



MEDICATION MANAGEMENT

AGING WITH VITALITY

VITAL SIGN MONITORING

CARE NAVIGATION

EMERGENCY DETECTION & RESPONSE

PHYSICAL FITNESS

DIET & NUTRITION

SOCIAL ENGAGEMENT

BEHAVIORAL & EMOTIONAL HEALTH

UPDATED: AUGUST 2014

HEALTH INNOVATION FRONTIERS

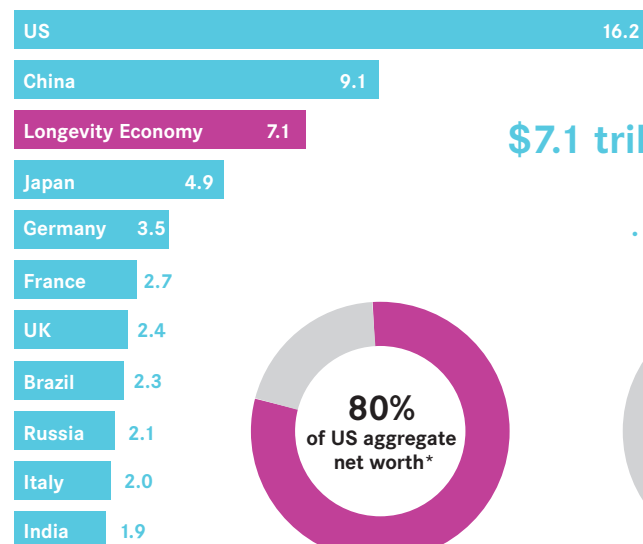
DYK?

The 50+ “longevity economy” is the third largest in the world. In fact, only the United States and China are larger. Did you know that’s \$7.1 trillion dollars in annual economic activity?

SO WHAT'S YOUR 50+ STRATEGY?

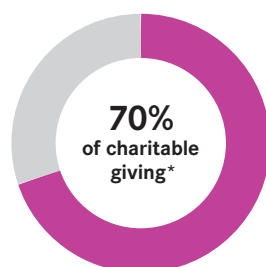
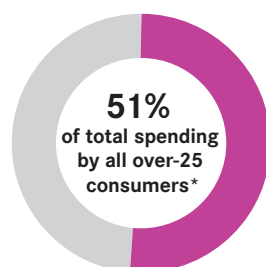
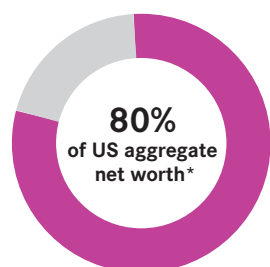
Rarely has such an untapped opportunity existed for entrepreneurs, investors, and others in the private sector to generate revenues while meeting the greatest wants and needs of a substantial, influential, and important population.

As boomers age, their proportion of the 50 and older population grows rapidly—along with their health needs. The medical system's efforts traditionally are oriented towards sickness rather than health, and treatment rather than prevention—thus leaving a 'healthy living' gap. Large opportunities exist for new and meaningful investment aimed at meeting healthy living needs of all ages.



The 50+ is responsible for over \$7.1 trillion in annual economic activity:

- \$3.0 trillion in consumer spending
- \$1.6 trillion in health care spending



GUESS WHICH EMERGING MARKET WILL DRIVE ECONOMIC GROWTH IN THE US?

Imagine for a moment that you have access to a mammoth untapped market that is hidden in plain sight. It is worth billions.

Imagine further that this hidden market is like a new country on the map of the world—a bustling, rapidly expanding territory of **106 million people** associated with **\$7 trillion in economic activity each year**. No country except China and the U.S. would be a stronger force in the global economy.

Finally, imagine that many of the transformative disruptions in other markets—new business models, new players, and mobile and other technologies—have largely bypassed this country. Investors, entrepreneurs and incumbents wrongly assumed that this market couldn't be tapped, especially if it involved technology.

Such a place exists, and it is all around us. Call it the Land of Longevity—the size of the market involving Americans over 50. Productive older workers, second-careerists and retirees will within 17 years account for more than half of the U.S. gross domestic product. Older Americans will soon outnumber children, not only

because of population growth but because they are living longer. Few markets possess consumers who are so numerous and will be around for so long.

These consumers account for \$3.1 trillion in consumer spending, \$1.6 trillion in healthcare spending, control 80 percent of net worth, and dominate consumption in most CPG categories, as well as financial services, and travel and leisure.

Yet for all that, this huge market is in many ways untapped, and the priorities of this massive population are often unaddressed by market players.

THE \$30 BILLION HEALTH AND WELLNESS MARKET FOR THE 50+

Just how large is this untapped market? Consider just the industry involving healthy living. In this second edition of the Health Innovation Frontiers Report (Sept 2014), the health industry research firm Parks Associates, working with AARP, estimates the opportunity to serve the 50+ with Health and Wellness products/services to generate \$30 billion in cumulative revenue over the next five years (2014-19), across nine areas of Digital Health Innovation.

This \$30B+ out-of-pocket consumer spend on digital health solutions is incremental to the estimated current aggregate revenue

of \$68 billion revenue from out-of-pocket spending on existing analog healthy living solutions by 50+.

While the overall market outlook for out-of-pocket consumer health spend remains the same around \$100B over five years, the shift from analog to digital health technologies signals a positive outlook of an innovation driven tech economy.

INVESTMENTS ARE MULTIPLYING IN DIGITAL HEALTH TECH THAT ADDRESS THE 50+

In a recent investment report published by Startup Health, the total Digital Health investments nearly tripled during the period 2010 to 2013.

Relatively, the funding in the digital health space relevant to people 50+ (defined as products and services of relevance to people 50+ across these nine categories of

health) represented 53% of all digital health investment dollars in 2013.

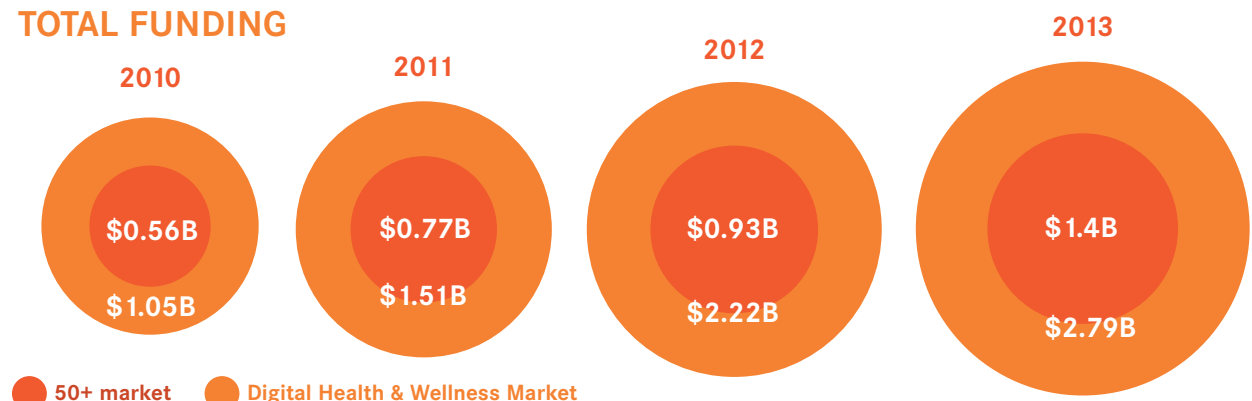
Rarely have such opportunities existed for entrepreneurs, investors and incumbents to generate revenues while meeting the greatest wants and health needs of a substantial, influential and important population. Rarely have such opportunities gone so broadly and so long untapped.

The impact of new market solutions in the Land of Longevity would be more than financial. As this research indicates, investment in new opportunities for health-related innovations would have a huge social return. Innovations in products, services and business models can benefit some 106 million people in ways that have been unaddressed by the broader health-related marketplace.

This report provides Investors, entrepreneurs, and incumbent companies the forecast, insights and guideposts in navigating this surprisingly overlooked market.

Investments related to the 50+ market continue to grow at the pace of investments in the larger digital health and wellness market

TOTAL FUNDING



59% increase in 50+ funding between 2012-13

4X increase in deal flow between 2012-13

53% of all health funding is in the 50+ market

AN ENTREPRENEUR AND INVESTOR FIELD GUIDE TO HEALTH FRONTIERS

How to make the most of opportunities in this market? Here's a field guide to the land of longevity, based on the latest analysis of health innovation frontiers. Some of the key opportunities and trends we see in the market:

- **Be ready for the coming turnaround**
Consumer awareness of health solutions, for so long targeted at health system reimbursement, is about to shift. The entry of Apple, Google and Samsung signals an emerging marketplace belief that the US is on the cusp of a profitable consumer-driven health ecosystem that will thrive across new channels.
- **Leverage the trust gap**
Lack of a trusted consumer brand in this space creates an opportunity for non-traditional players to capture mindshare & market share around the Health and Wellness category.
- **Focus on the caregiver**
Solutions can overlook the involvement of an informal caregiver, who is often both a user and the buyer.
- **Bridge the technology/3P divide**
The regulated health sector—payers, providers and pharma—have been slow to react, leaving a huge gap for innovators who can break into traditional channels or provide compelling alternative business models.
- **Defend or extend—disrupt from the outside**
Services such as Yelp, Angie's List and Uber are moving into health-related territory. You can, too.
- **Span the silos**
For all the innovation in devices, sensors and wearables, holistic crossover remains elusive and walled gardens almost epidemic. Interoperability can be achieved technologically—but demonstrating ROI will take a compelling business model.
- **Consolidation is a good sign**
With more consolidation and roll-up of companies, fragmented solutions are coalescing, leading to more compelling models for consumer engagement. Example: melding of remote monitoring, medication adherence and social engagement in caregiving solutions.

