DIFFUSION OF INNOVATION

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Abstract

Diffusion of innovation on the concept of bringing new ideas and adopting changes with time. Although it is a complex task for adopters to accept change, positive change in the system is always good for the people. The model of innovations allows the business to understand the effectiveness of the company. For instance, in the health care sector, the models of changes allow the sector to minimize the risk in the adoption of the innovative idea. The diffusion of innovation is important for economic growth because bringing new ideas and new technologies helps out businesses to groom themselves. The first model of diffusion was introduced by Rogers which is considered the basic model of diffusion. However, this categorizes the adapters but, is unable to represent the rate of adoption in proper ways. The diffusion of innovation models was categorized according to their natures. The general model categories are real word models, conceptual models, loose models, and Basic models as well. The basic models are the most implemented because they define the exact threshold after which the diffusion of innovation starts.

Keywords: E-Learning, Diffusion of Innovation

1. INTRODUCTION

The models of innovation are different in different eras. The era of 1960 to 1970 is the era of basic models which is quite general and easy to understand. These models describe a couple of factors in detail. Firstly, the total population or community in which the new ideas will be prevailed and implemented. Secondly, the total number of adapters in the population is the prime part of this model. The basic models include some mathematical representations to convert the general assumptions into authenticated facts and figures. The second era is the era of expanded models of innovations, which starts in 1970 and ended up in the era of 1980. The expanded models are designed to cover the limitations of the basic models. The basic models do not consider the environmental factors in the diffusion of innovation. On the contrary, the expanded models incorporate the environmental factors in the innovation process. The environment includes the economic environment and social process. The economic conditions of the community played a vital part in the adoption process. The rate of diffusion depends on the resources of the country. The rich country adopts the diffusion process at a fast pace as compared to the underdeveloped countries.

The social environment includes the cultures and traditions of the society. The community does not accept those ideas which are against their culture and society such that, innovations in pig farming are very effective but not acceptable in the Turkish community (Proctor, 2009). The era of new application starts from the 1980s which defines the competitiveness of the new idea. The diffusion process is impossible without competent features. The new models enhance the flexibility of the process. For instance, the description of the population of potential users is part of the new application. Moreover, potential users played an important role in the success of innovation. Moreover, the new application models pay attention to the behavior of the model rather than just on the competencies of the innovation process. The new models are complex, but the scope is quite broader as compared to other models. All of these models define the factor that creates an impact on the diffusion process.

2. LITERATURE REVIEW

The Basic Models of the diffusion of Innovation

There are various models of the era of the 1970s and all are based on the parameters of basic models. The S-Shaped curve is one of the basic models of the diffusion of innovation because it defines the regularities in the diffusion of the innovation process.

The S shape- Curve

The shape curve is considered as the basic model of communication, and it clearly explains two major expects of innovation. Firstly, the time factor plays a vital role in the diffusion process. Every innovation prevails in society with time. Secondly, the process of innovation is all about the competency of the idea. The significance of the idea is very important in the process of innovation. Firs instance, the concept of e-learning is adopted in the sector of health because of its usefulness (Proctor, 2009).

Moreover, these strategies are more specifically vital and beneficial for the hospitals as the facts and figures show that E-learning strategies were implemented in every various institution from the past few years. For instance, in universities, online courses and programs are the best illustrations of learning so that many people can take advantage of the facility. In recent times the trend of learning is immensely increased in the hospital management and administration system. In that context, the new e-learning strategies contribute a lot towards the productivity of the organizations (Peres, 2010).

The Advantages of Models of E-learning

There are different invaluable elements of e-learning in clinics. Right off the bat, through e-learning, the guardians and other staff found the opportunity to learn things at their pace. Also, the learning procedure will occur in the least time through e-learning. Also, electronic and online strategies upgrade the scope of the general population. For example, universal preparing projects and the executive's activities should be possible online at inaccessible spots. Finally, the clinical record and updates are open in the blink of an eye and with exactness. For instance, on the off chance that the staff needs a clinical record of any patient, at that point it tends to be done through

online systems. Be that as it may, from the viewpoint of e-learning, the preparation projects of the emergency clinic organization are the most indispensable capacity.

In contrast with the conventional learning process, the e-learning process is very gainful, and the systems in regards to e-learning are fundamental to structuring. Right off the bat, e-learning expends less time when contrasted with the conventional strategy for learning. For, example, through e-learning the general population in the work environment there was a simple reach to the data of each data with the goal that individuals can discover the updates for learning in a fast time. Also, this less time upgrades the profitability of the organization. Furthermore, when contrasted with the customary technique and procedures of learning e-learning improves the nature of the procedure as a result of the precise arrangement of work. Finally, e-learning expands the profitability of the association more adequately than the conventional strategy for innovation

Not all current innovations have the same social and economic consequences, but in the context of Information Technology, it has not only impacted the common lifestyle of human beings but has majorly impacted the workplaces and educational systems (Cowan, 2005).

