

Tommy Flowers Institute Conference, October 2019

“Healthy Longevity”

How do we create and live our healthiest life from the start all the way through to older age?

What does healthy longevity look like?

What technology Apps can help us with our positive emotions?

What is the role of tech in reducing social isolation of our older generations?

Just a few of the questions explored at the recent Tommy Flowers Institute conference held at Adastral Park, looking at Healthy Longevity and the technology play for amongst other things, improving the quality of life. Attended by students, academia and local industry, including Innovation Martlesham.

“BT are keen to bring technology to bear to the agenda and be part of the technology solutions to assist healthy living. Our aim is to bring to life the impact BT brings to everybody and how it touches and what makes our everyday life work”. Lisa Perkins, Adastral Park and Research Realisation Director

You can view the Conference video and background to Tommy Flowers Institute here:

<https://atadastral.co.uk/tfi/>



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Nick Khan, Strategic Director East Suffolk Council “Care Home Tech”

Nick Khan, Strategic Director East Suffolk Council, described work they and other partners (including BT), are engaged with at Mills Meadow care home in the nearby town of Framlingham.

The project is trialling out new technologies to enable residents to be more independent and for staff to be freed up and therefore spending more time with the residents. All this links into a wider project to turn Framlingham into a Smart Town.

The project is looking at what the problems are that need solving and then exploring the technology to put in place and to discover new opportunities.

Nick described a few technology spaces they are exploring:

- Virtual Reality could be used to take people to different environments like deep sea diving! Making life more fun!
- Could Skype be used in-house instead of trips to the doctor or hospital?
- Could hubs be potentially used to detect if someone has fallen over?
- Wearable kit onto clothing which triggers an alarm or helps detect the individual if they wander off the premises or get lost. Especially useful for those with dementia.
- Enhanced robotics which are enhancing mobility.

And as a result – can these technologies help make lives better? Lives healthier? Become more active and more independent?

If anyone is interested in joining the collaboration, contact us via tommy.flowers.institute@bt.com

East Suffolk has an aging population:

~250,000 in the region

The largest group are in the 70 – 74 age bracket

More than 1 in 4 are aged 65+

9,610 are aged 85 or over

This is likely to treble in 10 years time



Tina Woods, CEO Collider Health

“The hype, the hope and the how of living longer better”

Tina Woods, CEO Collider Health provided an in-depth look at “The hype, the hope and the how of living longer better”, describing a diverse range of working groups involved in looking at this, of which she is involved.

Tina highlighted that the Longevity Economy is growing fast – some amazing technologies and sciences now available and being developed.

<https://aginganalytics.com/advancing-financial-industry-longevity-agetech-wealthtech/>

Tina’s focus is looking at the Social Potential, where scientific progress is staggering.

Tina explained “The 9 Hallmarks of Aging” where a lot of work is taking place. You can read the research report here:

<https://doi.org/10.1016/j.cell.2013.05.039>

By getting the Commercial potential right, we could reimagine the ways we can improve our lives.

Looking at the UK Longevity Economy – the ecosystem of the UK Landscape – Tina said the UK have a really good ethical approach. Yet it’s still tinged with some negativity.



Interesting reading: “The Health Gap – the challenge of an unequal world” by Michael Marmot. Explores the root causes of the health gap and what is known as the “Rotten-life-syndrome”.

So What Are We Going to Do About It?

Tina described what the All Part Parliamentary Group for Longevity are looking at to improve the life expectancy gap in the UK, listing 8 key themes. A key part of their mission is to secure Britain’s place as a global leader in longevity underpinned by innovations in science, technology, business and public policy. Read more here:

<https://www.longevityinternational.org/appglongevity>

Data Explosion and Convergence

The session also touched on understanding patient data and using that patient data to improve health and care. Suggestions are to spend more on the medical factors ie increase the 10% currently being spent.

We explored the “Blue Zones” – these are areas around the world where people are living to 100. Key to understanding why they are living to 100. California; Costa Rica; Italy; Greece and Japan – in these areas, you are valued as an older person – valued members of the community.

Closing Comments:

“Social connections and use of technologies is so fundamental”

Ikigai – a reason for being; Healthy food; Active lifestyles

In the UK, the level of inequality between the least and most deprived Communities is significant – the “gap” is 9 years for life expectancy and 19 years for healthy life expectancy...” Office for National Statistics

*Interesting Read: Well-being, Gov.UK
[Advancing our health: prevention in the 2020s – consultation document.](#)
Published July 2019*

Interesting read: [“Falling Life Expectancy Becoming The “Climate Change” of Health”](#), Tina Woods, New York Times

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Verity Jolly, Director of patient services St Elizabeth Hospice

Verity Jolly, Director of patient services at St Elizabeth's Hospice talked about the hospice work and the environment of a hospice. A warm welcoming place which provides day care and rest bite care for people living with progressive and terminal illnesses in Suffolk. St Elizabeth Hospice provides specialist support wherever it is needed – not just at the hospice but in your home and in the community.

