

# Future Tech and how it could impact on our future planning.

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**2019 EYE-CONTROLLED TECHNOLOGY**  
Advances in face and movement recognition software usher in an age of machines that are controlled by gestures or eye movements.

**2020 PAPER DIAGNOSTICS**  
Cheap diagnostic tools made of specially designed paper enable rapid screening for Ebola, tuberculosis, Zika, swine flu and many other diseases.

**2023 DESIGNER ANTIBIOTICS**  
Bottom-up technology for building macrolides allow for cheap, bespoke antibiotics to defeat "superbugs."

**2024 INGESTIBLE ROBOTS**  
Consumable, biocompatible microbots that repair our injuries from within.

**2026 SMART CLOTHING**  
Nanoporous fabrics, miniaturized electronics, and haptic feedback make for "smart clothing" that change color or shape, and keep you cool or warm as the need arises.

**2027 PHOTONICS IN SPACE**  
Photonics technology means increased bandwidth, a data rate 100s of times greater than RF, and lower power requirements for spacecraft communication.

**2028 VOLCANIC MINING**  
Precious metal and minerals extraction from active submarine volcanoes becomes feasible and economical.

**2029 CARBON-BREATHING BATTERIES**  
Electrochemical cells that suck in CO<sub>2</sub> to generate electricity and

**2030 SUPER ANTIVIRALS**  
Broad-spectrum antiviral drugs, based on the ISG15 mutation and other genetic therapies, arrive on the market.

**2031 DIAMOND BATTERIES**  
"Nuclear batteries" are formed by encasing radioactive waste in artificial diamonds that convert radiation into electricity.

**2032 OPTOGENETICS**  
After a decade of optogenetic engineering and research, neurological disorders such as Parkinson's, Alzheimer's, Tourette's, schizophrenia, autism, and many others become treatable.

**2033 NANO FEASIBILITY**  
Light driven photomotors and DNA-inspired technology finally make for widespread, inexpensive nanotech.

**2034 UNHACKABLE QUANTUM INTERNET**  
A satellite network using entangled photons for quantum-key distribution (QKD) will create a fully secure, unhackable internet.

**2035 BIOMIMETIC MATERIALS**  
New materials, inspired by the behavior of living things, have led to self-cleaning clothing, self-repairing buildings, and the elimination of plastic packaging.

**2036 THE NEXT EVOLUTION OF AI**  
Big data analytics and predictive AI come of age—from weather, to elections, to geopolitics, evolution, and much else, the future has become almost disappointingly predictable.

**2037 3D PRINTING IN EVERY HOME**  
The ultimate in home shopping: cheap 3D printers in every home can print out almost anything—electronics, furniture, food, and medicine—from files purchased and downloaded from the internet.

**DESIGNER MOLECULES**  
Artificial molecules made from "superatoms," with novel magnetic and chemical properties, enable the creation of revolutionary new materials.

**2038 FULLY IMMERSIVE COMPUTER INTERFACE**  
Intuitive interaction with entertainment, infotainment, web-surfing and what have you through advances in VR/AR, projection mapping, haptics, and brain-computer interface.

**2039 SELF-SUFFICIENT ENERGY ECOSYSTEM**  
Microbial fuel cells, anaerobic digestion tanks, lithium-ion batteries and solar cell technology mean that virtually every home is now a closed-loop, self-sustaining energy ecosystem.



## **Objective**

To produce a simplified view of how we can shape our plans to meet the future needs of our community.

## **Scope**

“Smart” in relation to this document refers to "Technologically Smart" and only where there is a direct connection does it include reference to the administration.

This document does not encompass the full definition as defined in the "Smart Villages" project <http://www.pilotproject-smartvillages.eu/>, which has a far wider definition including financing and resourcing.

## **Document Overview**

This document consists of an executive summary and sections devoted to;.

