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Annual Global Report On Innovation in Active, Healthy and Smart Ageing Sector (2018)

Edited by Guangsheng Guo & Jianbing Liu



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Function Optimization Framework of Smart Senior Care Websites Based on Comparison at Home and Abroad

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1 Introduction

Smart Senior Care (SSC) refers to using information technology and other modern technology (such as the Internet, social network, Internet of things, mobile computing, big data, cloud computing, artificial intelligence, block chain, etc.) to support the old people's living, safety, medical and home care, health and rehabilitation, entertainment and leisure, learning and sharing, and other aspects of elderly life. SSC can make the automatic monitoring, early warning and even active disposal about elderly information, and realize the friendly, autonomous and individualized intelligent interaction between these technologies and the elderly. On the one hand, SSC can improve the quality of life of the elderly; on the other hand, SSC can make use of the experience and wisdom of the elderly. The purpose of SSC is to make the elderly live happier, more dignified and more valuable (Zuo, 2014).

One of the important ways to realize the SSC is the construction and application of the websites for the elderly. The elderly can use Internet to relax and entertain, so as to kill their leisure time after retirement. Through the Internet, the elderly can enrich their knowledge and reduce the information difference between them and their children, so that they can communicate with their children smoothly and keep up with the pace of the times. A large number of elderly forums and social platforms also enable the elderly to develop their interests and make new friends. The elderly can also purchase senior care services or products through those platforms, so that the elderly can complete their consumption without leaving home. If the elderly have concerns about their health, they can also consult online. For example, many hospitals have doctors answering questions from patients online. These websites can well meet the needs of the elderly about home care, and greatly facilitate the daily life of the elderly (Yuan, et. al., 2017).

However, the personal factors of the elderly make the websites for the elderly need special design, such as the adjustment of the word size, the simplicity of the page design and so on. Because of the decline in the learning ability of the elderly, their familiarity and adaptation to the network will be slow, so the design of the website needs to be simplified to facilitate the

acceptance of the elderly (Chen, 2010).

There are a lot of research on website comparison. These websites include government portals, educational websites, patent searching websites, employment websites, and social websites and so on. Most scholars use comparative research method, inductive research method to analyze the website and draw conclusions.

For the comparison of the websites of the elderly, the research found that the websites of the elderly in China should strengthen the design in readability, information display, multimedia, navigation and layout, so as to increase the accessibility of websites for the elderly (Liu, et. al., 2011). The existing research are mainly from the perspective of interface design and human-computer interaction design. However, there is little research on the functional comparison of the Smart Senior Care at present.

In order to understand the present situation of the development of SSC websites at home and abroad, and to provide function optimization framework for the development of the Smart Senior Care websites, this paper uses the method of case study to compare the functions of SSC websites at home and abroad. Then, we put forward the suggestions of optimization about function design.

2 Foreign Smart Senior Care Websites

2.1 Selection and Introduction of Websites

For the foreign SSC websites, we mainly choose websites in English. We're not familiar with other languages such as Japanese and French, so such websites are not chosen. The websites are searched through Google with "senior care" and other keywords, we selected websites with higher ranking of web hits. The final selection, as shown in Table 1, includes 11 websites from the United States (6), Australia (3), the UK (1), and Singapore (1).

Table 1 List of Foreign SSC Website Selection

Number	Website	Global Ranking of Alexa Web Hits	Country
1	https://www.ageuk.org.uk	79387	UK
2	https://www.brookdale.com/en.html	176500	U.S.A
3	http://www.comfortkeepers.com/	331498	U.S.A
4	https://www.joinhonor.com/	587795	U.S.A
5	http://www.seniornet.org	588349	U.S.A
6	https://www.seniorhelpers.com/	709880	U.S.A
7	https://ntuchealth.sg/	965382	Singapore
8	http://www.topseniorcaregivers.com/	2220030	U.S.A
9	http://aciitc.com.au/	-	Australia
10	https://lasa.asn.au/	-	Australia
11	https://www.acsa.asn.au/	-	Australia

* Note: Websites are ranked according to the global ranking of Alexa web hits, websites with no hits are sorted in alphabetical order.

Here is a brief introduction to the 11 websites. Limited to space, we only display the featured pages which has some strengths.

1. <https://www.ageuk.org.uk/>

Age UK is a charitable institution in Britain dedicated to help everyone live their old age better. The website was established in 2008. Its main functions include user information collection and so on. The special features of the website include audio resource playback.

2. <https://www.brookdale.com/en.html>

Brookdale is an elderly community company providing care and social services for the elderly, headquartered in Tennessee, USA. The website was established in 1996, and its main functions include user information collection, elderly community searching and recommendation. As shown in Figure 1, the searching result can be screened by choosing no more than 5 amenities. The special features of the website include contrast of the elderly community, as shown in Figure 2, which is comparing the two communities of Brookdale Medi Park West and Galleria Woods from levels of care, floor-plans and amenities.

The screenshot shows a search interface with the following elements:

- City & State or Zip:** A text input field with a dropdown arrow.
- Distance:** A dropdown menu currently set to "Within 250 miles".
- Levels of Care:** A dropdown menu currently set to "All Levels of Care".
- Search:** A black button with white text.
- More Filters:** A button with a minus sign.
- Amenities:** A section titled "You may select up to 5 amenities to filter." containing a grid of 16 checkboxes:
 - Daily Check-in System
 - Emergency Response In Eac...
 - Private Bathroom - Sink/T...
 - Pet Friendly
 - 24 Hour Security System
 - Concierge Service
 - Library
 - Café/Bistro
 - Restaurant Style Dining
 - Planned Social Events/Ent...
 - Coffee Shop
 - Arts & Crafts Studio
 - Community Excursions
 - Beauty/Barber Shop
 - Fitness Center
 - Transportation
 - Courtyard and Garden
 - Gardening/Greenhouse
 - Indoor Pool
 - Outdoor Pool

Figure 1 Elderly Community Searching Page from Brookdale

The screenshot shows a comparison page for two communities. The header includes the Brookdale logo and navigation links: "Where to Begin", "Our Services", "Brookdale Life", "Find a Community", and a phone number "844-331-5625".

