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From Telematics to Personal Health Chips

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Deloitte

28 November
2014

Agenda

- Introduction
- The Telematics Journey
- Lifestyle Factors
- Tech Trends
- Wider Insurance Market
- Q&A

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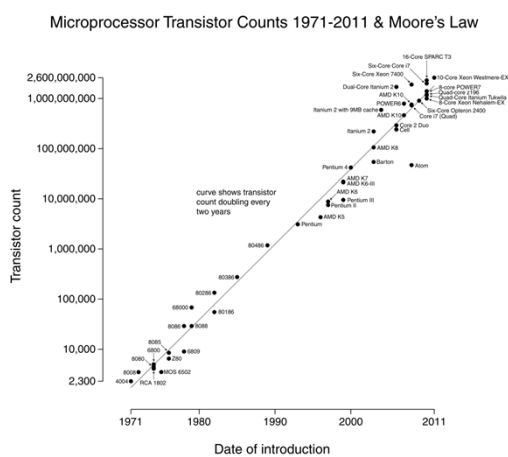


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Introduction



Moore's Law



“ The number of transistors in an integrated circuit tends to double every two years”

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The Internet of Things

- 10 years ago - 400m devices connected to the internet.
- Now - 8 billion.
- In 10 years time - 50 billion?
- A trillion soon after?



What do these rapid advances mean for the Insurance Industry?

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The Telematics Journey

Past



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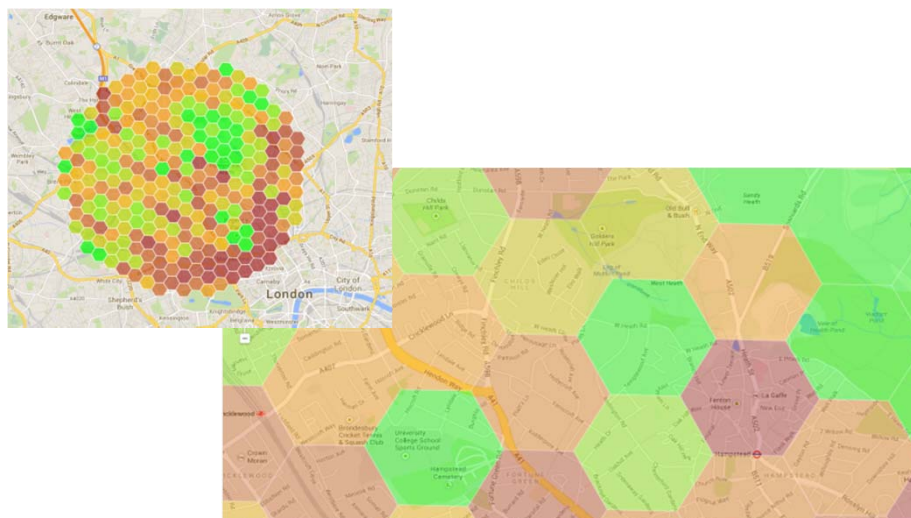
Present



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Future?



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The pace of change...



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Lifestyle Factors



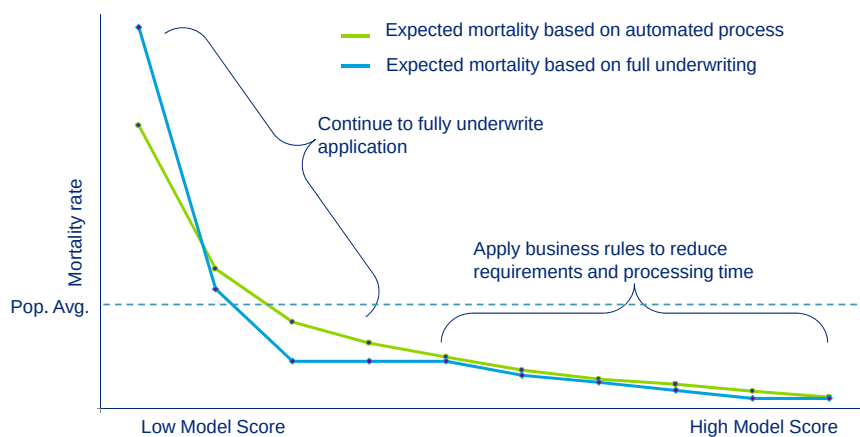
“Lifestyle” protection



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Lifestyle factors and mortality risk



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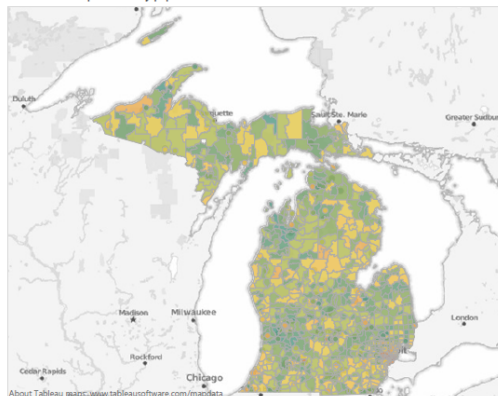
Lifestyle factors and morbidity risk

Deloitte.