To be more precise, information technology has influenced and incorporated, Programmable controllers, Numerical control, Alternative energies, Computer-aided manufacturing, Manufacture integrated by a computer, Hydraulics, and mechanics, Laser, Robotics, Technologies applied to new materials and Recycling of waste and clean technologies. Moreover, in the precise context of workplaces and organizations, it has aided in Computer-aided design, Multimedia, Office automation, Virtual reality, Telecommunications, and most importantly, E-Learning (Mahajan, 1990).

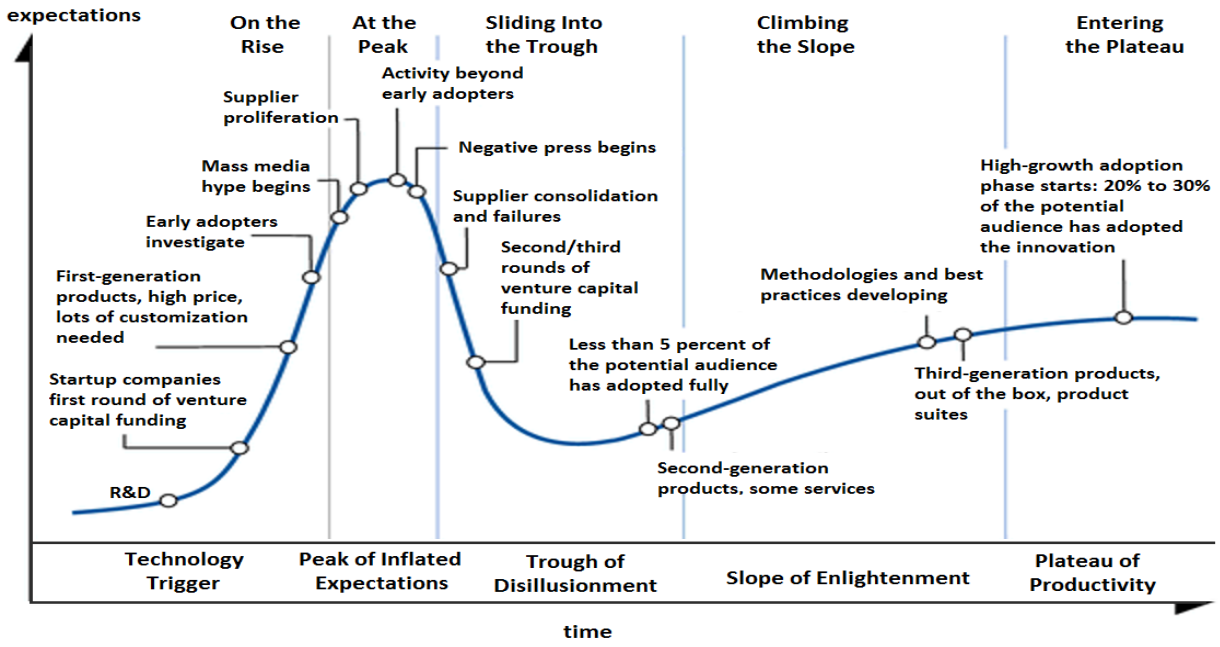
Law of Imitation

The Gabriel trade sets out the law of imitation, which is generally the three-phase cycle of the innovation and development of the idea. He further explains that the first stage of everything is quite difficult and he set out the first phase as a difficult beginning in which people do not know much about the significance of the idea. Moreover, it is the most difficult stage to survive because the innovator is facing challenges to grab the opportunity and the environment is not good enough to support the ideas.

The communication process is not so strong in the first phase of this law. However, this phase gives an idea to the innovator about the environmental and system support to that particular idea. For instance, the resources of the country of community in which the idea is implemented are one of the basic environmental element. In the health care sector, the use of technological tools to guide staff is not acceptable at the initial stage because of the staff resource and training resources. It is the stage of a difficult beginning, but the people get to know about the usefulness of the idea and the particular techniques are one of the revenue sources in the sector of health care such as e-learning and the software to maintain the data of nurses and staff(Proctor, 2009). The particular state of this model is mathematically represented as

$$F(x) = 2^{\wedge}x$$

The most important benefit to the initiator at this stage is that the market is completely unsaturated and there is no potential competitor in the market. However, the saturation curve gradually moves upward after the successful implementation of the idea.