	Brookdale Medi Park West Amarillo, TX	Galleria Woods Birmingham, AL
Levels of Care	Assisted Living Independent Living	Continuing Care Retirement Community Independent Living Skilled Nursing Assisted Living
Floorplans	Floor Plans (PDF)	Floor Plans (PDF)
Amenities	Pet Friendly 24 Hour Security System Concierge Service Library	24 Hour Security System Concierge Service Library Café/Bistro

Figure 2 Comparison Page for the Elderly Community from Brookdale

3. <http://www.comfortkeepers.com/>

Comfort Keepers provides living assistance and care services by traveling to clients' homes, making them more comfortable at home. It's headquartered in Ohio, USA. The website was established in 1998, and its main functions include searching for nearby offices and online registration as a nursing staff. The special features of the website include the evaluation of the elderly self-care ability.

4. <https://www.joinhonor.com/>

Honor provides home care to help the elderly live independently and maintain the quality of their life. Its servicing place includes California, Texas and New Mexico. The website was established in 2015. Its main function is to collect user information to facilitate offline contact. The user information collection page is shown in Figure 3.

REQUEST A QUOTE FOR HONOR CARE.

I need care for... ▾

How many days per week? ▾

How many hours per day? ▾

Name

Email

Phone

Get my free quote

Figure 3 User Information Collection Page from Honor

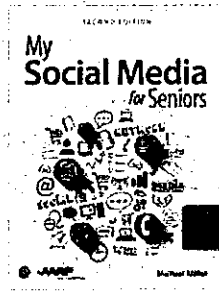
5. <http://www.seniornet.org>

SeniorNet is an American organization aimed at education for old people about using of computer technology to improve their lives and to enable them to share their knowledge and wisdom. The website was founded in 1995, and its main functions include recommendation of nearby learning centers and links to purchase products related to old people. The product purchase link is shown in Figure 4, which includes products or versions for the elderly, such as the book "My Smart Home for Seniors" on the left.

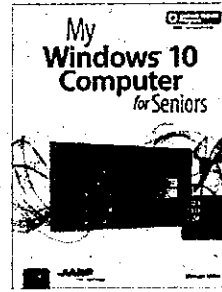
Featured Titles



My Smart Home for Seniors
Book *\$16.19 \$26.99
eBook *\$13.19 \$21.99



My Social Media for Seniors, 2nd Edition
Book *\$16.19 \$26.99
eBook *\$13.19 \$21.99



My Windows 10 Computer for Seniors
Book *\$14.99 \$24.99
eBook *\$9.59 \$16.99

Figure 4 Related Products Purchase Link Page from SeniorNet

6. <https://www.seniorhelpers.com/>

SeniorHelpers is an elderly care company headquartered in California, USA. The website was established in 2002, and its main function is user information collection.

7. <https://ntucealth.sg/>

NTUC (National Trades Union Congress) Health is a social enterprise in Singapore to provide comprehensive, quality and affordable health and elderly care services to meet the growing needs of families. The website was founded in 2005, and its main function is service introduction.

8. <http://www.topseniorcaregivers.com/>

Topseniorcaregivers is a recommendation website for aged-care agencies in the United States, which was founded in 2011. Its main function is to collect user needs and recommend appropriate aged-care agencies.

9. <http://aciitc.com.au/>

ACIITC (The Aged Care Industry IT Council) is an Australian organization aiming to discuss elderly care in the IT environment and to disseminate relating knowledge. The main function of the web page is the introduction of the organization.

10. <https://lasa.asn.au/>

LASA (Leading Age Services Australia) is an organization that aims to study an efficient, viable and sustainable elderly service industry to serve the elderly in Australia. The main function of the website is the introduction of the organization.

11. <https://www.acsa.asn.au/>

ACSA (Aged & Community Services Australia) is an organization aiming to provide a strong national voice for the elderly, and to provide effective services. The main function of

the website is the introduction of the organization.

2.2 Classification and Comparison of Functions of Foreign SSC Websites

2.2.1 Classification of Website Function Points

On the basis of carefully reading and analyzing of the 11 websites selected above, we summarize the function points of the website, and the results are shown in Table 2. From the table, we can see that the functions of overseas websites can be divided into 4 main categories: resource provision, information collection, searching and recommendation, and website promotion. There are some specific function points below each broad heading. We choose 2/3 and 1/3 of all the sample websites as demarcation points and divide the function points into 3 types:

Table 2 Functional Classification of Foreign SSC Websites

Website		Function										
		1	2	3	4	5	6	7	8	9	10	11
Resource Provision	Video push	√	√	√	√	√	√	√			√	
	Search box	√	√			√		√		√	√	√
	Resource download	√	√			√		√		√	√	√
	Article push	√		√		√						
	Product link			√		√						
	Product introduction			√								
	Audio push	√										
	Online donation	√										
Information Collection	User information collection	√	√	√	√	√	√		√	√		
	Nursing staff registration	√		√	√		√					
	Join in registration			√			√					
Searching and Recommendation	Service center searching	√	√	√			√					
	Aged-care agencies searching					√			√			
	Evaluation			√								
	Agency comparison		√									
Website Promotion	Agency / organization introduction	√	√	√	√	√	√	√		√	√	√
	SNS link	√	√	√	√	√	√	√			√	√
	Links of related organizations						√			√		√

(1) Function points with much applications: The number of websites with this function is between 8 ($11 \times 2/3 + 1$) to 11. These functions are marked with dark gray.

(2) Function points which the number of applications is in the middle: The number of websites with this function is between 4 ($11 \times 1/3$) to 7. These functions are marked with light gray.

(3) Function points with fewer applications: The number of websites with this function is less than 4 (excluding 4).

The following is a brief introduction to each function points in table 2.

2.2.2 Introduction of Website Function Points

(1) Resource Provision

This function is to provide information about the elderly to facilitate the elderly to view and help them improve their living quality. This function includes the following function points:

① Video push: Push some videos to the elderly, such as videos about health tips, retirement life, and pension management and so on. The purpose is to attract the elderly or children of the elderly to browse the web, and to increase their interest. Video can be placed directly on the web page, or can be presented by links.

② Search box: Set up a search box above the website to facilitate the elderly to find the information they want and improve the user experience.

