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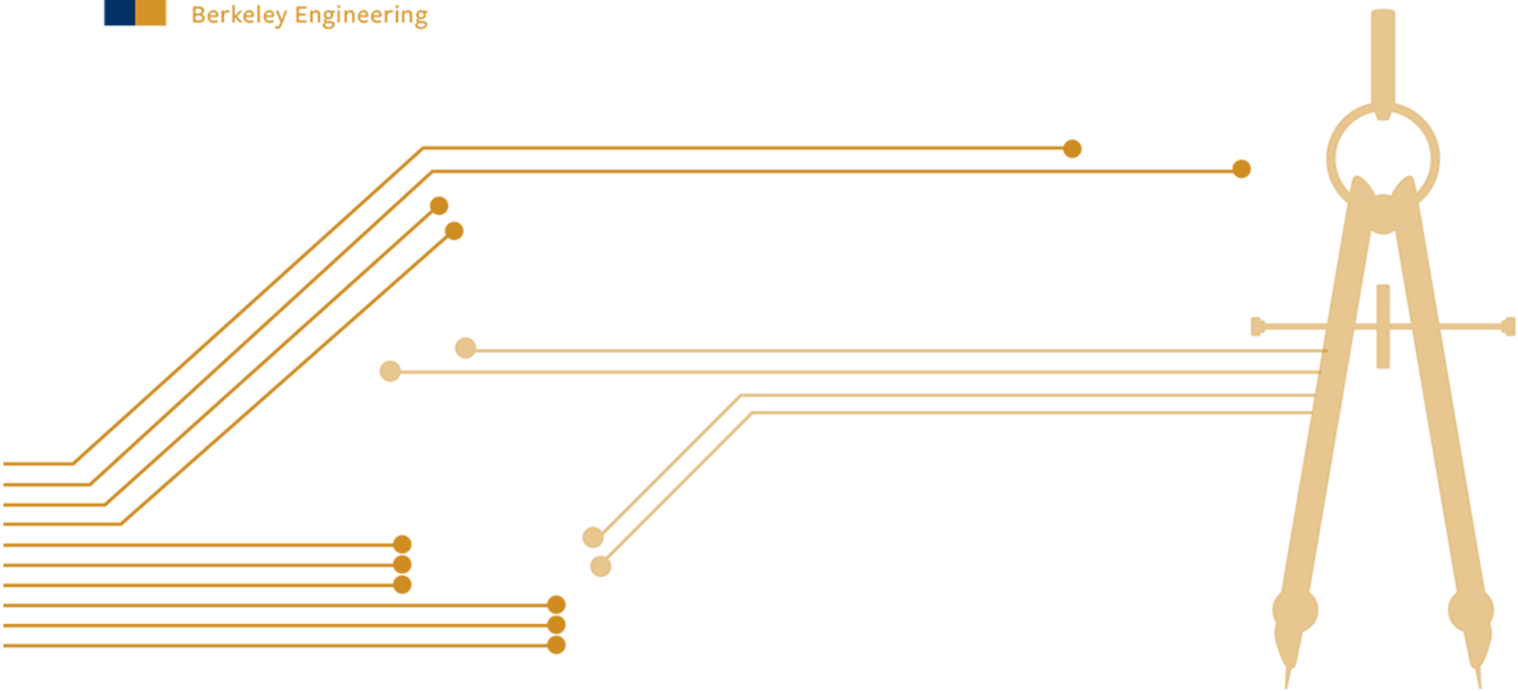

Dependent Care 2.0

A Landscape Study

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Introduction

The market for dependent care is entering a new era. It is estimated 10,000 baby boomers retire every day[1], and this trend is continuing for the next 12 years. This generation of seniors are healthier, more active, and to some extent richer than previous generation. Today's seniors want an aging experience that is different from what traditional nursing home or the senior care agency could provide. They demand assistance that could support their active and independent life style. Based on an AARP report[2], 90% of the senior today wants to stay in their existing residence during their retirement.

With the trend of ageing-in-residence, the need for senior care becomes much more diverse and includes every day activities and non-medical tasks. The service for senior everyday relief ranges from meals, home care, remote monitoring to transportations.

