

OUR LITTLE
BOOK OF
BIG
INNOVATION







WE SET OURSELVES NO LIMITS

With fusion, the lithium in one laptop battery, plus half a bath of water, would produce 200,000 kW-hours of electricity, equal to the EU per-capita electricity production for 30 years - from an essentially unlimited fuel with intrinsic safety, with no CO2 or air pollution, no radioactive ash or long-lived nuclear waste. Tessella is supporting the scientists and engineers making fusion power a reality by developing instrument control frameworks, data processing platforms, and analysis and visualisation suites.

200,000 kW-hours

No Radioactive Ash


30 Years

No CO2

No long-lived Nuclear Waste

We understand the

joy of text

An underwater scene with two divers swimming towards the viewer. The background is a deep blue with light rays filtering down from above. In the foreground, there is a glowing, curved path of binary code (0s and 1s) that recedes into the distance. Bubbles are visible in the water.

‘Faced with the **huge** range of data that we could **capture** on human behaviour, but the limitation that we could only **communicate** via SMS **messages**, we took a deep dive into the information architecture principles and devised a data **packet** that **simultaneously** constrained and liberated us.’

Tessella’s participation in the **development** of a radical new roadmap for **collecting** and handling **personal** data required both divergent thinking and also the discipline of realising these ideas in solid engineering deliverables; offering **insight** on consumers’ **behaviour** whilst not compromising their privacy will be **critical** to a successful and safe **digital** future.

We think we know

who you are...





12,000,000,000

Names

With more than 12 billion names, FamilySearch.org has been storing the world's genealogy since 1894. But estimated database storage costs approached \$1M for 20,000GB of archival data a day. By designing and integrating an efficient XML encoding routine into its comprehensive and flexible Safety Deposit Box technology, Tessella was able to save 50% of these escalating storage costs.

