



Andy Dean Business Solutions Ltd



Mansfield
District Council

‘Smart Mansfield’ Towns Fund Project

'Smart Mansfield' Objectives

- ***Encourage people into the town centre more, increase dwell time to drive growth in the local economy***
- ***Provide opportunity for enhancing digital skills and knowledge***
- ***Provide a platform for creating higher value jobs***
- ***Encourage employers to locate to Mansfield***
- ***Improve quality of life in Mansfield***
- ***Improve connectivity across the Mansfield District***
- ***Complement existing Mansfield Strategy for economic growth, health and well being etc***

Approach

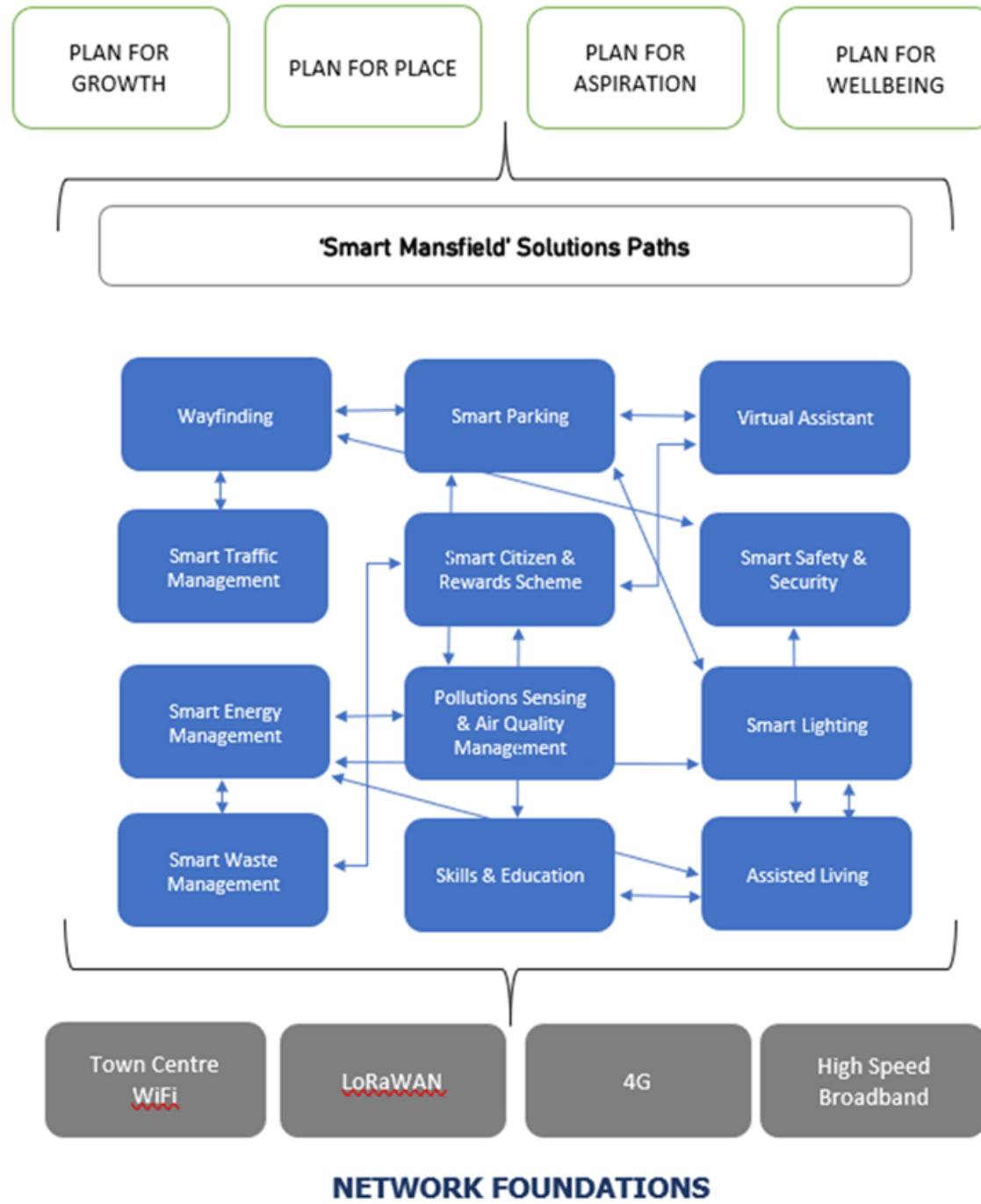
- ***Market insight- to get a detailed understanding of the needs from a range of stakeholders***
- ***Technology scouting- to look at what could be done using ‘smart technologies’***
- ***Options appraisal- to look at the best options and prioritise them based on expected impact and value for money***
- ***Decision- to decide what initial project workstreams could be adopted, based on impact, affordability, future proofing***

