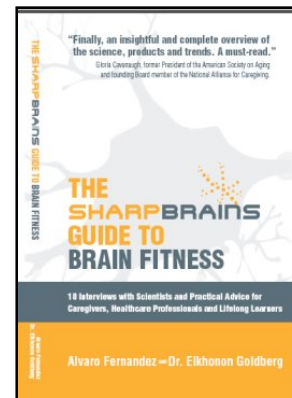
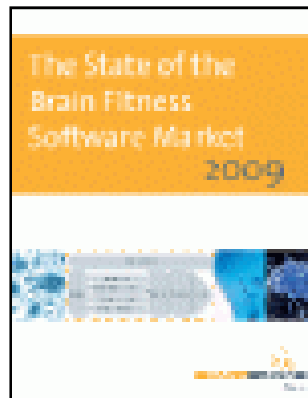


Innovation and Technology for Cognitive Health



Medicare Re-Admissions Summit, June 2009
Alvaro Fernandez, CEO and Co-Founder of SharpBrains

In summary

- ➔ Cognitive Health needs to become an explicit dimension of Healthcare
 - Identify Risks/ Cognitive Deficits: readmissions, adherence, driving safety, dementia
 - Identify & Monitor Interventions: lifestyle, invasive, non-invasive

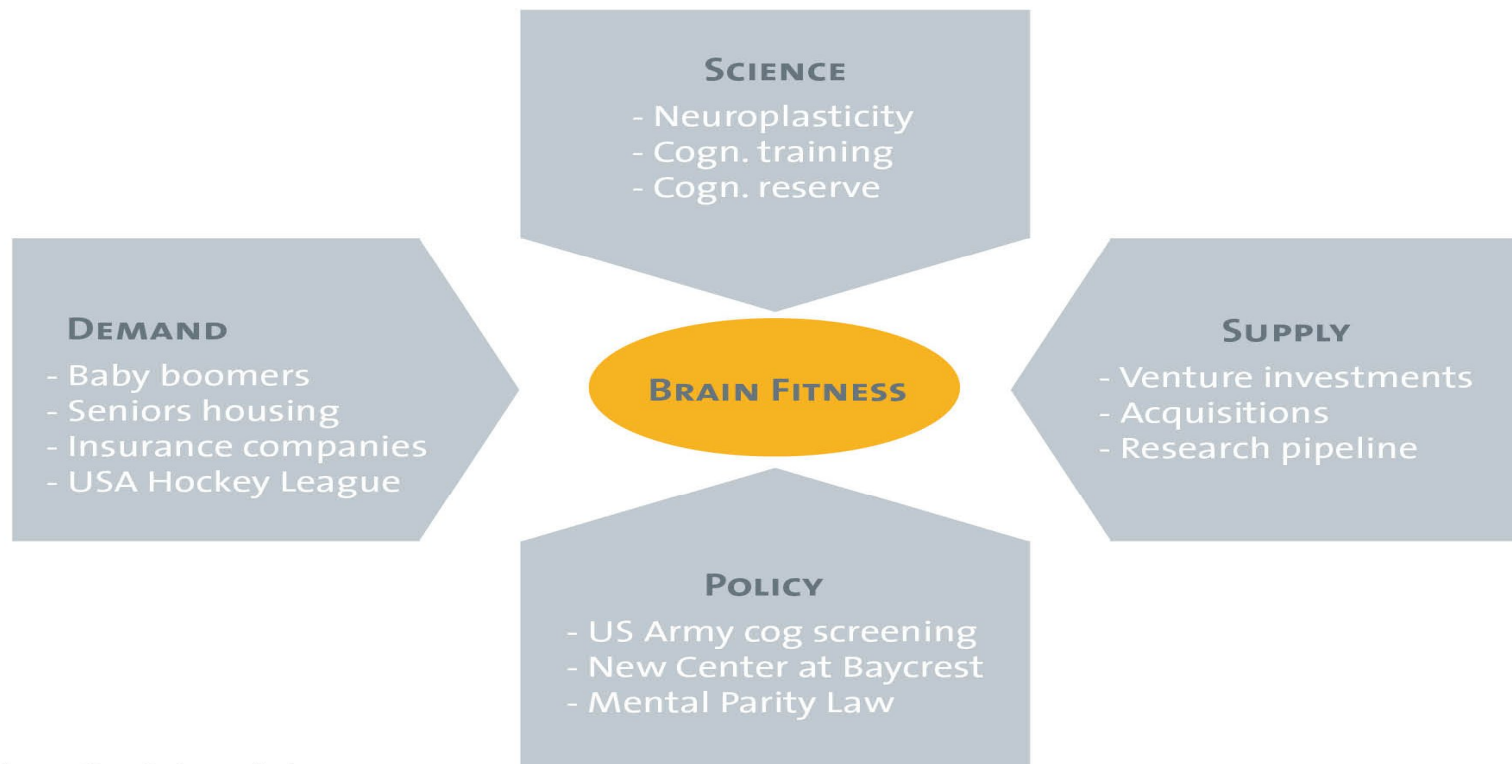
Non-invasive Technology can help

- Scalable, inexpensive assessments
- Targeted cognitive training

SharpBrains provides Informational/
Educational Resources

Cognitive Health and Brain Fitness Are Going Mainstream

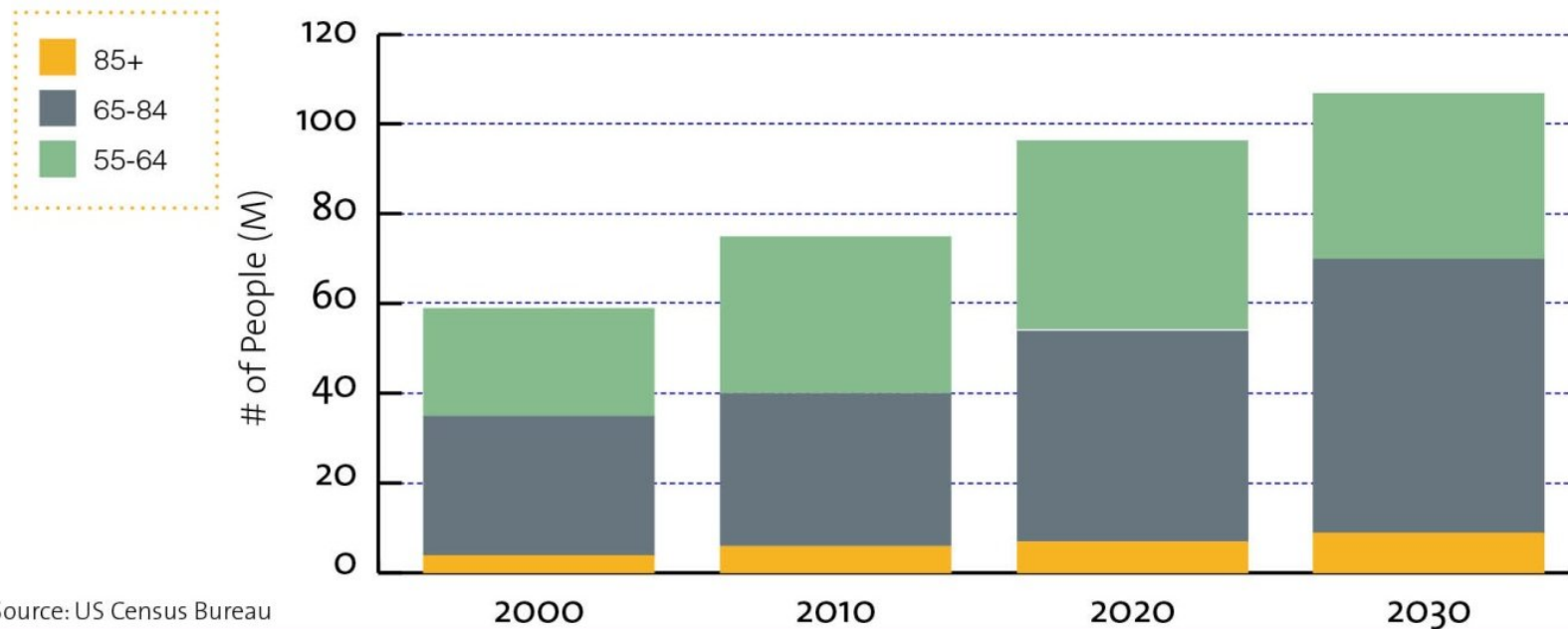
Figure 1.3: Brain fitness growth drivers