We love a *green*

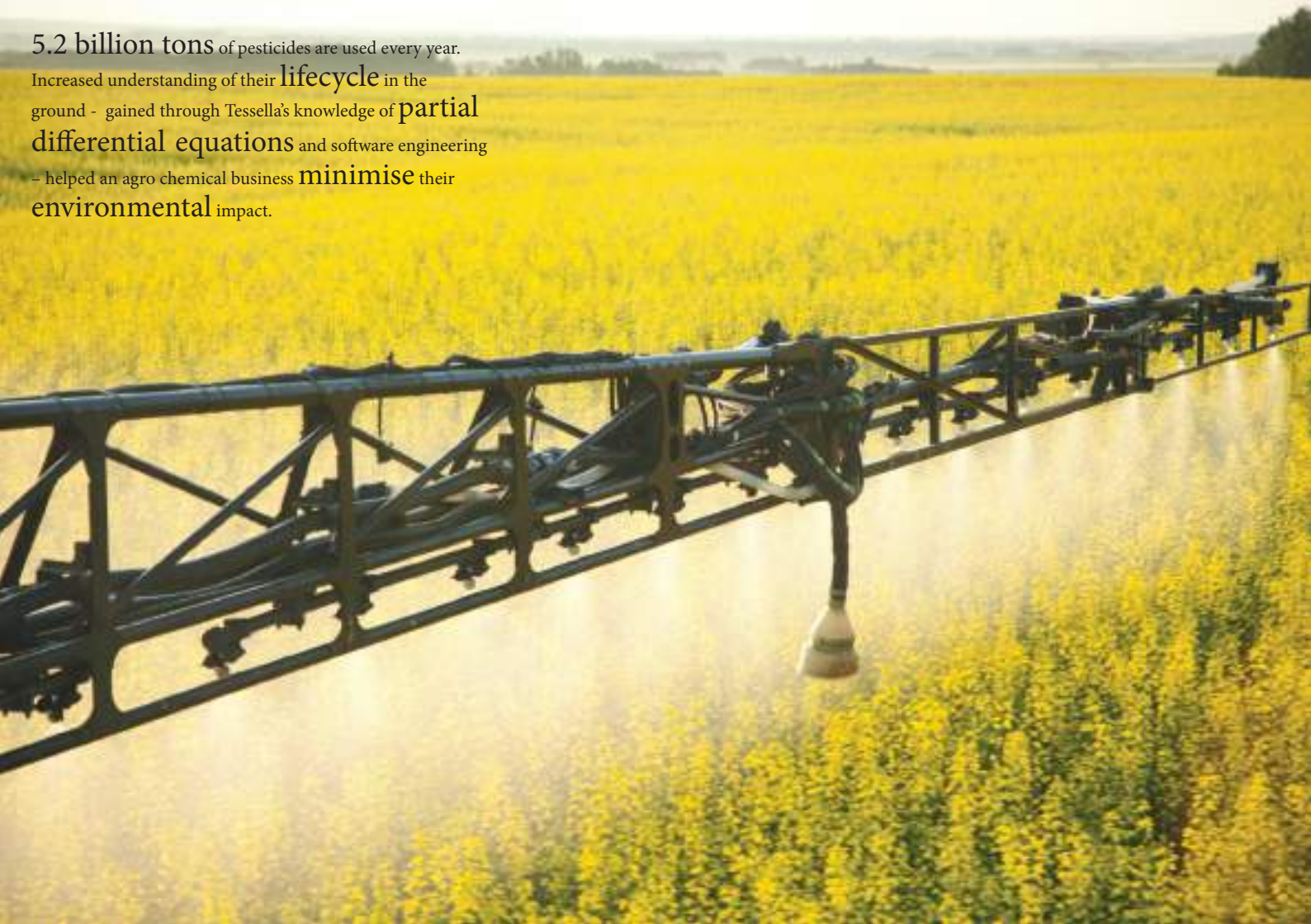
and pleasant land



5.2 billion tons of pesticides are used every year.

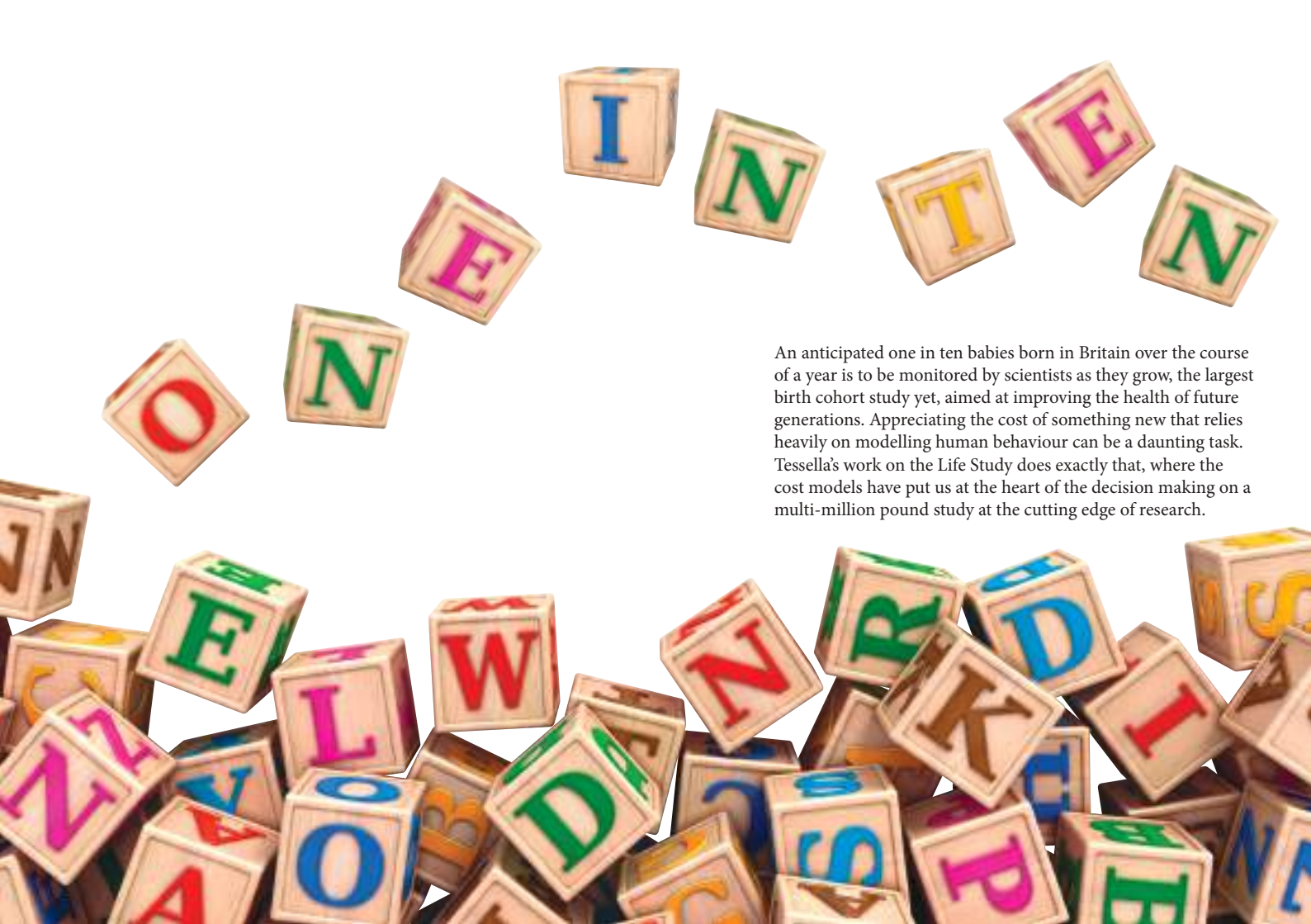
Increased understanding of their **lifecycle** in the ground - gained through Tessella's knowledge of **partial differential equations** and software engineering

