Building a Smart, Age-Friendly Community

Community Home-Based Elder Care Information Platform

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INTRODUCTION

This paper examines China’s efforts to meet the challenges and opportunities posed by its rapidly growing elderly population. It considers the pros and cons of existing models of elder care and details an emerging care model: community home-based elder care, integrated with smart, digital technologies. When fully developed, this new model of care has the potential to keep China’s older adults more fully engaged in society, while simultaneously reducing national spending. As this paper demonstrates, good care policy can be great economic and fiscal policy.

This paper is organized into seven sections: Part 1 explains the challenges and opportunities posed by contemporary aging and urbanization trends. Part 2 describes China’s traditional models of elder care and introduces the new model: community home-based elder care. Part 3 analyzes the current state of community home-based care in China. Part 4 discusses the potential advantages of integrating smart, digital technology into the community home-based care model. Part 5 introduces the community home-based care information service platform and highlights the benefits stakeholders can gain from it. Part 6 details specific technologies incorporated into the platform. Part 7 diagrams the steps required to develop the new care model to its full potential. Part 8 summarizes the reasons that community home-based elder care, enhanced with smart technology, is the care model best suited to meet the challenges posed by worldwide population aging.

Part 1: Background

Population aging is one of the most significant developments in the world today.¹ Globally, declining birth rates and increasing life expectancies are combining to create an unprecedented shift in the population structure. By 2017, the number of people over age 65 will exceed the number of children younger than five, and by 2040, the over-65 population will increase to 1.3 billion, accounting for 14% of the world’s entire population.² By mid-century, there will be nearly six million people aged 100 or above.

For China, population aging carries especially profound implications. Between 2011 and 2015, the number of Chinese citizens over the age of 60 will increase by 8.6 million per year, surging from 13.3% to 16% of the total population.³ By 2050, the senior population in China will have doubled.

At the same time, another powerful global trend is developing: urbanization. As the world is aging, it also is migrating from rural to urban settings. Today, over half of the world’s population lives in cities. A full 60% will be urban by 2030.⁴ China, like many developing nations, is at the crest of this urbanization trend. In 2011, for the first time, the Chinese urban population accounted for over 50% of the total population.⁵ Looking ahead, this percentage is bound to increase.

As societies age and urbanize, older adults can play a variety of critical roles – volunteering, mentoring, teaching, assisting families in caring for young children, and even continuing to work. These contributions are possible, however, only if seniors are healthy and engaged in a community that understands their specific needs. Given the conditions to flourish, China’s rapidly growing older population has the potential to create both significant employment opportunities and new markets, leading to sustained economic growth.

The World Health Organization (WHO) has been instrumental in creating policy guidelines that can help countries succeed in an aging, urbanizing world. In 2007, on the International Day of Elder Persons, the WHO published “Global Age-friendly Cities: A Guide.” With the participation of over 35 cities from 22 countries globally, the WHO’s Guide outlines how older adults can be resources to their families and communities.
To realize this potential, the WHO suggests that “age-friendly cities” – cities that integrate older adults through developments in urban life, such as outdoor spaces and buildings, transportation, housing, and health services – are needed. Age-friendly cities, according to the WHO, also promote social inclusion and respect, civic participation and employment, communication and information, and community support.

In China, a number of challenges stand in the way of capturing the potential of the senior population. Among them are the large number of “empty-nest” households, a high disability rate among older adults, and other issues arising during this time of social and economic transformation. China’s Twelfth Five-Year Plan for Developing the Cause of Chinese Seniors attempts to overcome these challenges by promoting new ways to care for the elderly and keep them integrated into society. Like the WHO’s Age-friendly Cities initiative, it seeks to keep Chinese elders healthy and involved.

Part 2: Traditional Elder Care Models in China

Historically, elder care in China has been defined by three different models: household elder care, self-care, and social elder care. Each has strengths and weaknesses. (Below, the three models are discussed in detail.)

Household Elder Care Model

In this model, family members care for the elderly, providing, at a minimum, living arrangements and basic necessities. Household elder care gives seniors a high sense of security and belonging and, worldwide, is one of the oldest and most prevalent elder care models. As China continues to modernize economically and socially, however, household elder care faces increasingly severe challenges.