- **Make innovations affordable**
Reach millions of older people on fixed incomes by developing new business models to subsidize cost. High adoption will follow.
- **Turn data into actionable knowledge**
For all the available data sets and efforts by government agencies to spur innovation, private sector players have taken little more than baby steps to contribute data or create actionable knowledge.
- **Make innovations usable**
Innovators have delivered on technology but not usability: universal, human-centered design. Poor design and aesthetics still limit usability among older consumers. Why target younger people where markets are already saturated when millions of others await cutting-edge technology more adapted for their use?
- **Beyond sensors**
We are witnessing a great explosion in biometric devices, trackers and sensors in, on and around you. What we need to see is more innovation in consumer behavioral science and data analytics, both at a personalized level, and at a population level.
- **It's behavior, not just biometrics**
The market has yet to realize the full benefits from ambient connectedness—the ubiquity of devices, trackers and sensors. Behavioral science and data analytics for individuals and populations—together with usability—hold keys to commercial success and adoption.
- **Boldly tackle Direct-to-Consumer**
While venture capital typically favors business models with low customer acquisition costs, enterprise health IT, medical devices, and shuns models involving behavior change, those who play it safe now will miss the boomer bonanza.
- **Change the conversation**
Overhaul the message: it's not aging in place, it's independent living. It's not being sick or stuck, it's about living life well or better. It's not impairment—it's enhancement. To drive awareness and adoption among the 50+, reframe marketing from focusing on the frail and aged—to healthier living.

NINE AREAS OF OPPORTUNITY:



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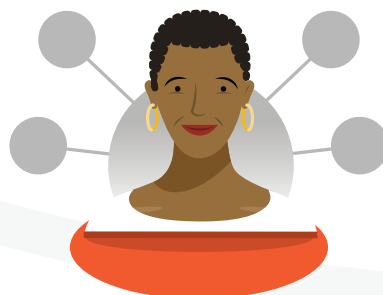
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PHYSICAL
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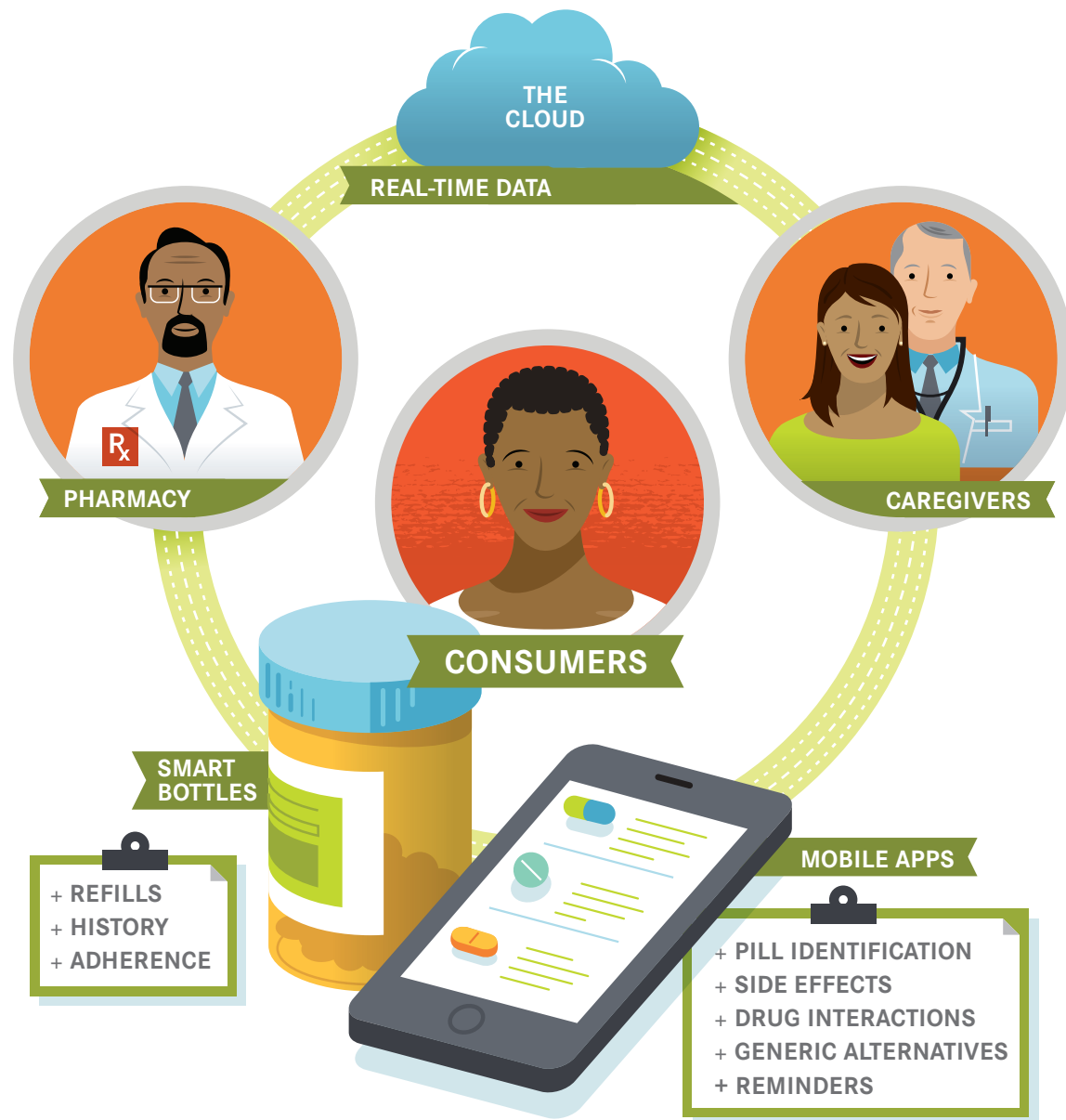
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These areas of the healthy living market represent the best investment opportunities for break-through technologies, innovative products, and disruptive services. Together, AARP is confident that they represent the potential adoption of new products and services for over 100 million people and an opportunity for as high as \$30 billion in revenue by 2019. Want to know more? Let's go.

MEDICATION MANAGEMENT



DYK?

19% of American adults 55-64 report forgetting to take their medications and 11% report accidentally running out. Every year 100,000 deaths occur due to medication problems.

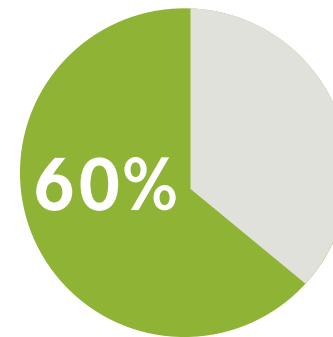
— The Center for Technology and Aging

Over 90 million of the 50+ will be on multiple medications by 2018 and more than half of them will need help managing them. Current solutions focus rigidly on counting, dispensing, and reminding — they fail to address motivation or compliance. Other existing solutions are either too casual, addressing only the reminder side, or too complex (thus costly) in counting and dispensing pills.



MARKET OPPORTUNITY

GROWING—BUT NOT FAST ENOUGH



Among those 65+, 60% take at least three medications.

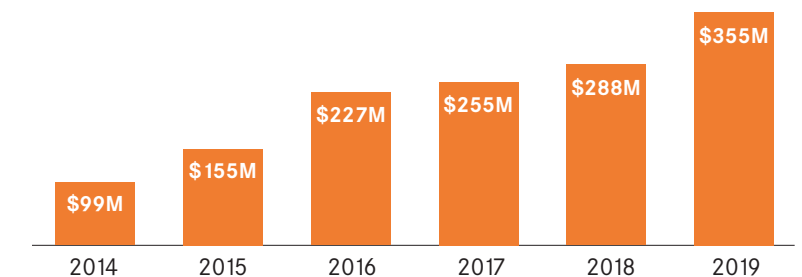
By 2019, 94 million Americans 50+ will take at least two pills.

MEDICATION LAPSES AND DRUG INTERACTIONS COST THE NATION UP TO

\$289B EVERY YEAR

\$1.4B

Cumulative five-year revenue potential



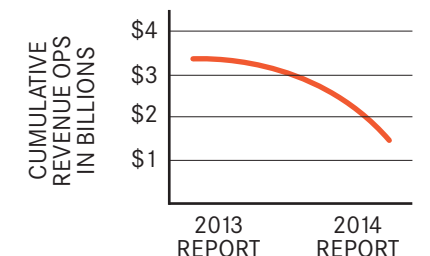
INVESTOR INSIGHTS

UNLOCK MARKET WITH INNOVATION, VALUE

OUTLOOK: This year's forecast lowered from \$3.1B because insurers have yet to find the means to fund medication compliance initiatives.



Medication management can become part of a broader patient engagement solution instead of a standalone solution



CURRENT MARKET THE FOUR KEY SOLUTION SEGMENTS

Innovative business and revenue models are key. While traditional product sales or monitoring service models can still help move the market forward, the market needs new business models that can target mass-market medication management needs while producing a good revenue stream; convince health insurers or care providers that medication management is a preventive care/patient engagement solution; leverage medication data and user behaviors for new revenue opportunities. Here are some of today's solution segments and players:

COMPLIANCE SERVICES

Applications/services to encourage and reward medication compliance/adherence



TRACKING DEVICES

Smart pill boxes with reminder and pill-tracking functions



REMINDER SOLUTIONS

Apps or solutions that remind/alert users of medication times and dosages



INFORMATION PROVIDERS

Apps or portals where consumers find Rx and medication information



REALITY CHECK FRAGMENTED MARKET, LOW MONETIZATION

Today there are more than **ONE HUNDRED** medication reminder apps available for Android & iOS (but monitored pill bottles or similar solutions are rare).