Factors such as seniors living longer and having an active lifestyle with diverse activities lead to a fast-growing market for general senior care. The market size is estimated to reach $72.3B in 2020, based on the same aforementioned AARP report. Additionally, for all the senior care spending in 2020, 80% of them will be paid out-of-pocket, while government and insurance companies will reimburse only 13% of the expenses. Traditionally government policy and private insurance covers mostly medically necessary expense. In the new era of ageing, much of the expense is not for medical need, but for enhancing quality of life for seniors and their caregivers. As a result, the seniors and their caregivers are expected do research and shop for the service and gadgets, much like other consumer products. Therefore companies in the caregiving business could distinguish themselves by making their products and service easy to understand and use, and mostly affordable.

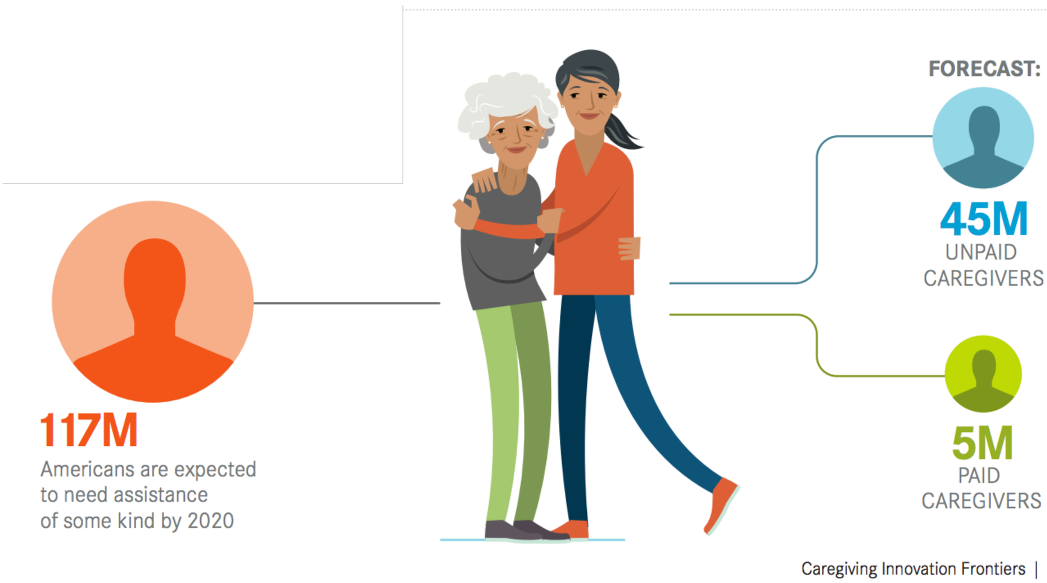
By 2020, 117M American are expected to need assistance of some kind, and 5M paid professional caregivers and 46M unpaid caregivers such as family members and friends will assist them. How do we facilitate such a big number of seniors and caregivers? Technology will play a key role in it. For example, online marketplace could bring people together including non-traditional workforce. Platform-based solutions extend reach to multiple applications and service, so we could meet diverse requirement with similar infrastructure and solutions. Finally, all advancement in mobile devices make information, connections, and services ubiquitous.

The overall caregiving market will grow at annual average rate of 13% from 2016 to 2020. Not only many start-ups and venture capital firms are jumping onto the opportunities, many well-established incumbents also start tailoring their product for the specific

[1] https://www.washingtonpost.com/news/fact-checker/wp/2014/07/24/do-10000-baby-boomers-retire-every-day/

[2] http://www.aarp.org/content/dam/aarp/home-and-family/personal-technology/2016-01/2016-Caregiving-Innovation-Frontiers-Infographics-AARP.pdf

demographic of seniors. For example, seniors are viewed as one of major customer groups fro Amazon Home Service that help customer with home repair and maintenance[3]. Uber has been partnering with senior care agency to provide customized transportation[4].



The rapid growth of business opportunity is fueled by disruptions in multiple fronts. First, it is the disruption in the demand for senior care. The needs span a diverse spectrum, beyond the traditional medical care, home care and transportation. For example, we are seeing companies offering new service such as medication reminder, walk/exercise, groceries and companionship.