Children bear the costs of this kind of care, which substantially reduces the government’s fiscal burden, but may make it difficult for lower income families to provide consistent care and decent living conditions. Additionally, multi-generational households can create family conflicts and instability, especially as elder generations lose their authority. When younger generations gain a dominant position in the family — both socially and economically — a new power structure emerges.

The new 4-2-1 Chinese family structure, brought about by Chinese population and family planning policy, places an enormous burden on younger generations. In the 4-2-1 family, a couple is responsible for supporting four elderly parents and one child. Many couples must stretch their resources very thin, making it impossible for them to provide more than the most basic level of care.

Self-Care Model

In this model, seniors purchase housing, assistance, and professional and elder care services at their own expense. For many, this model of care is out of reach, due to the high costs involved.

Social Elder Care Model

In this model, the state and society financially support three different types of care: home-based, community, and institutional care. This model, as it currently exists, has proven to be cost prohibitive.

As the discussion above suggests, the three traditional models of elder care do not align well with 21st century needs. Table 1, below, details problems specific to each model.

Table 1: China’s traditional elder care models, description, and problems

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<tr>
<th>Models</th>
<th>Description</th>
<th>Problems</th>
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<tr>
<td>Household Elder Care</td>
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<tr>
<td>Care by Relatives</td>
<td>Children or other family members care for elders.</td>
<td>• Inconsistent quality of care</td>
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<td></td>
<td></td>
<td>• Insufficient laws and regulations</td>
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<tr>
<td>Care by Domestic</td>
<td>Family members or elders, themselves, pay professional domestic service</td>
<td>• Inconsistent quality of service personnel</td>
</tr>
<tr>
<td>Service Companies</td>
<td>companies to provide in-home care.</td>
<td>• Insufficient laws and regulations</td>
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<tr>
<td>Care in Elder Apartments</td>
<td>Community and professional institutions provide dining, hygiene and health</td>
<td>• Insufficient number of services provided</td>
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<td>services, entertainment, and medical care in apartments designed specifically for elders.</td>
<td>• Poor quality of service personnel</td>
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<td>• Insufficient laws and regulations</td>
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Community Home-Based Elder Care Information Platform

Table 1 (continued): China’s traditional elder care models, description, and problems

<table>
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<tr>
<th>Models</th>
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<tr>
<td><strong>Self-Care</strong></td>
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</table>
| Housing-based Care          | Elders mortgage or rent their own homes, with property rights, to obtain a pension or funds to purchase services provided by elder apartments.                                                               | • Real estate market instability  
                               |                                                                                                                                                                                                             | • Financial institution concern about housing price volatility  
                               |                                                                                                                                                                                                             | • Insufficient laws and regulations  
                               |                                                                                                                                                                                                             |                                                                                               |
| Care Based on Mutual Help   | Healthy, relatively young elders and community volunteers provide daily care to seniors in need of assistance. When these young elders need support in the future, the next batch of volunteers will serve them. | • Immature, incomplete organizational structure                                               |                                                                                               |
| Care Based on Expertise     | Elderly intellectuals and artists care for themselves and use their expertise to earn income.                                                                                                                | • Not widely applicable                                                                       |                                                                                               |
| **Social Elder Care**       |                                                                                                                                                                                                             |                                                                                               |
| Institutional Care          | National or private institutions, such as nursing homes and elder care centers, provide services.                                                                                                            | • Business model not fully developed  
                               |                                                                                                                                                                                                             | • Quality of management and services inconsistent  
                               |                                                                                                                                                                                                             | • Elders’ spiritual needs unmet  
                               |                                                                                                                                                                                                             | • High levels of depression, leading to increased rates of death  
                               |                                                                                                                                                                                                             |                                                                                               |
| Community Care              | The government funds services provided by special care accommodations and centers.                                                                                                                          | • Limited facilities and manpower  
                               |                                                                                                                                                                                                             | • Limited service offering in the community agencies  
                               |                                                                                                                                                                                                             |                                                                                               |
| Home-based Care             | The family hires personnel who provide life care, medical care, spiritual engagement, and assistance with daily life.                                                                                           | • Untrained service personnel who lack professional certification  
                               |                                                                                                                                                                                                             | • Lack of consistent, effective standards for evaluating service quality  
                               |                                                                                                                                                                                                             |                                                                                               |

Research by China’s National Committee on Aging reveals that more than 85% of Chinese elders prefer home-based care, with only around 7% preferring to live in institutions such as nursing homes. The Twelfth Five-Year Plan calls for a 90-7-3 elder care structure — that is, 90% of seniors receive home-based care, 7% receive community care, and 3% receive institutional care. Reaching this goal requires the development of a new model of home-based care that meets the social, health, and economic needs of China’s growing and urbanizing aging population.