Source:https://medium.com/@sunnyday.james/the-laws-of-imitation-bitcoin-logistic-growth-theory-e1ad14db70d4

(The Gartner Cycle)

The above graph clearly shows the hurdles and benefits of the idea. Few factors are very important in that stage where technology starts to trigger. Firstly, high research and development are required at this stage because of the newness of the ideas. The research is vital for further improvements. Secondly, the early adopters investigate the new idea and it is the most difficult part for the initiator to engage the new adopter because of the number of hurdles in the mind of the laggards and early adopters such as the significance of the idea, the resources required to adopt the idea and the successful examples of the implementation of that idea.

The curve gradually moves towards a peak when the investors start to invest in the startup and the new technology starts to prevail in society. The idea cannot be implemented without the proper communication of innovation amongst the community. Moreover, the media hype is at the peak of the curve. The technological advancements in the communication channels made the process of communication more convenient and easy. The idea can be communicated through interactive media, print media, and broadcast media such as newspapers and television. For instance, the concept of E-learning prevails through various communication channels.

In general terms, E-Learning can be described as learning through technology, various strategies and tools are developed in the context of E-Learning, there happen to be certain benefits of using E-Learning Tools and software such as it enables the learner and teacher to not accommodate the physical contact. Furthermore, it also accommodates the opportunities for the learners to learn new skills and methods in the concerned context while also enabling them to realize their true potential innovatively and interestingly.

The media press is not necessarily played a positive role in audience engagement. Moreover, the early adopter got the power to generate negative word of mouth, if the innovation is not up to date and unable to fulfill the requirement of the modern world. The engagement of new rivals and the saturation of the idea is the signal that the trade is starting which is represented by the logarithmic value

$$F(x) = \log(x)$$

Examples of Difficult beginning Phase

E-Learning is a new and innovative way to learn through technology and is not acceptable in the healthcare sector, but with time, it gains popularity in hospitals.

Moreover, it is being used by various health care organizations and educational institutes. Organizations are using these E-Learning tools and technologies to make their staff digitally literate while on the other hand educational institutes are using it to teach their students while being remote and ineffective along with interesting way. Moreover, it has been analyzed that most of the youngsters, as well as individuals, have a smartphone or a digital device, so, it has been improvised that there exists an opportunity to realize and optimize that particular digital instrument for learning.

The Challenges in the First phase

The first stage of the law of imitation is quite challenging for the initiator a couple of major challenges has to face by the person who brings a new idea. Firstly, the benefit and interest of investors in a new idea. Moreover, the investors feel reluctant to invest in the innovation because of the fear of failure. It is a great chance that a new idea fails to grab the attention of the people due to environmental challenges. The second challenge is the fear of failure due to a lack of competency. The new idea sometimes fails at the initial stage because it is unable to beat the usefulness of the old implemented idea. However, these challenges are a source of creating an opportunity for the adopter to think about the better choice (Boons, 2013).

For instance, people hesitate to accept the idea of E-learning in hospitals due to a lack of physical existence, but this innovative technology provides ease to the user and institutions. Despite the organizations and educational institutes, other fields such as hospitals and medical facilities are also using these E-Learning tools and strategies to maintain and improve the awareness of information and knowledge regardless of the location and physical existence.

The technological Advancement and effectiveness of E-learning (Example)

Technology is the necessity of the present world, and machines have changed and evolved the working systems of each institution. Even though technological advancements change the life of every individual, more specifically it alters the trend of the workplace. Moreover, technology in the workplace allows businesses to grow at a fast pace, and technological advancement allows the company and its staff to work ad efficiently effectively. Technology in the workplace provides leverage to the organization and is a source of many advantages. Firstly, it reduces the communication barrier and removes communication barriers. For instance, high-speed networks,

easy access to the World Wide Web enhance the level of communication between staff and improve the productivity of the business(Boons, 2013).

E-learning techniques were actualized in different organizations in recent years. For example, in colleges, online courses and projects are the best representation of realizing with the goal that numerous individuals can exploit the office. As of late the pattern of learning is hugely expanded in the medical clinic the board and organization framework. Besides, in human services divisions, for example, medical clinics and other wellbeing offices, there is a sure need for e-learning for persistent improvement of the administration and the framework. Also, the electronic arrangement of learning guarantees quality administrations and auspicious preparing programs in the emergency clinics and wellbeing divisions (Roman, 2003).