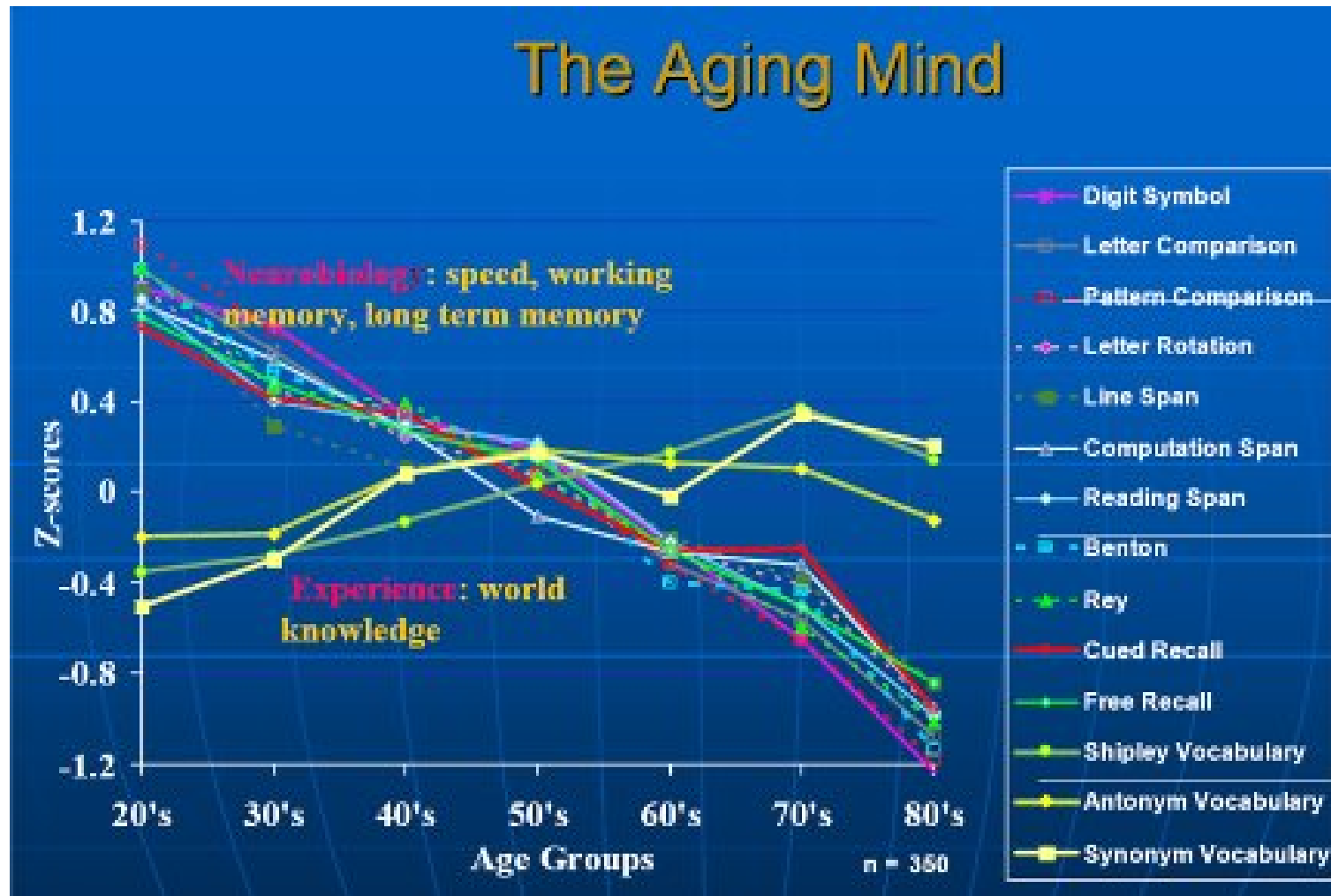
Source: SharpBrains analysis

The Aging Society Fuels that Growth

Figure 5.2: Projected US population growth over 55 years old (2000-2030)



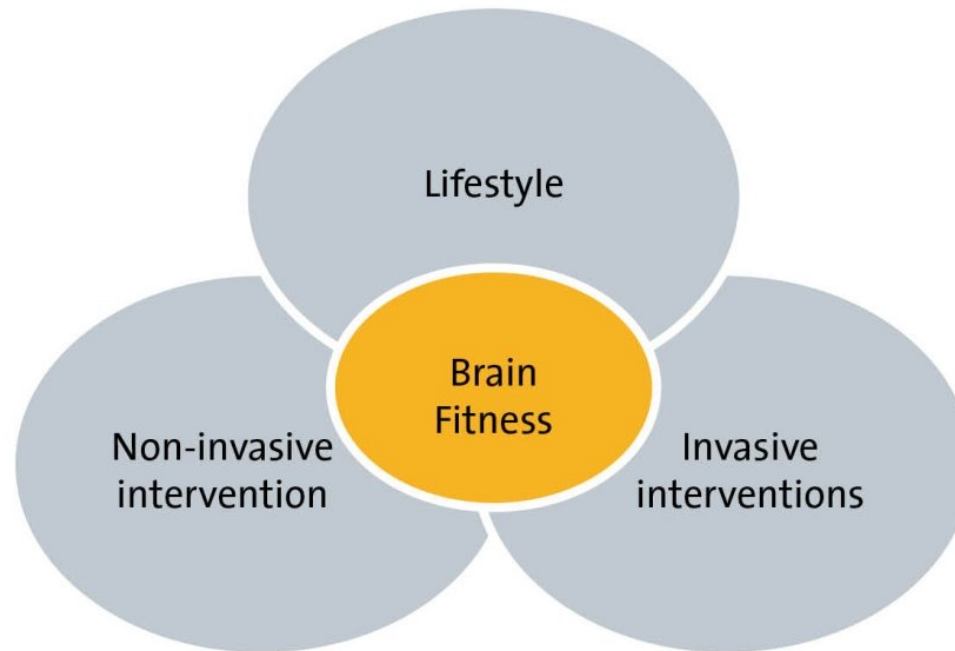
The Need to Identify Risks/ Cognitive Deficits



Source: Denise Park, Roybal Center Healthy Minds

A multi-modal Approach to Cognitive Health

Figure 1.4: Augmenting Cognition



Source: SharpBrains analysis

A growing number of tools in the toolkit

Type	Research Areas	Value Proposition
Invasive interventions	Drugs, stem cells, implants, explants, DBS, nutrition	Treat CNS indications
Non-invasive interventions	Software, VR, exercise, mindfulness, cognitive therapy, TMS, videogames, hypnosis	Achieve specific outcomes (similar to physical fitness paradigm), potentially becoming first-line treatment strategy
Lifestyle	Sleep, music, stress, cognitive reserve, interacting with nature	Maintain cognitive wellness, increase neuroprotection

