone call. There were only 2 telephones at that time but two years later, 10000 telephones in service. What happened to the value of the telephonic network between 1876 and 1878? How much was the utility for a user to join the network in 1876 and in 1878?

There is a Metcalfs' law: *the value of a telecommunication network is proportional to the square of the number of connected users.*

Given **N** users of network, the number of possible connections that can be made is **$n(n-1)=O(n^2)$** .

This is what we called network effect, the value that a consumer extracts from a product depend on the number of people using that product as well.

Network effect give rise to positive feedback.

Network Effect Types: direct and indirect.

Direct means an increase in usages leads to a direct increase in value for other users. Indirect means increasing in usage of the product spawns the production of increasingly valuable complementary goods, and this results in an increase in the value of the original product.

Bandwagon effect means people base their choices not in a rational way.

Positive feedback makes the strong get stronger and weak get weaker. Network effects become significant after a certain critical mass of users. The problem is how to attract users prior to reaching critical mass? Like marketing,