



# Disrupting the Technology and Aging Landscape: New Technology and Approaches



Aging Gracefully across Environments using Technology  
to Support Wellness, Engagement, and Long Life

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There is

**STRONG  
POTENTIAL**

for technology to support

**HEALTHY &  
ACTIVE  
LIVING**

However.....

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We **NEED** to do better

# The Rising Tide

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Globally, healthcare systems are currently faced with the challenge of caring for an increasing number of older adults

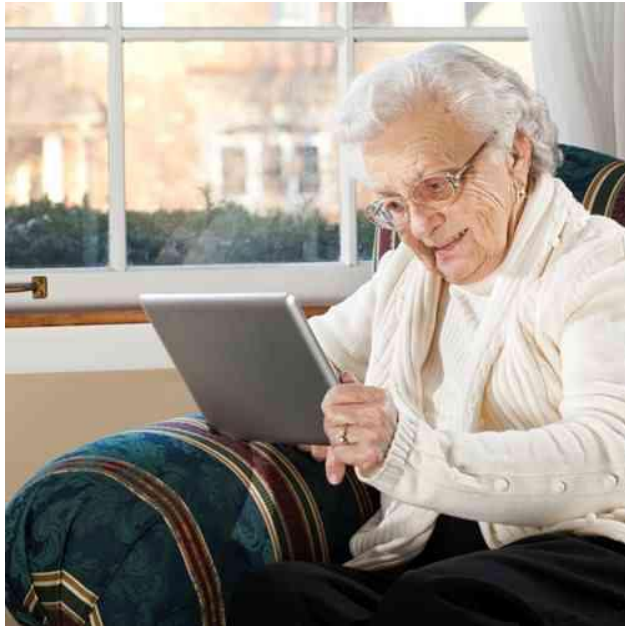
A large proportion of these individuals are living with diseases and impairments that are beyond those related to the normal aging process

## Further Complications.....

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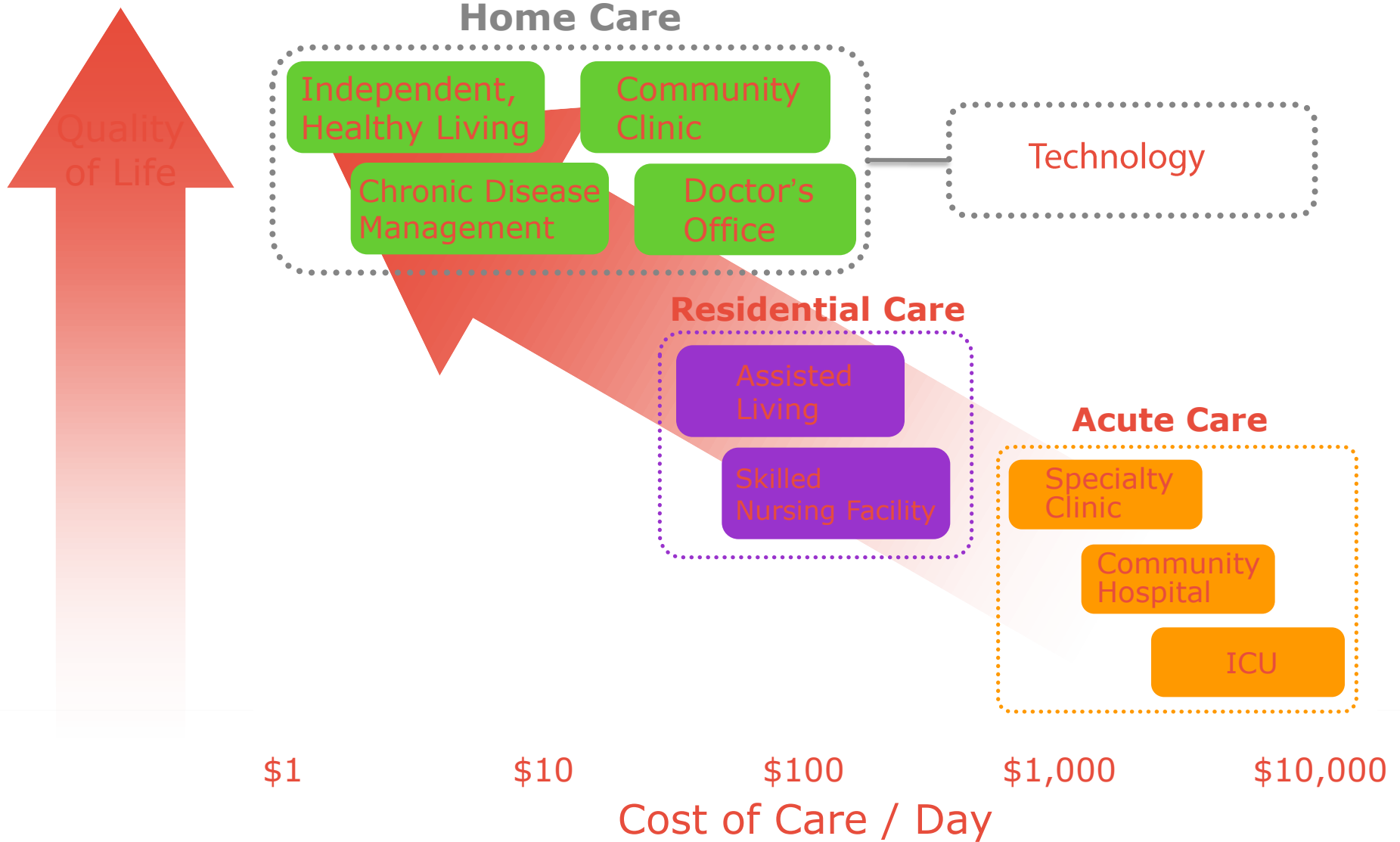
There is also a significant decrease in the number of caregivers, many of whom are experiencing their own physical and mental health challenges