Low-cost analog solutions—such as weekly and monthly pill organizers—are common, but have limited ability to track and encourage medication compliance.



There has been low adoption of Intelligent Pill boxes due to high cost, bulkiness, and the fact that they were not designed for mass market.

LOOKING AHEAD PAY ATTENTION TO HUMAN FACTORS

TECHNOLOGY

Can remotely lock or unlock a pill box, remind users to take their prescriptions, and check their status.

While technology enables the functions of a medication management platform to work, solution providers now recognize the human factors behind medication non-compliance. Medication management is increasingly part of a program in which care providers and pharmacists are involved to engage, educate, and track patients.

PSYCHOLOGY

Gamification drives positive behavior changes.



Medication Adherence calls for new business models to tackle drug affordability, and techniques for behavior change to address non-compliance.

AGING WITH VITALITY

50's



60's



70's



80's



DYK?

Among those 40 and older, 17% have cataracts, 7% have AMD, and 2% have glaucoma. 25% suffer from myopia (nearsightedness) and 10% suffer from hyperopia (farsightedness). About 1% are blind.

— National Eye Institute

After the age of 50, a majority of consumers experience common age-related conditions including memory loss, vision and hearing impairment, and arthritis. Current solutions on the market tend to be single-purpose devices or services with outdated designs. The market calls for function-rich devices with aesthetic appeal that use emerging input technologies to improve ease of use.



MARKET OPPORTUNITY

HEARING, VISION, COGNITION (& MORE)

VISION PROBLEMS



According to Health US 2012, **13.6%** of people 65+ have a vision problem.

HEARING LOSS



About **47%** of those age 75 and older, **30%** of those 65-74 years old, and **18%** of people 45-64 years old experience some hearing loss.

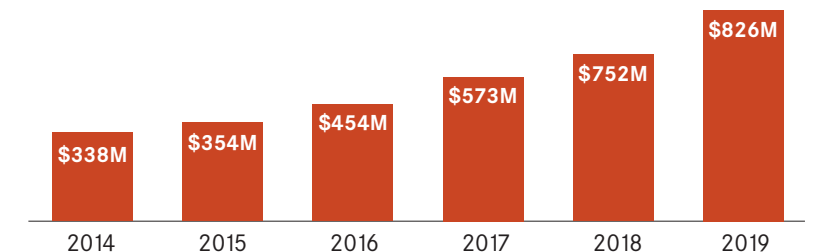
COGNITION ISSUES



10% to 20% of people older than 65 suffer from Mild Cognitive Impairment (MCI).

\$3.3B

Cumulative five-year revenue potential

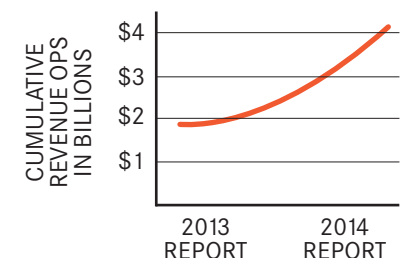


INVESTOR INSIGHTS

FAST PACE OF INNOVATION

Cumulative revenue opportunities raised from \$1.9 billion in the 2013 report to \$3.3 billion.

This upward revision is based on the following:



- A faster pace of innovation in products and services targeting this opportunity area, in particular smart products/services that detect early aging signs and mitigate aging impact
- An expanded list of product categories addressing aging needs
- A shift from services to product sales model that cater to the aging Baby Boomers' needs and the resulting higher revenues from product sales than service subscription



CURRENT MARKET

THE FOUR KEY SOLUTION SEGMENTS

Neuroscience and brain-sensing technology-based brain exercise programs are big, while the idea of “Quantified Everything” leads to new connected devices that help manage aging and revive vitality. Better designs and digital features make aging-related products more personalize-able and innovative care support services offer convenience and value and help 50+ live hassle-free.

COGNITIVE & BRAIN HEALTH

Applications & services that help improve brain functions and mitigate memory loss



HEARING & VISION HEALTH

Products and services that improve hearing and vision



PREVENTIVE AGING CARE

Products and services that detect early signs/symptoms of aging or prevent aging



EVERYDAY LIFE SUPPORT

Products and services that alleviate the daily inconveniences caused by aging



REALITY CHECK

THE MARKET IS INNOVATING RAPIDLY



While digital innovations tend to disrupt incumbents' business models, they're not always more affordable. For instance, digital hearing aids with smartphone control are more expensive than analog competitors.



Marketing of *Aging with Vitality* products and services needs to be smart. It should emphasize vitality rather than fighting aging. The goal is to make the impact of aging less disruptive to everyday life.



As this market is almost entirely driven by consumer out-of-pocket spending, successes and failures are easier to distinguish.

The market features a broad range of products and services that cater to older consumers' need to mitigate the physical and cognitive declines caused by aging. Innovations are taking place across many under-served areas, from smart walkers, to smart mirrors, to intelligent products and apps that help people manage aging-related needs, such as arthritis, dehydration, and skin health.



LOOKING AHEAD

APPS, WEARABLES, & OTHER PRODUCTS

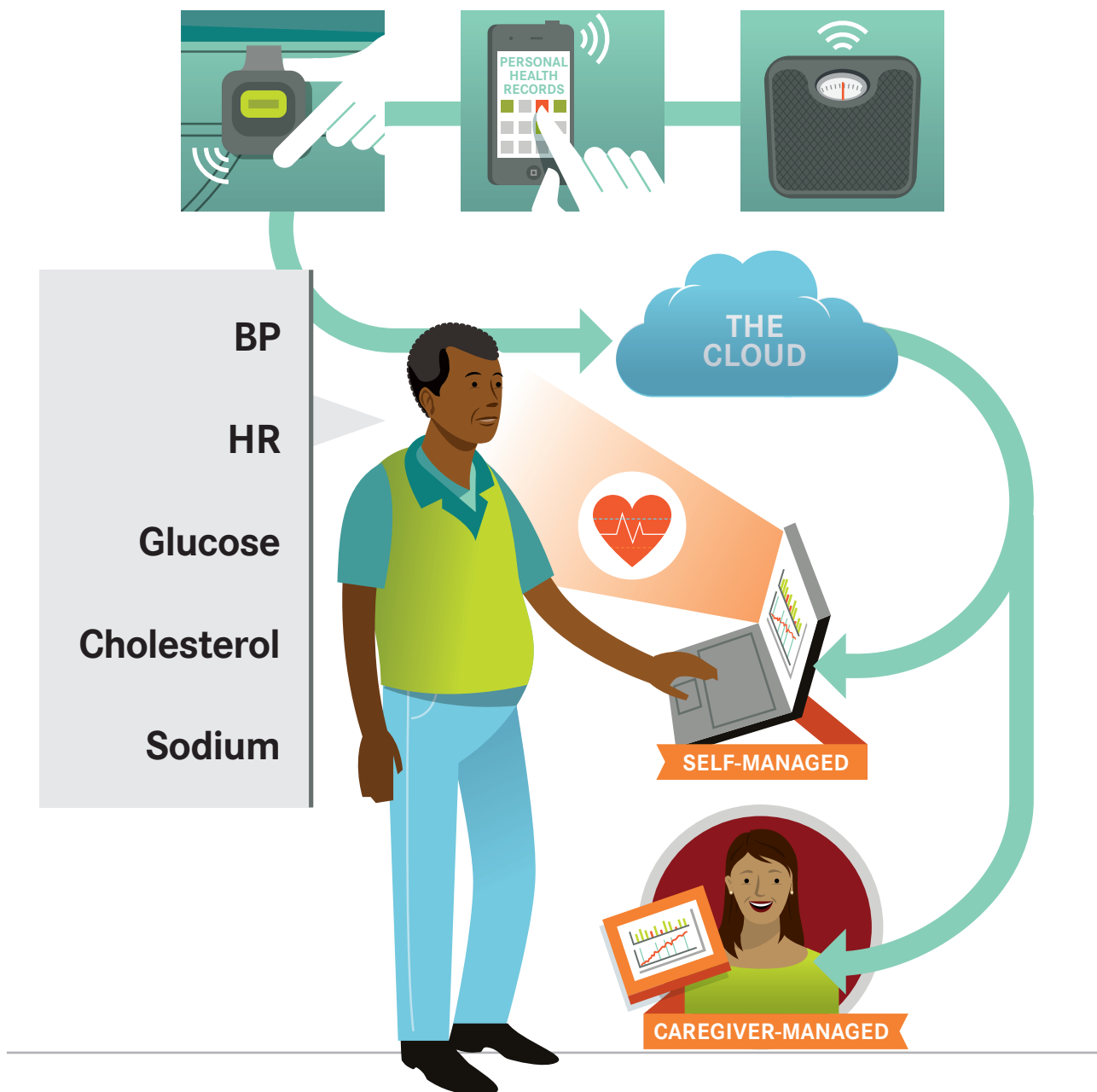


Apps for brain health services, digital hearing aids, vision self check-ups, daily life support, and preventive care for aging are abundant and still growing.

Wearables leverage voice recognition, gesture recognition, text-to-speech technologies, and personalization to further enhance ease of use.

Products from Whill's new wheelchair design to Oral-B's connected toothbrush, new make products aesthetically appealing and functionally smart, and help drive consumers' pent-up demand.

