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Socio Economic Effect of Diffusion Dynamics of Network Technologies

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ABSTRACT

In the world of the Technology, We consider some of the important technical, Social and economics in order to evaluate the Technology. In this Paper we try to put some of the new trend of technology which will be the parameter for the evaluation of software paradigm. In the context of the network technology and its diffusion process we have implemented the process of evaluating the socio economic challenge and the parameters to be used before taking the diffusion process in order to facilitate the process of the technology. Classical technology and today's world where we have seen the glimpse of the parallel, distribute and hot cake technology like virtualization which in term we call as a cloud computing. In his we implemented the cyclo metric flow of evaluation and its effect to make rise of the balance dadoption of the environment.

KEYWORDS: Aspiration, bounded rationality, evolutionary game theory, technology adoption, technology diffusion dynamics.

I.INTRODUCTION

In the ear of the modern Percolation model is originally based on a regular lattice, empirical results indicate that people are connected not only locally, but they also use more remote. Moreover, some people use more links than others when deciding to adopt a new product. To study how such network assumptions affect the diffusion of innovations, we study the effect of different network structures, namely agents with complete information, agents in a regular lattice and agents in a scale-free network.

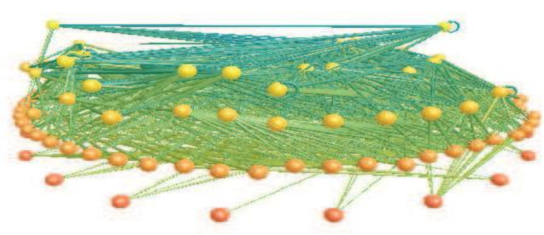

Fig.1.1 Model of the Network Diffusion

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Furthermore, we increase the average preference of the agent' s*p* from 0.25 to 0.75 in discrete steps of 0.025. We compute the average fraction of agent's *f* adopting the product at the end of the simulation run. However, the effect of the direction parameter and the interaction effects of d with the other factors are also relatively small. The largest of these effects is the interaction with the distinction between central networks (h = 0.00001) and disperse networks (h = 0.01).

II.RELATED WORK

Although the scale-free network structure of Albert permits to have heterogeneous agents concerning the number of neighbors, this structure is often unrealistic from a social and an economic point of view because people often have constraints in building links with other people. This is why we adopt a more realistic version of the scale-free network. Here, when a new node is attached to the network, the probability of all the other nodes of being selected for the attachment is still proportional to the number of nodes they already have but it decays exponentially due to a fixed probability *h* to become inactive at any moment of the process. In networks with 100000 agents, when *h*=0.00001, the most connected agent (network hub or VIP) has about 60000 links and when *h* = 0.01, the most connected agent has about 250 links. We call the former a *central network* because most of the agents are connected with a few central agents and the latter a *disperse network* because the network is more stretched structures affect the diffusion.

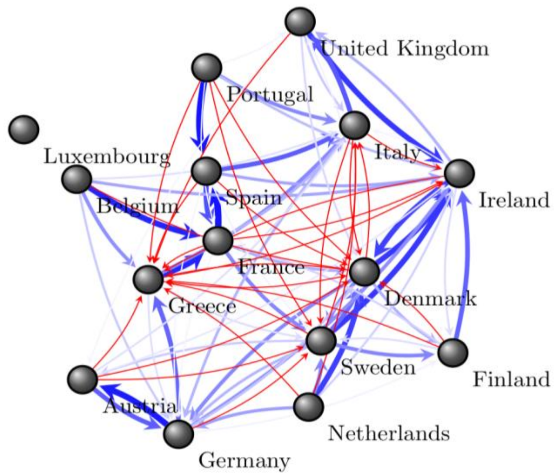

Fig.2.1 Illustrated Related Model of the Network

The above fig.2.1 shows the frequency of nodes having a given number of links for two different values of *h*. The scale-free network it also yields a power law distribution of links for low connected links, but the number of links decays faster when the probability *h* increases.