# Technology as a Solution



Technologies for active living, cognitive stimulation, and brain health

# From Reactive to Proactive Care



# Technology as a Solution

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There are very few devices available,  
with many of them being too expensive  
and difficult to use



## Why is it like this?

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The needs of older adults are complex, and are even more so in the face of specific impairments and diseases.

More often than not, an understanding of these users' needs is not part of a project.

There has been a “silo” mentality in this field that has resulted in poor outcomes.

# Current technologies are stigmatizing



# Changing Demographics, Changing Expectations

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**Older adults (and their caregivers) are becoming more tech savvy**



**There are growing expectations on the integration of technologies into their daily lives**

Disruption

NEXT EXIT





# Disruptive Technologies

....when introduced, either radically transforms markets, creates wholly new markets or destroys existing markets for other technologies.



## Our Goal

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Our goal **MUST BE** to develop disruptive technologies that can enable aging-in-place, and to support caregivers and families.

# Disruption requires INSPIRATION







Disruption requires  
**NEW WAYS OF  
THINKING**

# Looking at other Disciplines



## Need to apply novel approaches in research and development:

- Development of new innovative technologies through new techniques and applications
- New collaborative approaches to overcome current limitations in technology transfer, knowledge translation, and training

Disruption needs to be  
**COLLABORATIVE** and  
**TRANSDISCIPLINARY**

# Different Approaches

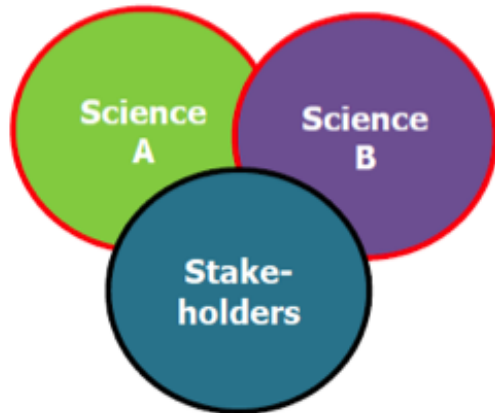
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**Disciplinary** research within academia



**Interdisciplinary** (multidisciplinary) research within academia



**Transdisciplinary** research goes beyond academia and involves stakeholders from policy, civil society etc.

Keil, 2015

# A Transdisciplinary Approach

Researchers and stakeholders **MUST** embark on a program of joint visioning that will produce practical applications and drive the development of novel technologies.



