Digital twins report: Methodology

6.1. The research team carried out a Gemba walk (footnote 1) to observe offal inspection processes at case abattoirs and spent a day in each slaughterhouse, interviewing various respondents with oversight and inspection duties to understand the current system of AM and PM meat hygiene inspections vis-à-vis the FSA Manual for Official Controls (MOC).

6.2. The respondents included FBO management and staff, plant inspection assistants (PIA), Official Veterinarians (OVs), Senior Meat Hygiene Inspectors and Official Auxiliaries (OAs).

6.3. In addition to observing critical controls points, the team also conducted a benchmarking review of available, applied and scalable technologies for optimising existing inspection process.

6.4. Using the detailed process map developed from observing live inspections, a DES (footnote 2)/digital twin was used as a supporting digital technology to trial possible innovations in a risk-free virtual environment prior to introducing new technology or making changes to existing inspection processes.

6.5. Determination of the future-state of inspection process by modelling a series of use cases of current state operations and simulating future states (post intervention), thereby providing an excellent starting point for the development of a digital twin.

1. A Gemba Walk is a technique used to observe and understand how work is being performed. Gemba is taken from the Japanese word gembutsu, meaning “real thing” or “real place,” and a Gemba Walk has the following elements: observation - watching people perform work in-person; location - observing people at the actual location where work is performed; teaming - interacting with people performing the work. (Dalton, 2019).

2. Schriber, T.J. & Brunner, D.T. (1997) Inside Discrete-Event Simulation software: How it works and why it matters. Paper presented at the Proceedings of the 1997 Winter Simulation Conference. https://doi.org/10.1145/268437.268441.