There are different worthwhile elements of e-learning in medical clinics. Right off the bat, through e-learning, the parental figures and other staff found the opportunity to learn things at their pace. Also, the learning procedure will occur in the least time through e-learning. Also, the electronic and online techniques upgrade the span of the general population. For example, the worldwide preparing projects and the executive's tasks should be possible online at far-off spots. At last, the clinical record and updates are available in a matter of moments, and mind exactness

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Second Phase of Gartner Cycle

This is the phase where the rate of technology is not up to date, and people are not accepting the idea. The Gartner peak of inflated expectation suggests that the competitors come into the market and the trade starts. However, this slope is not good because it needs new technological innovation. Moreover, the entrance of new ideas and competition means the idea is unstable and does not have a tendency to improve in continue in the future. There are certain reasons behind the struggling nature of the slope. Firstly, the culture of the society does not allow the people to accept the idea because society is the vital aspect in the diffusion process. Secondly, the suppliers fail to supply the new desired product and are unable to satisfy the audience and more importantly the early adopters (Boons, 2013).

At last, the major reason is the negative media. The communication channel and media played a vital in that aspect. However, sometimes this slope does not mean the complete failure of

an idea if the idea has the potential to accelerate in the future. For instance, the idea and innovation of X-ray machines are not acceptable at the start, but it turns out to be a good revenue source in the future. Moreover, it provides an ease to the audience as well. At this stage, the initiator faces investment issues because the investor is not going to invest in the implementation of that idea which is not readily accepted by the audience (Wejnert, 2002).

The third part of the cycle is the trough of disillusionment, and this is stage is also called the phase of transition as well. In this phase, the technology is at its development stage and the idea got the potential to communicate well with people. Although it is not the stage of technological maturity, the early adopters start to accept the idea which is a vital thing in the acceptance of the idea. This is the new phase of the Gartner cycle and the intuition of the productivity of the system. The second last slope is the slope of enlightenment in which the suggestive idea starts benefiting the others, and its best practices enhance the productivity of the organization. For instance, people know the importance of E-learning in the health care sector and its best practices will be implemented in the future. This stage is the peak of diffusion and the process of diffusion going to end up successfully.

In the context of students, it has been observed that the student can respond to their daily life issues more efficiently through adapting the E-Learning. Another great advantage of using E-Learning is that it provides equal and fair access to all individuals without the discrimination of caste, creed, and color. So, it enables all the individuals whether they are students or former employees of a company, they are facilitated and at an equal scale through the use of E-learning tools (Boons, 2013).

Likewise, in the context of E-Learning strategies, the background is no doubt, the technology. Technology has been integrating itself into human life for ages and is continuing to do so. It has also been observed that implementing technology at the workplace has become mandatory in the present world for an organization to survive and excel in the market. An organization with no advancement and integration of technology is considered a relatively bad or worst organization. Likewise, every day, it has also been observed that it is more necessary for individuals to secure a job in the society of the 21st century (Elkins, 2005).

Network Models of Innovation and Diffusion of Innovation

The current era of microeconomics is full of a competitive market and several agents are working there. The diffusion process in this competitive world is complex due to the presence of a large number of competitors in the market. However, the diffusion process is necessary as well because every change is mandatory. For instance, in the healthcare sector, the X-Ray machine is a big invention, but it also takes time to accept the innovation of this healthcare tool because of the hesitation and hindrance of mental attitude. The network models of innovation indicate how fast the diffusion spread in society and estimate the mean of the pace of innovation. Moreover, the network models of innovation describe how fast innovation spread through social networks.

Every agent design a product using different technologies such as RFID, MRI, and X-ray. If the network of technology increases the adoption rate, the diffusion process is good and competent enough.

Social Network and diffusion of Innovation

The adoption process is quite risky, and it takes to prevail in the community. Every community is based on a social system that comprises friends, family, professional relations, and other communication channels. The adoption process becomes successful if, the new idea serves well to the socially acceptable by all members of society. The threshold models and critical mass models of innovations depict the involvement of the social system in the process of innovation.

The present time of microeconomics is brimming with an aggressive market and several specialists are working there. The dissemination procedure in this focused world is unpredictable because of the nearness of countless in the market. In any case, the dispersion procedure is fundamental too because each change is obligatory. For example, in the medicinal services division, the X-Ray machine is a major development. However, it likewise sets aside an effort to acknowledge the advancement of this human services device as a result of the delay and obstacle of the mental frame of mind. The system models of development demonstrate how quickly the dissemination spread in the public arena and gauge the mean of the pace of advancement. Also, the system models of advancement depict how quick development spread through interpersonal organizations.