St Elizabeth Hospice is an independent charity which provides its services free of charge. Relying heavily on the support and generosity of the local community, it needs to generate £10.5m toward which they receive an NHS grant of around £2m. The remaining costs are generated through fundraising and donations.

Read more at:

www.mariecurie.org.uk

www.stelizabethhospice.org.uk and

www.stelizabethhospice.org.uk/noplacelikehome



Rob Collingridge, CEO Smartisant “Intelligent Assisted Living for all”

Rob Collingridge, (CEO Smartisant) www.Smartisant.com , provided a fascinating insight to Smart Home Technology. Rob explored how do you take smart tech and make it relevant and useful to everybody. Does the tech improve the quality of life?

An in-depth look at Rob’s own Smart Home provided a fascinating insight into the tech he has installed to deliver intelligent assisted living in a more sustainable and cost-effective manner. An example was discussed, such as visibility of all the data from all the sensors in the house, which collates useful information about the room environment. By using the data you can change the way the technology behaves and therefore make the best decisions.

The technology can drive the home such as the heating and lighting when you are away. It can also model people – their roles and permissions within the house and ownership such as networked devices! And heating temperature gages can also be modelled which turns into an early fire warning system. All in all, a more user-centric approach, providing a greater user experience for everyone in the house.



“The smart home is not about technology, but what that technology can do for you”

What is Luxury? “Providing something for the customer before they ask for it”



What about encouraging behavioural change?

Three opportunities were explored:

Connected Bed - how can this be applied to telecare/assisted living technologies? The bed captures statistics such as how long the person is in the bed for? Have they got up? Have they moved? It could also be used in the hotel industry – what beds are still occupied, therefore the rooms aren't ready to service etc.

Extractor Fan - how the humidity sensor could be used to decide when the fan should be on and not automatically come on, as so many currently do. This is a real “zero touch” user experience and saves energy.

And finally, a Flood Sensor. A “fit and forget” flood sensor for new builds and retro-fit to older homes. It has a wired sensor and requires no batteries. It can be installed in inaccessible locations and requires no maintenance, with a life span of >25 years.

Read more background, research & insight at www.smartisant.com

A real, lived-in contextual smart home in action: https://twitter.com/smarterest_home

Interesting news and articles: <https://facebook.com/smartisant>



Dr Hazel Harrison, Clinical Psychologist and founder of Thinkavellana

“How can Technology enhance our mental health as we age?”

Hazel started by discussing how important it is to start discussing and putting into place, the tools for Wellbeing early in life. A recent schools Newsround event she presented on, attracted over 4,500 schools. View the recording here: <https://www.bbc.co.uk/teach/growth-mindset-and-wellbeing-lesson/z4g4382>

Hazel discussed one quick and easy Model for Wellbeing, we started with an acronym: **PERMA**

POSITIVE EMOTIONS – we need emotions, including being scared, angry and fear. What’s the ratio - where is the tipping point? Rating 3-1 positive/negative. 5-1 feeling very well. Beyond 11-1 = Disney film! By showing gratitude, this can help people feel more positive motions.

Existing App – “Grateful: A gratitude Journal”. Focus on what’s working well. Boosts our mood.

ENGAGEMENT – this is the stuff that you do, that makes you lose the sense of time, such as cooking; sport; surfing; reading; meditation. This does not include TV! This is a break away from stuff whilst awake.

Existing App: “Buddhify” – where you click on one of the colour wheel tags such as Going to Sleep; Stress & Difficult Emotion.

RELATIONSHIPS – using the tech to help you engage as if in person. Hazel talked about the Harvard longevity study by Robert Waldinger. Using tech to enhance relationships rather than hinder.



MEANING – a sense of purpose. What is it what we are trying to do? How can technology give things a meaning of purpose? “Emily Esfahni Smith – paths to meaning”: feeling like you belong to a tribe that values your contributions and provides opportunities for frequent pleasant interactions.

Closest App is “Action for Happiness”. – Acts of kindness to others; aspects of self-care. Gives a sense of meaning.

ACCOMPLISHMENT – The feeling you have the power to achieve and be successful in the areas for you. Believing that we can improve our abilities and getting better at it.

Closes App is “polar app” - celebrates the small steps we’re achieving.

By trying to find time for the five steps - not necessarily all five in one day – you can really improve your sense of well-being.

So What’s Next?