③ Resource download: Download resources links for the elderly, usually in the form of PDF, including elderly-relates articles.

④ Article push: Push some articles about retirement, the content and purpose are similar to video push.

⑤ Product link: Links for elderly related products, including books, electronic products, etc. Some of the goods can be paid with a member discount.

⑥ Product introduction: The detailed introduction of elderly related products, usually the electronic terminal equipments used by the agencies / organizations.

⑦ Audio push: Push some audio to elderly, content and purpose similar to video push.

⑧ Online donation: Online donation link, which can be paid online.

(2) Information Collection

This function is to collect basic information of website visitors, including contact information to facilitate offline communication, including the following function points:

① User information collection: Collect the information of the users who are intended to use the service of the agency / organization, such as the elderly or the children of the elderly. This function can facilitate communication offline and make a reasonable care plan.

② Nursing staff registration: Online registration to become a nursing staff, collecting basic information to facilitate follow-up interviews.

③ Join in registration: Online registration to enter the organization for investment, also collect basic information to facilitate offline negotiation.

(3) Searching and Recommendation

This function is to search nearby service centers or senior care agencies to make recommendations for user to choose, including the following function points:

① Service center searching: Search the regional office or service center of the company to facilitate users to handle the business nearby.

② Aged-care agencies searching: Search nearby aged-care agencies (which may belong to the company or other organizations) to facilitate users to choose.

③ Evaluation: Provide the aged-care related assessment, the content of the assessment includes the living level of the elderly, and so on. It is convenient for users to judge whether they or their parents need care service, and what level of care service is needed.

④ Agency comparison: Compare the search results of the aged-care agencies, which is convenient for users to make judgments and choose the best aged-care agency.

(4) Website Promotion

This function is to attract users to browse websites and use services through introduction and promotion, including the following function points:

① Agency / organization introduction: Provide detailed information about the types of services, nursing staff, and other information about the agency / organization, so that users can understand the functions of the agency / organization and attract users to use the services.

② SNS link: Provide links to SNS such as Facebook, Twitter, YouTube and so on to facilitate users to follow and browse, promoting the agency / organization on social networks.

③ Links of related organizations: Place the links of relevant organizations to increase authority.

According to the classification of website functions and function points in Table 2, we summarized the functions of foreign SSC websites, as shown in Figure 5. Among them, functions which the number of websites with this function is more than 8 is marked with white words on black background; the number 4-7 is marked with white words on gray background, and the number 1-3 is marked with black words on gray background.

From Figure 5, we can see that video push, search box, resource download; user information collection, nursing staff registration; service center searching; as well as agency / organization introduction, SNS link; these functions are used much in foreign websites.

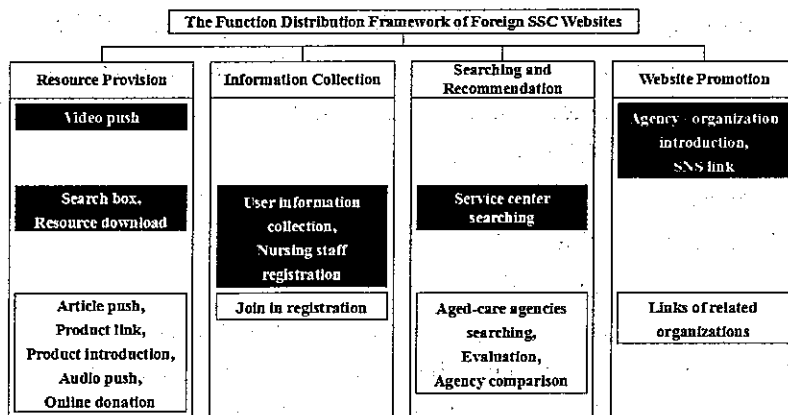


Figure 5 The Function Distribution Framework of Foreign SSC Websites

3 Domestic Smart Senior Care Websites

3.1 Selection and Introduction of Websites

Domestic websites are mainly selected from provinces with higher aging level (the data of proportion of aging population comes from the national 1% population sampling survey in 2015, which can be find on <http://data.stats.gov.cn/>), including Chongqing, Sichuan, Jiangsu, Liaoning and so on. Provinces with good Smart Senior Care is also chosen, including Beijing, Shanghai, Zhejiang, Guangdong and so on. We selected websites with higher ranking of web hits. The final selection, as shown in Table 3, including 14 websites from Beijing (9), Shanghai (3), Jiangsu (1), and Guangdong (1).

Table 3 List of Domestic SSC Website selection

Number	Website	Global Ranking of Alexa Web Hits	Province
1	http://www.yanglao.com.cn/	250826	Beijing
2	http://www.yanglaocn.com/	867445	Beijing
3	http://www.ainong.cn/	1208845	Beijing
4	http://www.mhxy.net.cn/	1720908	Guangdong
5	http://www.cuncaochunhui.cohm/	2549483	Beijing
6	http://www.izhaohu.com/thumb.html	2936272	Shanghai
7	http://www.nbcyl.com/	3577204	Beijing
8	http://www.2mao.com/	16216515	Beijing
9	http://www.caj.org.cn/	-	Beijing
10	http://www.day-care.cn/	-	Shanghai
11	http://www.guaigunwang.com/web/shop/mall/index	-	Beijing
12	http://www.hzgaw.com/	-	Jiangsu
13	http://www.xf9.com/	-	Shanghai
14	http://www.youhuwanjia.com/	-	Beijing

* Note: Websites are ranked according to the global ranking of Alexa web hits, websites with no hits are sorted in alphabetical order.

Here is a brief introduction to the 14 websites selected in Table 3. Similar to the introduction of foreign SSC websites, we only display the featured pages with special strengths.

1. <http://www.yanglao.com.cn/>

Yanglao.com (Beijing), founded in 2007, is an information platform of the aged-care agencies providing elderly users and aged-care agencies with related information and supporting services. Its main functions include nursing home searching, nursing home recommendation and so on. The special features of the website include the recommendation of the popular nursing homes. The searching page of the nursing home is shown in Figure 6, and

the recommendation page of the nursing home is shown in Figure 7.