This paper examines community home-based elder care, a new model of care that places the family and community at the core of care and provides the elderly with needed daily and spiritual services. Though still in its infancy, this care model has the potential to yield both social and economic benefits. A comprehensive survey of community home-based elder care around the country identified current shortcomings of this care model. The discussion that follows details these shortcomings and illustrates how information technology can increase the model’s effectiveness.

Part 3: The Current State of Community Home-Based Elder Care

To achieve the ultimate goals of better care, reduced costs, and increased adoption, the community home-based elder care model must address the issues detailed below.

1. Community home-based elder care is not meeting growing demand, and quality is suffering.

China’s already large elderly population is growing at an exponential rate. As younger generations leave home to find work, more elderly are left without traditional familial support. Overwhelming demand and scarce private funds force many elders to rely on service personnel who are untrained, overworked, and underpaid.
2. Chinese seniors want social meaning, interpersonal communication, adequate medical and healthcare, and safe, thriving, sustainable lives.

To build a community home-based elder care service and technology platform that is relevant and highly scalable, it is essential, first, to understand the wants and needs of Chinese seniors. Through door-to-door interviews conducted in Beijing with older people and their families and subsequent data analysis, we have identified four key priorities:

- **A) Social meaning** - Chinese seniors — especially the younger elderly — want meaning in their lives. Having a sense of purpose enables them to enjoy healthier, more active lives. For some, continuing to work fulfills this need, allowing them to demonstrate their value to themselves and their community. Others derive meaning from continued learning and engagement with peers. As health and basic needs become more important, the significance of social meaning declines.

- **B) Interpersonal communication** - Close family relationships foster a positive, healthy outlook. These connections help seniors cope with losses, such as the death of a spouse, that have the potential to damage physiological and psychological health. Communication with peers and neighbors gives elders the feeling of being recognized, accepted, and engaged in society.

- **C) Adequate medical and healthcare** - Maintaining health is a top priority for seniors. They want information that will help them develop healthy behaviors and dietary habits, along with products and services that will help them monitor their health and manage chronic diseases. They urgently need better first-aid and medical services. Older seniors, in particular, value these services, especially to the extent that they are responsive, effective, and efficient.

- **D) Safe and sustainable lives** - China’s seniors want to be able to sustain themselves financially in living environments that are safe and comfortable.

A qualitative understanding of the Chinese elderly population’s most pressing needs, such as that presented above, is required in order to maximize the effectiveness of any senior care services technological platform being developed.

3. Local governments and social organizations are constructing and operating home-based care services.

Across China, community home-based elder care models are being tested and modified to fit local need. These models fit into four categories: government led, agency led, professionally led, and market led. Table 2 below describes each model and its associated pros and cons. As community home-based elder care becomes mainstream in China, each community will adopt the model best suited to its unique needs. Going forward, as China continues to modernize and move towards a market-based economy, the market-led model of care will become predominant.

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<tr>
<td><strong>GOVERNMENT LED</strong></td>
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<td><strong>Features</strong></td>
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<td><strong>Advantages</strong></td>
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<td><strong>Disadvantages</strong></td>
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<td><strong>Suitable Locations</strong></td>
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<td><strong>AGENCY LED</strong></td>
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<tr>
<td><strong>Disadvantages</strong></td>
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<tr>
<td><strong>Applicable areas</strong></td>
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4. Government is playing a central role in improving retirement security and services.

Home-based care services in China receive financial assistance and policy support from the federal government. Local governments provide subsidies in the form of unpaid and low-cost services, encourage community volunteers to help with elder care, and offer a wide range of incentives to attract elder services enterprises to their regions. Table 3 below details current subsidies of various service modes.