Options

Solutions	Plan For Growth	Plan For Place	Plan For Aspiration	Plan for Wellbeing
LPWAN IoT Network	Key enabler for a host of digital solutions for business, visitors contributing to growth of local economy	Key enabler for a host of digital solutions for business, citizens, visitors contributing to improving Mansfield as a destination to live, work, learn and relax		Key enabler for IoT applications linked to healthcare
Wayfinding	Improved connectivity for businesses, enabling them to be found and to promote themselves on the platform	Detailed information about Mansfield including tourism, visitor attractions, parking information, transport information etc can be connected to the wayfinding platform	Information about cultural events, social events, can be connect to the wayfinding platform	Wayfinding platform can incorporate walking routes, cycling routes and other filters. Information on leisure activities ad 'whats on' can also be connected to the wayfinding platform
Smart Parking	Better parking infrastructure could be attractive to businesses looking to locate to Mansfield. The incorporation of 'Corporate Functionality' with discounts and bulk buy options, as well as automated payments and other user friendly features will be an improvement on the existing infrastructure	Upgrading the parking infrastructure across Mansfield could enhance the town and encourage people into it		Better parking infrastructure with pre-booking facilities and automated payments can reduce stress
Smart Traffic Management		Management of traffic flow can enhance the perception of Mansfield by removing negatives		Traffic management can reduce jams and therefore reduce the build up of fumes that negatively affect air quality
Smart Citizen & Rewards Schemes	Scheme could be an incentive for more people to spend more time in the town, therefore boosting the economy.	Certain functionalities can link through to improving Mansfield as a place. Reporting issues etc	Rewards scheme can motivate citizens can to take on challenges they would usually not do. Could be linked to skills and education	Rewards scheme can motivate citizens can to take on challenges they would usually not do. Could be linked to physical activity or volunteering which can have a positive impact on mental health
Smart Safety & Security	Implementation of technologies will give people more confidence to go to Mansfield for work, leisure, visits. This needs to run in parallel with relevant benchmarking such that Mansfield can raise its profile as a decent safe place to visit.	Implementation of technologies will give people more confidence to go to Mansfield for work, leisure, visits, thus contributing to economic growth		Implementation of technologies will give people more confidence to go to Mansfield for work, leisure, visits. It could enable increased walking, cycling and contribute to better mental health if people are going to the town to participate in activities, such as sport or volunteering.
Smart Energy Management		Implementing energy management systems can reduce costs and CO2 emissions, contributing to Mansfield's green agenda		Implementing energy management systems can reduce costs and CO2 emissions, contributing to cleaner air.
Pollution Sensing & Air Quality		Implementing air quality management systems can reduce emissions, contributing to Mansfield's green agenda		Implementing air quality management systems can reduce emissions, thus creating a cleaner environment and helping people with breathing related health problems
Smart Lighting		Implementing a sophisticated smart lighting infrastructure based 'on demand' can reduce costs and improve safety		
Smart Waste Management		Implementing a sophisticated smart waste management and collection infrastructure can reduce costs, reduce transport related emissions and contribute to Mansfield's green agenda		Implementing a sophisticated smart waste management and collection infrastructure can reduce transport related emissions and contribute to cleaner air for citizens
Assisted Living		Assisted living technologies implemented in both social and private housing for elderly citizens can improve quality of life and reassurance for friends and family. Mansfield could build a reputation as a trailblazer in this field. It is especially relevant due to the high percentage of citizens with health related issues and disabilities that reside in Mansfield	Assisted living technologies can improve quality of life and some can give people confidence that in turn can help them to aspire to do things, previously unattainable. This could be something as simple as venturing out to shop and partake in leisure activities	Assisted living technologies can improve quality of life and some can give people confidence that in turn can help them to aspire to do things, previously unattainable. This could be something as simple as venturing out to shop and partake in leisure activities. This in turn can have a positive impact on mental health
Skills & Education		The provision of a dedicated learning facility available to citizens and staffed with support for formal and informal educational needs, could open up opportunities for citizens	The provision of a dedicated learning facility available to citizens and staffed with support for formal and informal educational needs, could open up opportunities for citizens. This in turn can have positive impacts on citizens, building confidence and helping them to aspire to achieve more as individuals	The provision of a dedicated learning facility available to citizens and staffed with support for formal and informal educational needs, could open up opportunities for citizens. This in turn can have positive impacts on citizens, building confidence and helping them to aspire to achieve more as individuals. In turn this can increase the sense of self-worth and improve mental health

Prioritisation.