- helped an agro chemical business **minimise** their **environmental** impact.



We will change your
children's world





ONE IN TEN

An anticipated one in ten babies born in Britain over the course of a year is to be monitored by scientists as they grow, the largest birth cohort study yet, aimed at improving the health of future generations. Appreciating the cost of something new that relies heavily on modelling human behaviour can be a daunting task. Tessella's work on the Life Study does exactly that, where the cost models have put us at the heart of the decision making on a multi-million pound study at the cutting edge of research.

A bright sun with rays shining over a golden, textured landscape. The sun is positioned in the upper right quadrant, with numerous rays radiating outwards. The background is a warm, golden-yellow color with a subtle, mottled texture, suggesting a sunset or sunrise over a field or desert. The overall mood is bright and optimistic.

We shoot straight for the sun

Setting out in **2017**, the **Solar Orbiter** will take almost **3.5 years** to arrive at its destination. Flying within **45 million km** of the **Sun**, it will be closer than Mercury, and will receive **25 times** the solar radiation per square metre that the **Earth** does. As a key supplier to the ESA Solar Orbiter Mission, Tessella is designing the **algorithms** that will **control** the satellite in its journey.



We don't waste

water





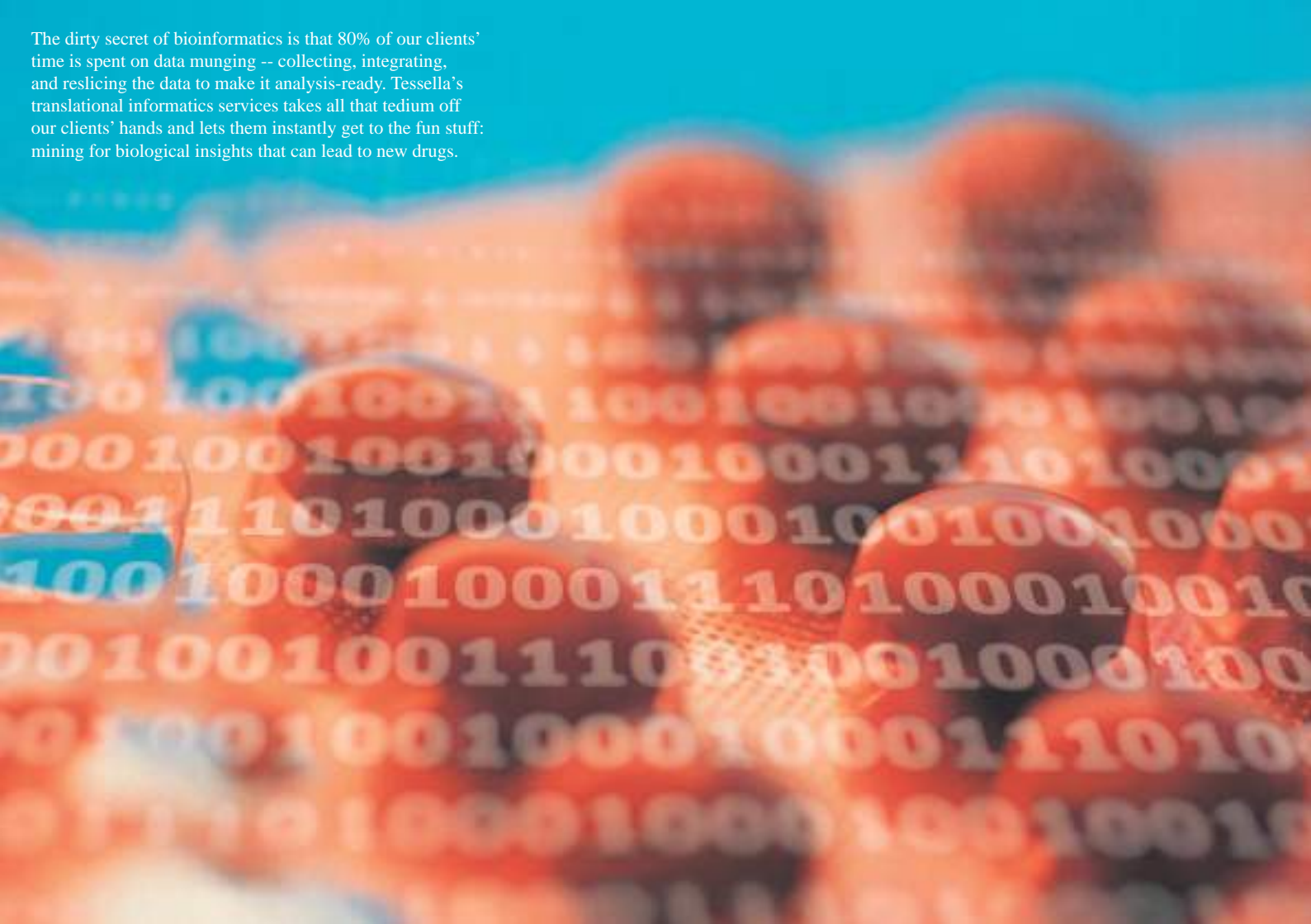
If you deliver one trillion litres of drinking water to over fourteen million customers and operate 85,000 miles of water mains and sewers – enough to go three and half times round the planet – getting an optimal network matters.

Tessella helped a leading utility company discover network designs that reduced total lifetime costs by billions while delivering a robust and effective service.



We eat data for breakfast

The dirty secret of bioinformatics is that 80% of our clients' time is spent on data munging -- collecting, integrating, and reslicing the data to make it analysis-ready. Tessella's translational informatics services takes all that tedium off our clients' hands and lets them instantly get to the fun stuff: mining for biological insights that can lead to new drugs.