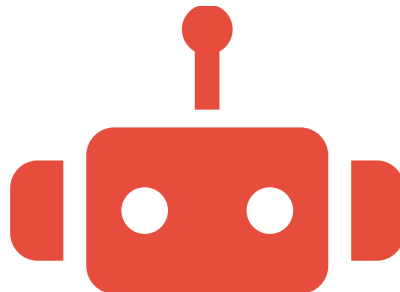
# Emerging Areas

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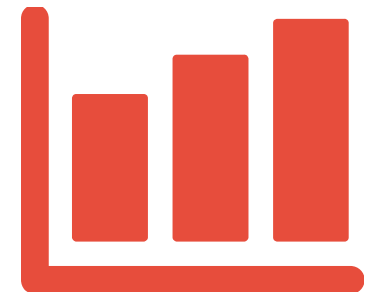
New approaches are leading to new promising areas of research and leading edge technologies



**Smart Homes**



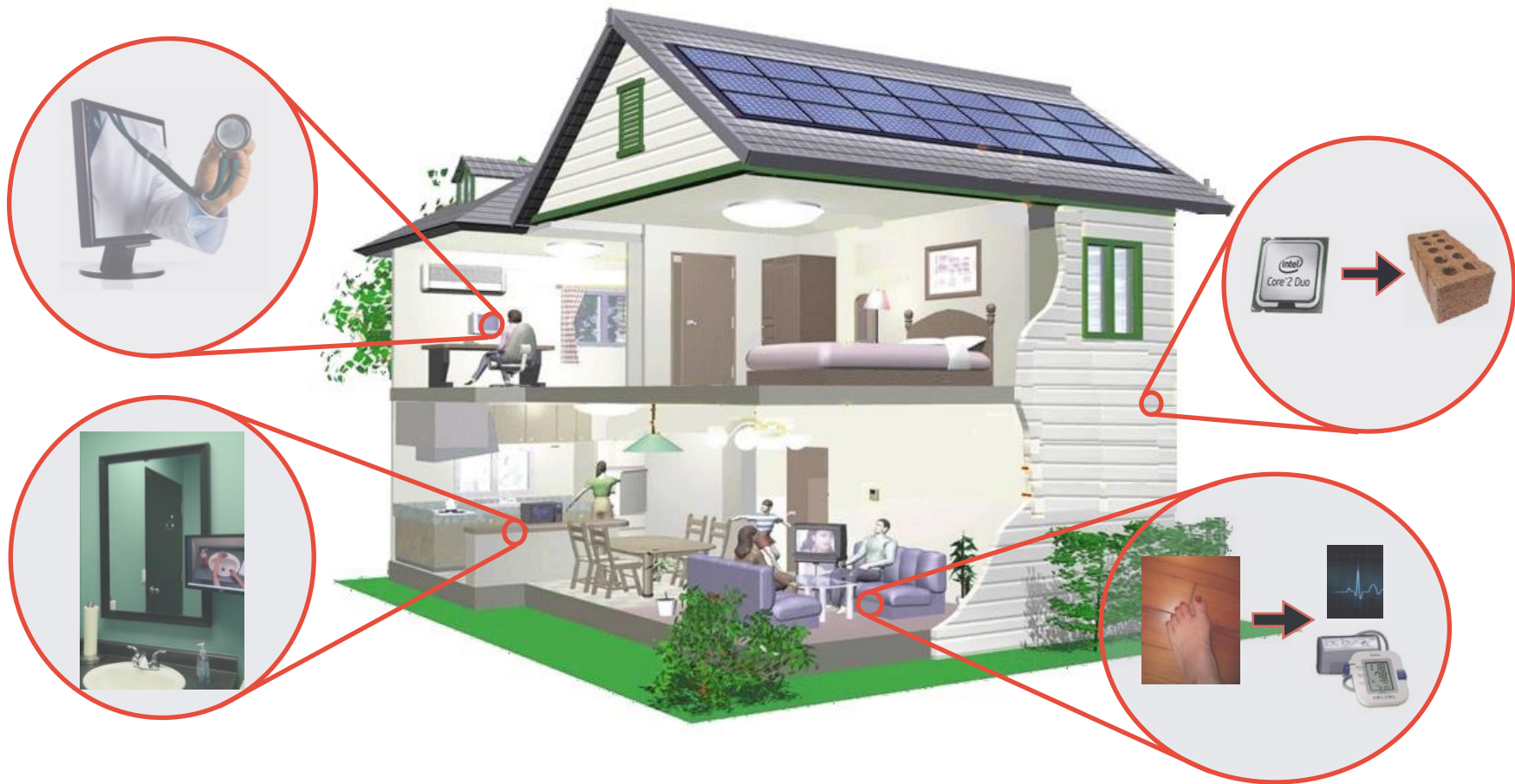
**Robotics**



**Big Data**



# Smart Homes





# Ambient-Based Physiological Monitoring

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Many seniors are required to monitor and report on various chronic conditions (e.g. diabetes, CHF)