The Threshold Model

The threshold model describes how the diffusion process prevails in each member of the social system and what proportion of the society accepts the diffusion process. Moreover, in the

threshold model, the rate of adoption of every member of the communication channel and social network is observed, and it is noted that, whether the proportion of adopters is above her threshold. The rate of adopter is denoted by t in this particular model. This is the most simple form structural model of innovation and indicates the adoption rate in the diffusion network. The researchers argue that the proportion of adopters in the network is very important from the exposure point of view.

Furthermore, peer networks forces and motivate other members of the community to adopt a new idea. The major weakness in the model is the lack of focus on the potential leaders. The potential leaders should not be counted as general adopters.

Arguments of the threshold models

The researcher's arguments show that the adopter's threshold varies in nature and this variation combined to form a curve that is generally S in shape. However, this S-shaped curve changes with time because of the increase in exposure. The communication channels played a vital role in the enhancement of exposure. Some researchers argue that time is the factor, but people adopt those things earlier which are competent enough to attract them and engage them.

Collective behavior Threshold

The collective behavior threshold is the proportion of all people in a system who adopt the innovation. Moreover, the potential user is also part of the collective behavior. In the health care sector, some innovations are noticeable while some are not observable such as family planning procedures and their improved versions. The collective behavior is very beneficial for unobservable events of diffusion. The collective behavior threshold is difficult to implement because it is a complex task to observe the attitude of every individual as collective behavior (Valente, 1996).

Every innovation involves several risk and uncertainties which occupies the mind of the individual. It is very difficult to analyze the rate of the perceived risk of the whole system. The individual threshold is simple and produces effective results from the perspective of observable events. The network of threshold indicates that the innovation of the rate of adoption is measured as a direct communication instead of measuring the threshold as a whole.

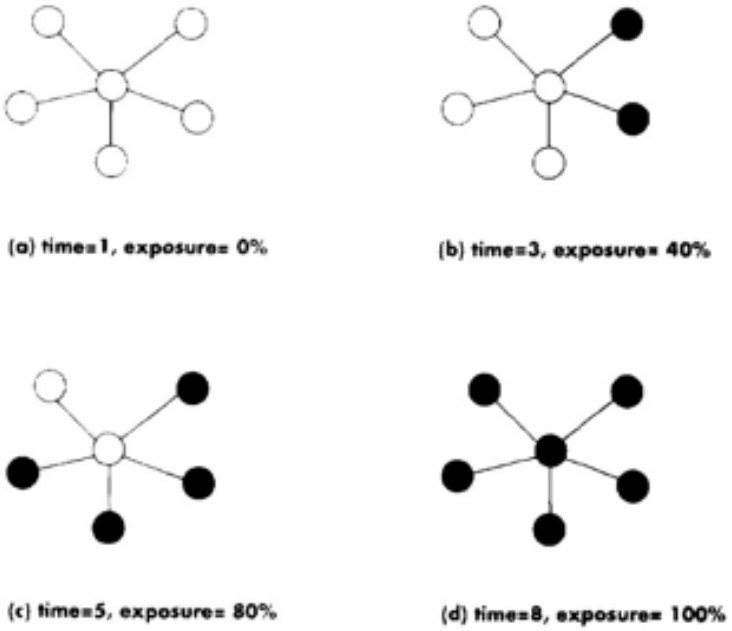


Fig. 1. *Personal network exposure IO and innovation for a medical doctor. Data are from Coleman et al. (1966). (a) No adapters. Exposure IS zero. (b) Two partners adopted, exposure is 2/5 or 40%. (cl Two more partners adopted by period 5, exposure is 4,/S or 80%. (d) All of the individual's network partners adopted. Exposure is IOOC; The threshold is the individual's exposure at the time of adoption, which is lOWi in the present example.*

The above figure clearly shows that time played a vital part in the network model because the exposure is increased with time. The exposure increased with time because the message spread with time and people get aware of the competencies of the diffused idea. For instance, e-learning in the health care sector is refused by the staff at the start because of the complexity of the system and the lack of training by staff.

Moreover, the various advantages of the technology will also be the art of that specific document. E-learning strategies were implemented in various institutions over the past few years. For instance, in universities, online courses and programs are the best illustrations of learning so that many people can take advantage of the facility. In recent times the trend of learning is immensely increased in the hospital management and administration system. Moreover, in health care departments such as hospitals and other health departments, there is a certain need for e-learning for continuous improvement of the management and the system. Moreover, the electronic system of learning ensures quality services and timely training programs in the hospitals and health

departments. The need for technology is increasing day by day, and it is vital to make people aware of new concepts of learning and technology (Proctor, 2009).