The second disruption is the labor market. Thanks to companies like Uber and Airbnb, customers and workers are getting used to shared or on-demand economy. It allows non-traditional (e.g., part-time, seniors) workforce to enter the job market to meet demands for senior care in a flexible way. One example is a start up called Honor. It is a new generation of senior marketplace that competes with traditional care agency. With technology and its flexible workforce, Honor could allow its customers to schedule service for as little as one hour increment.

The third disruption is on the technology front. The mobile technology enables the ubiquitous connectivity and opens new application for remote senior monitoring, and telemedicine. Recent development in the area of Artificial Intelligence-based assistant is also promising. There are a long list of services in the market already, e.g., Apple's Siri, Amazon's Echo, Google's Assistant, and Microsoft's Cortana. All the service has great potential providing virtual companion and assistance to senior in their daily activities while they stay in their home.

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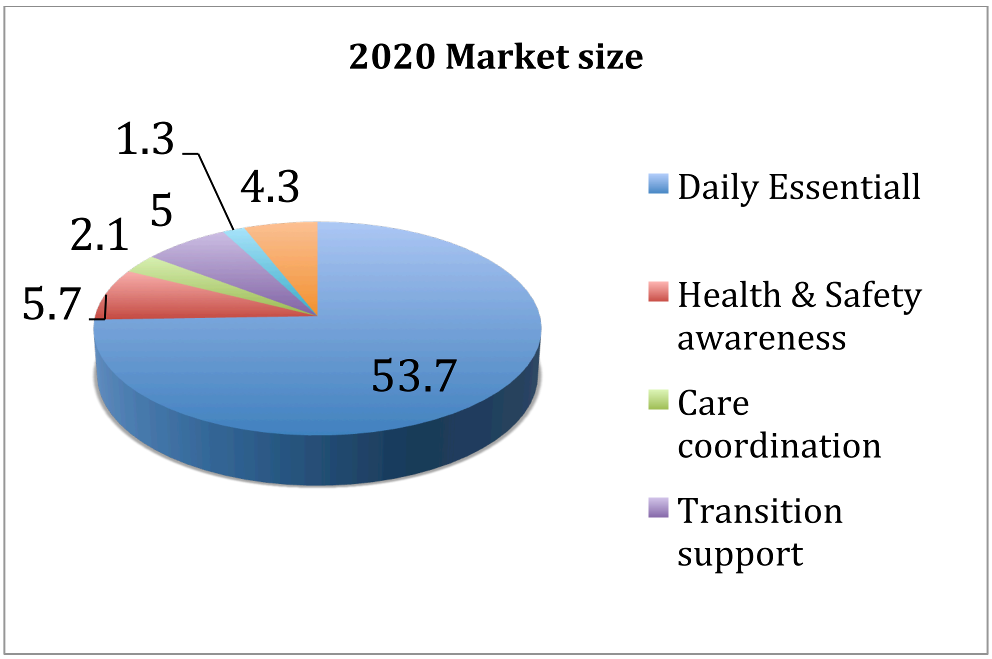
[3] https://www.senioradvisor.com/blog/senior-products/concierge-services-for-seniors/amazon-home-services-reviews/
[4] https://newsroom.uber.com/creating-more-options-for-senior-mobility/

AARP defines the main market into 6 segments. They are:

- Daily essential activities: Meals, home and personal care, home repair, delivery, transportation services
- Health and safety awareness: Health vital alerts, diet and nutrition, medication management, personal safety monitoring
- Care coordination: Care planning and scheduling, communication with doctor and navigation of the health care and insurance system
- Transition support: Home retrofit services, wheelchair ramp, even the funeral planning
- Social wellbeing: Digital inclusion, life enrichment and empowerment, Website and App tailored toward senior folks.
- Caregiver quality of life: Respite and backup adult day care for the relief of unpaid caregiver



The first 2 segments (Daily essential activities and health/safety awareness) account for the majority of the spending, and thus the greatest business opportunity. The other four segments (Social Wellbeing, Transition Support, and Care Coordination, and Caregiver quality of life) are traditionally underinvested. However, they offer startup the opportunity to alleviate the significant stress associated with many caregiving functions. This service could become particularly attractive to the customers who need to care for an ageing family member.