1. Smart wear
2. Smart Homes
3. Smart Transport
4. Smart Village

## **Executive Summary**

Sports smart wear is now commonplace and will continue to advance and merge with medical smart wear. Medical smart wear exists in rudimentary forms but has yet to become fully integrated with a central medical AI. Smart glasses are becoming more discrete so only the wearer is aware of them. There are already smart contact lenses and exoskeletons that assist the disabled walk and look after themselves.

Smart homes are an evolving technological change, generally requiring no major changes to our current building requirements.

For the immediate future car ownership will likely increase, but long-term ownership will reduce and garages will be integrated into the house, so thought should be given to making them compliant with building regulations as part of the original design.

Technology is only a small part of creating a smart village, having policies and resources to enable the development of a smart village is far more beneficial to the long-term health and welfare of the community.

## Recommendations for the Neighbourhood Plan

Technology will drive change, so if we did nothing, the change would still happen, what we need to decide is how can we assist the change to the benefit of our parishioners. The following recommendations assume we wish to lead the change and not leave everything to chance.

1. Allocate a role on the parish council responsible for developing a smart village, then support the post holder in recruiting a small team of volunteers to help create a Smart Village, this would also include medical smart wear, smart homes and smart transport.
2. Make sure that planning includes provision for the latest wireless technology (currently 5G)
3. All new housing to have a proportion (say 75%) sun facing roof fitted with solar panels.
4. Integral garages to be constructed so they can readily be converted to an internal room.
5. No visible power or telephone cables.
6. Housing to be set up as smart homes, including smart doorbells.
7. Housing for the elderly should be built/retrofitted with smart facilities.
8. Organize training, awareness and support sessions with a volunteer team that can go into the houses and help with technology.
9. Facilities for electric vehicle charging should be made available
10. Plan for the removal of overhead wire, cables and satellite dishes.
11. Develop a smart lighting plan for streets and pavements.
12. Develop renewable energy plan.

## **Smart Homes**

### *Assistant*

There are currently 2 main contenders for home assistant, Google Home and Amazon Alexa. These devices have no keyboards or touch screens, so you need to communicate with them by normal speech. These devices use AI to learn about you and your family, what you like, what you don't like and how to respond. The home assistant communicates with all smart devices in the home.

The main purpose is to look after the family household needs, anticipating what you want even before you have realised it yourself.

### *Environment*

Currently it is possible to manage central heating, lighting, window blinds, television, internet browser, music and other connectable devices.

All new housing for supporting the elderly or disabled could be configured as a smart home. Existing homes can be retro fitted as a smart home at a relatively low cost.

### *Security*

Smart locks set to open upon command of a specific voice would ensure you never need to carry a key with you. The Ring doorbell has a camera and movement sensor which starts to record when triggered and if someone presses the bell, your mobile phone will activate and show you who is at your door, you can then communicate with them even if you are around the other side of the world.

This is again helpful for the disabled and elderly, but will become standard tech for all new homes.

### *Inventory*

Smart fridges, freezers and cupboards will record what is going in and out of your cupboards, so as you remove a tin of baked beans, the home AI will look for the best price and order it for you and a replacement tin will arrive within 2 hours and be placed in your secure storage box by a delivery bot.

If you wanted additional products that are not part of your normal inventory, you would just have a chat with the home AI and it will make all the necessary arrangements.

### *Comment*

Smart homes are an evolving technological change, generally requiring no major changes to our current building requirements. With that said, I would suggest that all houses have a proportion (say 75%) of their sun facing roofs covered in solar panels, plus central heating and Air conditioning be set up with smart controls that link to an AI system. Housing for the elderly should be built/retrofitted with smart facilities. Additionally, I would insist that all Telephone and Power Cables be put underground.

## **Smart Transport**

### *Ride Hailing Service*

Traffic and the need for parking spaces will increase for a number of years to come, but children born today are unlikely to ever own a car or learn to drive. Big car manufactures are investing heavily into ride hailing services as they see this to be the vast majority of their sales in the coming decades.