VITAL SIGN MONITORING



DYK?

49% of men and 53% of women ages 65-74 have high cholesterol, as do 45% of men and 53% of women 75 and older. It's estimated that 71 million American adults have high LDL.

— Centers for Disease Control and Prevention (CDC)

Proper interpretation of vital sign data followed by an actionable plan is critical to older adults' ability to self-manage their conditions. The high cost of new connected solutions, along with the use of different networking standards for data transfer, further inhibits market adoption. The market calls for an interoperable ecosystem of devices that will allow users to monitor multiple vital signs and receive feedback through one central application.



MARKET OPPORTUNITY

A CONNECTED, INTEROPERABLE SYSTEM

Total target market for vital sign monitoring solutions among 50+ may be as high as **52 million by 2019**.



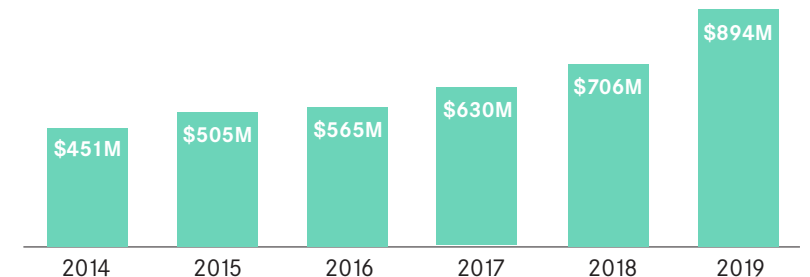
Also according to the CDC, 69% of women ages 55-64 years old and 64% of men suffer from high blood pressure.



The CDC also reports that 49% of men and 53% of women ages 65-74 have high cholesterol.

\$3.7B

Cumulative five-year revenue potential



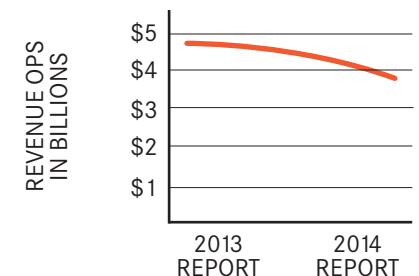
INVESTOR INSIGHTS

MARKET STILL LACKS LOW-COST SOLUTIONS



Device designs and functions are important evaluation criteria, but companies in the vital sign monitoring space must find the right channel partners and business partners for success.

The cost of entry is low but technology complexity and platform scalability are big hurdles. VCs must examine companies' technology, partnerships, and business models to understand their these platform's capabilities.





CURRENT MARKET

THE FOUR KEY SOLUTION SEGMENTS

Although new vital sign monitoring devices continue to emerge, integrated solutions and vital data aggregation services are catching on. Turnkey solutions and health data APIs/gateways play an important role in serving healthcare provider clients, improving end user experience, and engaging family caregivers in fighting chronic conditions. Vital signs that can be monitored have expanded from traditional medical signs to skin, gait, and user behaviors.

VITAL SIGN MONITORING SOLUTIONS

Solutions & services consist of both hardware and software for monitoring vital signs



DIAGNOSTIC DEVICES

Hardware-focused companies with products for vital sign measurement and diagnosis



VITAL SIGN MONITORING ENABLERS

Applications & services support vital sign monitoring as a service: integration, data aggregation, analytics



SENSOR INNOVATIONS

Providers of sensors that can be embedded in a product



REALITY CHECK

CONSUMER AWARENESS IS LOW



Human feedback is more effective but more costly; digital coaching that relies on software algorithms is still at an early stage of implementation—its effectiveness is unproven.

New connected devices usually cost more than traditional products, and integration of multiple devices for data aggregation is a cost driver.

Monitoring is a well-defined market with consistent demand but lackluster historical growth due to a difficult reimbursement environment.

Large consumer brands have joined the race, including Apple & Samsung.



LOOKING AHEAD

THE GROUNDWORK HAS BEEN LAID

Health reform efforts and the digitization of medical records have laid the groundwork for future adoption of vital sign monitoring solutions.

Monitoring innovations are taking place on many fronts, including device design, gateway function integration, back-end data analytics, and digital coaching services.



TODAY'S REVENUES

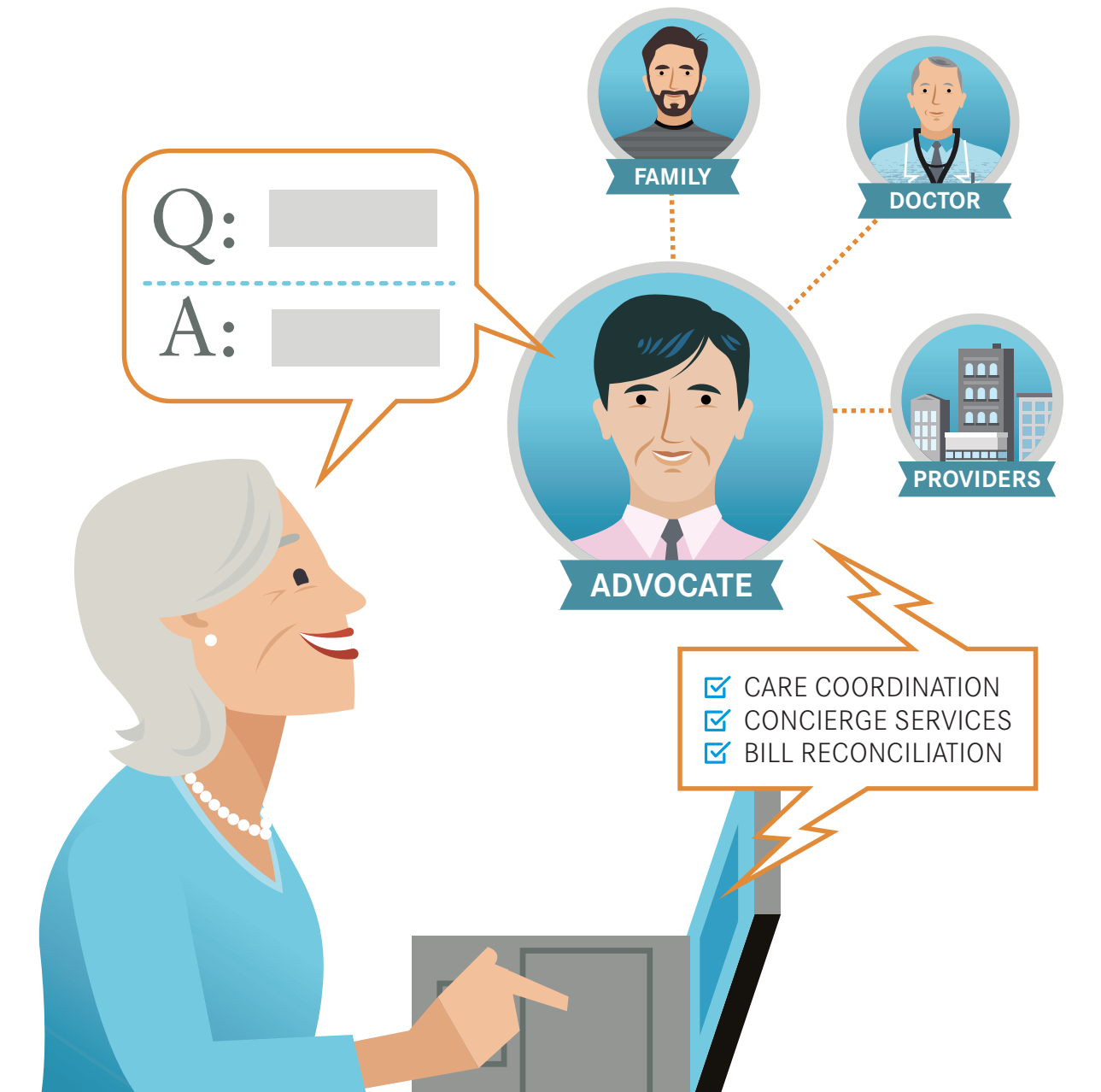
- DIRECT INVESTMENT IN VITAL SIGN MONITORING DEVICES
- SOLUTIONS FROM NON-PHYSICIAN HEALTHCARE PROVIDERS



FUTURE REVENUES

- MORE DIVERSIFIED, INCLUDING:
- ADOPTION BY PHYSICIAN PRACTICE
- DIRECT-TO-CONSUMER CHANNELS FOR SELF-CARE

CARE NAVIGATION



DYK?

76% of healthcare consumers don't have a strong understanding of how the health care system works.

— Deloitte survey, 2011

The U.S. healthcare system is very complex and consumers have difficulty understanding options regarding access, quality and cost. Innovations that try to streamline the consumer experience face systematic resistance to transparency. Current solutions suffer from a siloed approach to sharing health data with consumers and lack meaningful interpretation of data. The market needs well-organized information and customizable assistance programs.



MARKET OPPORTUNITY

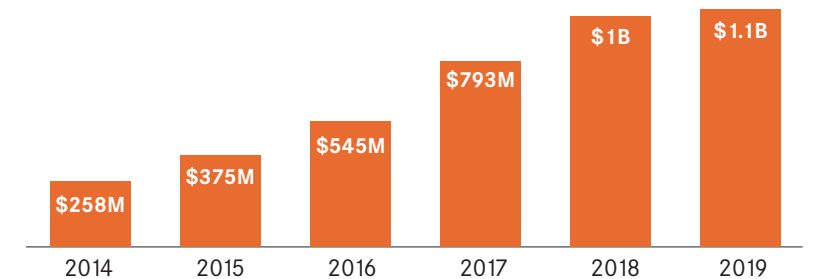
HEALTH CARE IS COMPLICATED



According to Aetna's Empowered Health Index survey in July 2012, **88% of consumers said that health insurance choices are tough because information is confusing and complicated.** 43% of adults do not track their out-of-pocket health costs and 81% have difficulty in making healthcare decisions.

