

UNDERSTANDING CHINA'S ELDERLY CARE: A PARADIGM SHIFT BY INTEGRATING KNOWLEDGE AND INFORMATION MANAGEMENT TECHNOLOGIES

Tapie Rohm
California State University San Bernardino, USA
trohm@csusb.edu

Hailong Zhu
Hunan Normal University, China
zhhl59@126.com

Jake Zhu
California State University San Bernardino, USA
jzhu@csusb.edu

Frank Lin
California State University San Bernardino, USA
flin@csusb.edu

Abstract:

The Chinese society has depended on the younger generation to help with the care of the elderly, mainly their parents. With China's one child policy in place, fewer and fewer children have been able to support the elderly. China's population is aging. With the evolving field of Information Management and with the development of newer and cheaper technology, the time has come for a paradigm shift to be explored. A shift in the way China is managing its technology and culture at this integration is becoming of greater interest now than in the past. This paper carefully explores possible paradigm shifts which includes the combination of cultural expectations, integrating technology, government involvement, health care providers and information management. The paradigm shift uses the work of Davila, Epstein and Shelton (2006) to help develop a Service Innovation paradigm working along with Business and Technology Innovations for the elderly in China.

Keywords: integration, technology, China, paradigm shift, culture, knowledge and information management, government

1. INTRODUCTION

Knowledge management has been building on theoretical foundations from information economics, strategic management, organizational culture, organizational behavior, organizational structure, artificial intelligence, quality management, information management and organizational performance measurement for the past decade (Baskerville & Dupliovic, 2006). Technology innovations can strengthen the growth and productivity of a country and increase national productivity through the creation of new ideas and opportunities (Wahid, Ismail, Wanarat, & Laohavichien, 2013). The World Health Organization declared in their constitution in 1946 that "Health is a fundamental right of every human being, without distinction of race, religion, political belief, economic or social condition" (Kennedy, 2009). In China, health care is both a fundamental human right of elderly humans, but also reflects the social civilization (IBM, 2006). But the way the elderly care is managed in each country is not the same.

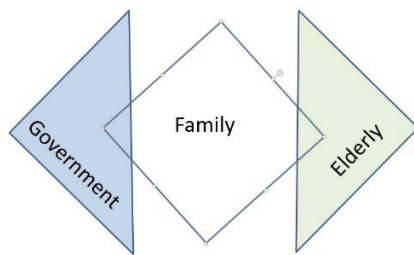
In Western civilization, due to the strong individualistic culture, the basic starting point for the elderly people is based on the individuals and their choice, supplemented by unified national pension system and its differentiated business insurance services. Of course, this is founded on the basis of the developed economic wealth and social service capabilities (Sharp, 2006). China is changing from an agriculture society to an informational society with the goal to achieve "modernization" found in the Western world. (Chinese, 1998). But despite the success with current reforms and advances in the economic and technological fields, there are still many areas of concern. Especially in the changing care of the elderly, there have emerged new and unprecedented challenges. In China's small-scale peasant society, the family is the foundation of society and is the most basic unit (Martin, 2009). Basically, the care for the elderly has been left to their children (Custer, 2009).

The Chinese government has developed a "family pension" (very small amount of money) for the elderly and is one of the few social pension models available to the people (Pensions, 2012). With the further development of the market economy, social changes, and Chinese-style "family pension" model, a new model of "community care", "institutional care", etc. has evolved (Custer, 2009). With this evolution has come great hope for transformation in the care of the elderly. However the change has not moved quickly enough. This situation has led to numerous conflicts, especially in rural areas faced with the tragedy of suicide among the elderly. Meeting the needs of the pensioned Chinese society is a growing concern as this age group are increasing in number and becoming more pessimistic about their future care. It is estimated that by the year 2050, that there will be some 400 million people over the age of 60 from the current 128 million elderly (Custer, 2009). The elderly use to live with one of their children, but this is changing. Thus a paradigm shift has to take place. With the emergence of knowledge management and with new information and integration of network technology, change within China's pension model is not only attainable, but necessary (see Figure 2). This figure represents the government giving monies (pension) to the elderly to take of themselves. The pension is not enough for the families to take care of the elderly.

2. UNDERSTANDING WHY A SHIFT NEEDS TO TAKE PLACE

The first thing to understand is based on the traditional Chinese family care. The Chinese tradition of caring for the elderly that has been in place for thousands of years has begun to experience grave challenges. As we all know, China is the world's most populous country, China's social system for child care has been the elderly family members who are very social and greatly enjoy being involved in the lives and instruction of their grandchildren. Home is viewed as the center of their daily activities. Additionally, "country" and "home" are regarded the same, thus cultivating a Qijia Zhiquo Pingtenxia. The elderly put all their dedication into the "home" and care of the children during their senior years and then they rely on "home" to provide care for them, see Figure 1.