### *Electric Drives*

It is unlikely that petrol/diesel engine vehicles will be produced after 2035. The standard power grid should be sufficient to charge these vehicles overnight. Houses fitted with solar panels should also fit a power wall to store power at peak times and act as a quick charger for electric vehicles. There are concept vehicles with sun panels on their roofs and bonnets, so as panels become more efficient and economically viable, we can expect cars to become partially self-charging.

### *Self Driving Vehicles*

By 2035 most commercial vehicles will be self-drive, by 2050 it may even be illegal to drive manually on the roads.

### *Comment*

For the immediate future car ownership will likely increase, but long-term ownership will reduce and garages will be integrated into the house, so thought should be given to making them compliant with building regulations as part of the original design. In the interim more facilities for electric vehicle charging should be made available.

## **Smart Village**

### *5G Network*

The internet of things will only be truly possible with the 5G network, it will see the demise of the cable telephone system and satellite TV

### *Community Internet*

The internet will be treated as a utility, it should always be available wherever you are. Currently routers are wired into the phone system and home devices link into the router, but with the introduction of 5G wireless we can expect homes to move to wireless on 5G connections and no landline.

### *Smart Lighting*

Smart lights will become standard for roads, pavements and cycle paths, they should all be Solar powered LED, come on as you approach and go out as you pass.

### *Local Power*

Much renewable energy will be locally generated, i.e. solar panels on the village hall roof.

### *Comment*

Technology is only a small part of creating a smart village, having policies and resources to enable the development of a smart village is far more beneficial to the long-term health and welfare of the community.

The community should plan for the removal of overhead wires, cables and satellite dishes. The replacement of existing street lighting should be facilitated by the parish, as should the generation of renewable energy.

## **Smart Wear**

### *Sports*

Sportswear is already a mature market for the 10 to 40-year-old community, with wrist bands, running shoes, headbands and other body function monitors collecting and automatically uploading data to your internet account via your smartphone.

The main purpose is to help manage a healthy lifestyle.

Currently this is done for personal reasons, but long term this could be used for negotiating life insurance. Some youth car insurance policies already require the driver to have a black box that monitors how the vehicle is being driven.

### *Medical*

This is one of the biggest and fastest growing markets for personal technology. Sportswear already monitors some of our medical indicators, it is only a small step for these to become health monitoring devices, smart bands can monitor pulse, blood pressure, glucose levels, body temperature, etc. Smart glasses could monitor eyes for heart, stroke warnings, jaundice etc.

The main purpose is to give early warnings and rapid response in the event of a major emergency.

The data would follow the same route as your sportswear, but would be directed to a medical computer that would use AI to monitor your condition, offer advice and raise alarms on a 24/7 basis.

### *Personal Enhancements*

We have for centuries worn devices to help with failing eyesight and hearing, trying to bring them back to normal capability, so it is not a major step to improve our sight and hearing to be better than normal. As we age, we may use a stick to help us walk, so wearing devices that will allow someone over 60 years to walk faster and further than the average teenager should be considered a reasonable improvement. We can now talk to our devices with a high likelihood that it will understand us, so a small under skin device around the back of the ear could listen into our conversations, smart glasses could see what we are seeing, feed it all into our personal AI and advise us accordingly.

The main purpose is to extend our ability to experience a full and active life.

The data would mostly be used for local processing, but your personal AI would also link to the medical AI to ensure your health and wellbeing is not compromised.

### *Comment*

Sports smartwear is now commonplace and will continue to advance and merge with medical smartwear. Medical smartwear exists in rudimentary forms but has yet to become fully integrated with a central medical AI. Smart glasses are becoming more discrete so only the wearer is aware of them. There are already smart contact lenses and exoskeletons that assist the disabled walk and look after themselves.

Housing designated for the elderly are fitted with emergency alarms; so, converting them to smart homes and equipping the occupants with medical alert bracelets would be a logical extension.

# Reference Documents