\$4.1 B

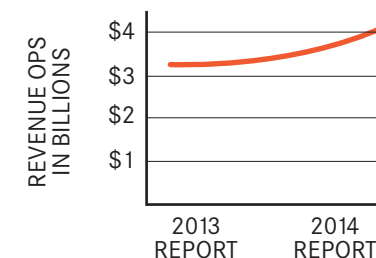
Cumulative five-year revenue potential



INVESTOR INSIGHTS

READY FOR DISRUPTIVE BUSINESS MODELS

Cumulative revenue opportunities raised from \$3.3 billion in the 2013 report to \$4.1 billion.



Rising penetration of smartphones and the convenience of using mobile apps for information access have convinced many care navigation startups to go with a mobile-first strategy.



The fact that successful consumer service brands such as Angie's List and Yelp have entered this market has further disrupted incumbents' business.

CURRENT MARKET THE FIVE KEY SOLUTION SEGMENTS

A large number of incumbent players are trying to adapt their respective businesses to the digital age. Disruptive business models such as the marketplace model from care.com have changed the competitive landscape.

CARE COORDINATION SOLUTIONS

Solutions & services that help patients and caregivers coordinate different care activities



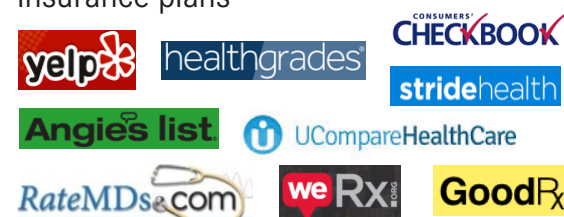
CARE PLANNING TOOLS

Solutions & services that prepare patients and caregivers for future care & estate planning needs



CARE/PLAN REVIEW & COMPARISON

Services offering reviews & comparisons of care providers, facilities, drug costs, and insurance plans



CARE RECORDS & EXPENSE MANAGEMENT

Services that help patients and caregivers manage health records, manage medical claims and billing, track spending



CARE PROVIDER DIRECTORIES & MARKETPLACES

Services that list and refer care providers or help patient/caregivers find providers on a marketplace



REALITY CHECK CONSOLIDATION INEVITABLE IN LONG RUN

This is a growing, yet fragmented, market spurred by recent regulatory changes and consumer demand.

The marketplace model has disrupted the provider directory business:

1. New marketplace models combine info-portals with a transactional platform for consumers to find and hire a care provider or book an appointment.
2. The marketplace model disrupts traditional care brokers by connecting patients directly with care providers, creating savings for both patients and care providers.
3. Digital technologies enable new assistive services, such as eligibility verification, cost comparison, expense management, and death care-related services.
4. Direct-to-consumer services will help consumers manage medical claims and billing, track health spending, and simplify health records management.

Consolidation will be inevitable in the long run as the market needs scalable solutions, not fragmentation.

LOOKING AHEAD OPPORTUNITY FOR A TRUSTED BRAND TO EMERGE

B2C success, such as care.com, and B2B success, such as Castlight Health, have inspired numerous startups to pursue opportunities in this market.

The market represents a significant near-term investment opportunity as consumer needs revolve around many subcategory opportunities, each of which ready for disruptive solutions.



Business models built on the premise of matching buyers directly with sellers on an open marketplace are promising.

EMERGENCY DETECTION & RESPONSE



DYK?

Over five million older consumers fall every year. One third of adults age 65+ injured in bathrooms were diagnosed with fractures, and 38% of adults age 85+ were hospitalized as a result of their injuries.

— CDC

Solutions that can detect and initiate a response to emergencies — and in the future can potentially prevent adverse incidents — will see consistent demand. Opportunities are abundant to improve current emergency detection and response solutions for a better user experience and higher adoption rate.



MARKET OPPORTUNITY

MONITORED TRACKING SERVICES GROWING



Emergency Response Solutions: 2 million subscribers in 2013, 85% aged 75+



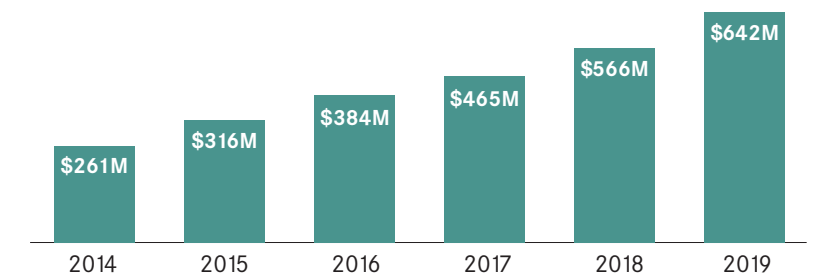
Activity Tracking: about 50,000 users in 2013



Location Tracking: 150,000 users subscribe to a monitored location-tracking service or use a GPS-enabled watch/phone with geo-fencing capabilities

\$2.6B

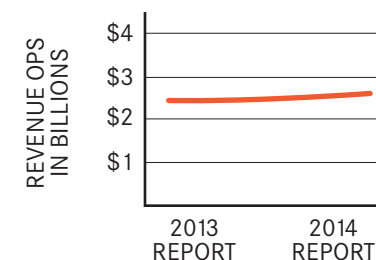
Cumulative five-year
revenue potential



INVESTOR INSIGHTS

SECTOR IN MAJOR PRODUCT UPGRADE CYCLE

Modernized solutions featuring mobile broadband and smart sensors will expand solutions' appeal to a broader audience.



Technology integration efforts can result in a powerful independent living solution. If the price is affordable, a bigger market opportunity can emerge.



The B2B market can be another investment opportunity. Hospitals and long-term care facilities have shown interest in the PERS market.



CURRENT MARKET

THE FOUR KEY SOLUTION SEGMENTS

Marketing efforts have focused on lifestyle freedom and lower costs compared with institutional long-term care options, however some solution providers have shifted focus to value-added features to convince wary seniors. These solutions try to add features that address non-emergency needs—family connection, personal legacy, wellness, medication management, etc. PERS no longer just a service, but a platform to serve a variety of senior needs.

HOME SENSOR ACTIVITY TRACKING

Solutions & services that use a sensor network to track at-home activity patterns and send alerts for abnormalities



PERS/FALL DETECTION

Solutions & services that enable seniors to call for help or auto-detect emergencies and alert for help



HOME SENSORS/HARDWARE

Products or sensors deployed in an emergency detection and response solution/service



LOCATION TRACKING

Products, applications & services that track users' location



REALITY CHECK

COST & FALSE POSITIVES AN ISSUE

Emergency Response

Solution: a fragmented market with 100-150 providers; the top ten collectively manage about 2/3 of subscribers, the rest serve a few thousand

Activity Tracking:

an emerging industry with about 10-20 solution providers; most are startups

Location Tracking:

market growth is negatively affected by high hardware costs; the market consists mainly of location-based service (LBS) providers adding senior location-tracking services



LOOKING AHEAD

LONG-TERM GROWTH POTENTIAL

This is an industry with good long-term growth potential due to an aging population with a strong desire to live in their own homes.



Low-cost solutions enter the market: they challenge incumbent players with more intuitive designs and/or lower service costs



Wearables are slowly but steadily transforming location tracking and emergency response solutions



Segment will benefit from consumer interest in smart watches and smart bands, and enjoy lowered production costs due to economies of scale



Smartphone apps and software will challenge standalone devices for location tracking and emergency assistance



A software-driven approach leverages the popularity of smartphones and tablets to drive consumer adoption



Traditional PERS providers are showing interest in integrating vital sign monitoring functions into their PERS platforms



Verizon and AT&T have PERS services; cable companies are building a home monitoring platform that will likely feature PERS and home sensors

PHYSICAL FITNESS



DYK?

38 million consumers 50+ are obese and a third of Americans 65+ engage in no leisure-time physical activity. Only 20% of adults 45-64, 13% 65-74, and 12% 75+ engage in regular strength and endurance exercises.

— U.S. Census Bureau

A healthy body is fundamental to older adults' ability to live a satisfying and independent lifestyle. Most solutions on the market today either fall short on interactive and motivational features, or are designed and priced for younger demographics without consideration of the 50+ population'. The market calls for a more affordable solution with a set of interactive features that older consumers feel are comfortable to use and valuable to their lives.



MARKET OPPORTUNITY

INCREASING FITNESS INTEREST FOR 55+

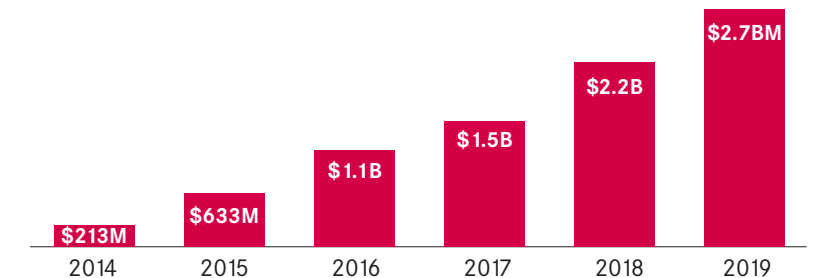
45% of people age 55-64 exercise indoors or outdoors at least once a week, a rate which increases to 54% of people 65 and older.