Decision to implement LoRaWAN network and Smart Parking



Implementation.

Target completion by October 2023

Required Task	Responsible Lead
Procurement and appointment of LoRaWAN design and implementation consultants	MDC Procurement
Site identification and access	Appointed Consultants
Planning application	MDC Planning Team
Design of LoRaWAN infrastructure	Appointed Consultants
Project management and construction of LoRaWAN infrastructure	Appointed Consultants and Principal Contractor
Handover of LoRaWAN to MDC and basic training	Appointed Consultants
Implementation of initial pilot applications on LoRaWAN	Appointed Consultants

Required Task	Responsible Lead
Decision of what car parks to upgrade	MDC
Procurement and appointment of Smart Parking system supplier	MDC Procurement Team
Project management and implementation of Smart Parking system	Appointed Supplier
Handover of Smart Parking to MDC and basic training	Appointed Supplier
Implementation of Smart Parking	Appointed Supplier
Initial data collection and use	Appointed Supplier

Key Risks.
Inflation related
Costs.
Lead times.

Capital Element Main Risk Construction Phase	Level	Mitigations
Finding appropriate locations for LoRaWAN base stations	Low as there are precedents around the UK to refer to and a professional design teams will be used	Project may have to be scaled down if insufficient locations can be found for the required base stations
Getting sufficient coverage across Mansfield District with LoRaWAN	Medium, but design can ensure key areas are covered	Design phase will consider land forms and other obstacles to good coverage are considered. Extra base stations can be employed if required, but at additional cost
Embedding Smart Parking infrastructure into existing car parking places	Low as initial surveys have been done by Ski Data and no problems were highlighted	Any locations proving to be impractical can be ignored and the Smart Parking can be rolled out in selected appropriate car parks
Revenue Element Main Risk Operating Phase	Level	Mitigations
LoRaWAN infrastructure does not generate expected commercial revenue	Moderate as there are benefits to MDC itself as well as to local small businesses who may be granted free access	Benefits of use will be well publicised to target commercial businesses well in advance
LoRaWAN network does not generate sufficient interest from target users, reducing ROI	Significant as it will affect the ROI of the whole project	Education of users groups. Case studies of what has been achieved by other Councils UK wide
LoRaWAN and compliance with data management obligations	Moderate, as these will be addressed within the design specification	Systems can be set up to ensure data compliance regulations are met. Case studies from other councils can be referred to

Budget

SMART MANSFIELD BREAKDOWN OF COSTS

LoRaWAN Cost Description	£K Estimate
Design Brief preparation, Using NTU's Swift Team	4
Site identification, planning and consents	40
Design of LoRaWAN	50
Implementation including equipment costs (2021 estimate +20%)	288
Project management and external consultancy	50
Revenue costs	25
TOTAL	457
Smart Parking Cost Description	£K Estimate
Design Brief preparation, contribution from external project manager	2
Design and implementation including all equipment (2021 +20%)	516
Revenue costs	25
TOTAL	543

What Next?

- ***GBBC approval- in progress***
- ***Kick start the implementation-***
 - ***Project management***
 - ***Design Briefs for LoRaWAN and Smart Parking solutions***
 - ***Tender preparation***
 - ***Supplier insight***
 - ***Continuous learning from others***

Outputs and Outcomes

OUTPUTS AND OUTCOMES

OUTPUT	INDICATOR	QUANTITY
LoRaWAN	Network deployed across Mansfield District	1
Smart Parking Infrastructure	Infrastructure deployed in 16 car parks	1
OUTCOME	INDICATOR	QUANTITY
LoRaWAN used by MDC	LoRaWAN based applications in use	5
LoRaWAN used by Mansfield based services and community groups	LoRaWAN based applications in use	5
LoRaWAN used by Mansfield based small businesses	LoRaWAN based applications in use	10
LoRaWAN used by Mansfield based large enterprises	LoRaWAN based applications in use	5
Smart Parking drives increased use of car parking facilities	Annual car parking data evidences increased use by 15% over 2019/20 figures	15% increase
Smart Parking drives increased car parking revenue	Annual car parking data evidences increased revenue by £225k over 2019/20	£225k increase

Smart Mansfield Operation- Assumptions

- ***Maintenance and service contracts will for part of the capital project***
- ***Smart Parking to be managed by existing Town Centre team***
- ***LoRaWAN maintenance and management to be carried out by supplier or third party as a part of the capital project***
- ***In the longer term, MDC will consider how best to manage the network and its applications***