

EUREKA GlobalStars - Singapore Call

16 July 2020

Project Nightingale

Extending the independence and freedom of an aging population.

Mike Lawton: director & co-founder

About Us

- Oxford Dynamics (OD) is a new company co-founded **by Mike Lawton & Shefali Sharma** in Sept 2019
- OD is Mike's 4th technology business, with the largest success to date being Oxford Space Systems - one of the UK's highest valued space-tech start-ups
- The company is developing a modest range of intellectual property with funding support from Innovate UK
- OD is cash-flow positive whilst developing its IP. Achieved via consultancy to a number of space sector companies – might consider equity funding in the future
- Expertise covers RF, electro-mechanical, computational fluid dynamics (CFD), additive manufacturing and electronics
- OD brings together a range of like-minded, award-winning engineers and technologists who have worked together for several years. All have a track record of successful delivery with government, aerospace and space projects



The Innovation background

- **Project Nightingale** builds upon **smartcellar**, a previous successful remote data collection and processing business by Mike for the beverage drinks industry
- **smartcellar**: proprietary sensors were retro-fitted to drinks dispense taps (Heineken, Guinness, Coke etc) and key product quality data recorded every time a drink was served
- **smartcellar**: data was collected overnight via custom GSM modems to a central server and using machine intelligence, noisy data was mined to produce visual, actionable daily management reports

Embracing the data revolution



I recently witnessed a group of four men in a busy managed house operated by a UK national chain. The group walked out leaving behind branded pint glasses over half full, with one of the group saying loudly, 'That was the worst pint I've ever tasted!' The chance of a repeat sale for this bar was clearly zero and perhaps potential damage to the brand. How can this happen? Why, in the age of strict quality control can consumers in the on-trade be subject to a widely differing experience of drink quality?

by Mike Lawton
Smartcellar UK

Figure 1: An inline 'intelligent' flow sensor designed specifically for beverage dispense monitoring.

Some might shrug their shoulders, say it's just the way things are and accept that a variable customer experience is the norm. But you would be hard pressed to find a national coffee and customer means. Rel are the remote technic produ remote from i be mo

Arguably the toughest task faced by a beverage monitoring system is that of fluid recognition. Cost points dictate that for a sensor to be commercially deployable at all dispense taps in an outlet it must use low cost sensing techniques. Recognising the difference accurately between water, line cleaner, gas, beverage and fob is a tough enough task, but dial in the 'noisy' real world conditions of temperature and pressure changes, product aging and occasional sensor abuse and you can start to appreciate the size of the task. Data from a single sensor, whilst of a certain value, becomes significantly more powerful and accurate when placed in the context of a large global pool of data from similar sensors. Using internet connected server technology, it is possible to construct a system that automatically self-improves its accuracy with the more data it has available for reference. This complex machine intelligence technique combines traditional

(Article available upon request)

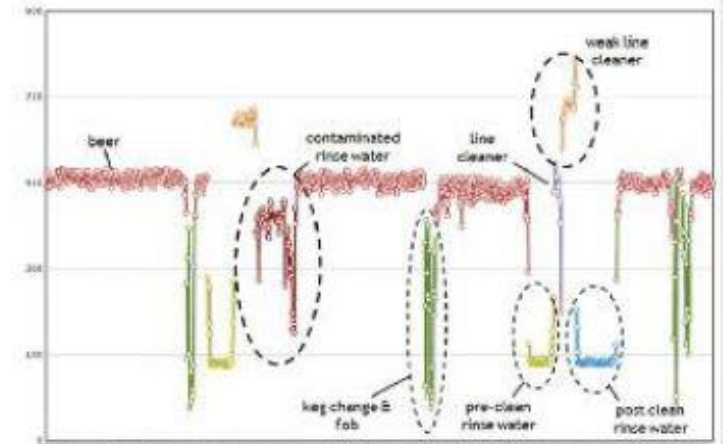


Figure 2: The real world is noisy and complex. This graph shows a combination of signals from an intelligent flow sensor that has undergone automatic fluid recognition using web based machine intelligence.

Prevention by early detection

- The elderly tend to be creatures of routine; rising & retiring at roughly the same times daily, dogs walked and shopping etc obtained against predictable schedules
- These routines establish a baseline of normal behaviour
- Deviation from baseline can be used to detect the early onset of illness and conditions being denied to those that care about the person
- Minor conditions & illness can therefore be detected and early intervention provided before more expensive or emergency treatment / transfer to care is required
- **Nightingale** offers significant preventative cost savings and provides a unique peace of mind service



Project Nightingale

- **Nightingale** leverages the principle of a proprietary remote data collection module → transfer of raw data to a central server → data turned into information of value via the use of proprietary machine intelligence algorithms
- A highly scalable, subscription based service is envisaged that serves to keep an aging population in its own home and provide re-assurance to those in sheltered housing and those that care for them
- Target customers:
 - Local housing authorities & trusts
 - Local care authorities
 - Private individuals concerned for relatives