全国 当前共有24847家养老院 24827 nursing rooms in total

Place
 区域: 北京 天津 上海 重庆 河北 山西 辽宁 吉林 黑龙江 内蒙古 江苏 浙江 安徽
 福建 江西 山东 湖北 湖南 广东 海南 广西 河南 四川 贵州 云南 西藏
 陕西 甘肃 青海 宁夏 新疆 香港 澳门 台湾

Number of beds
 床位数: 不限 50以内 50-100 100-200 200-300 300-500 500以上

Types of agencies
 机构类型: 不限 敬老院 老年公寓 护理院 疗养院 养老照料中心 养老社区/CCRC 福利院 其他

Charging
 收费标准: 不限 500以下 500-1000 1000-2000 2000-3000 3000-5000 5000以上

Service Target
 收住对象: 不限 自理 半自理/介助 不能自理/介护 特护

Special Services
 特色服务: 不限 可接收异地老人 医保定点

Figure 6 Searching Page for the Nursing Home from Yanglao.com

• 老人姓名:
 Name of the old

• 老人年龄:
 Age of the old

• 老人性别: 男 女
 Sex of the old

• 护理级别: 自理 半自理介助 不能自理介护 特护
 Rank of nursing

• 健康状况:
 Health condition

• 入住地区:
 Place

• 预算:
 Budget 入住机构总预算, 包括床位费、伙食费、护理费等 including budget of bed, food, nursing and so on

• 联系人:
 Contact Person

• 手机号:
 Phone

• 与老人关系:
 Relationship with the old

Figure 7 Recommendation Page of the Nursing Home from Yanglao.com

2. <http://www.yanglaocn.com/>

Yanglaocn.com (Beijing) was founded in 2012, for the purpose of gathering elderly life information and the searching of the aged-care agencies. The main functions of the website include searching for nursing home and postings. The special functions of the website include insurance policy inquiry, etc.

3. <http://www.ainong.cn/>

Ainong website belongs to the Beijing Ainong Aged-Care service Co., Ltd.. The website was founded in 2003. The main functions of the website include housekeeper searching, comparison of housekeeper, service and training purchase. The housekeeper searching page in the website is shown in Figure 8. The housekeeper comparison page is shown in Figure 9, and the online trading page is shown in Figure 10.

类型: Service type	不限 居家养老	家务 养老护理	育婴 催乳师	育儿 母婴护理师	小时工 早教	家庭帮 5000-6999
服务工资: Wage	不限	1000-1999	2000-2999	3000-3999	4000-4999	5000-6999
年龄: Age	不限	16-20岁	20-25岁	25-30岁	30-35岁	35-40岁
等级: Rank	不限	★	★★	★★★	★★★★	★★★★★
籍贯: Native place	不限	上海市	云南省	内蒙古自治区	北京	吉林省
	四川省	天津市	宁夏	安徽省	山东省	山西省
	广东省	广西省	新疆	江苏省	江西省	河北省
	河南省	浙江省	海南省	湖北省	湖南省	甘肃省
	福建省	贵州省	辽宁省	重庆市	陕西省	青海省
	黑龙江省					
Service place	不限	朝阳区	西城区	崇文区	东城区	丰台区
Outlet	不限	朝阳路分部	朝阳公园分部	呼家楼分部	望京分部	柳堡路分部
门店: 不限						
Service target	不限	儿童	老人	病人	残疾人	青年人
服务对象: 不限						
Service ability	不限	照顾孕妇	照顾产妇	照顾病人	照顾残疾人	照顾小孩
Entire period of actual operation	不限	0-1年	1-3年	3-6年	6-9年	9-12年
从业年限: 不限						
Condition	不限	Home living	No home living			
状态: 不限		住家	不住家			
Service time	不限	住家	全天	上午	中午	下午
时间: 不限						
Rank	不限	Wage				
默认排序	Sales	销售量				
	销量	服务工资				

Figure 8 Housekeeper Searching Page Form from Ainong




求职者照片 Photo			
求职者名称 Name	朱**	陈**	孙**
学历 Education	高中	初中	初中
所属门店 Belonging outlet	双安分部	双安分部	双安分部
门店电话 Phone of the outlet	82113732 / 82113723	82113732 / 82113723	82113732 / 82113723
籍贯 Native place	四川省	陕西省	安徽省
服务形式 Way of service	住家 Home living	住家	不住家
从业经验 Entire period of actual operation	133个月	28个月	109个月
等级 Rank	★★★★★	★★	★★★
年龄 Age	43岁	41岁	42岁
期望工资 Expecting wage	6500元	3500元	3000元
空闲状态 Available or not	空闲	空闲	空闲

Figure 9 Housekeeper Comparison Page from Ainong

Miss Sun
孙女士

Identity authentication
身份认证

求职意向: **小时工**
Job intention

服务工资: **3000** /月
注: 工资不包含加班费。

File number
档案号: 15002000

Training certification
培训认证

Health certification
健康认证

服务形式: 不住家
籍贯: 安徽省
年龄: 42
推荐部门: 双安分部

Release time
发布时间: 2018-02-11 16:57

Health certification
健康认证

服务时间: -

Way of service: 全天
工作经验: 109 个月
可视频QQ: — QQ number
有无视频: 无

HOT

支付方式: 交订金 全额支付 线下支付

备注: 爱依承诺: 客户交定金, 爱依保留此家政员一天(24小时), 在此期间
客户请到家政员所在部门办理相关手续。

订金费: 300.00 for one day (24hours), during this time please go to the outlet and go
Subscription through relevant procedures

立刻下单

Buy now

立即约定

Reserve now

添加到购物车

Add to the cart

Figure 10 Online Trading Page from Ainong

4. <http://www.mhgy.net.cn/>

Mhgy.net.cn belongs to Meihaojiayuan Aged-Care Co., Ltd. (Guangzhou), the website was founded in 2014. The main functions include online booking, service purchase and so on. The service purchasing page in the website is shown in Figure 11.