30,000 fitness clubs serve more than 50M members and total out-of-pocket spending on memberships by the 50+ was estimated to be \$4 billion last year.

\$8.5B

Cumulative five-year revenue potential



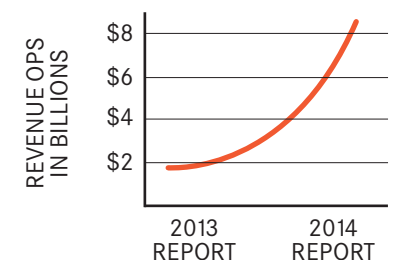
INVESTOR INSIGHTS

COMPETITION WILL BE INTENSE

- Invest in companies targeting age-appropriate fitness training/tracking solutions
- Companies with the capability to keep users engaged and the ability to turn user interaction data into new features can be good investments
- Look for companies that differentiate on their ability to continuously innovate the user experience



Be cautious about investing in pure hardware companies





CURRENT MARKET

THE FOUR KEY SOLUTION SEGMENTS

Although direct-to-consumer offerings dominate, fitness app developers and device makers also target employers and insurers for new business opportunities and weight loss program providers for partnerships. Social network integration has become a key feature to appeal to younger users—social features appeal to 50+ consumers in that they make fitness tracking more engaging

FITNESS SOLUTION ENABLERS

Solutions & platforms that support fitness data integration and analytics



FITNESS PROGRAMS

Apps and solutions that teach fitness or track fitness progress, including B2C & B2B2C services



FITNESS APPS

Apps that track fitness progress and target consumers directly



FITNESS DEVICES

Products that record fitness data and track fitness progress



REALITY CHECK

INNOVATIONS FOCUS ON DEVICES & SERVICES

This is a **sizable industry**, with consumer discretionary spending on fitness equipment, fitness clubs, and personal trainer services as main revenue sources.

Revenue models are unlikely to change dramatically, even taking into consideration all the recent innovations and disruptions.

There are large established players in the respective industry segments but are **no dominant players** at this point.

Today, **innovations** take place mainly in fitness devices and personal fitness training services.



LOOKING AHEAD

FITNESS INCREASINGLY A SOCIAL ACTIVITY

Fitness as a game: turning fitness activities into a fun-filled experience with interactive gaming features

SMART WATCHES

that support fitness functions and compete with fitness bands—most on the market support



some fitness tracking functions or integrate with existing fitness apps.

DIGITAL TRAINERS

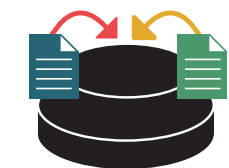
that offer solutions offer personalized/interactive fitness classes through streaming videos and software-based expert



feedback services, with social networking elements.

SOFTWARE PLATFORMS

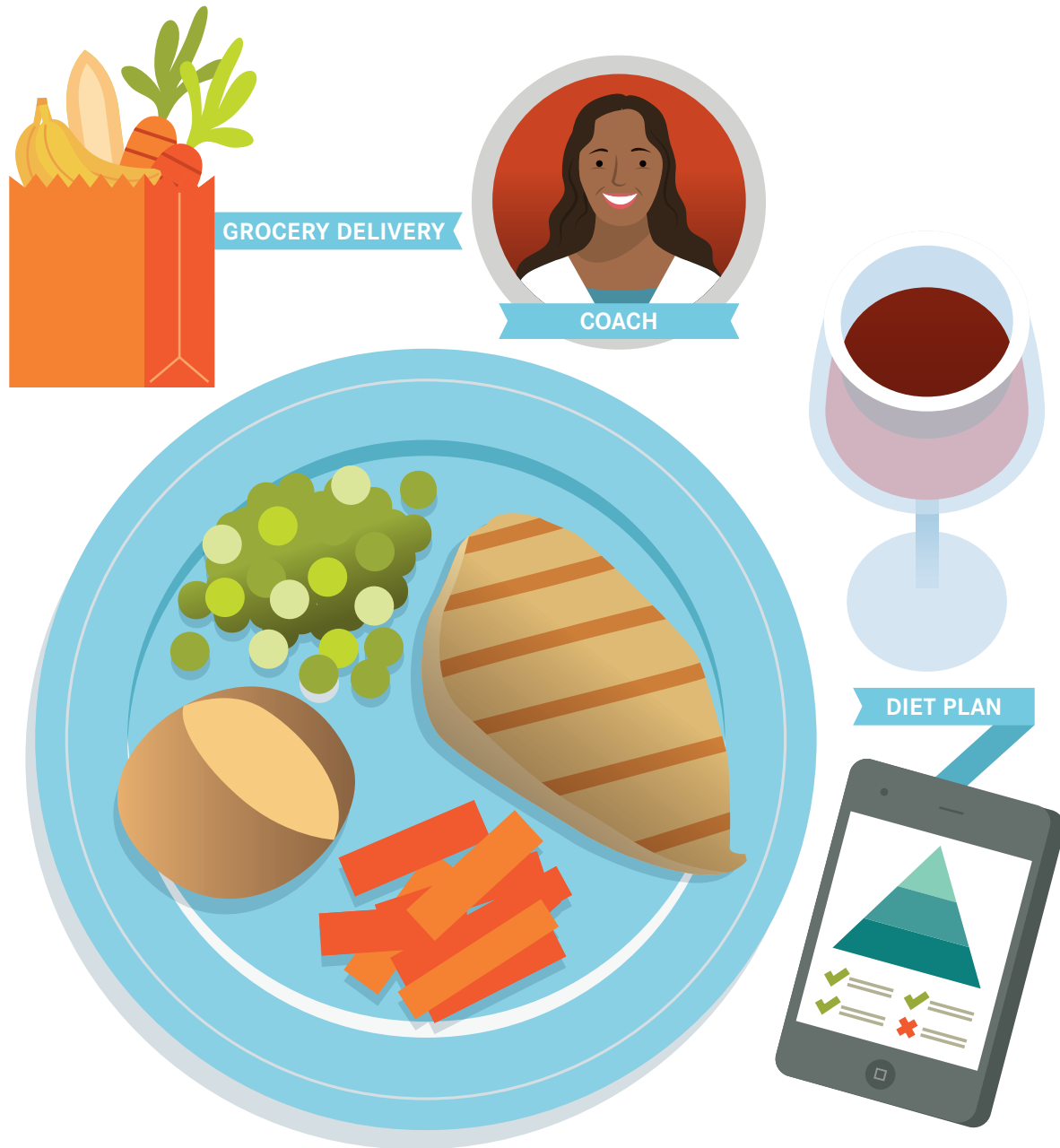
that support fitness data tracking and aggregation emerge from several well-established consumer brands: Apple, Samsung, Google, and others have



launched digital health platforms.

These data platforms can unleash new innovation power from their developers/partners.

DIET & NUTRITION



DYK?

90% of American adults consume too much sodium. The recommendation is 1,500 mg daily, but average consumption is twice that. This helps cause hypertension in 42 million people in the 50+ age group.

— CDC

Proper diet and nutrition is fundamental to keeping older adults healthy and independent. There is information on healthy eating, tools to track food consumption are available, and weight loss programs are well priced. While this need is currently served by dietitians or nutritionists within a chronic care program, the market calls for a lighter, less expensive, self-manageable, and personalized dietary solution.



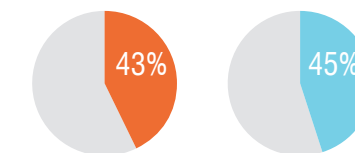
MARKET OPPORTUNITY

HELP WITH QUALITY DIET MANAGEMENT

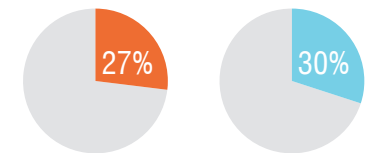
Only 17% of adults 60 or older consume a good quality diet, 30% skip at least one meal a day, and 16% consume fewer than 1,000 calories per day.

—The CDC's national Health and Nutrition Examination Survey

Obesity ages 65-74

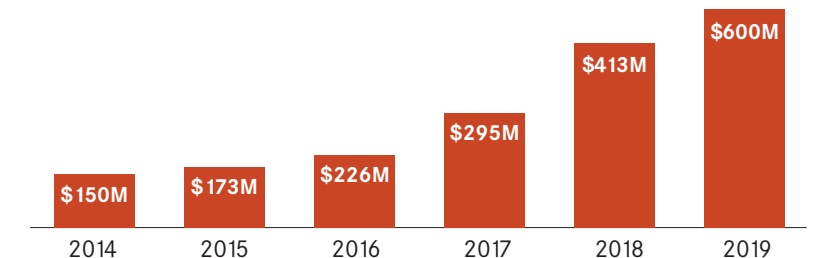


Obesity ages 75+



\$1.8B

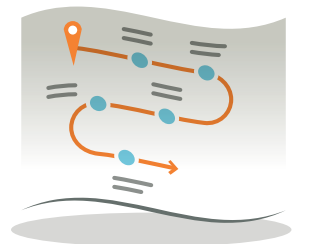
Cumulative five-year revenue potential



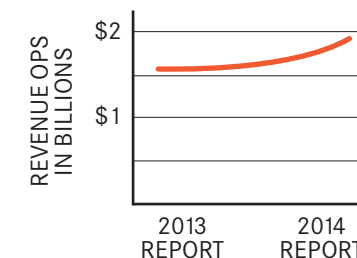
INVESTOR INSIGHTS

DATA QUALITY A BUSINESS DIFFERENTIATOR

Investment in the back-end logistic/data system that support new ways of grocery shopping can be a less risky investment as the ability to aggregate grocery info and price information and coordinate customer orders with delivery schedule can be a challenge for large chain stores even though they might try it on their own first.