Table 3

<table>
<thead>
<tr>
<th>Service Mode</th>
<th>Recipients</th>
<th>Features</th>
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<tbody>
<tr>
<td><strong>Unpaid Services</strong></td>
<td>People of advanced age, the disabled, the poor</td>
<td>The government provides monthly allowances to eligible individuals, benchmarked according to the development level of the local economy. The government issues pension vouchers to qualified elders to subsidize labor services.</td>
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<tr>
<td><strong>Low-Cost Services</strong></td>
<td>Seniors who have difficulty maintaining their livelihoods</td>
<td>The government grants monthly subsidies or pension coupons.</td>
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<tr>
<td><strong>Paid Services</strong></td>
<td>Younger seniors with financial resources</td>
<td>Elders buy their own services, usually with costs below market level. The government subsidizes the service providers.</td>
</tr>
<tr>
<td><strong>Volunteer Services</strong></td>
<td>Aged within communities</td>
<td>Community volunteers and younger seniors provide volunteer services. Elder service groups are formed to provide &quot;One Helps One&quot; or &quot;Two Help One&quot; services for seniors. Optimizes the unique community relationships and manpower in China. Services lack standardization.</td>
</tr>
<tr>
<td><strong>Social Worker Subscription Services</strong></td>
<td>Elderly with special needs</td>
<td>The government employs social workers, including enterprises or individuals, to provide services.</td>
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5. There is no complete, consistent system of evaluation for community home-based care.

Ensuring that care services and subsidies offered are those that most effectively meet seniors’ needs requires a clear understanding of what those needs actually are. An empirical assessment of seniors’ physical abilities and economic, social and physical conditions would provide a meaningful basis both for determining service/provider offerings and for setting evaluation criteria.

At present, very few areas in China that are implementing community home-based elder care services have any assessment standards at all. Those that do, such as the more economically developed sections of Shanghai and Zhejiang province, have neither standardized nor scientifically validated the criteria they are using.

Effective care models, such as those offering innovative techniques built on needs-based assessment, offer enormous potential for cost savings and economic growth.

6. Institutional elder care services and community elder care services can expand to home-based care services.

At present, there are three distinct models of elder care: institutional, community, and home-based care. Institutional elder care services, such as nursing homes and welfare houses, are occupied mainly by disabled and partially disabled seniors. While these institutions tend to provide good conditions and standardized services, many who live in them are depressed due to social isolation. Community elder care offers a variety of personalized services, including fitness, education, and cultural and recreational activities. In the home-based care model, services are available for both disabled and more independent elders. The disabled receive standardized day-to-day services, and independent seniors engage in arts-related, cultural, and spiritual activities. On the whole, home-based care services conform more to traditional Chinese culture and the preference of elders.

These three care models complement one other. Together, they provide a full range of coverage. As elder care institutions evolve and expand into communities, they will be able to offer their services and professional staff door to door – giving seniors residing at home the benefits of institutional living, without having to lose the comforts of home.

7. The information service platforms of community home-based elder care do not meet individual needs.

The information service platforms currently used in models of community home-based elder care cannot provide seniors with individualized services. They are capable of offering only generic services, such as links to emergency organizations, housekeeping assistance and psychological help.

8. Information service platforms are not integrated.

Home-based elder care information service platforms throughout China are independently constructed and are designed to meet the specific needs of the communities and businesses that operate them. With respect to system design, platform data, and platform applications, each is unique. As a result, these platforms tend to have poor vertical and horizontal integration capabilities, making integration through the different levels of government impossible. If the systems can be interconnected, they will become more useful and efficient.

9. Outdated telecommunications services fail to capture the potential of mobile digital devices.

Most local governments cooperate with telecommunications operators to provide free or discounted services (such as phones and pagers) to the elderly. These services often accommodate those who suffer from vision and hearing loss. As smartphones and tablet PCs become more common and sophisticated, their potential to help the elderly is increasing. Not only do these devices provide access to news and information, they also can help monitor health, provide essential services, and create social networks. The possible health benefits are significant: smartphones can measure temperature, take blood pressure, check blood glucose, and provide ECG monitoring. The devices can communicate this data to health management centers to help maintain health and prevent illness.