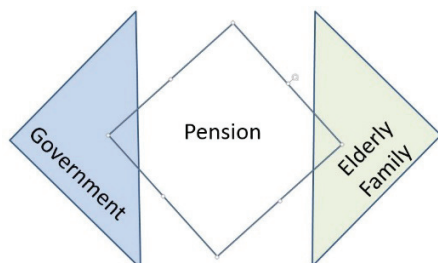
Figure 1: The family paradigm



Source: Original work

The second thing to understand of China's "Family pension" has been based on a historical model. Demographic changes in China are changing far more rapidly than in other countries with a sharp increase in the aging society. At the same time, there is also a sharp reduction in the working-age population. Since 2012, the percentage of the working-age population (ages 15-59) experienced an annual two million reduction in size from three million. In 2012, individuals over the age of 65 accounted for nearly 15% of the population. In 2050, this age group is expected to reach 33%. Efforts to modify or change the "one child" policy have been very difficult to initiate due to the increased concerns regarding changes in the traditional family supervision of the young children. Additionally, Medicare payments are facing a deficit due to the declining labor force, yet the demands have continued to increase for medical and health care providers. These concerns will only hinder the availability of medical services. The children of these elderly also find themselves facing challenges such as the necessity of moving to new places for employment, the high cost of living, jobs requiring a greater commitment of time, etc.; which limits their ability to care for the elderly in their home. The elderly are also requiring more services, such as nursing, which depletes the family's financial resources. China is faced with the challenges to provide a new home care model that may include in home services or institutionalized care that is financially feasible, see Figure 2.

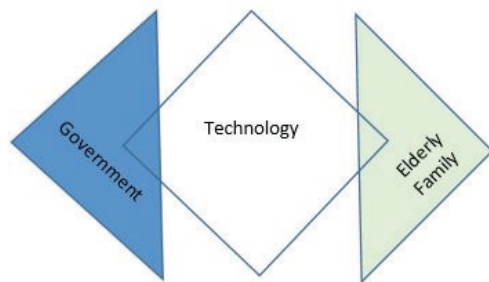
Figure 2: The pension paradigm



Source: Original work

The third thing to understand about China's elderly care is with China's modernization and with the emergence of a new network of information technology (including the Internet, social networks and other technology-based service models,) allows for a modern pension program with networking that includes: radio frequency identification technology, infrared sensors, global positioning systems, laser scanners and other information sensing devices. In 2012, China began to implement the concept of a "smart city" which is considering the care of the elderly using technology (Xi, Ren, & Zhai, 2014). The idea is to use networking to help in intelligent identification, positioning, tracking, monitoring, management, and ultimately intelligent networks with the automatic exchange of information between all parties. These networking programs will share a common set of protocols specifically to meet the needs of China's pension model. Additionally, the designs of social networking will bring these resources to the individual with an increase awareness of available services, software, and websites. This will allow for the monitoring and increased services to meet the needs of the elderly in remote area. This use of advanced management and information technology, such as sensor networks, 3G/4G mobile communications, cloud computing, WEB services, intelligent data processing and other IT tools, will provide the link between the elderly (families and relatives), and the government, community, medical institutions, medical personnel, etc. The capacity to meet the care services in these communities will greatly increase through the integration of these internal and external resources, see Figure 3.

Figure 3: The knowledge and information management paradigm

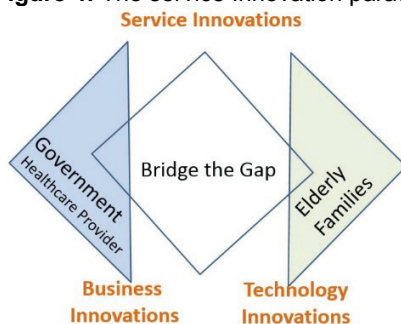


Source: Original Work

The fourth thing to understand about China's elderly care is to start looking at how to empower the elderly to meet their personal needs. Integrated technology allows the elderly the same affirmative function in decision making as the young. Technology integrated service systems can instantly find and identify the needs of the elderly through risk signals to allow them to ability to meet their own needs and select a variety of life factors at their disposal to enhance their basic self-care and maintain successful independent living. Technology can provide support for the elderly who are becoming more independent by transmitting signals to service providers for specific needs along with quick feedback. This enables to elderly to make decisions for themselves based on immediate and vital information regarding their health needs.