One App is “CompanionMx” – for those with depression. It will listen to your tone of voice. Could there be technology that prompts you to do things that picks up your wellbeing such as reminding you that you haven’t seen friends in a while?

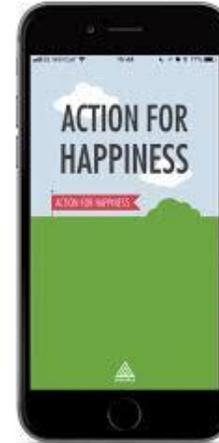
Ways to Connect: www.thinkavellana.com

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“Taking care of your body is important, but tending to your relationships is a form of self-care too. That, I think, is the revelation” – Robert Waldinger

“More important than believing in our abilities, is the belief that we can improve upon them”, Professor Carole Dweck



Katie Tyrrell, Research Associate at University of Suffolk: “Transitions and Healthy Aging”

Katie Tyrrell – a Research Associate at the University of Suffolk, (UoS) discussed a research project she led at the UoS, evaluating physical activity and the impact upon activity levels and well-being in Suffolk. Three areas were discussed: statistics within the Suffolk region; physical activity interventions and well-being and addressing social isolation.

Katie highlighted that there is a beneficial impact on anxiety and depression if people are more active. Inactivity is one of the top 10 causes of illness. Suffolk has a low physical activity level and don't meet the recommended 150 minutes a week. The estimated total cost attributable to inactivity is £134m per year.

In Suffolk, the population over 65 is 169,800 and less than half of these participate in activity. Therefore, there is an increased likeliness of physical illness, mental ill-health and isolation. Looking at the life transition from working life into retirement, it's been flagged as a potential risk for physical and wellbeing.



Katie explained in details the various trials of activity interventions for various participant age groups, from 12-13 and upwards to the 58-84 age groups. Some real positive messages came out of the various age groups.

The need for social support is paramount - having people to speak to can help mental wellbeing. A shocking statistic in Suffolk, is that 15,000 people don't speak to anyone in one month. And the total population aged over 75 predicted to live alone by 2035 is expected to rise by 70%.

So in conclusion from the research study, an incremental increase in self-reported wellbeing as well as positive influences on social connection and group identity reflected across participant narratives. There was an incremental increase in levels of physical activity and both older adults and young people were more likely to feel connected to their local community after participating in the intervention.

So what's next? Social Prescribing or community referral? An NHS Long Term Plan and "Integrated Care" recommendation has been made.

And finally, Katie discussed what is the role of tech in reducing social isolation of our older generations? Including technology to monitor in the home and assisting older individuals so they can live in their own homes for longer.

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Read the research papers here: <https://www.uos.ac.uk/people/katie-tyrrell-0>

"I think it's a bit of a social bond, everyone is doing something so you feel as if you're participating which is good for you and you don't really realise you're exercising." 60+

"it is actually quite satisfying when you get a couple of things right and then you think, you feel a bit more confident" 60+

"We've all done it since the beginning so we're all progressing together" 16-19 yrs

".. everyone in the community comes. Without this session, we wouldn't know who they were, they'd just be a random person in the street" 16 – 19 yrs



Nathan Berkley, CEO Muhdo Health Ltd

“If you can’t measure it you can’t improve it”

Nathan Berkley, promoted how Muhdo work with people to create personalised preventative healthcare – from top sports athletes to people keen to live a healthier lifestyle.

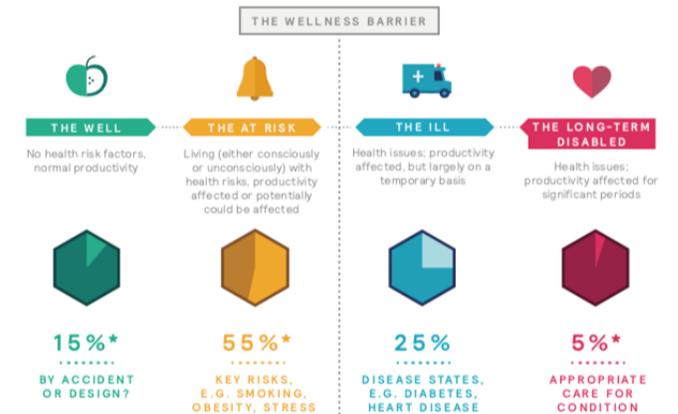
Muhdo (an Innovation Martlesham cluster member), helps you track how your lifestyle affects your gene expression. By providing the World’s first Epigenetics tracking product, it provides you with the understanding of how your genes behave. You can affect your epigenetics through your lifestyle such as diet, exercise, stress and smoking – over time, your genes can be turned off or turned on by how your life your life, affecting health and fitness and influencing disease and illness prevention.