Hospitals need technology to save their time are providing quality services to customers. After that specific study, hospitals will be able to find out some specific e-learning strategies through which they can train their staff and employees. Moreover, by making use of these strategies the hospital enhances its communication system and gets access to all updates in no time. In the eighteenth century began a great industrial revolution, whose general objective was the transformation and control of energy to apply it properly to manufacturing. Today it can be said that a new revolution is underway, the Information Revolution. The subject matter of this new revolution is information, that is, data, knowledge, and programs.

The Information Revolution has broader consequences. It is not the only innovation of recent years, but it is the common factor that allows and accelerates all others. Especially as information technology transforms the processing, storage, and transmission of information, it is changing the system of organizations, workplaces, and society as a whole. The benefit is improved for a few reasons on account of E-getting the hang of preparing. The first is that it builds the profitability of its representatives, since if they get new aptitudes and expert limits they will almost certainly improve their work in this way profiting the organization. The cost reserve funds are indispensable for this gainfulness, from one viewpoint, e-learning is significantly more prudent as it spares immediate and backhanded expenses of conventional up close and personal preparing. Then again, considerably progressively vital, it spares the organization time in new determination procedures to discover HR with those abilities. If they train their groups as indicated by their requirements, the consistent procuring of new experts won't be vital.

The E-getting, the hang of preparing for organizations, offers an extraordinary and imaginative arrangement given its intuitiveness and online substance, making the learning knowledge substantially more alluring. Later on, we can learn through expanded reality, or through our focal points simply like some today do with Google glasses, mechanical advancement has no restrictions.

Likewise, on account of its capacity as a social device that favors shared adapting, new thoughts can rise through the learning of its representatives. E-getting, the hang of preparing for organizations, enables networks to impart their insight to associates from everywhere throughout the world and from various zones, therefore supporting collaborations.

In short, the world is witnessing the birth of a new information society where management, quality, and speed of information is becoming a key factor in competitiveness: as an input for the industry as a whole and as a service to final consumers, information and communication technologies condition the economy at all stages (Geroski, 2000).

As the benefits and the disadvantages of using technology at the workplace have been defined, it has been observed that the benefits and the advantages of using technology in the workplace have more impact than the disadvantages and that term emphasizes defining the importance of using technology at the workplace (Stam, Stanton, 2010). Over time, technology has reduced the barriers to doing business, increasing revenue, improving processes, and implementing new tools within companies. However, today, its implementation is no longer a luxury or an investment, but a fundamental necessity that allows large and small companies to be at the forefront of new times, with competitive processes both in the domestic market and international.

In the last decades, companies have changed a lot in terms of the use of information technologies, or rather of telecommunications (which is a technique that allows transmitting or getting a message from one place to another). In saying new technologies, it is referred to the new advances in information technology, video and telecommunications and as well says the central theme of this study will focus on companies. A company with good use of information and communication technologies can do a successful business, but if they have them and do not use them properly despite having a good product, they can tend to fail in a certain period (Cowan, 2005).

According to a recent survey by MIT's Technology Review magazine on the use of new technologies in business, it is told that for once the United States is not the first country to use, but Sweden, Ireland, and The United Kingdom according to this survey is in these countries where it is best to take advantage of advances in information technology for better performance within companies.

Another survey carried out by the National Institute of Statistics (INE) describes that companies located in Madrid, Catalonia, Basque Country, and Navarre are the ones that use the newest technologies to communicate. This report indicates that almost 99% of companies in Madrid have an order for their daily operation, 81% use a local area network, 27% have wireless LAN, 96.5% Internet, 32.7% have installed an Intranet, just over 17% have Extranet, 95% use e-mail and up to 60% have a website of their own (Peres, 2010). The healthcare area is consistently changing, as new procedures are discovered, new prescriptions and treatments are introduced, and acquiescence procedures aggrandize and evolve. With the advice of eLearning, healthcare organizations can amend their training abstracts bound and cost-effectively, giving their patients the best accessible analysis and their advisers, all of the online accouterment they charge to do so

Georg Simmel's Stanger Model

Georg Simmel argues in its stranger's theory that, it is not necessary that, every member of the system strongly belongs to the same community. Moreover, they are not bound to accept the new idea just because of belongingness. Simmel's called those people strangers who are not so close to their community. Simmel describes two characteristics of the strangers. Firstly, they are remote and mobile. They do not have any proper destination which is necessary to participate in the social system. Secondly, they do not have any social and material possession. Moreover, he further describes that strangers are not bound to follow the conventions because they do not possess any conventional thinking. Besides these characteristics, Georg describes other features of the strangers and the most important feature is the conflict of an individual with the whole community.