Place: 北京 | 兰州 | 南宁 | 成都

Type of the room: 单人 | 双人

Price: 1w以下 | 2w-2w | 2w-3w | 3w以上

查看更多选项

已选条件: 请取消所有条件 共有 9 条符合条件的产品



Health Management
健康管理

查看详情 立即购买

¥268元起 ~~¥268元起~~



Hang out with accompany
陪同外出

详情 预订

¥248元起 ~~¥248元起~~



Interest Class
兴趣班

查看详情 立即购买

¥38-58元/月 ~~¥38-58元/月~~

Figure 11 Service Purchase Page from Mhgy.net.cn

5. <http://www.cuncaochunhui.com/>

Cuncaochunhui.com was established in 2012. It belongs to Beijing Cuncao Chunhui nursing home. It is a professional nursing care agency. The main function of the website is reservation for a nursing home. The reservation page is shown in Figure 12.

The reservation form consists of the following fields and options:

- 预约者姓名:** Name of the subscriber (Text input field)
- 联系方式:** Contact information (Text input field)
- 选择分院:** Choose the outlet (Dropdown menu, currently showing "和平街养老院")
- 老人姓名:** Name of the old (Text input field)
- 性别:** Sex (Radio buttons for 男 (Male) and 女 (Female))
- 年龄:** Age (Text input field)
- 老人现住址:** Address of the old (Text input field)
- 老人身体状况及要求:** Health condition and need (Large text area)
- 验证码:** Verification code (Text input field, showing "2206")

A "提交" (Submit) button is located at the bottom of the form.

Figure 12 Reservation Page from Cuncaochunhui.com

6. <http://www.izhaohu.com/thumb.html>

Izhaohu.com was developed by Shanghai Weisai Intelligent Technology Co., Ltd.. The website was founded in 2011. Its purpose is to improve the dignity and quality of elderly life in the stage of dementia or disability. The main functions of the website include WeChat public account, relating APP download, aged-care service purchase and so on. The special features of the website include elderly community and so on. Users can communicate and share with other elderly in the community.

7. <http://www.nbcyl.com/>

Nbcyl.com is operated by Nanbeichao network technology Co., Ltd.(Beijing). The website was launched in 2014, and is an old-age e-commerce portal. The main functions of the website include the reservation of nursing homes. The features of the website include discounted ticket links, etc.

8. <http://www.2mao.com/>

2mao.com was developed by Ermao Technology (Beijing) Co., Ltd., which was launched in 2013. Ermao is a home care service platform for elderly, disabled and mentally ill person, providing personalized home care services for users. The home page of the website includes functions such as whole month care, whole day care, dementia care, hourly care and so on. The main function of the website is to purchase service for the aged.

9. <http://www.caj.org.cn/>

Caj.org.cn was operated by Beijing Ciaijia Aged-Care Service Co., Ltd.. The website was launched in 2013. The company aims to provide a comprehensive solution for aging social services. The main functions of the website include online reservation and so on. The website features include stress testing and so on, as shown in Figure 13.

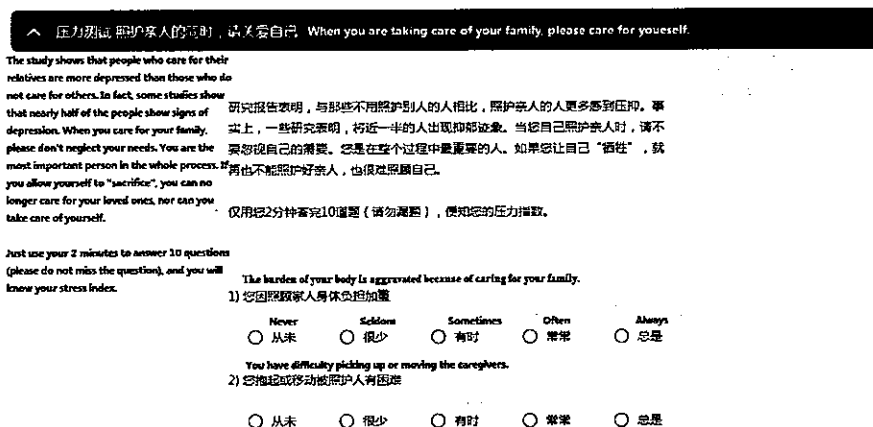


Figure 13 Website Stress Test Page from Caj.org.cn

10. <http://www.day-care.cn/>

The website was run by Yijia (Shanghai) Aged-Care service Co., Ltd.. The website was launched in 2013. It is a professional agency providing health care services for the community. The main functions of the website include introduction of services and information collection of applicants.

11. <http://www.guaigunwang.com/web/shop/mall/index>

Guaigunwang.com was developed by Beijing Zhongmin Zongheng Information Consulting Co., Ltd., and was launched in 2016. The main functions of the website include commodity purchase, release service request and so on. Service request releasing page is shown in Figure 14. The website features include small game links, as shown in Figure 15.

温馨提示：服务内容没有的选项 请在服务补充中备注

- 服务内容: 擦玻璃 小时工 除虫除蚊
 Service 参考价: 面议 地毯除尘 干洗衣服
 理发 水洗衣服 刮胡子
 清洗油烟机 木地板维护 沙发护理
 厨房保洁 修脚 助浴
 重物移位 纱窗更换 绿植养护
 做饭 收发邮件 读报
 其他 陪护 保姆
 月嫂 育儿嫂

