AI and robotics: the death knell for KM professionals, or our salvation?

Larry Campbell, Head of Financial Services Strategy, KPMG China
— September, 2016
“Gen Z” children who did not know a world without the Internet, World-Wide Web, or indeed smart phones, drive knowledge-consumption behaviour never seen before in history. They chase “millennials” with a sense of entitlement up the age ladder. Attention to detail is diminished, ability to absorb “multi-channel” information flows is increased, and a pervasive desire to “work for causes, not companies” is evidenced among the more cerebral.
A broadly even population density beneath the “baby boomer” generation carries a significant amount of relatively-well-managed wealth into retirement.

The Northern American picture is biased by the weighting of the US population distribution, which is evenly distributed at all ages until it begins to shrink from the age of 55, with a long peak representing longevity.

Hips of success: the “Gen X” generation represents 35% of total US income while making up a quarter of the population.
Canada 2016 - pop. 36,286,000

In Canada, the 45-65 age group dominates; the maturity of wealth management is in dramatic contrast with high-population developing Asian societies.

The UK looks podgy with bumps revealing post World War II baby boomers and 1960s immigration. As in North America, the size of the octogenarian-plus population carries with it rising health-care costs and provides an analytical model for a view of less developed societies over the next three decades.

India 2016 - pop. 1,326,801,000

A population weighted more in the direction of younger males in 2016 could see the beginning of a decline within 75 years as affluence and a move towards employment in professions has an effect on birth rates.

Japan 2016 - pop. 126,323,000

Japan (with one of the oldest demographics) displays population surges reflecting the post-war recovery and the boom times of the 1970s. The imbalance caused by the loss of young men in battle is dying out. One of the world’s most advanced societies, Japan has a rapidly aging population … … that will begin to decline rapidly in just the next 10 years.

South Korea 2016 - pop. 50,503,000

South Korea is following a similar set of trend lines to Japan, only slightly behind.

By 2050 the weight of support on the younger generation is considerable.

A concerted effort by the Singapore Government at the turn of the century to head off a shrinking population resulted in an encouragement of skilled immigration and the introduction of financial incentives to Singaporean couples prepared to have more than one child. A resultant influx of skilled immigrants from parts of Eastern Europe and China coupled with a rising birth rate has bolstered population levels.

Hong Kong one of has the most interesting population pictures. Between the ages of 25 and 59, it has a significant dearth of men. There are nearly 1 per cent more women than men between the ages of 30 to 35; and between 35 and 60, there are 5 per cent more females than males, significantly more other countries. There is a slight predominance of males up to the age of 50 but women then start to dominate as the men fade away.

China has a confused pyramid with birth surges at 25, 45 and 60 years of age, reflecting periods of historical conflict and birth irregularities caused by the one child policy. The period of the policy neatly corresponds with boys significantly outnumbering girls. China’s birth rate was genuinely out of control from the end of the War, with growth peaking in 1970, but future ageing means that the demographics will become more like Japan in the next two decades.
China 2030-50 - pop. 1.382b down to 1.349b

China by 2099 - pop. back down to 1 billion

The peaking of the Chinese population at just over 1.4 billion in 2030 is not nearly as significant as its rate of decline over the following 70 years … a drop of half a billion people by the end of the 21st century.

Key risks facing Asia’s banking sector

1. Vast debt-to-GDP ratios as populations age

1. China’s total debt is 255% of GDP; outstanding loans are at USD28 trillion
2. Japan’s public debt alone is 240% of GDP

2. Low-margin production and overcapacity across Asia

- In China …
  Heavy industry is worst hit
  Profit margin (%)
  Followed by …
  Hyper regulation + Currency risk

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Into this world, we welcome our Robot Overlords ...
Shrinking demographics
# The future wave