Also, they are will undoubtedly acknowledge the new thought in light of belongingness. Simmel's called those individuals outsiders who are not all that near their locale. Simmel portrays two attributes of the outsiders. Right off the bat, they are remote and portable. They don't have any legitimate goal which is important to take part in the social framework. Furthermore, they don't have any social and material belonging. Also, he further depicts that outsiders are will undoubtedly pursue the traditions since they don't have any ordinary reasoning. Other than these qualities, Georg depicts different highlights of the outsiders and the most essential element is the contention of a person with the entire network.

The conflict is not only negative but it can be positive as well. The diffusion of innovation needs a potential leader because it is very difficult to spread an idea without the opinion leader. The

opinion leader has to go against the community because the community sometimes goes against the innovative idea due to fear in mind. The mental barrier does not allow an individual to think out of the box and accept uniqueness and creativity. The researcher argues that social people at a time are more biased and accept the idea due to its compatibility with society. However, the idea must be accepted by its usefulness and competency rather than, just on the suggestion of other people of the community. The theory explains that strangers take the decision without any biases and it can be in favor of the diffusion process as well.

The British German and Austrian Model

The concept of learning evolved drastically in the past few years after the strong domination of technology in the workplace such as in school colleges and other institutions. Nowadays e-learning becomes the culture in many workplaces such as in hospitals, schools, and colleges, and the trend of e-learning is growing immensely day by day. However, besides the advantages of the electronic and internet medium of education, it turns out to be a great challenge for many of the workplaces. The people are not completely trained in the new trends of e-learning, and they are reluctant to implement the electronic system of learning and education in the workplaces. Moreover, in the institutions in which staff is used to working in the traditional and manual systems, it is very difficult to trained people and compels them to use the electronic system for education (Geroski, 2000).

Consequences of Diffusion of Innovation Model

Besides the advantages of the diffusion of innovation models, there are certain problems with the innovation models in underdeveloped countries because there is no such acceptance of the new ideas in society. Moreover, the lack of communication systems in rural and underdeveloped countries is a major hindrance in the diffusion process. At last, the economic conditions of the underdeveloped countries do not allow the people of the society to accept the new idea. As a whole, diffusion is the process in which communication played a vital part, and the lack of communication techniques in the rural areas is the major break between the innovation processes. It is an emerging technology, and more often, it can be said as a trend this has revolutionized the entire process of learning and education in several fields. E-Learning can be described as any sort of learning or education through electronic means or digital devices. As it has been observed that most of the

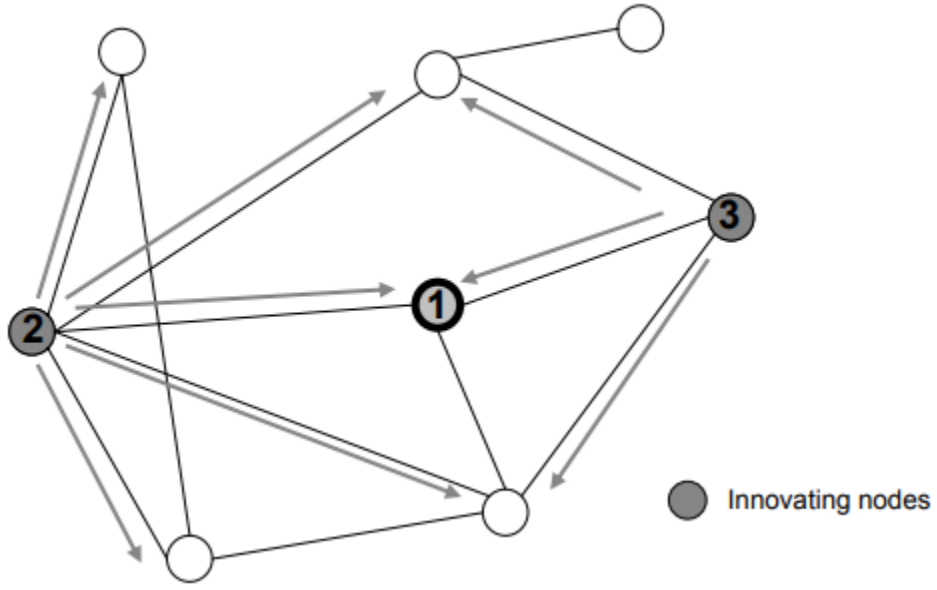
present world classrooms comprise several electronic devices to convey and deliver knowledge such as the multimedia projector, tabs, laptops, computers, etc. (Garrison, R., 2011).

