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1. Introduction: The challenge and the opportunity

To live is to age. Age is a lifetime giver of experiences, knowledge and wisdom. But age takes too. After bringing us to a peak of raw ability, mental and physical, sometime in our late 20's, age begins to take from the accumulated credits for each. In the normal course of aging, we experience a gradual decline in raw cognitive ability as measured, for example, by tests of short-term working memory capacity and processing speed.

The ultimate, inevitable end to our life story is never in doubt. But a growing body of research provides intriguing, suggestive indicators that we might compensate for and counter declines in raw cognitive ability through methods that better leverage both information "out there" and our accumulated knowledge "in the head". In an ideal, methods combine so that the net effect of age is minimal and we remain active, engaged, self-reliant up until the very end of our biological lives.

What can be done, in the management of our information and, indirectly, in the management of our knowledge to come closer to this ideal of aging? This is a key question of importance not only for those of us who are or soon will be over 27 ☺ but also of importance for society as a whole. .

Our research gives special focus to the circumstances and needs of people who are in what we refer to as the *pivotal age group*. These are people roughly in an age range from 50 to 69. The age group is of "pivotal" importance for several reasons:

1. Many people of pivotal age have recently become or soon will become "empty-nesters" as children go off to college. Further, this transition may prompt a downsizing move to a smaller house or condo. Moves in general can be stressful but downsizing moves may be especially so as this relates to information to keep, archive or dispose.

2. At the same time, people of pivotal age are still typically the undisputed caretakers in their extended families. Many may have elderly parents to care for. Many still have teenage children at home. Some even have children "in transition" who, for example, may have graduated from college but don't yet have a job with sufficient pay to allow them to live on their own.

3. Retirement is a reality either to adjust to or to actively plan for. With a longer view, people must plan not only for wealth ("will there be enough money… for me and my spouse? … for my aging parents? … for my children to get through college and get started in life?") but also for health ("am I doing the right things with diet, exercise, blood pressure, cholesterol, etc. to stay active and self-reliant into old age? How best to manage existing conditions?"). Moreover, retirement and other transitions of this pivotal age prompt deeper reflections concerning *legacy* ("What happens when I die? Is my family provided for? Who gets what? Who gets my information? Is my information organized in ways so that others – or I too at a later point in time – can make sense of it? How will I remember? How will I be remembered?").

4. Points #1 thru 3 above point also to enormous amounts of information that people in the pivotal age group must manage. But as a piece of good news, people in this age group, especially after retirement, may have more time to invest in personal information management (PIM). Moreover, even as they contemplate old age, people of a pivotal age are also still young enough to take corrective action and make real change if needed including the mastery of new tools and techniques in support of better methods of PIM.

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5. Furthermore, and as a variation of the "curb cuts effect", methods of PIM that work for people in the pivotal age group may very well work in general for people as they see to better manage and gain benefit from their information..

The baby boomers

And then, of course, there is one more reason why now, perhaps more than at any other time, a focus on the informational circumstances and needs of people in the pivotal age group is warranted: This age group now corresponds almost exactly to the baby boom generation i.e., to the group of people born in the United States between mid-1946 and mid-1964 (Perez & Bell, 2008)

The baby boomer generation in many countries accounts is the largest generation so far and in the United States this cohort is currently just under 80 million (Perez & Bell, 2008). By 2029 as all boomers in are 65 or over, more than 20% of the population in the US will also be over 65 (Colby & Ortman, 2014).

In the US, the baby boomer generation is characterized by relatively high levels of education, high rates of separation and divorce, lower rates of marriage, and lower fertility (meaning fewer children) [16] with implications for the resources, financial and interpersonal, that they will be able to draw upon in later life [19] .

If boomers don't stay healthy as they age, then by strength of their number alone, they may push the medical care system in general and Medicare in particular to collapse. Experts anticipate the need for a larger workforce who can care for this aging population, as well as ways to make care more efficient (LeRouge, Tao, et al., 2014; LeRouge, Van Slyke, Seale, & Wright, 2014). Likewise, boomers who don't stay financially solvent may bring the social welfare system to collapse.

But the future could be much rosier. Boomers who can manage for health might continue to volunteer, contribute/donate, work as needed, and overall be productive, creative innovative members of society. After all it was members of this generation who brought us the PC, the Mac and the Web. The boomers were the first generation for which telecommuting was a significant factor in daily workplace practices. The boomers were the first generation for which a significant percentage of women as well as men have entered the workplace [19]

Looking forward, boomers may be especially willing and able to realize economies through greater self-management of their health care. Factors related to health care that have been identified as important in determining Baby Boomers' future impact on health care, include chronic disease and disability, their role as active consumers, and technology [11]. As active consumers, they may have higher expectations of the health care system but also that they will be actively involved in the management of their health care. [25] Baby Boomers are, therefore, likely to accelerate the movement toward patient self-management of chronic disease and health care in general [5].

This proposed strategic direction is predicated on the belief that boomers, armed with the right methods of personal information management, can avoid the gloomy "collapse" scenario and realize a rosier – dare we say? – "Aquarian" scenario.

A caveat, key questions and "stepping stones" to a solution.

The premise then is that information, as artfully managed through information tools (computer-based and otherwise) might usefully combine with a person's life time of accumulated knowledge in ways that compensate for and counter any diminishment of cognitive ability resulting from the gradual physical declines of normal aging.

But then a caveat and some key questions. We're talking here about information in all its many forms. Paper-based and digital. Bank and credit card statements (increasingly delivered in digital form). Medical forms and insurance claims. Photographs easily taken on a smartphone. Emails from several accounts. Facebook posts, Twitter "tweets", Snapchat "snaps", LinkedIn updates. On and on.

Information overload! And then also an utter lack of privacy as incoming information (phone calls, text messages, flashing advertisements) seem to find us wherever we are, even as we sleep. And the information we let out about ourselves and our families, as we purchase, as we search the Web or even

as we simply walk from place to place, is gathered by others to be used in ways we cannot control. Information now, in short, seems to be the source of as many problems as of solutions!

So then a basic, general question:

1. With well-intentioned efforts to better manage information, a primary question: **how to avoid making matters worse?** And then, how to combine information to make matters better? i.e., how decrease feelings that information is overwhelming and out of control? These questions apply in general to efforts to better manage information and to build supporting tools (including web services, desktop applications and various mobile and wearable devices) no matter the demographics (age-based or otherwise) of the people who are the intended beneficiaries.

And then several more specific questions:

2. What is the nature of the changes in cognitive ability, for the good and the not-so-good, that come with normal aging? Are these changes more or less equally experienced by everyone or are there large individual differences in people as they age? If the latter, what can we learn from those who are demonstrably more "successful" in their aging? Is successful aging a transferable skill?

3. What evidence exists to suggest that information, better managed, can compensate for and counter the negative effects of aging? What evidence exists to suggest that the benefits of aging, most especially the accumulation of knowledge, might be used to counter the negative effects of aging? From this evidence, what principles, what guidelines might be extracted to guide in future efforts both in training and in tool-building?

4. Going forward, where might research and development efforts be best focused? On which approach? As a "meta question", which questions are most amenable to exploration?

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