10. New digital technologies can give seniors greater independence and help monitor health.

The Internet and cloud computing can increase elders’ safety and help improve health. Sensors on the floor, for example, can monitor falls. Other devices, such as smart smoke detectors, wireless door sensors, and video monitoring, can assess conditions in real-time. Health monitoring devices can examine sleeping patterns and the contents of stool samples. In more developed regions, some of these possibilities are becoming realities, but many more opportunities exist.
Innovative technologies can enable huge cost savings and facilitate economic growth among a population formerly considered fully dependent, disabled, and/or unproductive.

A technology-based solution can be deployed to support an opportunities-based framework addressing the needs of an active and healthier aging population. This solution includes information provisioning, monitoring, early diagnosis and detection, interventions, data retrieval and analysis.

Part 4: Making Community Home-Based Elder Care “Smart”

The future community home-based elder care model will be “smart,” featuring personalized, integrated care through information technology. It will involve cooperation between government and commercial companies and will integrate all stakeholders: commercial elder care service companies, public service institutions (such as public health and emergency relief), social pension institutions, and community home-based elder care service intermediaries. By employing market forces and reliable, consistent standards, this model will provide high quality services at a reasonable cost. Suggestions for improvement from elders will be welcome.

The smart community home-based elder care model involves eight stakeholders. Each is defined below.

1. **Service Consumer** — The service consumer is the older adult.
2. **Manager** — The local government serves as the manager. They are responsible for developing and implementing policies, laws, regulations, and standards. They provide public services and supervise the market. The government is also responsible for granting subsidies and developing preferential policies for creators of platforms, service intermediaries, service executors, and payers.
3. **Platform Constructor** — The platform is constructed either by the government, a third party, or both. Generally, the third party creates the platform, and the government provides financial and policy support. The third party invests in the project because of long-term profit prospects.
4. **Service Intermediary** — The service intermediary takes charge of the service platform’s operation, functioning as go-between for the consumer, executor, payer, and manager. The service intermediary attracts the consumer to the platform, invites enterprises as executors, collects and conveys the older person’s needs to service executors, supervises the implementation project, pays the service charges, and coordinates managers to ensure sustained development of the elder care market.

To improve service equity and lower service costs, the local government generally chooses operation based non-governmental organizations (NGOs) as service intermediaries. The government initially supports the operations — including tax preferences, land preemption, and financial subsidies. Operating revenues come mainly from membership fees and service commissions. Service intermediaries use their profits to operate and develop the information service platform.

Service intermediaries can also be commercial companies who sustain the platform through market operations. In such cases, the financial burden on the government is lowered and market competition is increased. Too much market competition, however, can act against the social welfare of the elderly and compromise the quality of service. In such cases, government intervention is necessary.

5. **Service Partner** — Service partners cooperate with service intermediaries to provide communication and health management services. These partners — such as telecom operators, equipment suppliers, and health management service providers — often team with local governments to provide services at low costs.
6. **Service Executor** — The service executor is the institution, enterprise, or individual (paid or unpaid) who provides the elder care service. Through sound practices, enterprises that provide these services can win long-term customers and receive preferential tax and policy treatment from the government. Individual service executors often are either community volunteers or family members.
7. **Service Staff** — The service staff is comprised of door-to-door workers dispatched by the service executors, including employees and volunteers. Staff with elder care service qualifications receive skill training and labor remuneration.
8. **Payer** — The payer provides the funds that may come from a pension, retirement allowance, local government pension subsidy, or personal savings. A trusted service intermediary can act as agent payer to ensure payment security. After the service is confirmed, the service intermediary pays the service executor.
While clearly defined and distinct, individual parties can act in multiple roles. The government, for example, can act as platform constructor, manager, and payer. An NGO can serve as a platform constructor and service intermediary. An older person can be a service consumer, payer, and service staff, etc.

**Part 5: The Community Home-Based Elder Care Information Service Platform**

The information service platform connects all stakeholders and offers them a number of services:

**Service Consumers** — They can manage their archives, check service subsidies, browse service consumption logs, and manage their accounts. Additionally, they can join virtual health and social communities.