Making efficient use of technology, using organizational tools to select the right technology, managing changes in processes, and produce products, so that national and international competitiveness can be achieved, is to have the technological capacity. That is to say, to the extent that the organization, subject of the process, internalizes knowledge to the point of optimizing technological development, is then generating the technological capacity to sustain a permanent process of learning.

E-learning is simply using the Internet to revolutionize the way people learn. It is a tool that goes beyond a student to study a subject through the Internet. E-learning allows offering information, capacity, and training to all those who need it, online, at the most convenient time and place (Wejnert, 2010).

Modeling Concept (Critical Mass Model)

The modeling concept is one of the major concepts of diffusion of innovation in which all the nodes are connected.



SOURCE: Critical Mass model (Innovative Nodes)

All the nodes are connected and equal chance of collecting with each other. Criticisms of E-learning are based on teachers' lack of knowledge of new technologies, the lack of training on their proper use, and their effectiveness. This creates a digital divide between students and teachers, but contrary to it, the staunchest to traditional methodology, are not insurmountable differences. "Digital wisdom," which states that the digital divide grows because of a lack of interest, in the increasing digitalization of our societies. It has already been shown that banning the indiscriminate use of cell phones in the classroom is not a realistic solution to the problem.

In the face of criticism and denials, the proponents of its implementation argue that it is not a question of abandoning teaching, but of empowering it through motivating and dynamic activities; Engaging students in different use of the technology they handle daily. Among the negative aspects that give the discourse of the opposites to the use of mobile technology, we find the physical limitations of the same, as discussed earlier in this document, the small dimensions of their screens, buttons, battery limitations, and Memory space as well as their connectivity problems or the existence of few educational applications.

Another aspect that generates a certain controversy in the current society is the adequacy of this methodology for use in any educational stage. Thus, the most skeptical believe that M-Learning can be very harmful to primary and secondary school students given the maturity of these ages, and may favor the origin of problems such as addictions, bullying, etc. On the other hand, a more numerous groups thinks that the methodology Mobile Learning is susceptible to the application at any level, as long as it is done in a responsible, controlled, and previously planned way.

3. Conclusion

The diffusion of innovation is a complex task, and it is very difficult to prevail in the new idea in society. However, the successful communication process and the social system make things easier for the diffuser. The models of innovation mostly belong to the social system, and the individuals belong to the social system as well. The models of diffusion comprise basic models, conceptual models, and loose models. The models discuss the rate of population in society and the total number of adopters in society. Moreover, the basic models of innovation indicate the fact that potential ‘leaders played a vital role in the adoption process and the role of potential leaders is

much more than other early adopters. The threshold model indicates that there is a specific threshold of the rate of adoption.

This is the branch of network models the rate of adaption is denoted by “t.” The network models explain how the adopters linked with each other in the social system. The major weaknesses in the models are the ignorance of the resource factor which plays a vital role in the diffusion process, for instance, the competent idea is with an excellent communication channel will be declined by the people due to the lack of adoption resources because the conditions of the country drive the mental status of the people. An excellent economic condition leads towards a high rate of adoption and vice versa. The critical mass model is another model which indicates that all the members of the social systems are linked with each other and people follow each other in the diffusion process. The connected nodes in the above figure indicate the linkages. In contrast, the simmels explain the stranger’s effect which clearly describes that everyone in the social system is not a part of their conventions and sometimes few people go against the diffusion process despite the pure acceptance of a particular idea in the social system. The stranger’s effect is not all-time positive in nature. The models continue to go on, and the Garbels give the concept of the law of intimation. The law of intimation divided the innovation process into three phases — the starting phase is the quite difficult due to a couple of reasons. Firstly, the weakness in the communication process at the beginning is the big reason for this difficult process. The communication process is very important because it is not an easy task to introduce a new idea to the market. After all, the innovator has to give a valid reason for the acceptance of the idea. The idea must be compatible by the norms and values of society. For instance, the idea of the new technology in pig farming is excellent but not acceptable in turkey due to the religious culture in the country. However, the first stage is the point of learning for the innovator. Moreover, it argues that environmental understanding is the major function of the first stage. Secondly, it is very complex to drive the attitude of the person because it is very difficult to convey the new and creative idea to the people and more importantly the late adopter. The second phase is quite easy according to the law of intimation, and the people get to know about the new idea, but the idea should be competent enough to satisfy the new people. For instance, the technological advancement in the nursing management system is not acceptable because of the lack of ability of the staff.

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