For the remainder of this report, we will dive in two groups of companies. The first group is the new marketplace that brings the caregivers to meeting the demand of senior cares. The technology and the on-demand economy model are bringing the disruption to this area. The second groups are the companies who provide technology-based gadgets and services to facilitate diverse needs of senior care. In both cases, we provide insight on the opportunity and challenges. Before concluding, we will also briefly talk about the affordability of senior care, and predict that a new segment and market will emerge.

Marketplace

Traditionally, the senior home care industry is a "fragmented" system. There are an estimated 2.5 million home care workers out there, and about 12,400 home health agencies managing them all. This fragmentation landscape, coupling with the growing interest of VC funding in the senior care, provides appealing opportunities for the new breed of startups focusing on the senior home care.

The business ideas of these home care startups center around the similar concept: take the hottest business trend in the mobile/cloud era: the marketplace model that matches supply and demand, e.g., Uber, Kickstarter, and Airbnb. Mix in special-purpose tech gadget/app, and savvy, experienced entrepreneurs. Sprinkle a bit of Apple retail store magic dust. They use the efficiencies of data and technology to reinvent an old dysfunctional market.

These home care startups focus on streamline the whole process using data and technology. They aim to optimize the middleman cost. The improved efficiency makes it possible to pay the on-demand home care professionals more than they would otherwise make while improving the service quality. More importantly, the home care professionals are hired as W2 employee with full benefits. This allows the startups to provide necessary training to the caregivers, which would have not been possible by government regulations if these individuals were hired as contractors.

Company	**Investment/Market Cap**	**IPO/Private**	**Note**
Care.com	$260M (Market Cap) $157 (5 Rounds)	IPO	Marketplace for care services (not only for elderly) Google Venture invest $46.35M post IPO to gain equity
ClearCare	$75.6M (4 rounds)	Private	Develop tools for homecare agencies
Honor	$62M (2 rounds)	Private	Marketplace (Andreessen Horowiotz)

HomeTeam	$43.5M	Private	Marketplace (Kaiser Permanete Investment)
HomeHero	$23M (3 rounds)	Private	Marketplace
Carelinx	$5M (2 rounds)	Private	Marketplace
Seniorly	$1.2M (1 round)	Private	Marketplace

Table I lists the notable home care startups receiving sizable funding from the VCs and investment community. Care.com is a general-purpose online marketplace that seeks to match customers with caregivers based on online profiles. It went IPO in 2014 and has received additional $46.35M from Google Venture since. While Care.com provides senior care service, the main focus is on finding babysitter and nanny. All other startups focus their market on senior home care. ClearCare is a tech company that serves legacy home care agencies by providing similar online tools and app used by online marketplace service providers. All the rest of the startups in the list are formed as an integrated company that both builds its own tech and provides care—hiring and training its caregivers, and striving to create a positive company culture that is lacking in many home care companies. Among these companies, Honor and HomeTeam have received most attentions from the press and acceptance from their initial market trails due to the large sums from notable investors, including Andreeseen Horowiotz and Kaiser Permanete.

Unlike Uber for transportation, senior home care is a hard industry to scale. Nonetheless, this market also presents opportunities for startups as there is an existing market, growing need, and decent margins. Most of all, there is no other deep-pocked competitors in the market fighting for market shares.

A few challenges exist for the senior care marketplace startups. First of all, the awareness of the services and their quality takes time to develop for the home care services. It is OK with most people getting groceries and food delivered to their home. It is less OK to getting in a car with anyone. It is absolutely not OK taking risks on hiring anyone to take care of the love ones at home.

Airbnb had to provide $1M insurance policy for homeowners to scale up the services. Uber had to perform background checks on the drivers and conduct a strict customer feedback system. It would require more extensive references, background checks, professional trainings, and certification for general public to consider adopting the services. All these will require time and capital for investment.