服务者性别: 男 女 不限
 Sex of the servicer

详细地址: _____ 选择地址
 Address in detail

联系人: _____
 Contact person

联系人手机号: _____
 Phone of the contact person

服务价格: 我愿意支付多少元?
 How much you are likely to pay

服务时间:
 Service time

服务补充:
 Complement 如有特殊的其他要求, 请填写服务内容。
 Special need

发布 返回

Figure 14 Service Request Releasing Page of Guaigunwang.com

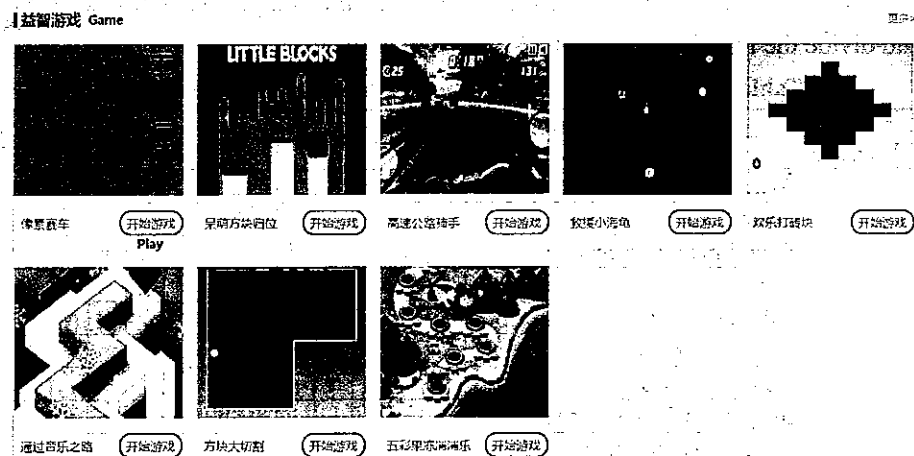


Figure 15 Small Game Link Pages from Guaigunwang.com

12. <http://www.hzgaw.com/>

Hzgaw.com is an information platform established by Hongze district government in Huaian, Jiangsu province. The main functions of the website include services purchasing and so on.

13. <http://www.xf9.com/>

Xf9.com was launched in 2014. Xingfu No.9 is a company that aims to make elderly healthy and happy, aiming to create filial piety for the elderly. The main function of the website is the purchase of goods.

14. <http://www.youhuwanjia.com>

Youhuwanjia.com is operated by Youhu Wanjia (Beijing) Aged-Care Service Co., Ltd., the website was launched in 2016. The company set up three service business units, i.e., “medical care service operation”, “medical personnel output” and “sales of aged oriented products”, which provide professional and diversified medical care products for the aged-care service enterprises and families with the needs of the elderly service. The main functions of the website include the purchase of goods related to the elderly.

3.2 Classification and Comparison of Functions of Domestic SSC Websites

3.2.1 Website Function Points Classification

On the basis of careful reading and analysis of the 14 websites selected above, we summarize the function points of the websites, as shown in Table 4. It can be seen from the table that the functions of the domestic websites are divided into 5 main categories: Resource provision, Information collection, Searching and recommendation, Online trading and Website promotion. There is one more function category named Online trading than foreign websites. There are some specific function points belonging to each category. Similarly to the processing of foreign websites, we also choose 2/3 and 1/3 of all the sample websites as demarcation points and divide the function points into 3 types:

Table 4 Functional Classification of Domestic SSC Websites

Website		Function													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Resource Provision	Article push	√	√	√	√	√		√		√	√	√	√	√	√
	Search box	√	√				√	√				√	√	√	
	Recruitment information	√	√		√	√				√	√				
	Video push				√	√								√	
	APP download						√					√			
	Product introduction									√					√
	Upload articles	√			√										
	Integration for resource links							√				√			
	Word size adjustment					√									
Information Collection	Guest book		√	√	√			√		√	√				
	User information collection	√			√	√				√		√			
	Feedback about opinions		√												
	Candidate information collection										√				

Website		Function	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Searching and Recommendation	Aged-care commodity researching		√	√	√	√			√				√			
	Agency entry		√	√					√				√			
	Comment on nursing homes		√	√												
	Comparison of housekeepers				√											
	Recommendation of popular nursing homes		√													
Online Trading	Purchase of aged-care services				√	√		√	√	√						
	Room reservation				√				√				√			
	Commodity purchase												√		√	√
	Training purchase				√											
Website Promotion	Agency introduction		√	√	√	√	√	√	√	√	√	√	√	√	√	√
	SNS link		√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Links of related organizations		√						√				√	√		
	Post publication			√				√					√			
	User share through SNS		√		√											
	My mood			√												
	Small test										√					
Entertainment link												√				

(1) Function points with much applications: The number of websites with this function is between 10 ($14 \times 2/3 + 1$) to 14. These functions are marked with dark gray.

(2) Function points which the number of applications is in the middle: The number of websites with this function is between 5 ($14 \times 1/3$) to 9. These functions are marked with light gray.

(3) Function points with fewer applications: The number of websites with this function is less than 5 (excluding 5).

3.2.2 Introduction of Website Function and Function Points

Similarly to the foreign SSC websites, the following is a brief introduction to each function point in Table 4.

(1) Resource Provision

Provide information about the elderly to facilitate the elderly to view and improve their quality of life.

① Article push: Push articles about the elderly to the users, including health tips, retirement life, and pension management and so on. The purpose is to attract the elderly or children of the elderly to browse the web, and to increase interest.

② Search box: Set up a search box above the website to facilitate the elderly to find the information they want and improve the user experience.

③ Recruitment Information: Release recruitment information, including position and

contact information, to facilitate the applicant to send resume and related documents.

④ Video push: Push videos about elderly. The videos may talk about science, or it may be from a regular news channel like CCTV. Videos can be placed directly on the web pages, or can be rendered by links.

⑥ APP download: A download link of the mobile APP corresponding to the website which can be presented in the form of browser downloading or in the form of two-dimensional code.

⑦ Product introduction: The detailed introduction of elderly related products, usually the electronic terminal equipment used by agencies.

⑧ Upload articles: Website users can upload articles related to the elderly and share their knowledge with others.

⑨ Integration for resource links: Integration of resource information, including discounted ticket information, financial information, medical information and so on, and provide links to the corresponding websites, in order to save the trouble of the elderly searching for information in the websites (such as the official websites of the banks).

⑩ Word size adjustment: Users can adjust the size of the word to facilitate elderly users to browse the website.

(2) Information Collection

Collect basic information and demanding information of website visitors, including contact ways, in order to facilitate offline communication.

① Guest book: Collect user suggestions, questions and so on.

② User information collection: It can be user's requirement information, the website can recommend appropriate aged care services and aged care agencies for the user according to the demand. It can also be the user's reservation information, the main purpose is to facilitate contact offline.

③ Feedback about opinions: Collect user's opinions on websites, so that the website can be optimized later.

④ Candidate information collection: Collect information about applicants' resume and so on.

(3) Searching and Recommendation

According to the needs of users, recommend suitable nursing homes and aged-care services to facilitate users to choose and online purchase.

① Aged-care commodity researching: Find the suitable goods through screening. The goods include aged-care agencies, aged-care services or products and so on.

