

The Adoption, Copying, and Diffusion of Technology

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I. Introduction

Over the last few decades technology all over the world has grown tremendously. That is due to the adoption, diffusion, and copying of technology. According to the text in the module, adoption is referred to as the decision to use an innovation for a specific reason. That could be a new organization, creating a way to organize and sort their data. And then using this new method would be considered adoption. And that goes into the fusion, which is the process of getting the technology out to the public and trying to get everyone on board to use it. The definition of the text states that “diffusion describes the process by which over time an innovation becomes adopted in a social group.” For example, my major is cyber security, and there are lots of things in this field of study, such as software and hardware, that are adopted, diffused, and even copied by those who may not be educated enough to invent their own or by those who don’t want to put time and money into creating their version of something that’s already complex and available for use. It’s important to study technology adoption to see what factors are making individuals adopt technology, and what’s making them not adopt the technology. This will determine the adoption rate in certain geographical areas.

II. Factors Influencing Technology Adoption

According to research, the adaptation of technology or innovation is determined by five characteristics of the innovation. This includes the advantage that the innovation gives you, the compatibility, how complex it is, the trialability, and observability. Although all five characteristics may not be taken into consideration by every person who is adopting an innovation, it has been found that the advantage, compatibility, and complexity are constantly being taken into consideration, when it comes to predicting the adoption of an innovation

(Sitorus 2016). The less complex an innovation, it's more likely the adoption rate will be higher. The compatibility aspect of technology adoption refers to how well new technology will work with other technology that is already available. Also, will a person have to purchase anything extra for it to work with pre-existing technology? For example, when the iPhone came out that did not have a headphone jack, that was a big factor when it came to consumers purchasing the iPhone because to use the headphones, they would have to buy the adapter piece for it, and they would also have to give up charging their phone at the same time. That slowed down the adoption rate of the new iPhone. As well as when Apple took away the home button. Many people still use older iPhone versions, and because of this, they have failed to adopt the new iPhone innovation. Other factors that may be taken into consideration for the adoption of innovations that have not been mentioned are the price of it, as well as social factors, whether the vast majority is using it, and if resources are even available to adopt it (Melitski 2010). Lots of Third World countries don't have the resources and money to adopt some of the technologies from some First World countries.

III. Dynamics of Technology Diffusion

The way, technology and innovations spread throughout the world are way different than how they were spread previously. Lots of companies are steering away from the traditional one-directional method of getting their innovation out there. These one-directional methods include TV advertisements, radio advertisements, and print advertisements. According to research by Daphne Simmonds, as well as others, lots of companies are leaning towards peer-to-peer communication that mainly occurs in an online fashion. They called it viral marketing. This type of marketing has been shown to lower advertisement costs increase a company's credibility and increase the diffusion time of a product or innovation (Simmonds 2021). An example of this

would be a company reaching out to a celebrity or person of interest and paying them to post about the innovation. During this time there are a lot of individuals who look up to these celebrities, and this is what increases the credibility of the company because individuals believe that since a celebrity is promoting it the idea is a good one and that the company is trustworthy. This is not always a good thing. Because it could lead to scams and consumers losing money. In previous years, there were instances where NFTs were introduced and lots of celebrities were promoting them which diffused them at a fast rate, getting their followers to invest money into them thinking they were legit. It was just a way for some celebrities to make money.

Another factor, when it comes to the future of technology is the age of the target audience. It's been learned in an article by Katherine Olson, that individuals, younger and age use some technology more than those older and vice versa. This can be because of an individual's knowledge of the technology and as previously stated the use of the device. The study found that younger individuals may not need medical devices as much as older individuals which will slow the diffusion and adoption rate of those devices. In contrast older and younger individuals' increased need for an innovation may raise adoption and diffusion rates (Olson 2011).

IV. Ethical Considerations in Copying Technology

As previously stated, some countries do not have access to certain innovations so the diffusion of innovation internationally may not be as prominent. But also, in countries that do have the resources, the idea of copying the innovation may come into play. Copying includes creating their version of the innovation or simply just using the version already made. Countries, companies, and individuals may copy an innovation because of many reasons. Someone may make their version of an innovation because of the cost of the pre-existing innovation. Another reason could be because the innovation is too complex to be made at the time. Just like any other

thing created by someone else you can't just take the ideas of someone else and make them your own. Even when it comes to the health of a large amount of people. During the time of the COVID pandemic, two companies who were creating the vaccine for the virus, Moderna and Pfizer, had a legal battle because I don't know who was accused of copying its technology. Companies who don't want individuals to copy their work, often have patents on certain things that disable the ability for someone else to copy without being hit with a lawsuit. Although Moderna did not try to take Pfizer off the market because of the need for the vaccine, it was still trying to send a message to other companies in the field to respect its intellectual property (Chemical Industry Digest 2022).

Conclusion

The adoption, copying, and diffusion of technology have become pivotal aspects of our rapidly evolving global landscape. As technology continues to advance, understanding the factors influencing adoption, the dynamics of diffusion and the ethical considerations surrounding copying is crucial for individuals, businesses, and policymakers. The adoption of technology involves the deliberate decision to incorporate an innovation. This decision-making process is influenced by various factors, including the perceived advantages, compatibility with existing technology, complexity, trialability, and observability. Notably, the less complex an innovation, the higher the likelihood of adoption. Additionally, compatibility with pre-existing technology plays a significant role, as demonstrated by instances like the introduction of the iPhone without a headphone jack. Socioeconomic factors, including income levels and access to resources, contribute to variations in adoption rates across different geographical areas. The dynamics of technology diffusion have transformed significantly, moving away from traditional one-directional methods to more interactive and peer-to-peer communication. Viral marketing,

facilitated by online platforms and influencers, has emerged as a powerful tool to lower advertisement costs and expedite the diffusion time of innovations. However, caution is warranted, as this approach can also be susceptible to misinformation and scams. Age demographics play a role in shaping technology adoption patterns, with younger individuals often embracing technology more readily than their older counterparts. The study suggests that the specific needs and preferences of different age groups contribute to variations in adoption and diffusion rates. The ethical considerations in copying technology are important. Intellectual property rights, fair compensation for innovation, and the encouragement of innovation for societal progress are key ethical principles. The legal battles, exemplified by the conflict between Moderna and Pfizer during the COVID-19 pandemic, underscore the importance of respecting intellectual property rights through patents. As we navigate the ever-changing technological landscape, a comprehensive understanding of the factors influencing adoption, the dynamics of diffusion, and the ethical considerations surrounding technology is essential.

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