We can paint a rainbow

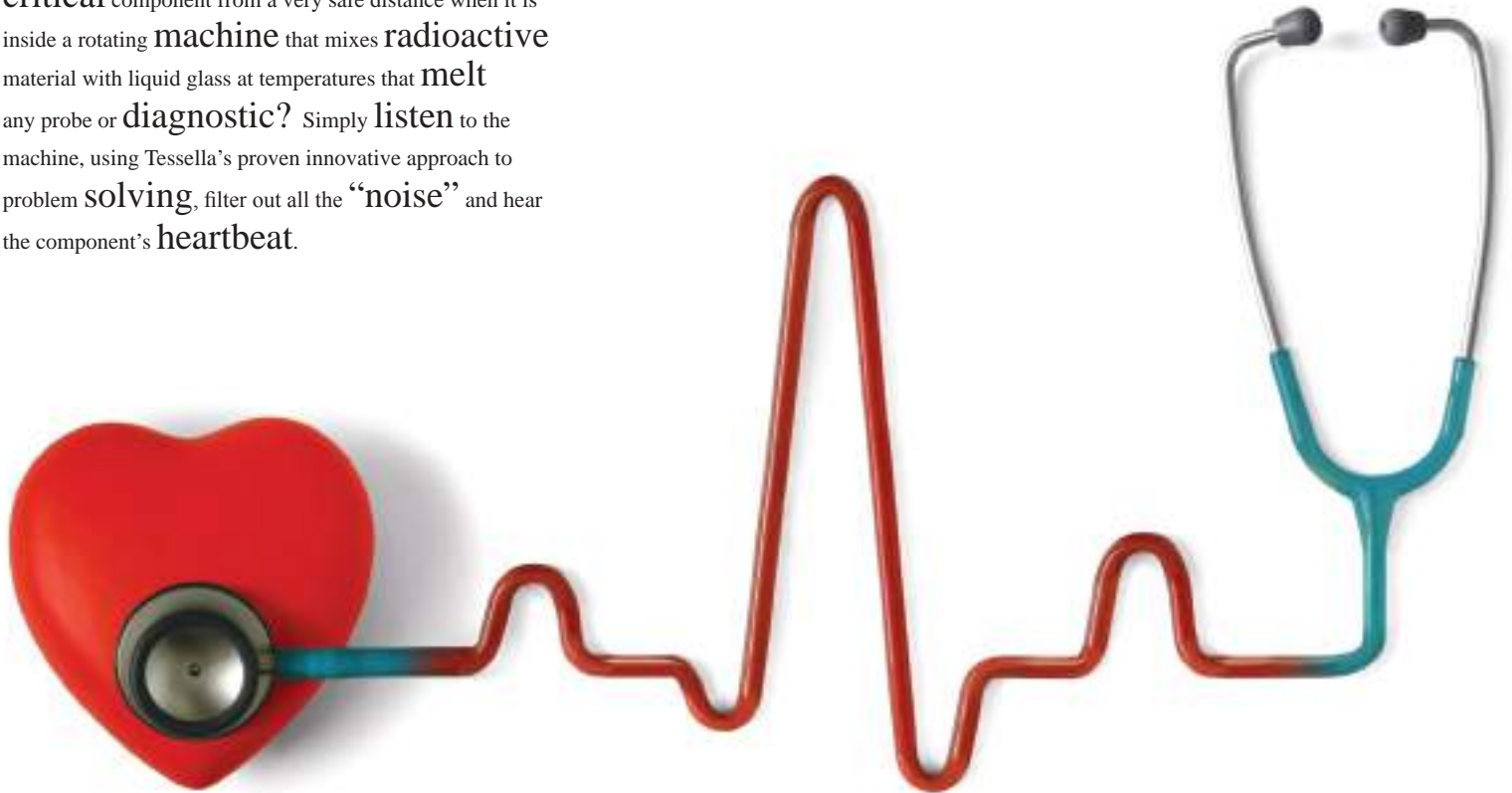


AkzoNobel produce over two thousand individual paint colours - enough to paint The Shard from bottom to top in 6 inch stripes, each stripe a different colour. How rewarding to work on something genuinely new, projects that help people choose which of those many combinations work for them. The algorithms behind ColourClick came out of research AkzoNobel did with us, and had never been applied that way before.