② Agency entry: Mainly used for websites of information collecting, agencies can add their own information to the website to facilitate users to browse.

③ Comment on nursing homes: Users can comment on the nursing homes to facilitate

visitors to browse and understand the actual situation of the nursing home.

④ Comparison of housekeepers: Compare the selected housekeepers in some aspects, making it convenient for users to choose.

⑤ Recommendation of popular nursing homes: Recommend popular nursing homes to facilitate users to choose.

(4) Online Trading

Buy aged-care services or goods online to make elderly life convenient.

① Purchase of aged-care services: Housekeeping services such as hairdressing and glass cleaning.

② Room reservation: Booking hotel room or nursing home's room.

③ Commodity purchase: Related goods for the elderly.

④ Training purchase: Training for housekeeping, nursing care of newborn, etc.

(5) Website Promotion

Attract users to browse websites and use services through introduction and promotion.

① Agency introduction: Provide detailed information about the types of services, nursing staff, and other information about the agency, so that users can understand the functions of the agency and attract users to use the services.

② NS link: Provide WeChat public account, 2-D code, micro-blog link and other social accounts to facilitate users to browse the latest news of the agency.

③ Links of related organizations: Place the links of relevant organizations to increase authority and convenience.

④ Post publication: The elderly can post and reply to others' posts, in order to increase social convenience.

⑤ User share through SNS: Links to social networking sites such as WeChat, QQ, micro-blog and so on. Users can share this website after logging in to their own account and facilitate website promotion.

⑥ My mood: Users can share their mood and increase the interesting extent of the website.

⑦ Small test: Small tests related to the elderly to enhance the gamification extent of the website.

⑧ Entertainment link: Links to entertainment projects such as elderly games or favorite films and TV shows, to attract the elderly to use this website.

According to the classification of website functions and function points in Table 4, we summarized the functions of domestic SSC websites, as shown in Figure 16. Among them, functions which the number of websites with this function is more than 10 and above is marked with white words on black background; the number 5-9 is marked with white words on gray background, and the number 1-4 is marked with black words on gray background.

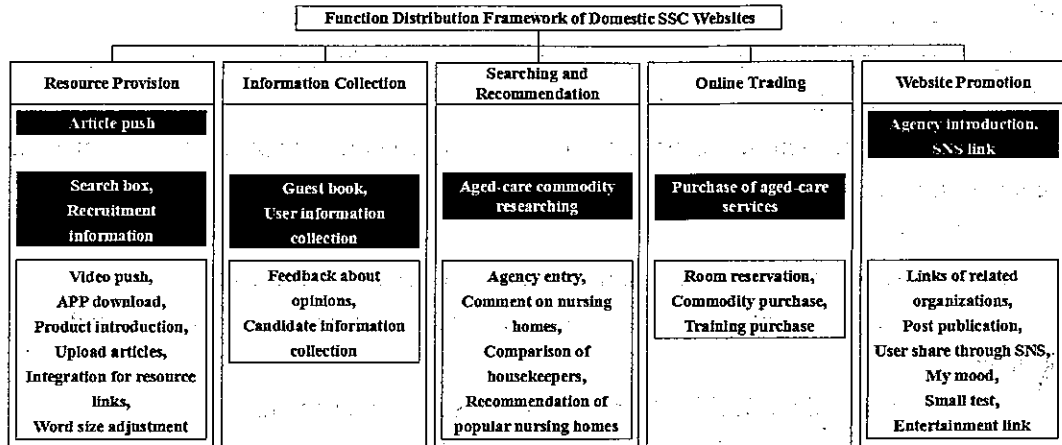


Figure 16 Function Distribution Framework of Domestic SSC Websites

4 Comparative Analysis of SSC Websites at Home and Abroad

In the past two sections, we have compared and summarized the foreign and domestic SSC websites, and got their own function types. Next, we want to compare the similarities and differences between the domestic and foreign websites. Because of the late start of China’s informatization in Smart Senior Care, there is no historical burden for China. Instead, we can directly introduce the good practices of electronic commerce and other fields into the SSC websites, which has the late-mover advantage. Of course, because we are not familiar with foreign websites, we may have missed some foreign websites which operate well. We will supplement them in the future. At this stage, some good parts of foreign websites can also be used for reference.

4.1 Comparison between Domestic and Foreign Websites

From the introduction of the websites from two past sections, it can be seen that the time for the set-up of the websites abroad is generally earlier, many of them are created before 2010. While most of the domestic websites are created after 2010. You can see that domestic SSC at home starts relatively late, but without historical burden, it has a large late-mover advantage.

The most significant advantage is that there are more function points in China’s websites. This conclusion can be seen from the comparison of the foreign websites function classification of Table 2 and the domestic websites function classification of Table 4. Domestic websites have 30 function points, while foreign websites have only 18 function points. Firstly, the difference in function points can be seen that many domestic websites have the function of Online trading, and the foreign websites we referred to have almost no online trading functions, and the purchase of products is just presented in the way of links. Domestic websites have a relatively strong function of information comprehensive, many websites collect aged-care products, services and other information to achieve online trading, so that the elderly can buy goods without going out and enjoy services. Secondly, some domestic websites have the function forum. The elderly can upload posts in the

forum, communicate with others and share their feelings.

But just because of the later time to set up the domestic SSC websites, so compared with foreign websites through trial use of them, we found the service process of domestic websites is rough, and the function of foreign websites is more meticulous and considerate. Taking the function of User information collection as an example, the purpose of this function is to better recommend an aged-care agency or service for the user, and the convenience of the user to choose. It is a very important function in the service purchasing process. 8 websites in 11 foreign websites have this function, and only 5 websites in 14 domestic websites have this function. This leads to the disconnection of the three function modules of domestic websites including Information collection, Searching and recommendation, and Online trading. So that the related aged-care agencies can't contact the users directly. They can only rely on the user's own initiative to search for the contact information of the agency or go to the location of the agency and communicate face-to-face in order to choose the best aged-care agency or service, only after that trade can be made online. Therefore, the domestic website needs to strengthen the construction of User information collection module, and combine the recommendation function with the online trading function to form a more perfect transaction process for the aged-care service purchasing process.