Source: Frontiers in Neuroscience, Augmenting Cognition April 2009 Issue, Alvaro Fernandez

In summary

Cognitive Health needs to become an explicit dimension of Healthcare

- Identify Risks/ Cognitive Deficits: readmissions, adherence, driving safety, dementia
- Identify & Monitor Interventions: lifestyle, invasive, non-invasive

➔ Non-invasive Technology can help

- Scalable, inexpensive assessments
- Targeted cognitive training

SharpBrains provides Informational/
Educational Resources

Assessments: What they are/ What they are not

What they are

- An objective, independent measure and baseline
- Of several brain functions
 - Reaction Time
 - Short-Term memory
 - Executive functions
 - Divided attention
 - Sustained attention
 - (Emotional domains)
- A new tool in the toolkit

What they are not

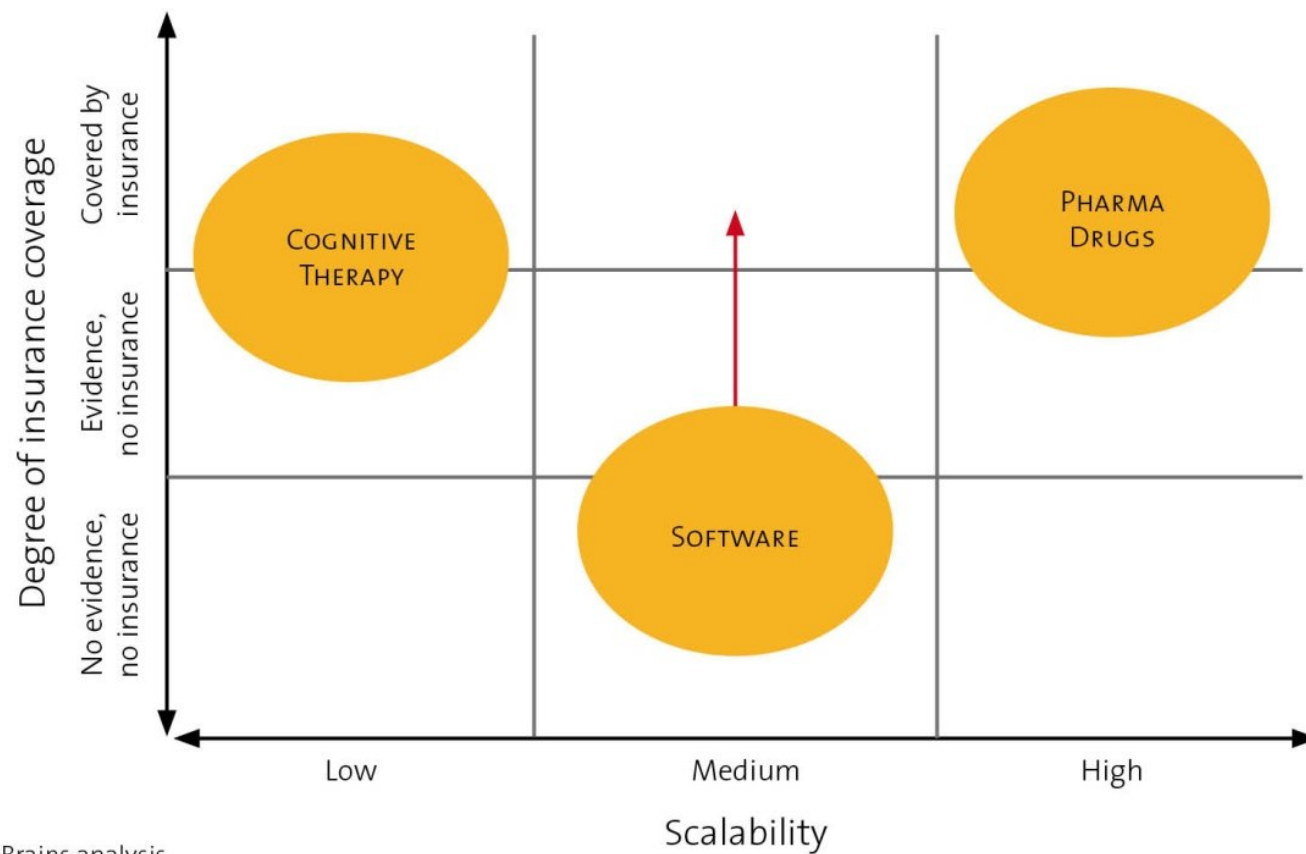
- A diagnostic tool
- A magic number (IQ, Brain Age)
- A perfect substitute to a neuropsychologist or the Mini-Mental