<table>
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<tr>
<th>100 yrs</th>
<th>35 yrs</th>
<th>15 yrs</th>
<th>5 yrs</th>
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<tbody>
<tr>
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<td>Information Systems</td>
<td>Internet Systems</td>
<td>Cloud and the Internet of Things</td>
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<td>Process Improvement</td>
<td>Cost Arbitrage</td>
<td>Big Data &amp; Analytics</td>
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<td>Smarter Enterprise</td>
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<td>Re-Engineering</td>
<td>Integrated Enterprise</td>
<td>New Leverage Model</td>
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Labour arbitrage changes

Wall Street Journal, July 13, 2015

The shrinking Indian outsource industry

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<th>2014</th>
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<tr>
<td>Deal Value</td>
<td>$120.4 billion</td>
<td>$206.8 billion</td>
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<tr>
<td>Deal Volume</td>
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</table>

Revenue growth

50%
Massive impact

WAVE 1: LABOR ARBITRAGE

- 15 - 30 percent
  Cost take out

- Model is scalable to the extent that you can scale labor

- Custom/complex, legacy: “Your Mess for Less

- Access to low cost labor necessary to provide continuous value

- Revenue/profit correlated to people

WAVE 2: LABOR AUTOMATION

- 40 - 75 percent
  Cost take out for relevant functions

- Model is scalable, and is largely independent of labor growth

- Transformative – new way of doing business

- Access to “rocket scientists” who can codify manual processes

- Revenue/profit not correlated to people

Digital Business Models
- Cloud
- Mobile
- Social
- Data/Analytics
- Cognitive

Massive impact
Robotic process automation

100 Million
The number of global knowledge workers who could be impacted by RPA by 2025.
Investment in artificial intelligence (AI)

Private investment in AI has grown from $1.7 billion to $14.9 billion and is on track to grow nearly 50 percent year-on-year in 2015 alone.
Shifting to digital labour

Transformation of business models

Cognitive Technology and Robotic

Digital labour
The advancement of cognitive technology

- Advancements in Process Automation
- Digital Labor
- Human Labor
- Cognitive Technologies

Advancements in Machine Intelligence
The evolution to our overlords

- **Generation 1:** Tabulating Era
  - 1890
  - Machine Counting
  - Punch Cards

- **Generation 2:** Programmable Era
  - 1960
  - "Tell Me What to Do"

- **Generation 3:** Cognitive Era
  - 2015
  - Interactive Learning/Hypothesis Generation

The world of big data: 2.5 billion gigabytes of data each day, 80 percent of which is unstructured.

We are here: that "moment of opportunity"
Just a few examples

**IBM**

*Watson*, IBM's cognitive system, is expert at harnessing data, gleaning insights, and making fast, confident decisions. Organizations are using Watson to help doctors evaluate treatment options and insurance agents assist customers.

**IPSOFT**

*Amelia*, IPSOFT's cognitive knowledge worker, interfaces on human terms. Deployed almost instantly in the cloud, organizations hire her as a super-productive call center operator tasked with responding to customer questions and service requests.

**WIPRO**

*Holmes* is Wipro's artificial intelligence platform, designed initially for the enterprise IT space. It helps automate industry-specific business processes, such as managing help desk tickets, categorizing issues, assigning tasks, and automating resolutions.

**Tata Consultancy**

*ignio*, Tata Consultancy Services' neural automation platform, optimizes enterprise IT operations. ignio can run a wide variety of IT processes autonomously, while its "what if" modeling capability assists CIOs in scenario planning.
A sustainable labour alternative
Projected US robo-advisors assets under management

Between shifts from traditional advisors and new investors USD2.2 trillion by 2020 from existing and new investments will be managed by digital advice platforms.

Source: Robo Advising: Catching up and getting ahead, KPMG International 2016
Run for your life ... but in which direction?
Dr Macdonald, being human, and working with our overlords
Nothing in the world compares with the demographic profile of the UAE, with the predominance of the male population between the ages of 25-55 literally being off the charts. Mortality takes its toll shortly afterwards.

Africa rising: throughout the continent, demographic profiles are almost exactly the same … near-perfectly pyramidal. Longevity is increasing even as birth rates continue to rise steadily through to the end of the 21st century, supplying the world with the greatest source of labour increase.
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