Thus, using the framework of Davila, Epstein and Shelton (2006) that innovation performance can be controlled and improved upon when properly managed. The idea is to "Bridge the Gap" with the concept of Service innovation (see Figure 4) while controlling and improving upon the business model and use of technology. In this new paradigm, the Chinese Government and Healthcare Providers represent the Business Model Innovation ideas, while the Elderly and Family side represent the Technology Innovation ideas. Thus, by managing the Business Model side and the Technology side with Knowledge and Information Management concepts, the elderly will have better care.

Figure 4: The service Innovation paradigm for the elderly



Source: Davila, Epstein & Shelton, 2006

3. THE PARADIGM SHIFT BY INTEGRATING KNOWELDGE AND INFORMATION MANAGEMENT

To better understand the new paradigm, the service innovation area is further explained. The idea is for Service Innovation to work on taking care of the elderly by looking at these six areas (Davila et al., 2006):

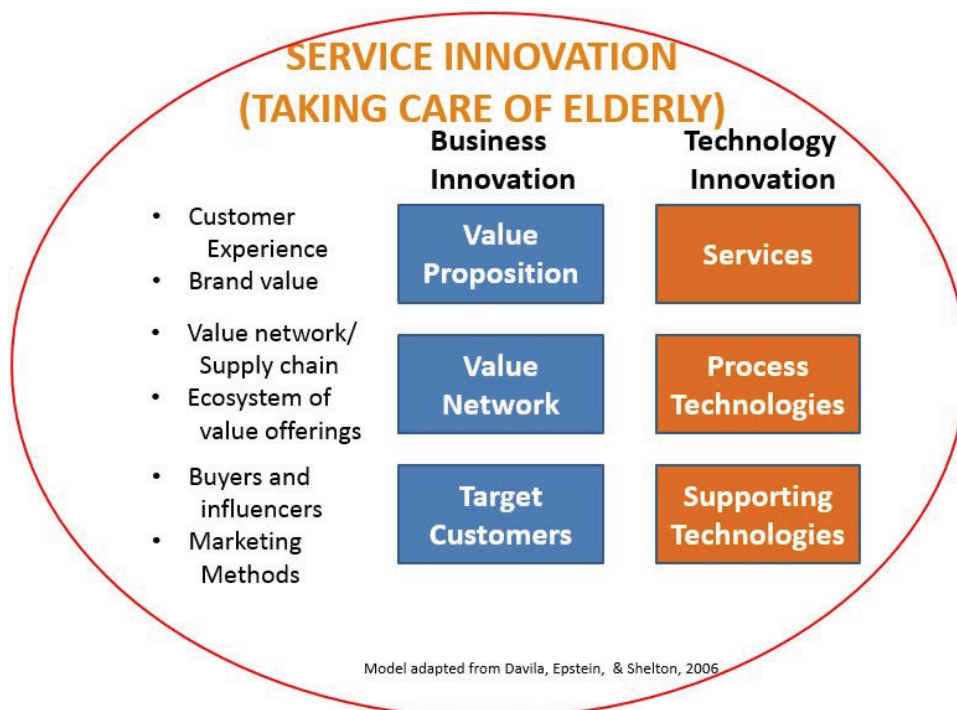
1. Customer Experience,
2. Brand Value,
3. Value network in the Supply chain
4. Ecosystem of value offerings,
5. Buyers and influencers, and
6. Marketing methods.

These six areas can be grouped together in their respective areas of Business or Technology innovations down to three manageable concepts as shown in Figure 5.

In the Business innovation side, the concept is to be concerned with the “Value Proposition,” Value Network,” and Target Customers.” The Value Proposition is to help manage the Customer Experiences in the case of the Elderly Patient. Brand value is to help develop recognizable images for the government. With the Value Network, the business innovations are to be concerned with a constant supply of healthcare professionals who can help with the problem and a General System or Ecosystem in place to meet the demands of the supply. Target Customers are concerned with the marketing to those who are responsible for the healthcare in their system. Thus, the business innovations are the concerns for the Chinese Government to consider.

In the Technology innovation side, the concept is be concerned with the “Service”, “Process Technologies,” and “Supporting Technologies.” The Services area is to help the Elderly to take care of themselves with the use of new technologies. Process Technologies is concerned with all of the new innovations that are being developed year-by-year and to see how the technologies can be integrated into usable formats in each of the value chains in the knowledge management based service systems. Supporting Technologies are devices which can be integrated into the system along with the new developments in healthcare to support elderly’s social and medical needs.