**Service Intermediaries** — Responsible for platform operation, they manage a wide variety of business functions, including fulfilling service requests and ensuring quality, attracting new members and processing memberships, maintaining consumer archives, processing payments, and tracking subsidy use. Additionally, they help meet consumer needs for socialization by building virtual communities that enable communication, photo sharing, microblogging, etc. Analyzing platform function allows service intermediaries to make critical development decisions and develop in-depth customer insights.

**Service Executor** — The platform offers service executors, mainly comprised of small businesses, the opportunity to grow, through three core applications: corporate website, customer relationship management, and service business management.
A corporate website highlights the enterprise’s brand and promotes its products and services. The platform provides easy-to-use tools that enable an enterprise to build a website rapidly, with templates, click-and-drag pages, and diversified modules, such as online map, photo gallery, RDF Site Summary (RSS) news, Bulletin Board System (BBS), content search, etc. These website building tools make it easy for an enterprise to modify web pages at any time, release modifications quickly, and support website pages targeted for mobile devices. A website built with these tools offers service executors the ability to integrate open services provided by the platform, such as consumer archives, and makes online customer relationship and business management tools available for rent.

The online customer relationship and business management tools available through the platform may be customized to fit an enterprise’s specific needs. Customer relationship tools allow service executors to manage customer information, communicate effectively, and attract new customers. Business management tools simplify routine business processes, such as certain aspects of employee management, order distribution, and door-to-door service management, by integrating some of the platform's basic services. An enterprise can receive a service request, assign employees to provide the service, update the service status, and then integrate comments and feedback – all through the platform.

**Employees, Volunteers, and Families** - Employees of the service executor can use the platform for a variety of tasks, including contacting customers about service details, providing remote services, updating status, and browsing service logs. Volunteers can use the platform to browse, look up their service logs, and share experiences in the online volunteer community. Children and relatives of consumers can use the platform to browse service consumption history, provide feedback, and monitor their family member’s condition.
Other Interested Parties – Managers can use transaction records stored in the platform to supervise and standardize the market. They also can generate statistical reports illuminating the actual conditions of elder care services in the community, using platform data.

The platform can be integrated with information systems in other business fields. For example, the platform’s patient archives can be updated synchronously with the resident health archives contained in the community health information system. The emergency rescue system can integrate the platform’s business processes to learn of rescue notices, allowing it to take action quickly and then update the rescue status on the platform. The service intermediary, as the payer, pays service fees based on information provided by the platform.

Part 6: Key Technologies of the New Community Home-Based Elder Care Information Service Platform

The new community home-based elder care information service platform includes these key technologies: sensor and Internet of Things (IOT) technology; human-computer interaction (HCI) technology and user experience; and cloud computing and data analysis technology.

Sensor and IOT Technology

With the support of the new platform, seniors send service requests in real time through smart sensors or other equipment. For example, a senior’s walking posture may be monitored by a smart waist-belt. If the user tumbles or walks unsteadily, the belt sends an alarm SMS to the service intermediary, signaling that help is needed quickly. This kind of sensor and embedded system technology uses wearable, implantable, or invasive health monitoring equipment, such as a finger-tip blood oxygen sensor, a wristwatch-type sleep quality measurer, a wristwatch-type glucose sensor, a sleep physiology inspectoscope, implantable identification components, etc. Through Body Area Network (BAN) communication technical standard, these sensors communicate wirelessly to monitor an older person’s vital signs, physical movements and behavior.

Video monitoring and analysis technology offer alternate methods of assessing the safety of older people when they are at home or outside. These technologies can detect falls, recognize if someone with dementia is straying from a safe area, and assess behavior to determine mental status. As this video technology develops, it is integrating HD, network-based, and intelligence capacities. Further, these video systems should integrate and upgrade third-party analysis optimization algorithms to improve their ability for accurate analysis.

Interactive digital signage technology plus RFID can provide aid and increased independence to an older person suffering memory loss. For example, a wearable RFID chip can communicate with a digital sign in a park, to help the person remember his location or remind him of directions.

These sensor networks require high performance and strong connectivity so that the sensors and equipment can perform cloud-based information exchange and remote equipment management through Ethernet, RAN and mobile communication networks.

HCI Technology and User Experience

Though information technology has become an indispensable part of older people’s lives, many still struggle with using devices such as personal computers, mobile phones, etc. Designing these products to meet the social, physiological, and psychological needs of the elderly is critical. Designs should consider cost, ease of use, portability, and safety. If possible, older people should be invited to participate in product design.