Another challenge for these startups is to figure out the business opportunities between one-time bookings or recurring bookings. Obviously, both of these are in demand, but it remains to be seen which will be better served by the platforms built by these online marketplace startups.
The platform that develops the strongest network effects delivering one specific type of service will have an advantage. They can then expand their platform's offering from there. However, trying to address both markets from the beginning will be a disadvantage.

Service and Gadget

Services & Gadgets are the second biggest market space after market place. This is relatively a new market. This segment is powered by the advancement of information technology and the affordability of it. Most of the companies in this space are private and in early funding phase. If you take a close look, you can see that this segment of market is further divided into verticals.

Pic courtesy : AARP 2016 report on Care Giving

Medication Management

This includes reminder apps, pharmacy apps to manage dosages, medication timing, refill records etc. Major players in this space are Greatcall, Pillpack etc.

Personal safety monitoring

Devices for hazard prevention and emergency response. Major players in this space are Lively, FirstAlert etc.

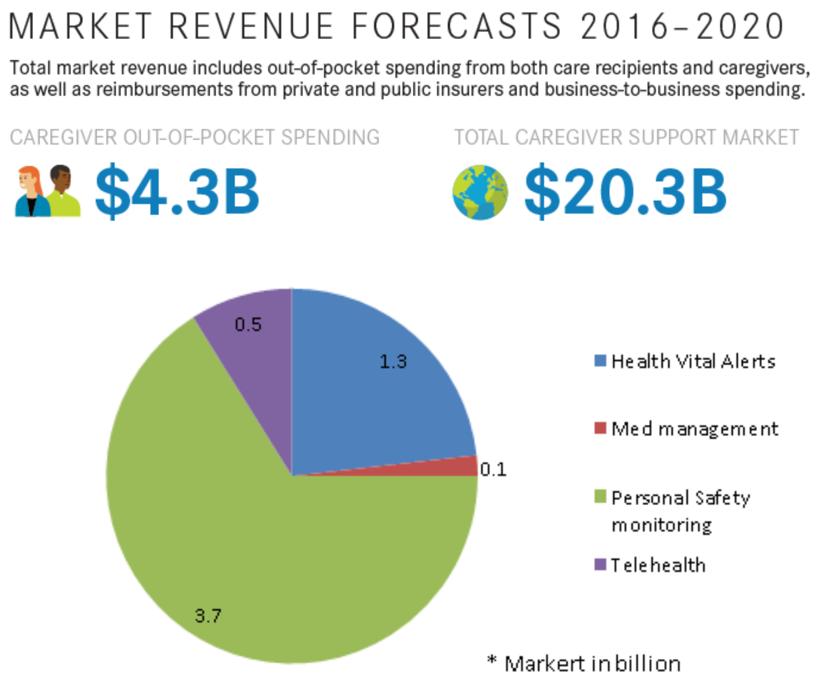
Telehealth

Online methods to connect patients to doctors or nursing facilities. Major players in this space are MDLive, Medicast etc.

Health and Vital Alerts

Online medical devices to help nursing staff monitor patient's blood pressure, oxygen stats, glucose etc. Major players in this space are iHealth, cellscope etc.

Following is how the projected revenue in this field seems like by 2020 :



Data source : Crunchbase.com and various sources in internet

Company	Investment/Market Cap	IPO/Private	Focus area
Greatcall	$75M (5 rounds) + 2 acquisitions	Private	Sells Jitterbug mobile phones that are easier to use for elderly
MDLive	$74M (2 rounds)	Private	Connects you with doctor live 24x7 service
iHealth	$25M (1 round)	Private	makes wireless pulse-oxymeter, weighing machine etc

AiCure	$12.25M (NIH funded)	Private	population health, medication adherence
Live!y	$7.4M (2 rounds)	Private	Wearable gadgets. Recently bought by Greatcall

Opportunity

Wearable & monitoring devices solves one of the top of concerns from nursing community - "Out of sight is out of mind". Full time monitoring of patients, ensuring they don't miss their medication etc will help reduce frequent hospital visits. This saves money and time for both patient and providers. MDlive is now provided as an add-on service by Cigna insurance. Similarly NIH (National Institute of Health) is funding companies like AiCure for population health use case (medication adherence).