III.PROPOSED METHODOLOGY

In the Methodology so far, we assumed all network structures to have bidirectional links. Here, we also investigate diffusion patterns in directed networks, which make our network structures more

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realistic. It is very plausible that social influence among people is exerted only in one direction, especially in marketing contexts. For example, in the clothing market it is much more common than normal people observe what VIPs are wearing than the opposite way. Again, we consider two cases: (a) the probability of directing the link from *I* to *j* is simply 0.5 and (b) the probability of directing the link from *I* to *j* depends on the number of links that I and *j* have, i.e. the more (less) links *j* has compared to *i*, the more (less) likely that *I* is directed to *j*. For the latter specification, we assume that among two neighbors it is more likely that the more connected agent attracts the attention of the other. The re-linking process takes each link between node *I* and *j* and directs it with a probability *p* as specified in (2.6). The parameter *d* weights the two extreme cases. When d=1, we have case (a) and when d=0 we have case (b).Furthermore, these results show that the percolation model differs from a hypothetical situation where agents have both complete information about the innovation and do not depend on their neighbors to obtain information on the quality of the new product. In the case of a scale free network, compared to a regular lattice, the information spreads easier through the population and hence more potential consumers are informed. The scale-free network performs close to the complete information case, thus indicating that it is very efficient in transmitting information.

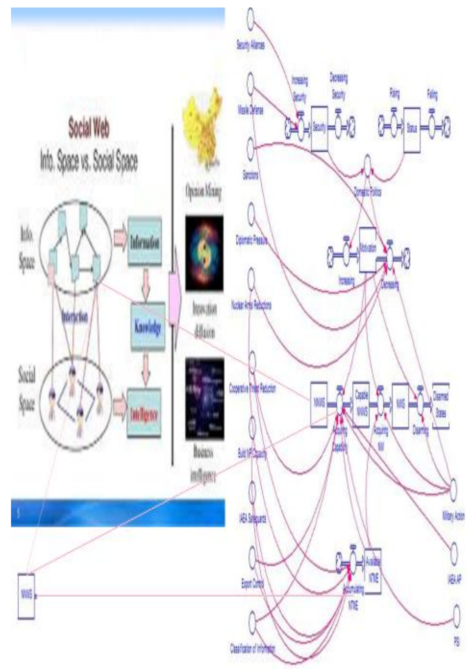

Fig.3.1 Architecture Model of the Diffusion and the Social Impact

Only when the preferences of the agents are really much larger than the quality of the innovation, the fraction of adopter's drops considerably compared to the complete information case. This is caused by the effect that the proportion of agents that do not adopt increases, and hence they do not inform other agents. Yet it can be seen that in a scale-free network a large proportion of the potentially interested agents is informed, as in the medium case (p= 0.5) still about 80% of the potential adopters is informed and half of them adopts. Thus, the scale-free

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network is much more efficient in spreading information, it approaches the perfect knowledge curve and it smoothens the percolation effect. The more the network is directed to the more connected agents, the higher the penetration of the innovation. We can explain this effect considering the strength of the social influence. Suppose that i and j are connected and that i has 8 neighbors and that j has 4. If j is directed to i, i has already adopted and j has not, then the social influence i has on j is one forth. On the other hand, if I is directed to j, j has already adopted and i has not, then the social influence j has on i is one eighth. This means that, given all the other effects equal, directing the links to the more connecting agents creates a stronger social influence to adopt. In central networks the directional effect is virtually zero, whereas in the disperse network the effect is somewhat larger. As already mentioned, the direction process affects the decision of the agents (whether to adopt or not), but it does not affect the exchange of information among agents. Overall the diffusion of the innovation depends much more on the flow of the information inside the network

IV.EVOLUTION AND ANALYSIS

The shape of the network not only affects the degree to which a product diffuses, but also the speed of the diffusion process may differ considerably. We present the average results of 20 runs for the condition where pi = [0, 0.5], thus involving agents with relative low preferences compared to the quality of the movie (qj= 0.5). In order to decelerate the speed of the diffusion in both networks.