Next, the functions of SSC websites at home and abroad are compared in detail. From the comparison of the function classification of foreign websites (Table 2) and domestic websites (Table 4), we can see functions that foreign websites use much are Video push, Company / organization introduction and SNS link (marked with dark gray), followed by the Search box, Resource download, User information collection, Nursing staff registration, and Service center searching (marked with light gray). Functions that domestic websites use much are Article push, Agency introduction, and SNS link (marked with deep gray), followed by Search box, Recruitment information, Guest book, User information collection, Aged-care commodity researching, and Purchase of aged-care services (marked with light gray).

By comparing the functions marked with deep gray, it can be seen that both foreign and domestic websites pay attention on promotion of the websites, and the links of SNS are set up on the web page so that users can easily follow and get the latest information. However, in the form of information display, foreign websites are more flexible, many websites have video push, more convenient for the elderly to obtain information; and most of the domestic websites show information just in the form of articles, which is relatively simple.

If comparing the function marked with light gray, we can see that the information collection function of domestic websites is weak. Taking the two functions of Nursing staff registration and Recruitment information for example, both function are aiming at recruitment, but foreign websites can collect information online, while domestic websites only put recruitment information on the website. However, domestic websites pay more attention on user feedback, many websites have set the function of Guest book, and users can give their

own questions or suggestions to administrators. Foreign websites use more functions including User information collection and Service center searching, while domestic websites use more functions including Purchase of aged-care services. It can be seen that the functions of foreign websites are more biased towards the user's information collection and searching and recommendation, while the functions of domestic websites are more biased to online trading.

4.2 Optimization for Function Design of SSC Websites

We first compare the foreign SSC websites functional classification in Table 2 and the domestic SSC websites functional classification in Table 4, and then integrate the main functions of the two tables. The results are shown in Table 5. Table 5 shows the common functions of websites at home and abroad, the unique functions of domestic websites, and the unique functions of foreign websites, that is, the functions that domestic websites can refer to. Referring to Table 5, we put forward the function optimization framework of SSC website, as shown in Figure 17.

There are many kinds of functions in domestic SSC websites, but the key functions are rough. Therefore, the function module of information collection, searching and recommendation should refer to the template of foreign SSC websites and refine the functions. In this way, three functional modules including information collection, searching and recommendation and online trading can be connected smoothly. At the same time, maintain the advantage function of online trading from domestic SSC websites, and form a complete process of SSC service trading. Figure 17 integrates the main functions of the existing websites for developers and owners of SSC websites to reference.

Table 5 Integration of Function of SSC Websites at Home and Abroad

	Resource Provision	Information Collection	Searching and Recommendation	Online Trading	Website Promotion
Common Functions of Domestic and Foreign Websites	Search box , Article push , Video push , Product introduction	User information collection , Candidat information collection	Aged-care commodity researching , Comparison of aged-care commodities		Agency introduction , SNS link , Links of related organizations
Unique Functions of Domestic Websites	Word size adjustment , Recruitment information , APP download , Upload articles , Integration for resource links	Guest book , Feedback about opinions	Agency entry , Comment on nursing homes , Recommendation of popular nursing homes	Purchase of aged-care services , Room reservation , Commodity purchase , Training purchase	User share through SNS , Elderly community , Entertainment link
Functions that Domestic Websites Can Refer to	Resource download , Product link , Audio push		Evaluation		

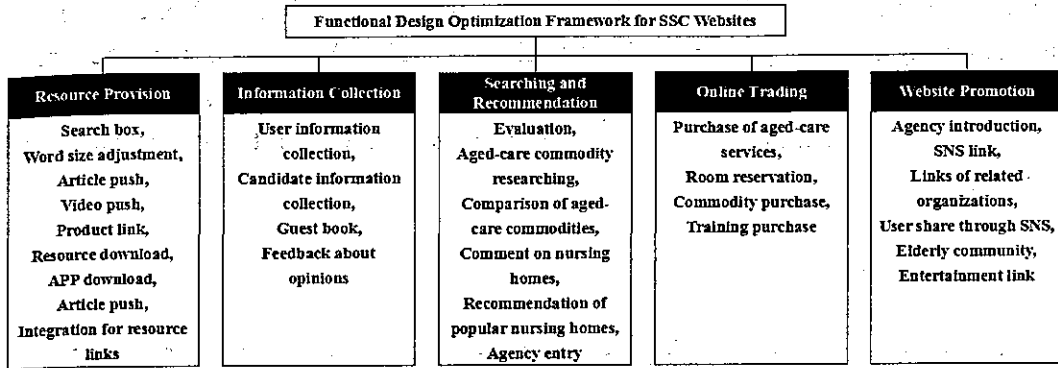


Figure 17 Functional Design Optimization Framework for SSC Websites

5 Conclusion

This paper summarizes the functions of Smart Senior Care websites at home and abroad. By comparing the websites at home and abroad, we get following conclusions:

(1) The establishment time of SSC websites abroad is relatively early on the whole, and the ranking of web hits is relatively high on the whole.

(2) The domestic SSC business starts relatively late, but there is no historical burden, and a large late-mover advantage. Domestic SSC websites have more function points, and have the function of online trading;

(3) The functions of foreign SSC websites are more biased towards the information collection of users and the searching and recommendations for the aged-care agencies. The functions of the domestic websites are more biased towards online trading and the comprehensive of old-related information.

(4) Websites both at home and abroad attach great importance to the promotion of websites.

Through the comparison of domestic and foreign websites, this paper gives the optimization of the function framework of the SSC websites, and gives some suggestions on the construction of the domestic SSC websites:

(1) The information collection and searching and recommendation modules of domestic websites should refer to the mode of foreign websites and refine their functions so as to connect the three functional modules smoothly includes information collection, searching and recommendation, and online trading.

(2) Domestic websites should maintain the advantages of their own online trading functions, and further refine the process to form a more perfect trading process for the aged care service.

In this paper, the choice of the website is relatively simple, for foreign websites we just

focus on the SSC websites from English language country, mainly from the United States. So summary analysis of foreign websites is relatively one-sided, and at the same time, the sample size is relatively small. In the future research, we will expand the sample size and adopt the more sample selection methods, and analyze the functions of SSC websites at home and abroad in depth.

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