They are required to use technologies to collect data

Often these technologies have poor usability leading to poor adherence

# Ambient-Based Physiological Monitoring

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# Robotics



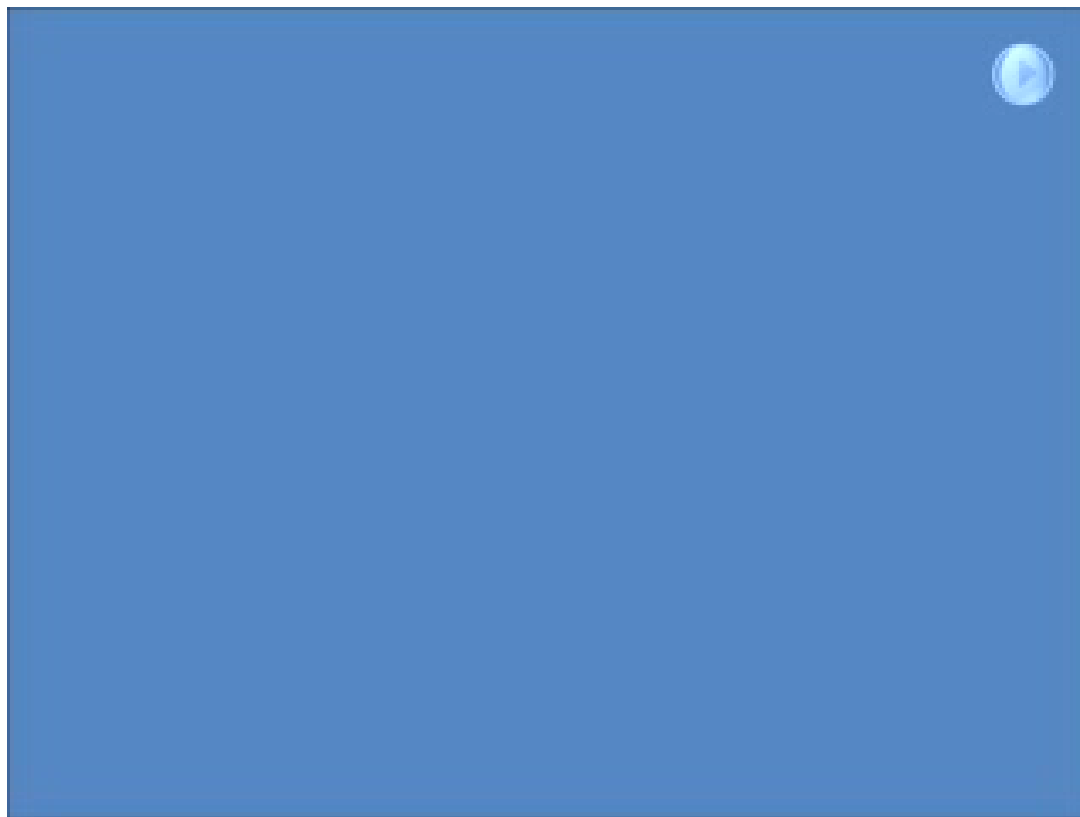
Social Robots



Cognitive Robots

# Introducing, Ed

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# Robotics – Driverless Cars



