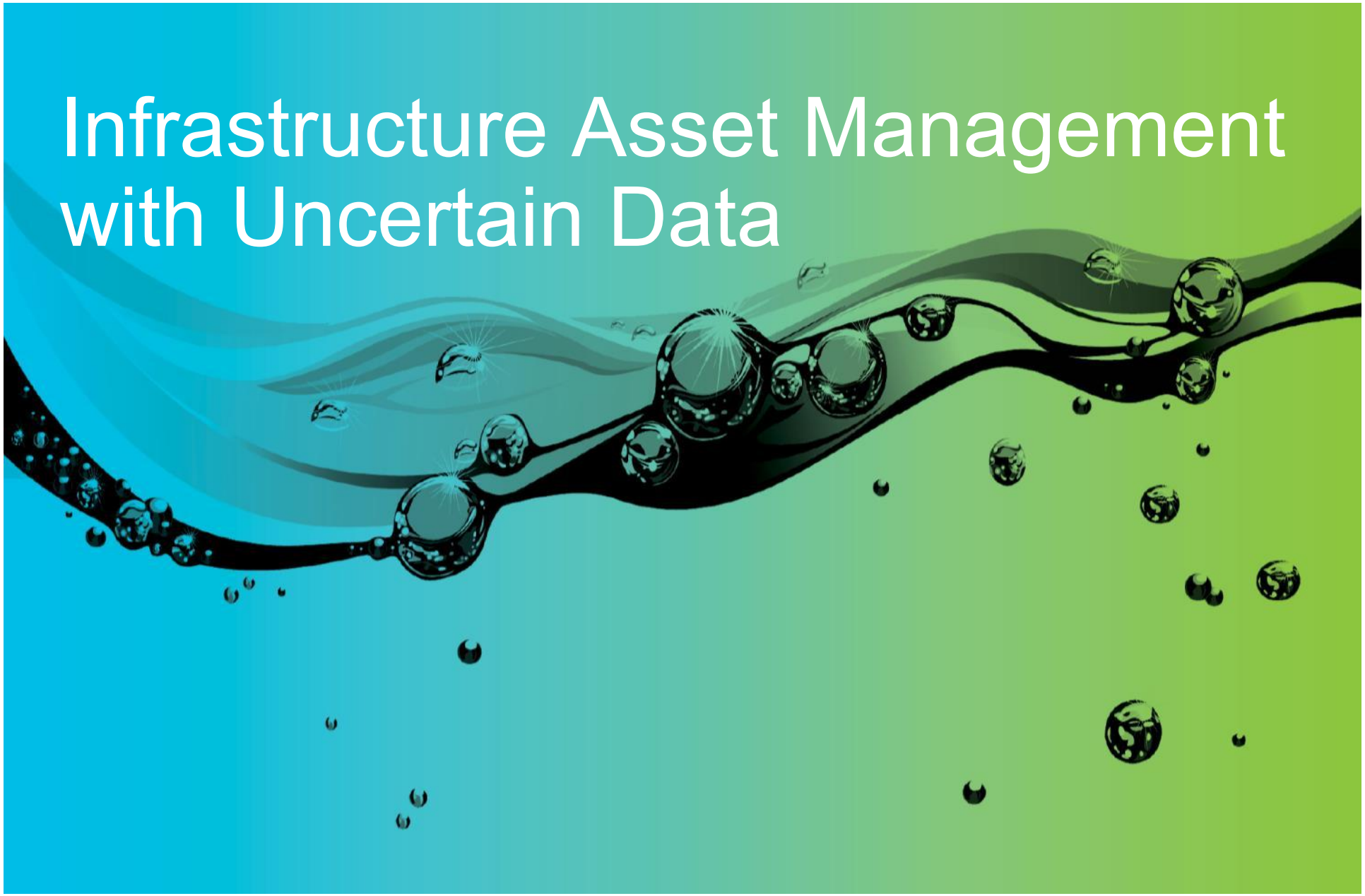
Infrastructure Asset Management with Uncertain Data