The science behind it: Epigenetics is the process by which the DNA methyltransferase (MTase) family of enzymes catalyze the transfer of a methyl group to DNA. When the methyl groups are added to the DNA molecule, it can change the activity of a DNA segment like a mutation without changing the sequence inherited from parents. Although your DNA does not change, MTase disrupts the activity of a DNA segment so it behaves in a different way, either amplifying positive change or mitigating negative potential.



MUHDO
WWW.MUHDO.COM

AT ANY ONE TIME, INDIVIDUALS IN THE WORKING POPULATION FALL INTO 4 CATEGORIES:



Can Epigenetics play a role in disease prevention?

Epigenetics maps and monitors methylation sites in the body and this includes monitoring them for signs of ill health.

Nathan discussed new areas this science is being used: cervical and liver cancer; breast cancer; Alzheimer's; mental health; artery calcification. Working closely with Toronto University

By providing a simple DNA saliva test, it will show you how to live a healthy life optimising the genes you were born with. A regular Epigenetic saliva test measures the impact of your environment and lifestyle choices on your biological age and internal health throughout your life.

Looking at diet and nutrition, Nathan explained how our diets and foods which we choose to eat each day, are fundamental to our health and longevity. If minerals are missing from your diet then none of the vitamins and essential fatty acids in your food will have a beneficial effect.

Once your DNA has been analysed, you receive the data on your Muhdo App. Broken down into sections such as Diet/Weight Concerns; Vitamin Deficiencies; Physical Health Risks and Sleep Issues etc. You are provided with a meal planner; workout planner and injury prevention guidance to help you reach your goal at anytime.

Data Security

Data Security is extremely important to Muhdo. Personal data and DNA data is stored separately in 3 locations, with the end user's alphanumeric Kit ID being the link between personal and DNA data.

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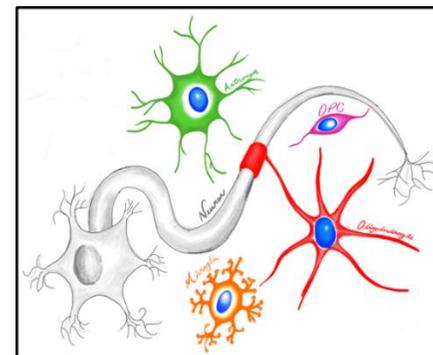
Myfanwy Hill, University of Cambridge Wellcome-MRC Cambridge Stem Cell Institute

Myfanwy Hill (Post Doctoral Research Associate, University of Cambridge and a member of Pembroke College, Cambridge) gave an in-depth session looking at “Getting Older – getting Stiffer – what does this mean for our stem cells?”

It has been shown that many tissues get stiffer with age, however, how this affects the body’s ability to repair or regenerate has not been well understood. Myfanwy’s study shows that certain types of brain stem cell are able to detect the changes in stiffness that occur with age and that their regenerative capacity is linked to how stiff their environment is. The study showed that its possible to trick these cells into behaving as though they are younger, less stiff, environment and that this allows them to repair sites of injury more efficiently.

Read more and visit Wellcome-MRC Cambridge Stem Cell Institute – a world-leading centre for stem cell research. Their mission: to transform human health through a deep understanding of stem cell biology.

<https://www.stemcells.cam.ac.uk/>



“The efficiency of Remyelination declines progressively with adult ageing. This is due, in part, to intrinsic changes within adult CNS progenitors. Experimental studies have revealed that the age-affects are reversible. Adult progenitors age, at least in part, because of changes in the mechanical properties of their niche.”

Adele Chaplin, Human Funeral Celebrant

“Living your best life by preparing for a digital death”

Adele Chaplin, an accredited Humanist funeral celebrant, spoke about how we can best prepare for the management of our online presence after our death.

From Facebook memorialisation to online banking passwords; digital books of remembrance, to handling a deceased person’s email account, Adele provided some thought provoking ideas, help and guidance. The session really made us think about the management of our own digital estate.

Some key points:

Modern life means a large digital footprint such as Facebook; Instagram; PayPal; Amazon; Netflix etc and most of these platforms store a range of personal details such as name; address; bank details; house address etc.

For social media memorialisation, most social media has shutdown options – choose someone to look after your account after you pass away.

Consider securely storing details of log-in details; PIN’s; passwords etc, in a safe or secure lockbox. And include these details with your Will so they can be accessed by your executors.

Dealing with Email accounts can be hard for an executor to keep on top of incoming mail. Use the tools to help manage it easier such as Out of office or auto forward.

So being prepared for the digital management of your estate is important.

How do you want to be remembered?



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Join us at the next Tommy Flowers Institute Conference

24 – 25 March 2020

Adastral Park, Martlesham Heath

Watch out for further details!