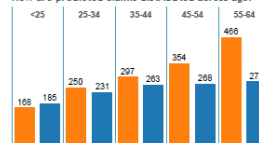
Michigan Health Risk Analytics Model

Gender
AllModel Type
Depression/MentalAge
AllFederal Poverty Level
All

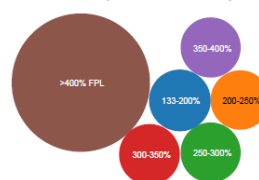
What is the risk profile of my population?



How are predicted claims distributed across age?



What is the sum of predicted claims PMPM by FPL?



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Commercial Property



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Motor Claims



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Legal and ethical issues



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Tech trends



Mobile devices and wearable technology

Mobile devices have seen huge consumer take-up



*Should we take note of
"wearables"*



"Charge me"
"Track me"



How will the next image look?

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The development of open health platforms

Apple Health app
and HealthKit



How should we make use of these developments?

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Remote health monitoring



- Sensor mats
- Monitors presence, sleep pattern, heart rate, breathing rate
- No wires
- Data collected is transmitted an app



- Monitoring in the home
- Clinical and non-clinical measurements via sensors
- Information made available to caregivers via an app



- Remote diagnosis via "robot"
- Video-conferencing
- Controlled by an app

What's next? "Health telematics"?

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Genomics

DNA sequencing technology is moving 5 times faster than Moore's Law:

Time	Cost
1 st Genome sequencing	£3bn
2 nd	£500m
3 rd	£50m
4 th	£14m
...	...
Today	£1000
In 2 years	£100?
In 10 years	1p?

12 years



A fluorescent cat?

What happens when consumers can sequence and assess themselves?

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Cognitive technology

- Natural language + Hypothesis generation + Dynamic learning
- On potentially vast amounts of unstructured data



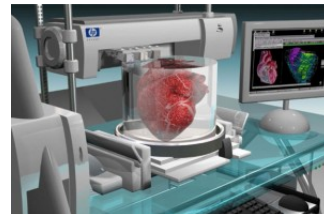
IBM's Watson beats the best two *Jeopardy!* players on the US TV game show

How far will self diagnosis go?

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3D printing



- Commercial 3D printer is currently £13,000
- Expected to be £1,300 by 2016
- Printed guns and car parts
- Bio printing - Can currently print jaws, knees, hips, ears
- 3-4 years from printing livers, kidneys and complex organs.
- 3D printed vertebra inserted into boy's spine



How far will self treatment go?

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Robotics

“10 million British jobs could be taken over by computers and robots in the next 20 years”

Daily Telegraph – 10th November 2014

Source: University of Oxford and Deloitte study



What will happen when the jobs go?

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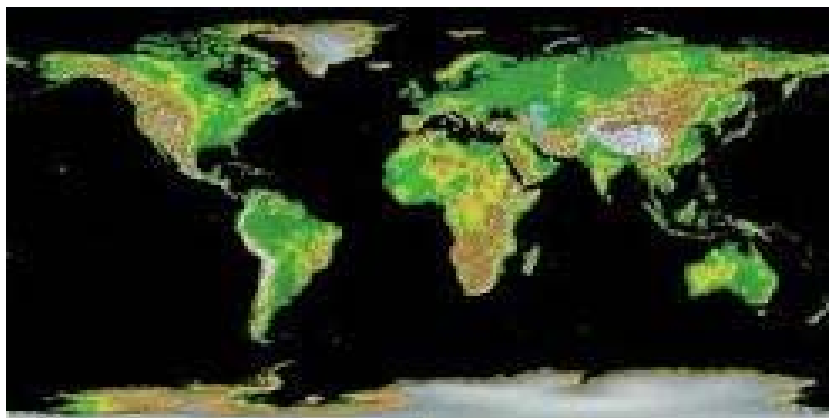


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Wider insurance market



Impacts of wider technology



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Questions

Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.

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