Challenges

The solutions are still expensive. Many of the devices have complex installation procedure that will affect easy adoption. Some of the solutions require monitoring the patient 24x7 and may require regulatory changes to do that.
In some cases the products or services require internet connection or cell phone signal access for reliable monitoring. This hard requirement could result in limited availability in certain areas.

Conclusions

Winner?

Between the two groups of startups focusing on senior care services, the marketplace startups are clearly gaining tractions with many of them start to evolve from experimenting with business models to expanding their business to more markets. Although their penetration rate is the market is still very small (tens of million dollars vs tens of billions), the online service automation, the ability to attract good quality caregivers, and the brand quality will allow these companies to gain market share from the legacy providers in the market. It is matter of time for the online marketplace startups will broker more services than the legacy providers.

In contrast, the gadget and service startups are still going through the experimental stage without a clear path for profitability. Many of these businesses have rather complex system to install and operate at customer's premises. These will require significant level of staffing to support customer issues. Additionally, many of them build their business with the assumption that the success of their business will heavily rely on the subsidy from health care providers, governments, and insurance companies. Because of these challenges, there are limited successes with these types of startups and much of the activities have been centered around M&A and business consolidation with the startups.

Our view is that the well-funded marketplace startups, including Honor and HomeTeam, will continue receiving wide support from investors to scale their business. They will be able to win over the traditional agencies by squeezing the "man-in-the-middle" margin and eventually make these companies obsolete. By offering better pay, flexibility and recognition, these companies will be able to attract better caregivers and build their brands around recognition of caregivers and services. With improved online marketplace efficiency, these startups will be able to create many additional home care services with market driven pricing. (For example, higher pricing for 1-2 hour home care service and backfill for the sick workers.) These services will likely to attract more user adoptions and recruit more caregivers. We see the technologies developed by the gadget and service startups as complement to the marketplace startups. Many of these technologies can be used by the homecare marketplace startup as a service to reduce the need to use caregivers. These gadget-based services can be used to monitor customer's activities. Only under defined conditions, caregivers will be dispatched to customer's home for service. Similar to driverless technologies to Uber, the reliability and cost model for these services still require several generation of development and market validation before deployment is possible.

Long term care cost and different market

While we have been looking at long term care from service provider perspective, we also need to look at it from consumer perspective. According to U.S. Department of Health and Human Services, on average people use 3 years long-term care services and 20% will need it for longer than 5 years. According to Fidelity average 65-year-old couple retiring in 2016 needs $130,000 to insure against long-term care expenses, in addition they need an average of $260,000 (in today's dollars) to cover medical expenses. Adding living expense to it, it's clear that seniors need significant net asset to cover these costs. However, seniors in US are not preparing well for their retiring years. For people in 60-70 age group, median net worth is $215,000. Only the top 35% people have net worth above $390,000. Considering living expenses, only the top 20% people can afford long-term care themselves. For the remaining 80% seniors, they have to rely on unpaid caregivers such as family members.

There are 76.4 million baby boomers while 80% of them cannot afford long-term care. This issue will generate lots of economy and social pressure to their family and society around them. While current innovations mostly focus on the existing long-term care market, we believe we should look beyond it and try to study if it's feasible to create a new market to address the needs of those 80% of seniors who cannot afford traditional long-term care.

There are two directions we can do to make long-term care affordable. The first one is to lower the cost of long-term care. The innovation on the market, services and gadgets will continuously drive down the cost of long-term care and make it more affordable and efficient for everyone. Another area we should consider is how to make long-term care insurance more affordable and efficient. Given there is lots of inefficiency on insurance industry; we believe a Fintech innovation could disrupt this space. There will be innovations on how insurance pool money together and pay out for long-term care compensation.

The second direction is to generate more income for seniors and their families. Because majority cost of long-term care is human labor, it will continuously go up. There are two major ways we think can help seniors and their families. The first is to better leverage their assets such as real estate. A vertical integrated service that leverages Airbnb and reverse mortgage could generates significant passive income for many seniors. The second is to develop different kinds of shared economy solutions for seniors. Uber is a successful shared economy solution, but it's not fit for many seniors. We should look into solutions that can better monetize seniors' knowledge and skills such as writing, education, etc.