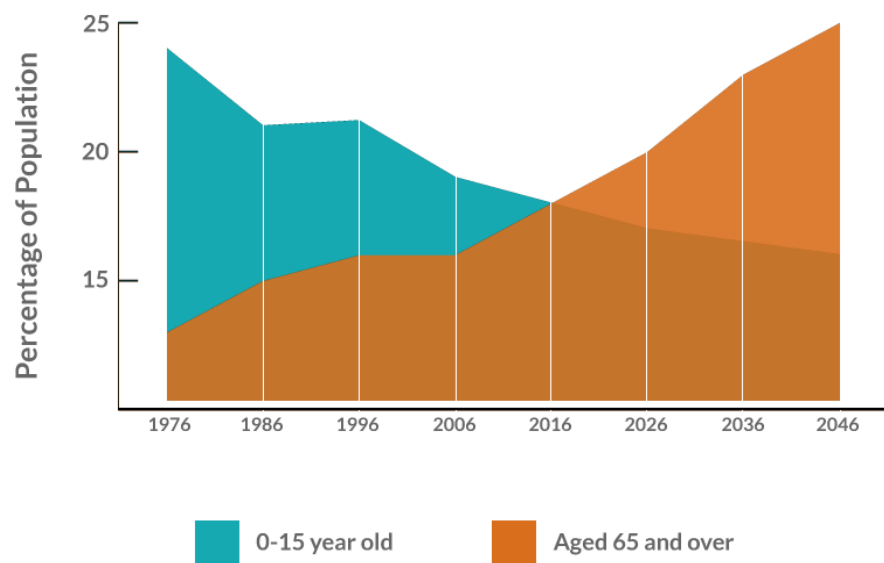


Details will be released under NDA to project partner

Relevance to Singapore and UK

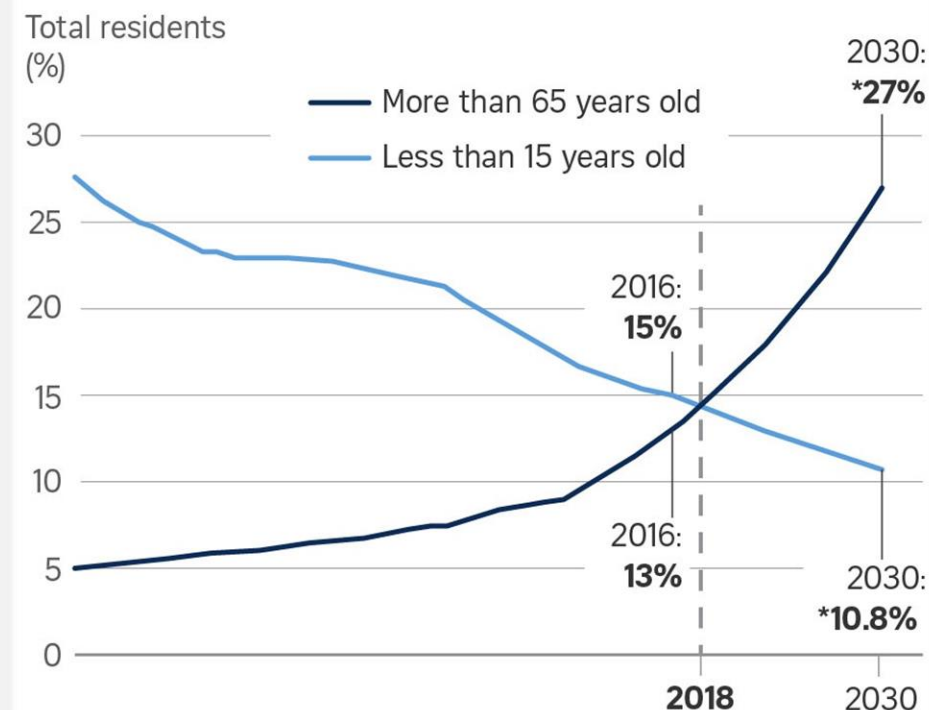
The UK, Singapore - and rest of the world - are increasingly needing a new range of technologies and services to deal with an aging population. Allowing people to remain in their own homes as long as possible is better for the state, the individual and those that care for them.

UK's Aging Population over 65 – the next 25 Years



Source: UK Office for National Statistics

Singapore's resident population



NOTE: * UOB's forecast.

Sources: SINGAPORE DEPARTMENT OF STATISTICS,
UOB GLOBAL ECONOMICS AND MARKETS RESEARCH
STRAITS TIMES GRAPHICS

Project scope and roles

AIM: to achieve a prototype demonstration system that comprises several remote data collection hubs, back-end server and web-based user interface, and possibly a smartphone app for the demo.

Oxford Dynamics (Project Lead)

- Overall Project Management
- Remote data collection hub development & build
- Overall system / service specifications
- Securing of UK field trial

Singapore Partner

- Local Project Management
- Develop and support the back-end, i.e. a cloud-based server using MI to deliver daily reports
- Securing of field trial in Singapore



What we're looking for....



An agile, entrepreneurial and commercially-focused partner that shares our approach to business and product development






A partner that can develop and support the back-end: a cloud-based server using machine intelligence to deliver daily reports






Assuming project success, a partner that would be open to exploring a future joint-venture to commercialize the service in Asia

Thank You!



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