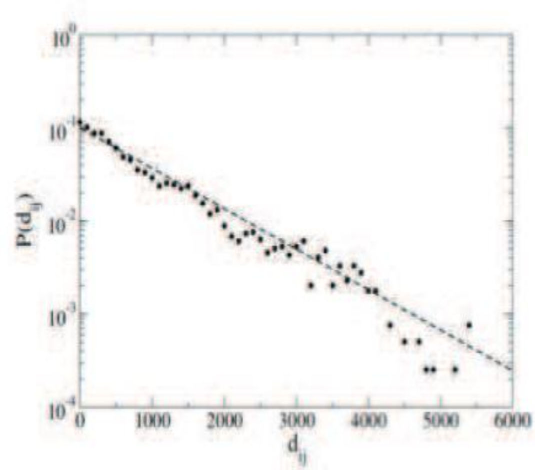

Fig.3.1.1 Comparison graph of the Diffusion

We updated agents with probability 0.3. For these parameters, and in all the 20 repetitions of the run, we observe an almost complete diffusion of the innovation (always f >= 0.9). It represents the fraction of adopters during the time of the diffusion. These results dissent with the common intuition that fashionable markets are easy to penetrate because consumers tend to copy each other (Glad well, 2000; Rosen, 2000). Perhaps in real life it is much easier to notice the social influence exerted by adopters than the social influence exerted by non-adopters. We observe positive social

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influences only when new products do succeed to diffuse but we usually forget negative social influence playing the opposite effect.

V.CONCLUSION AND FUTURE WORK

To enhance usefulness to social scientists and marketers for modelling innovation diffusion in a network of consumers, we modified and extended existing agent based models in several ways. First, we adopted the scale-free network structure, which is less restrictive than traditional structures and has been shown to be efficient in modelling the spreading of viruses and epidemics. Second, we altered the agent decision rules to account for the fact that consumers decide more deliberatively according to As a result, the final penetration of the innovation is substantially lower compared to the situation without social influence. Moreover, we found that the uncertainty about the innovation success also increases in more social susceptible markets.

VI.REFERENCES

[1] R. J. Anderson, "Why information security is hard—An economic perspective," in *Proc. ACSAC*, 2001, pp. 358–365.

[2] V. I. Arnold, *Ordinary Differential Equations*. Cambridge,MA: MIT Press, 1973.

[3] R. Axelrod, "An evolutionary approach to norms," *Amer. Polit. Sci. Rev.*, vol. 80, no. 4, pp. 1095–1111, 1986.

[4] J. Bendor, D. Mookherjee, and B. Ray, "Aspiration-based reinforcement learning in repeated interaction games: An overview," *Int. Game Theory Rev.*, vol. 3, no. 2 & 3, pp. 159–174, 2001.

[5] C. Camerer, *Behavioral Game Theory: Experiments in Strategic Interaction*. Princeton, NJ: Princeton Univ. Press, 2003.

[6] H. Chan,D.Dash, A. Perrig, and H. Zhang, "Modeling adoptability of secure BGP protocol," in *Proc. ACM SIGCOMM*, 2006, pp. 279–290.

[7] I.-K. Cho and A. Matsui, "Learning aspiration in repeated games," *J. Econ. Theory*, vol. 124, pp. 171–201, 2005.

[8] M. Doebeli and C. Hauert, "Models of cooperation based on the prisoner's dilemma and the snowdrift game," *Ecol. Lett.*, vol. 8, pp.748–766, 2005.

[9] G. Ellison, "Learning, local action, and coordination," *Econometrica*, vol. 61, no. 5, pp. 1047–1071, Sep. 1993.

[10] J. Hubbard and B. West, *Differential Equations: A Dynamical System Approach, Part II: Higher Dimensional Systems*, 2nd ed. New York: Springer-Verlag, 1995.

ISSN: 2320-1363

[11] N. Immorlica, J. Kleinberg, M. Mahidian, and T. Wexler, "The role of compatibility in the diffusion of technologies through social networks," in *Proc. ACM EC*, 2007, pp. 75–83.

[12] Y. Jin, S. Sen, R. Guérin, K. Hosanagar, and Z. Zhang, "Dynamics of competition between incumbent and emerging network technologies," in *Proc. NetEcon*, 2008, pp. 49–54.

[13] D. Joseph, N. Shetty, J. Chuang, and I. Stoica, "Modeling the adoption of new network architectures," in *Proc. ACM CoNEXT*, 2007, Article no. 5.

[14] M. Kandori, G. Mailath, and R. Rob, "Learning, mutation, and long run equilibria in games," *Econometrica*, vol. 61, no. 1, pp. 29–56, Jan. 1993.

[15] S. Karlin and H. Taylor, *A First Course in Stochastic Processes*, 2nd ed. New York: Academic, 1975.

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