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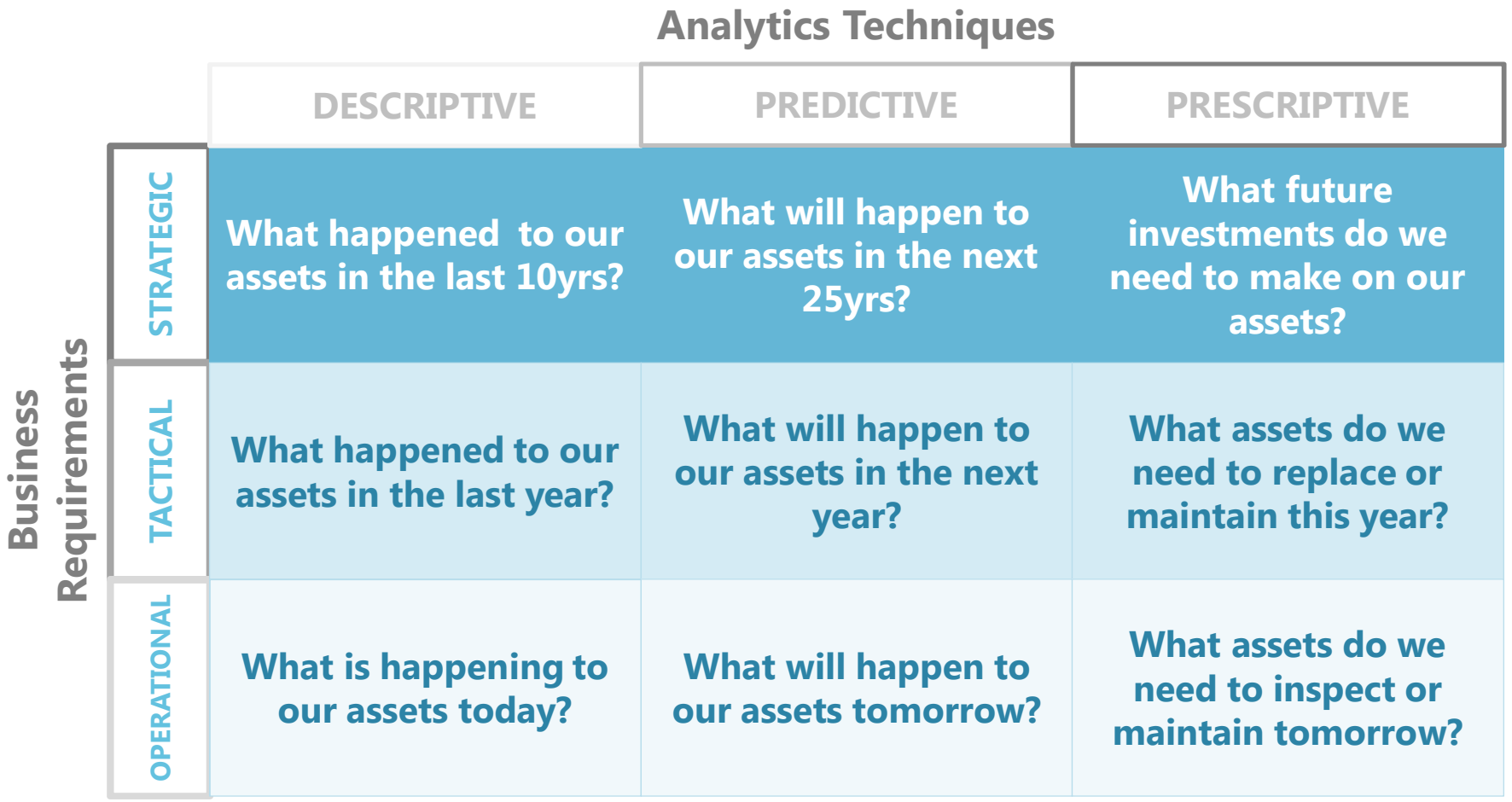
Objectives & background