Figure 4: The Service Innovation paradigm shift in greater details



Source: Figure adopted from Davila, Epstein & Shelton, 2006

4. CONCLUSIONS

Knowledge management is a combination of many theories and ideas from many disciplines to help solve various problems with the use of technology and is based on General Systems Theory (Alter, 2001; Ackoff, 1971; Chung, Fisher & Wand, 2005). The younger generation has been taking care of their elderly parents for generations but now the number of elderly is increasing and the number of children has been decreasing in China. Over the past few decades, knowledge and information management have been used to help solve problems in the social structure of society with the innovation of technology (Alstyre & Brynjolfsson, 2005; Fitzpatrick, 2000; Mingers, 1980). The time has come to apply these theories and technologies to the problem in China for the care of their elderly. Using the works of Davila, Epstein and Shelton (2006), a paradigm is proposed which help to emphasize a conceptual framework. The paradigm looks at the problem from a Business and Technology innovation problem. The paradigm presents a service innovation concept for taking care of the elderly. Six different elements are suggested to be considered.

The application of knowledge and information management needs to starts helping society not only business. With 128 million elderly now in China with the prospects of going up to 400 million in the future, innovations need to take place quickly than is now taking place. Now is the time, with the paradigm presented, researchers and practitioners can look to consider the elements of the paradigm.

REFERENCE LIST

1. Ackoff, R. L. (1971). Towards a system of systems concepts. *Management Science*, 17(9), 661-671.
2. Alstyne, M. V., & Brynjolfsson, E. (2005). Global village or cyber-balkans? modeling and measuring the integration of electronic communities. *Management Science*, 51(6), 851
3. Alter, S. (2001). Are the fundamental concepts of information systems mostly about work systems? *Communication of AIS*, 5(11) 1-67.
4. Baskerville, R., & Dulipovici, A. (2006). The theoretical foundations of knowledge management. *Knowledge Management Research & Practice*, 4, 83-105.
5. Chinese Economy. (1998). The path to real modernization. *Chinese Economy*, 31(2), 33-39. DOI: 10.2753/CES1097-1475310233 Retrieved: 3 February 2015 from <http://www.tandfonline.com/doi/pdf/10.2753/CES1097-1475310233#VQB6oPzF98F>
6. Chung, W. Y., Fisher, C. W., & Wang, R. Y. (2005). Redefining the Scope and Focus of Information Quality Work: A General Systems Theory Perspective. *Advances in Management Information Systems*: ME Sharpe, Inc., Armonk, NY.
7. Custer, C. (2009). The Elderly in China. About.com China News. Retrieved: 3 February 2015 from <http://chineseculture.about.com/library/weekly/aa060400a.htm>
8. Davila, T., Epstein, M., & Shelton, R. (2006). *Making Innovation Work: How to manage IT, measure IT and profit from IT*, Wharton School Publications.
9. Fitzpatrick, T. (2000). Critical cyberpolicy: Network technologies, massless citizens, virtual rights. *Critical Social Policy*, 20(3), 375-407.
10. IBM. (2006). Healthcare in China: toward greater access, efficiency and quality. IBM Business Consulting Services. Retrieved: 3 February 2015 from <http://www-935.ibm.com/services/us/imc/pdf/g510-6268-healthcare-china.pdf>
11. Kennedy, E. M. (2009, September 28). Health care as a basic human right: moving from lip service to reality. Harvard Human Rights Journal. Retrieved: 3 February 2015 from <http://harvardhrj.com/2009/09/health-care-as-a-basic-human-right-moving-from-lip-service-to-reality/>
12. Martin, R. (2009). Central themes for a unit on China. *Asia for Educators*. Retrieved: 3 February 2015 from http://afe.easia.columbia.edu/main_pop/kpct/ct_china.htm
13. Mingers, J. C.. (1980). Towards an appropriate social theory for applied systems thinking: Critical theory and soft systems methodology. *Journal of Applied Systems Analysis*, 7, 41-49.
14. Pensions. (2012, August 11). Social security with Chinese characteristics. *The Economist*. Retrieved: 3 February 2015 from <http://www.economist.com/node/21560259>
15. Sharp, D. (2006). Economics & Western civilization. *Economic simplicities: An introduction to basic economics*, 12. Retrieved: 3 February 2015 from <http://www.economicssimplicities.com/ec0612.htm>
16. Wahid, K. A., Ismail, M. N., Wanarat, S., Laohavichien, T. (2013). The relationship between sources of knowledge and knowledge creation. *Journal of Information and Knowledge Management*, 3(1), 35-50.
17. Xi, H., Ren, X., & Zhai, S. (2014). Smart care: Pension innovation in information technology. *Scientific Research on Aging*, 7, 12-20. (In Chinese). Retrieved: 3 February 2015 from http://d.wanfangdata.com.cn/Periodical_lkxyj201407002.aspx