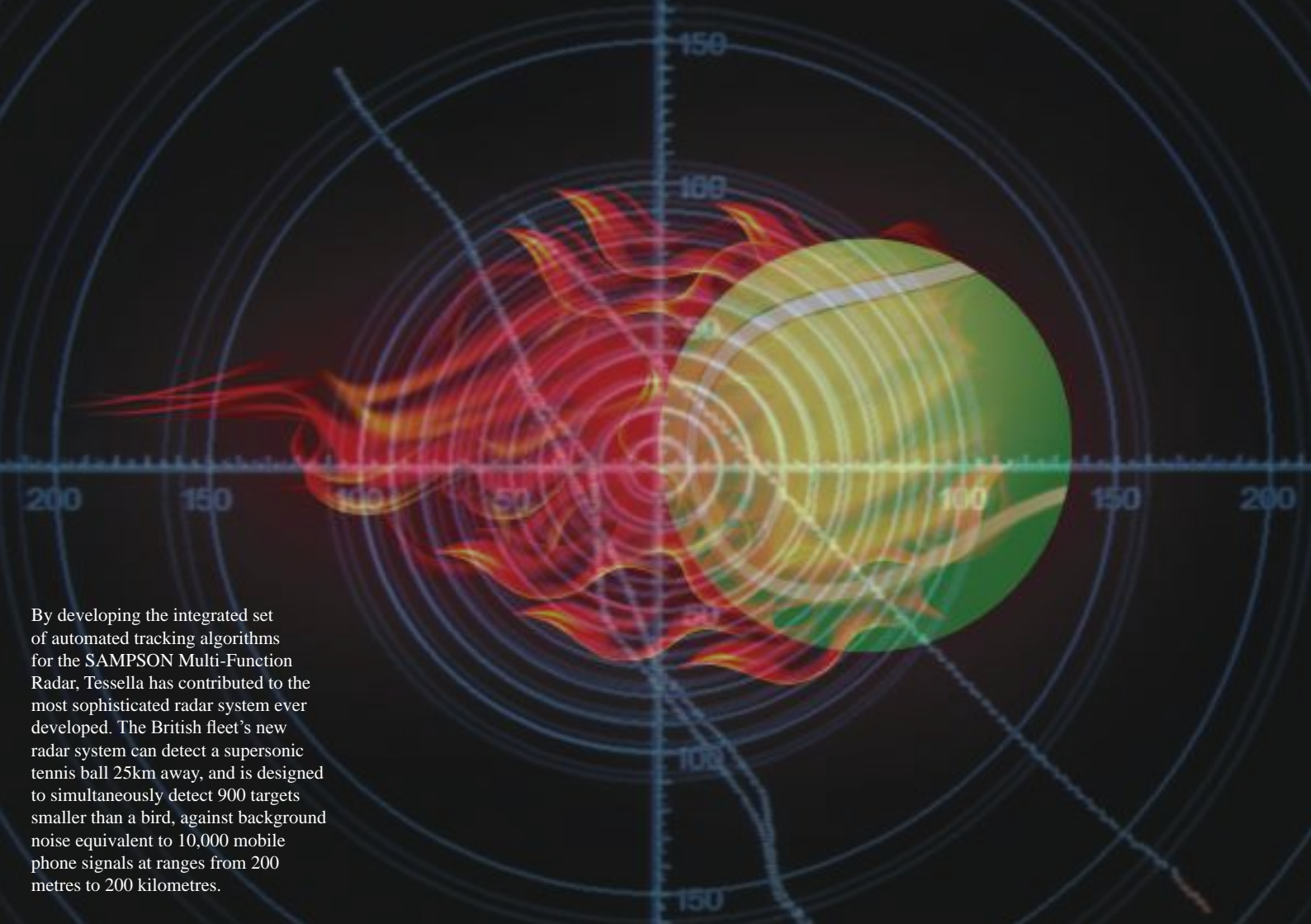
WE LISTEN WE DON'T INTERRUPT

How do you **correctly** predict the condition of a **critical** component from a very safe distance when it is inside a rotating **machine** that mixes **radioactive** material with liquid glass at temperatures that **melt** any probe or **diagnostic**? Simply **listen** to the machine, using Tessella's proven innovative approach to problem **solving**, filter out all the "noise" and hear the component's **heartbeat**.





We love to give you the advantage



By developing the integrated set of automated tracking algorithms for the SAMPSON Multi-Function Radar, Tessella has contributed to the most sophisticated radar system ever developed. The British fleet's new radar system can detect a supersonic tennis ball 25km away, and is designed to simultaneously detect 900 targets smaller than a bird, against background noise equivalent to 10,000 mobile phone signals at ranges from 200 metres to 200 kilometres.

We enjoy the sound of silence





By deriving an **innovative** way to improve signal to noise ratio, Tessella has exponentially increased the **effective** analysis of **microneurography** experimental results. The combination of splitting the algorithm up into stages, adaptation and use of **approaches** from other disciplines, sectors and projects such as radar tracking and image **processing**, is considered genuinely **groundbreaking** signal processing in this area. The key parameters extracted from this **massive** and very complex data set contribute to a European Initiative aimed at **improving** the treatment of patients with chronic **pain**.



joy

“ The greater danger for most of us lies not in setting our aim too high and falling short; but in setting our aim too low, and achieving our mark. ” **Michelangelo**

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