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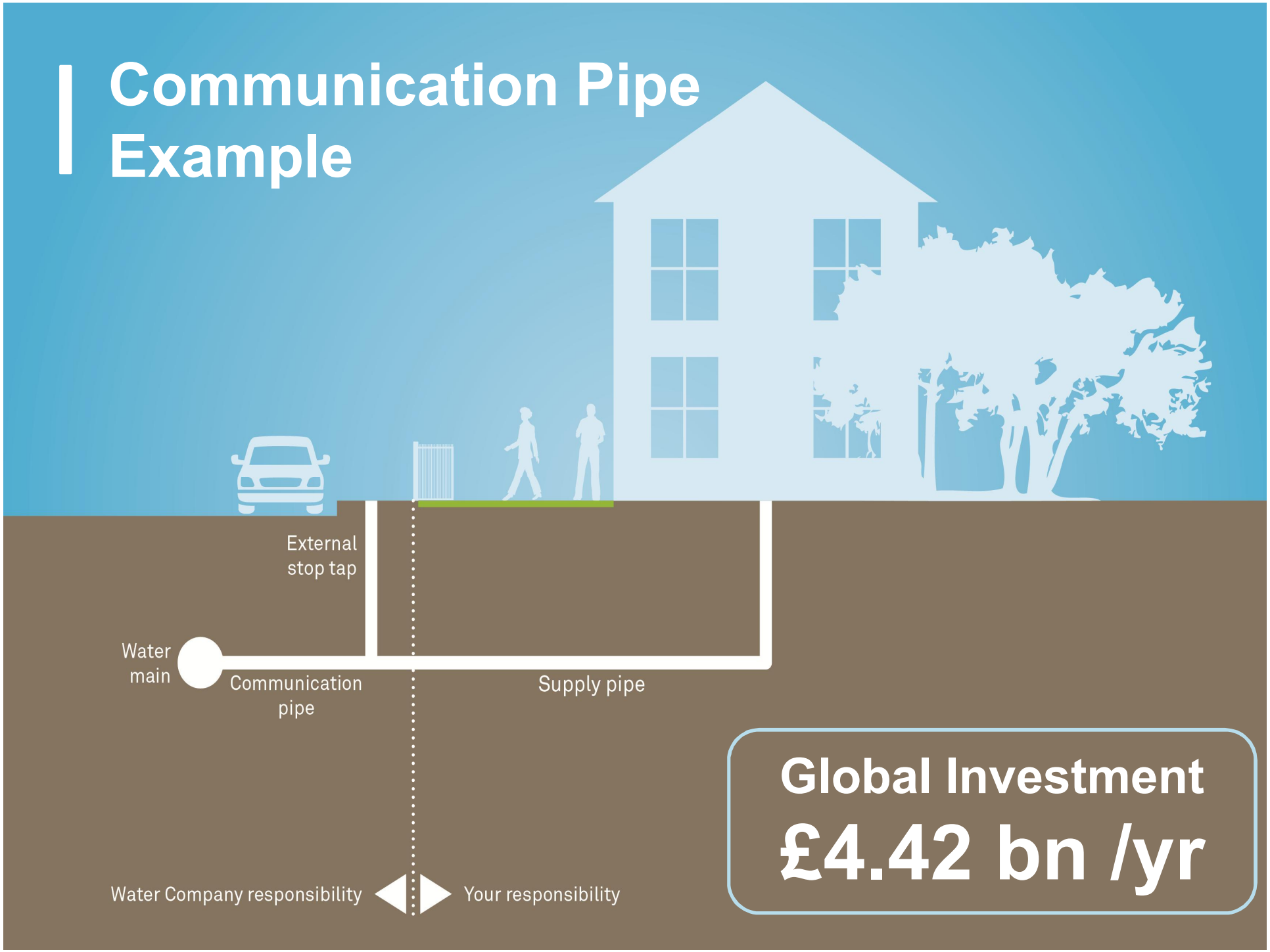
Communication Pipe Example



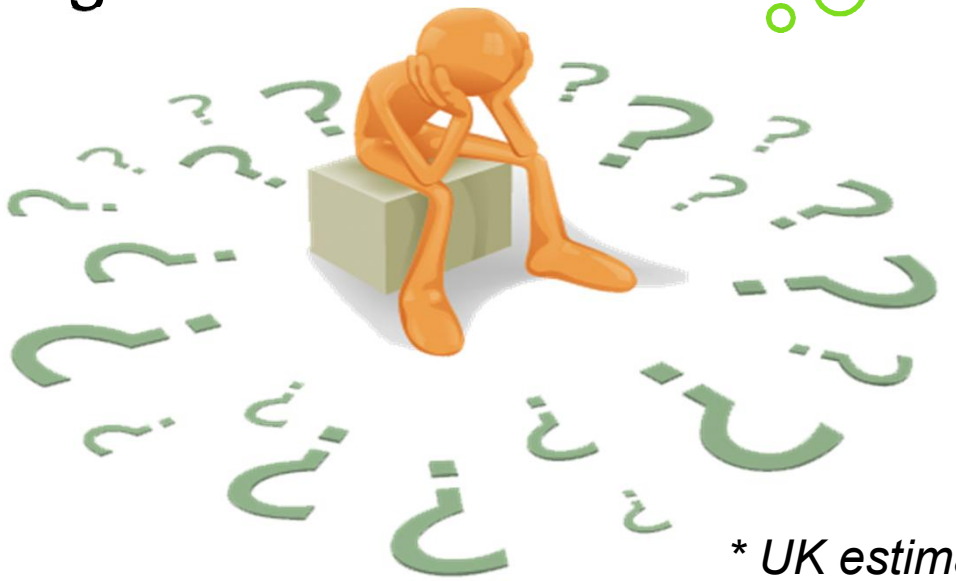
Global Investment

£4.42 bn /yr

Are we optimising our investment for communication pipes?