Entrepreneurs will benefit from integrating diet and nutrition data and tracking tools with other wellness solutions.



Grocery store chains will expand here aggressively, along with companies such as Amazon.com and Schwan's.

CURRENT MARKET THE FOUR KEY SOLUTION SEGMENTS

New diet and nutrition solutions threaten incumbents' business. WeightWatchers and Jenny Craig are under significant pressure to revitalize their business challenged by new weight loss solutions combining fitness tracking and diet tracking. Traditional dietitian coaching model is threatened by DIY services and online grocery delivery companies face growing competition from startup companies specializing in mobile-based solutions.

MEAL PLAN/ DELIVERY/ COOKING SOLUTIONS

Services & solutions that either deliver prepared meals or help grocery shopping and cooking with recipes



DIET/NUTRITION MANAGEMENT

Services that advise consumers about diet and nutrition; either with a digital coach or via a personal coach



DIET & NUTRITION TRACKING TOOLS

Apps and solutions that help consumers track and manage diet and nutrition, usually a self-guided tool



CONTENT & EDUCATION

Diet & nutrition content and educational info for consumers or for business partners



REALITY CHECK FRAGMENTED, NO STANDOUTS IN SEGMENTS

? Nutrition needs have broad appeal for 50+, but the traditional weight loss industry has been stagnant, and new solution vendors are still searching for effective monetization strategies.

! Innovations have led to new solutions and services such as diet tracking, diet coaching, and grocery shopping services. Nutritional data services have also emerged.

+ Diet & nutrition solutions are usually integrated with fitness tracking and personal training services to achieve weight loss goals.

Long-term, diet and nutrition information alone will not be sufficient to sustain business growth.

LOOKING AHEAD SHOPPING GUIDANCE BECOMES ROBUST



Grocery shopping guidance services or applications become more robust and comprehensive:

- ✓ Provide recommended food options or customized meal plans based on shopper's dietary needs or biometric data
- ✓ Add home food/grocery delivery as premium features



Nutritional information gets more granular and food choices more specialized:

- ✓ Not only major ingredients are analyzed, even minor ingredients including additives are analyzed for total healthiness assessment
- ✓ Specialized food/nutritional apps help people buy and prepare food that are organic, seasonal, and without GMO

SOCIAL ENGAGEMENT



DYK?

"The World Health Organization rates loneliness as a higher health risk than that lifelong smoking"

Staying engaged with family, friends and the community is vital to healthy aging, and has multiple physical, behavioral and emotional benefits. There are ample opportunities for older adults to engage with others but mobility barriers prevent some from taking advantage of these services. There is an opportunity for solutions to help as many as 64 million consumers ages 50+ to overcome barriers and for technologies to provide engagement from home.



MARKET OPPORTUNITY

AN ACTIVE SOCIAL LIFE BENEFITS HEALTH

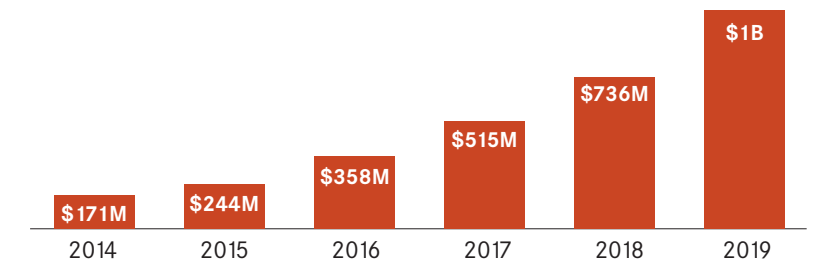
A UC San Francisco tracking survey found that 30% of people ages 60+ reported feeling lonely sometimes, and 13% felt lonely very often.

70+ MILLION

PEOPLE 50+ SHOWED A STRONG INTEREST IN STAYING SOCIALLY CONNECTED WITH THEIR FRIENDS & FAMILY

\$3.0B

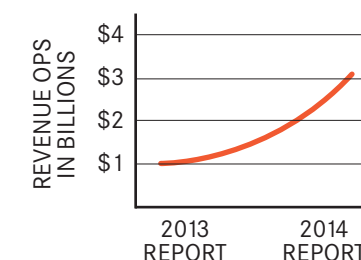
Cumulative five-year revenue potential



INVESTOR INSIGHTS

"DIGITAL INCLUSION" MARKET IS UNDER PENETRATED

Though the definition of this market is less clear, it appeals to more than 20 million families that look after relatives and want means to connect them.



Important evaluation criteria:

sustainability of rev models

Companies with a diversified revenue model and over time can find a stable source of revenues in this market segment will be the winners.

Although the transportation support service market is hot,

there are already two major leaders—Uber and Lyft. This sub market segment has become crowded and ROI on this segment will be low.



CURRENT MARKET

THE THREE KEY SOLUTION SEGMENTS

Growing competition in the online social networking market has led to more specialized communities: patient communities, neighborhood communities, and caregiver communities meet specific social engagement needs of people 50+. Specialized communities usually grow slower than general purpose communities, and a smaller user base makes it difficult to generate revenues from the traditional advertising model.

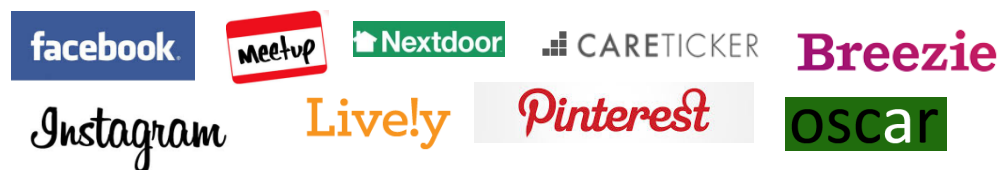
ONLINE PATIENT COMMUNITY AND P2P SUPPORT

Digital communities for people with similar health conditions to share experience and find support/counseling



“DIGITAL INCLUSION” SOLUTIONS

Products or services that keep health consumers engaged and in-touch with their community or with family caregivers/ friends



MOBILITY ASSISTANCE

Apps or services that help consumers easily find transportation options for social engagement needs



REALITY CHECK

MANY 50+ NOT FAMILIAR WITH SOCIAL TOOLS

Business models have become more market proven, yet many startups are still struggling with scale.

- Traditional means for social engagement are inconvenient to schedule and manage
- People ages 50+ traditionally relied on community gatherings and group activities to stay connected, but scheduling difficulty and transportation inconvenience stand in the way



Successes such as **Uber** and **Lyft** have attracted large venture funding into this new solution market but also invite competition and incumbents' defensive moves.



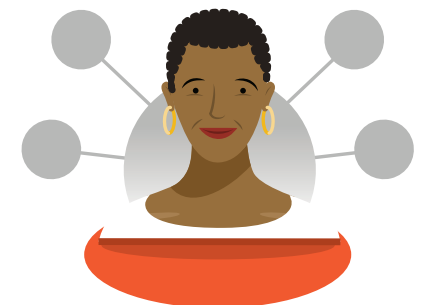
LOOKING AHEAD

GREAT POTENTIAL TO IMPACT SOCIAL LIVES

Innovators are experimenting with multiple business/revenue models that include advertising, freemium, software as a service, broker fee/commission, and subscription, all will require a high level of operational scale to be successful.

People 50+ are getting more comfortable about connecting with people on Facebook or similar social networks than they were five years ago, when social networking was still a novelty.

Innovations are concentrated in solutions and services that help 50+ consumers remove mental and physical barriers to socializing.



BEHAVIORAL & EMOTIONAL HEALTH



DYK?

The divorce rate is highest among people 45-54 (16.6% for men and 20% for women). People 65+ hover around the national average of 11%. By 75, 50% of women and 17% of men become widowed.

— American Community Survey, 2011

Ageing in a healthy and happy way goes beyond treating our bodies well. It also involves improving our behavioral and emotional health. Today's most prevalent solutions are inconvenient and expensive. An opportunity exists to provide older adults a service, a venue, or a solution that helps users connect with people with a similar background in a convenient and secured way.



MARKET OPPORTUNITY

LOWERED INVESTMENT RISK



Life changing events, such as divorce or family member death, could also trigger emotional stress. The American Psychological Association reported that Boomers &

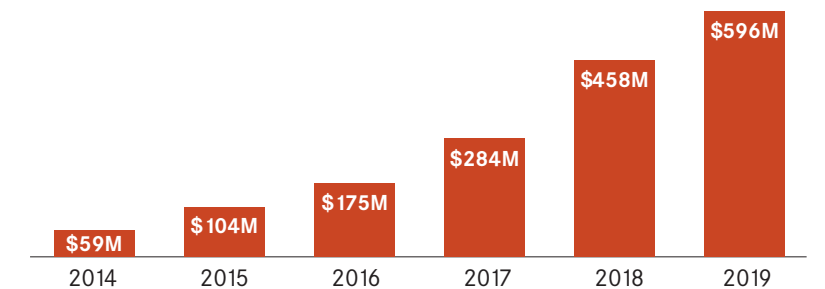
Mature Adults report less stress than younger generations, but still experience stress levels higher than recommended.

DIGITAL DELIVERY
of mental health services through **remote consultation** is a growth area.