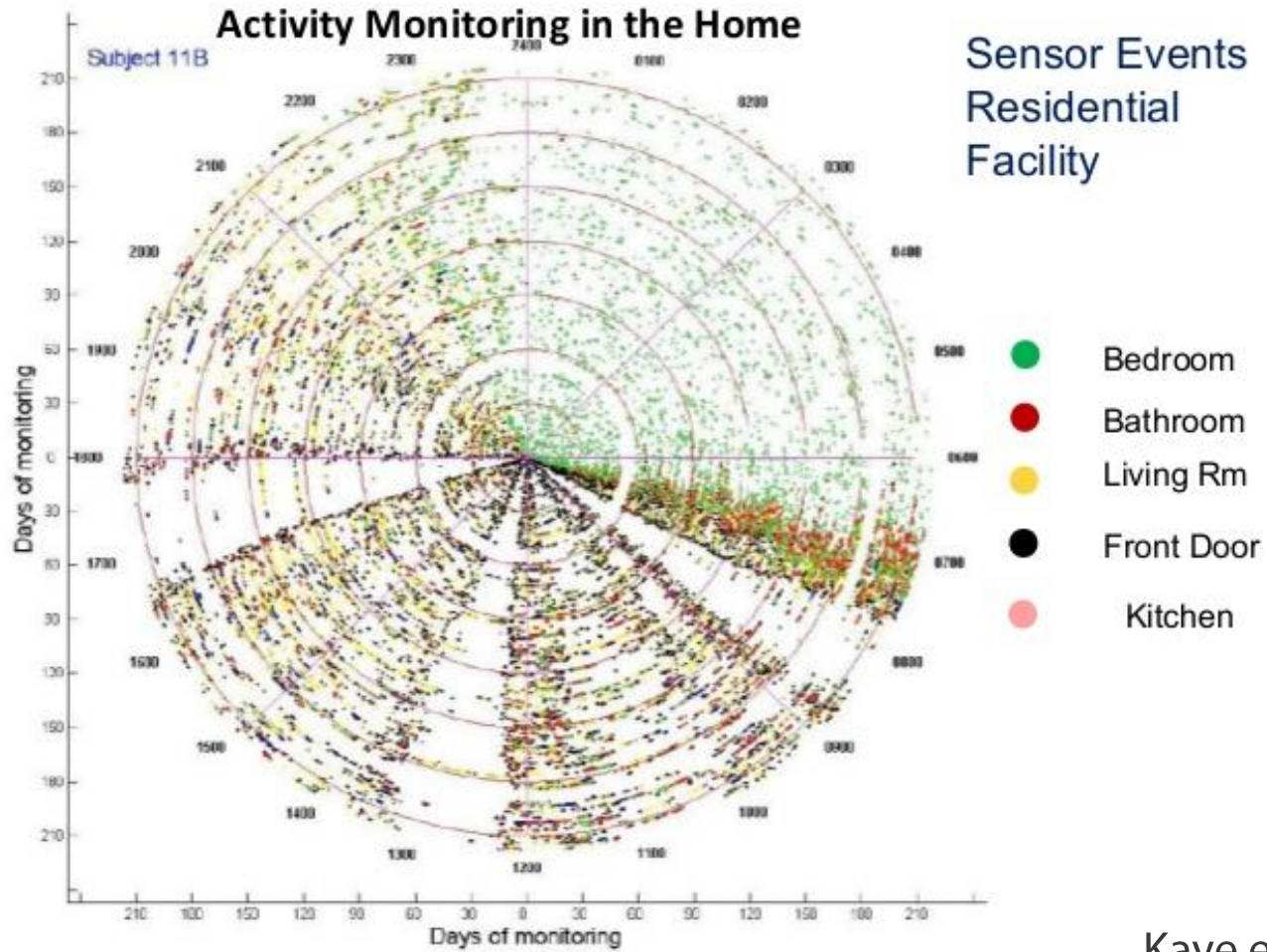
*“The self-driving car — a godsend for older Americans — is now on the horizon” – AARP (2015)*



# Big Data in the Home



# Big Data – Patterns of Living



Kaye et al. (OHSU)

Big data allows us to look forward and predict changes in health before they even occur



# Predicting Cognitive Impairment

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**3 months**

**85** %  
**ACCURATE**

The current landscape  
needs to change in  
order for these new  
innovations to make it  
to the marketplace

Accept  
risk

Change  
delivery  
models

The current landscape  
needs to change in  
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Don't fear  
competition

Rethink  
the way we  
design

# THE INNOVATORS' DILEMMA

We put too much emphasis on customers' current needs, and fail to adopt new technology that will meet their unstated (or unknown) future needs.

Christensen, 1997



# Going Forward

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The time is now!

Being incremental in this field is no longer acceptable

The technology may be the easy part

Ethical, social, and cultural aspects need to be considered and incorporated throughout the process

# For More Information

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