Who is using them and why

	Value	Data Points
Health/ Insurance	<ul style="list-style-type: none">➤ Quickly screen for problems➤ Inform diagnostic	<ul style="list-style-type: none">➤ OptumHealth - Brain Resource➤ AFA report
Sports/ military	<ul style="list-style-type: none">➤ Detect concussion-related problems	<ul style="list-style-type: none">➤ US Army policy➤ Common in US sports teams
Consumers?	<ul style="list-style-type: none">➤ For 59% (aged 42+), an “annual mental check-up” is Very Important	<ul style="list-style-type: none">➤ 2006 ASA Poll

The Potential of Computerized Cognitive Training

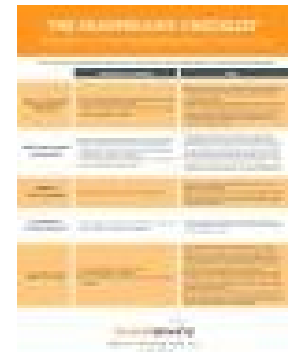
Figure 6.3: Comparison of intervention options



Source: SharpBrains analysis

Information needed to separate Reality from Hope from Hype (www.SharpBrains.com)

- ☑ 1. Are neuropsychologists behind the program
- ☑ 2. What peer-reviewed research supports it
- ☑ 3. Is there a solid Scientific Advisory Board
- ☑ 4. What are the specific benefits claimed
- ☑ 5. What cognitive function does it train
- ☑ 6. How many hours/ days per week to use it
- ☑ 7. Do the exercises teach something new
- ☑ 8. Always challenging
- ☑ 9. Does the program fit user's specific goals
- ☑ 10. No stress



In summary

Cognitive Health needs to become an explicit dimension of Healthcare

- Identify Risks/ Cognitive Deficits: readmissions, adherence, driving safety, dementia
- Identify & Monitor Interventions: lifestyle, invasive, non-invasive

Non-invasive Technology can help

- Scalable, inexpensive assessments
- Targeted cognitive training

➔ SharpBrains provides Informational/
Educational Resources

Future Directions 2008-2015 (Progress since 2008 in Bold)

- Brain Fitness goes Mainstream
 1. Increasing Focus on Brain Maintenance
 2. **Better Integration of Physical and Mental Exercise**
 3. **Public policy initiatives to drive adoption**
- Leveraging Better Tools
 4. **Wide Use of Cognitive Assessments as Baseline**
 5. **More and Refined computer-based programs**
 6. Low-tech options to play increasing role
- A Growing Eco-System
 7. Need for Professional Development
 8. **Insurance companies will introduce incentives**
 9. Transfer from military research and applications
 10. Corporate Wellness adds a Brain component

SharpBrains: informational & educational resources

- Market Research & Educational Resources: www.SharpBrains.com
- Don't develop, sell, endorse products
- Free Monthly eNewsletter
- Annual Market/ Research Report: The State of the Brain Fitness Software Market 2009 (\$1,295)
- Consumer Guide: The SharpBrains Guide to Brain Fitness (\$25)
- Contact: alvaro@sharpbrains.com