Cloud Computing and Data Analysis Technology

Quick, convenient access to high quality services depends on the community platform’s ability to successfully integrate the needs of the elderly. Cloud computing can provide support for immediate provisioning of Internet-based services, and can reduce platform deployment, maintenance, and management costs. In addition, cloud technology can be leveraged to analyze various data on the platform to provide targeted and personalized services.
Part 7: Developing the New Community Home-Based Elder Care Information Service Platform

Development of the new information service platform can be divided into three major stages: Fundamental Requirement, Open Development, and Decision Making. The image below illustrates the steps within each of these development stages.

**Fundamental Requirement Stage:** This preliminary stage of the platform aims to manage routine service handling processes. The **Fundamental Services** step gives priority to all fundamental services — service agencies operate the platform, social service enterprises join, and older people become members. When seniors submit service applications through the platform, service agencies can choose the most appropriate franchise enterprises or community volunteer workers to provide the requested services. The **Compliance with Standards** step ensures that the platform continues to adhere to local and national regulations and standards as the number of platform members grows. Highly consistent standards, laws, and policies that are relevant to all stakeholders are critical if the platform is to achieve widespread adoption and interoperability. The **Cross Integration** step seeks to vertically integrate functions of administrative management agencies at different levels and to horizontally consolidate information systems of related business departments, such as health and emergency rescue, when the platform’s influence begins to grow.

**Open Development Stage:** During this phase, the platform starts to provide more diversified and personalized services by using Internet technologies. The **Social Sharing** step encourages elders to exchange information and ideas through online, special interest communities, such as the Calligraphy Fan Community. The goal of the **Influence Expansion** step is to attract more and better service enterprises to participate. The platform’s online tools can help franchise enterprises more effectively promote their services and boost their operational efficiency. In the **Open for Added Value** step, certain open natures and business models position the platform better to meet diverse user needs.

**Decision-Making Stage:** When the scale of the user base and the service transactions on the platform are large enough, approaches that are based on data mining and big data analysis can provide decision-making support. Data gleaned from the platform in the **Government Intelligence** step provides government departments with information for more effective policymaking. Feedback acquired from the platform and social network during the **Service Intelligence** step helps franchise service enterprises to improve service quality. Information gathered from seniors’ activity logs during the **Elder Intelligence** step enables more precise mining of personalized needs and a more effective offering of services.
Part 8: Conclusion

Undeniably, a burgeoning older population presents distinct challenges for China today. At the same time, this phenomenon is creating significant opportunities for economic growth. From 2010 to 2050, seniors' overall consumption is expected to rise from just over one trillion Yuan to five trillion Yuan.⁶ According to a 2011 survey by China's Consumer Association, demand is growing for new, senior-focused products and services, resulting in the opening of new consumer markets. Swelling demand from seniors is leading to a corresponding rise in national employment. Experts project that, from 2010 to 2030, the number of people working in China's senior care industry will climb from 20 million to 78 million – boosting the country's overall employment rate by 2%.”⁷

Many aspects of China's experience apply to other nations grappling with today's aging and urbanization trends. Worldwide, many countries are recognizing the need for new models of integrating and caring for the elderly. Both socially and economically, traditional models of care no longer seem to fit. This paper presents a unique, immensely promising approach to meeting this challenge: using smart technologies to help deliver high quality, personalized care at an economically sustainable cost.

The technologies integrated into the community home-based elder care information service platform deliver better, more cost-effective care to Chinese elders and keep the more independent among them active and productive longer. The results are significant cost savings and social benefits at the individual, local, and national levels. As China phases in this new approach over the next few years, best practices that extend to other countries are likely to emerge. Smart elder care can become a driver of social, health, and economic improvement worldwide.

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2 United States Dept. of Commerce, Census Bureau, International Programs, International Database, World Population by Age and Sex, 03 Jun. 2013
   http://www.census.gov/population/international/data/idb/worldpop.php

3 State Council of P.R. China, “Twelfth Five-year Planning for Developing the Cause of Chinese Seniors,” September 17, 2011

   http://www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=1163


6 China National Committee on Aging

7 China government