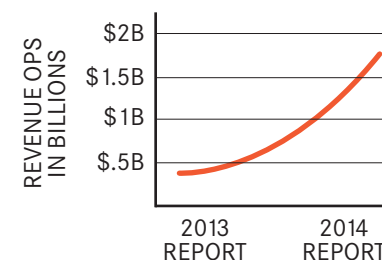
\$1.7B

Cumulative five-year revenue potential



INVESTOR INSIGHTS

BEHAVIORAL & EMOTIONAL HEALTH PROGRAMS ESSENTIAL TO WELL-BEING



Care management companies are more likely to partner with an existing provider or make a strategic acquisition regarding behavioral and emotional health solutions—but also may develop such solutions in-house.

- Remote digital consultation for mental health services is a growth area
- Such consultation is eligible to be reimbursed, which encourages healthcare professionals' use of this services.



CURRENT MARKET

THE FOUR KEY SOLUTION SEGMENTS

Care management firms increasingly recognize the need to address behavioral and emotional health problems as part of a comprehensive chronic care management program. They are looking at multiple solutions including community support, self-help tools, and digital companion solutions to complement their stress management and therapy solutions.

STRESS & EMOTION MANAGEMENT/THERAPY

Services that advise consumers on stress management and psychological therapy, usually from a professional



BEHAVIORAL MODIFICATION & SELF HELP

Services that advise consumers on stress management and psychological therapy, usually from a professional



SUPPORT GROUPS & COMMUNITY

Online communities that help consumers seek support from people with a similar experience or condition



Smart Patients

patientslikeme™

myHealthTeams

COMPANIONSHIP

Product and services that help people overcome fear of seclusion and offer emotional support



care square

Gerijoy

Hobbit



REALITY CHECK

DIY SOLUTIONS MAY HINDER REVENUE

A market traditionally dominated by psychologist visits/therapies as a reimbursable services and certain wellness management services to correct/modify behaviors. These services must meet specific criteria to be eligible for reimbursement, whereas the broader 50+ population has the need to manage their mental and behavioral health without such reimbursement restrictions.

“Many “me-to” solutions are on the market today, especially for meditation and stress management. The lack of differentiation makes it difficult for consumers to select.



LOOKING AHEAD

INTEGRATION INTO OVERALL HEALTH SOLUTIONS

Robotics and digital companion solutions enter the mental health market targeting people with loneliness.



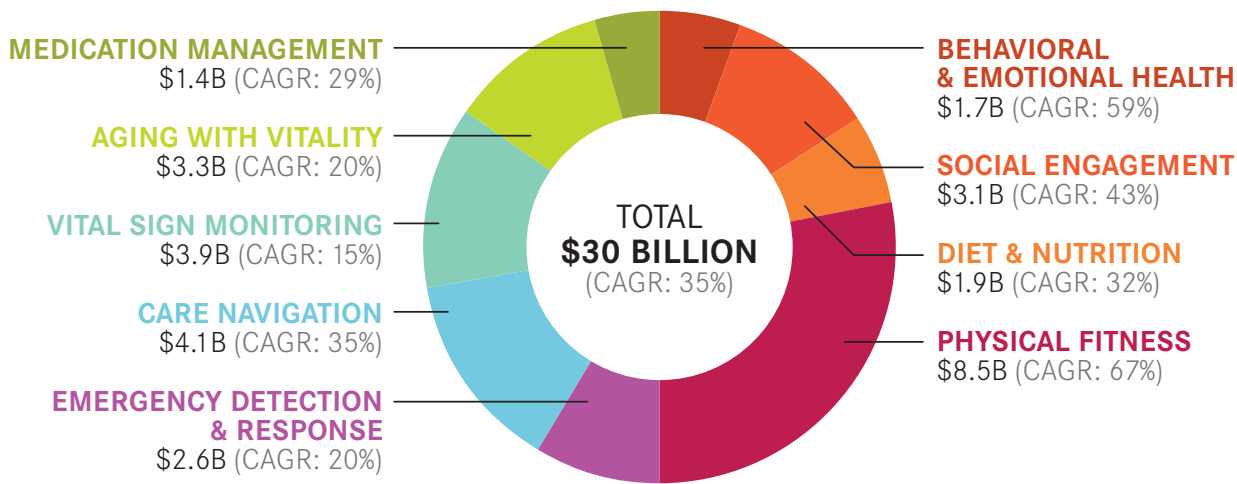
Additionally, patient support groups use peer-to-peer consultation and communications to provide emotional support.



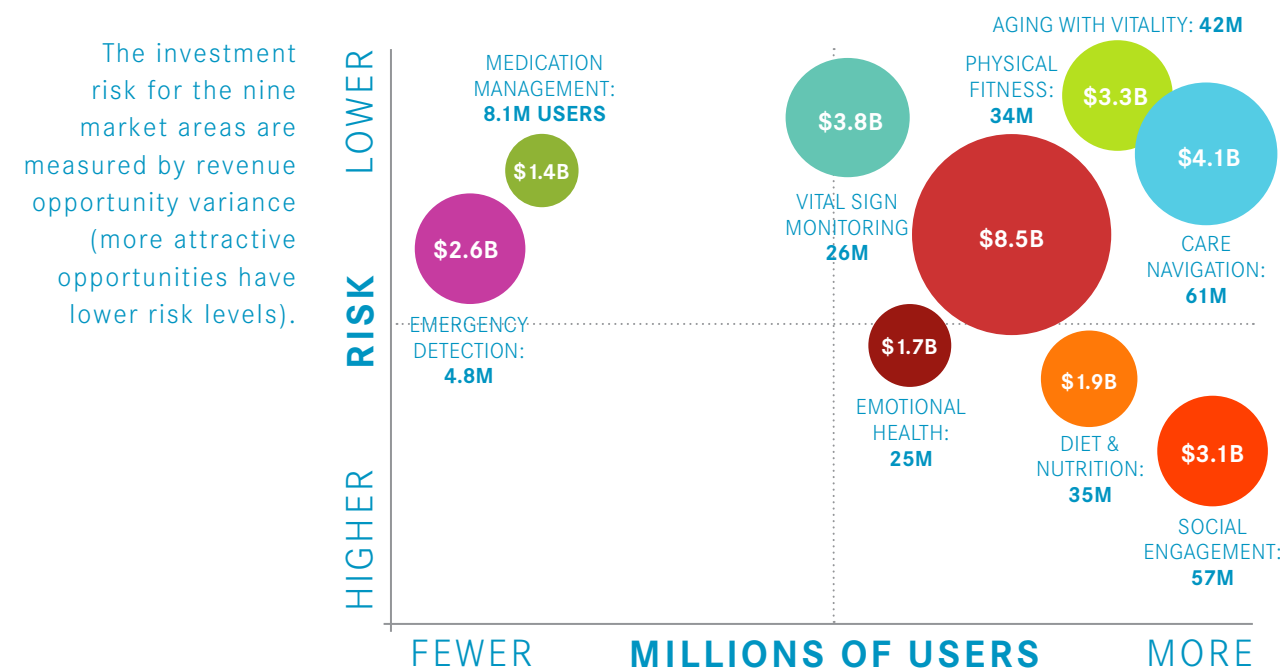
Social engagement is an effective approach to mitigate the downside of stress and consequent emotional health problems.

HERE ARE THE NUMBERS

TOTAL CUMULATIVE FIVE-YEAR REVENUE POTENTIAL FOR NEW HEALTHY LIVING SOLUTIONS: **\$30,000,000,000**



MAX REVENUE, MAX USERS, & INVESTMENT RISKS:



A LITTLE MORE ABOUT EACH AREA

MEDICATION MANAGEMENT

Medication information, reminder, tracking tools, and compliance services

AGING WITH VITALITY

Hearing & vision health, preventive aging care, cognitive & brain health, and everyday life support tools/services

VITAL SIGN MONITORING

Health sensors, diagnostic devices, vital sign monitoring enabling technologies, monitoring solutions

CARE NAVIGATION

Care records/expense management, provider directory & marketplace, care review and comparison, care planning tools, care coordination solutions

EMERGENCY DETECTION & RESPONSE

Home sensors, PERS/fall detection, location tracking, activity monitoring

PHYSICAL FITNESS

Fitness devices, apps, programs, enabling solutions

SOCIAL ENGAGEMENT

Mobility assistance, “digital inclusion” solutions, online patient community and peer-to-peer support

DIET & NUTRITION

Nutrition content and education, diet and nutrition tracking tools, management programs, meal plan/delivery/cooking solutions

BEHAVIORAL & EMOTIONAL HEALTH

Companionship solutions, support group/community, behavioral modification/self-help solutions, stress/emotion management/therapies

THE



VISION

AARP's vision is to catalyze innovation and entrepreneurship in the market place around breakthrough products, experiences, and business models for health technologies benefiting the 50+.

At AARP we are collaborating with the industry in the following areas::

- **MARKET OUTREACH:** Raising awareness of the market opportunity, needs, and wants of the 50+
- **MARKET DEVELOPMENT:** Influencing ecosystem development for consumer centric health tech for the 50+
- **INNOVATION SHOWCASE:** Creating platforms for showcasing innovative technologies
- **MEMBER INVOLVEMENT:** Engaging AARP members in providing early feedback on emerging trends and innovation

HEALTH

INNOVATION

FRONTIERS

UNTAPPED MARKET OPPORTUNITIES FOR THE 50+



DOWNLOAD THE FREE 2014 REPORT

You can download a free copy of the full report from <http://goo.gl/YfWb6U>.
Other Health Innovation Insights can be found at <http://www.aarp.org/50plusinsights>

AARP® is a 37 million-member-strong nonprofit, nonpartisan organization that helps people turn their goals and dreams into real possibilities. We strengthen communities and fight for the issues that matter most to families, including healthcare, employment security, and retirement planning.