- Less than 80% of assets are mapped*
- Less than 90% of assets have known material or age*

I'll set aside the same money as last year & let operations decide



** UK estimate from research*

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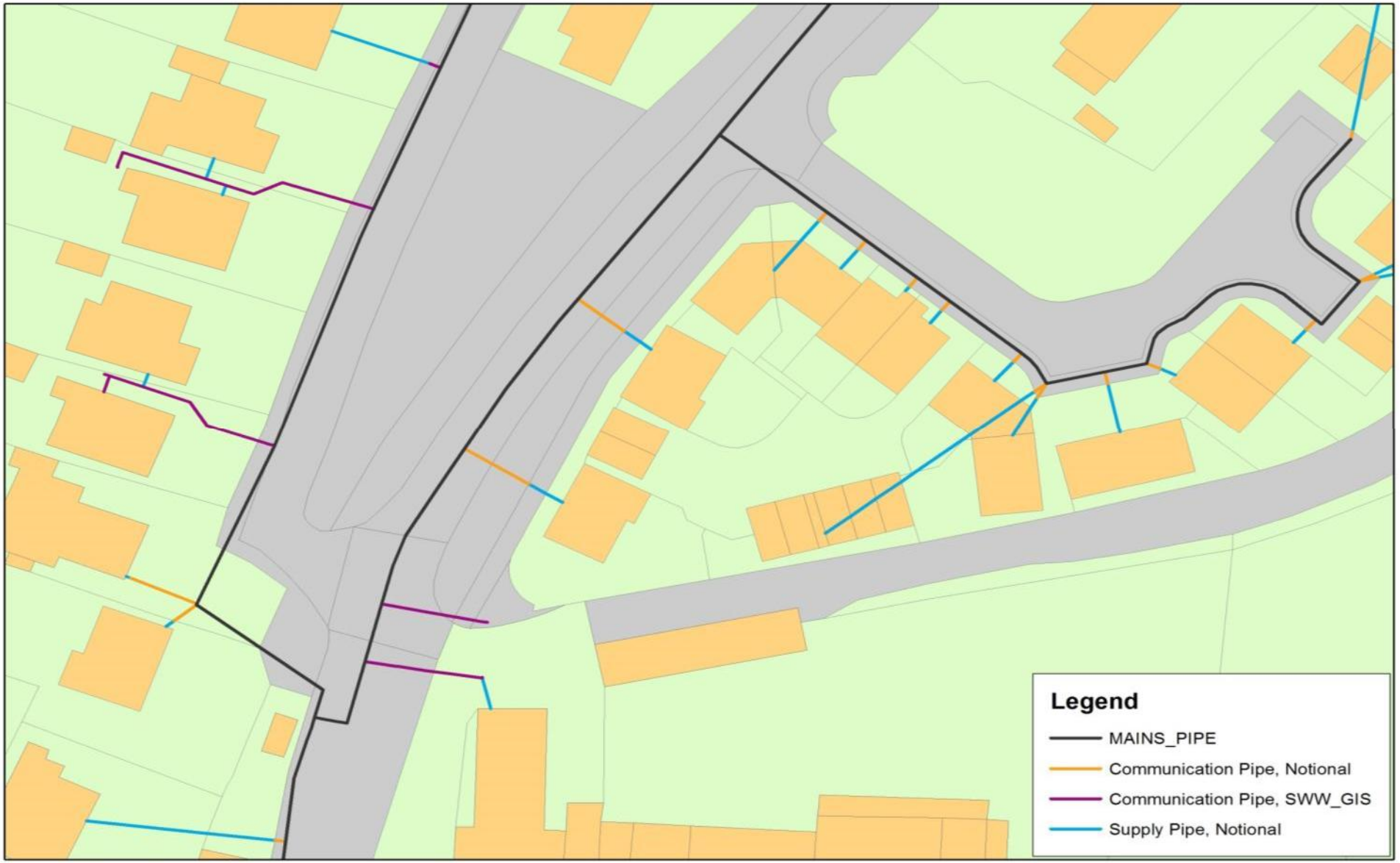
Approach

1. Build an asset stock
2. Deterioration modelling & whole life cycle analysis
3. Optimise maintenance & investment policies

1a. Asset mapping



1b. Asset age

i. Corporate GIS

ii. UK Gov. Valuation Office Agency postcode age data

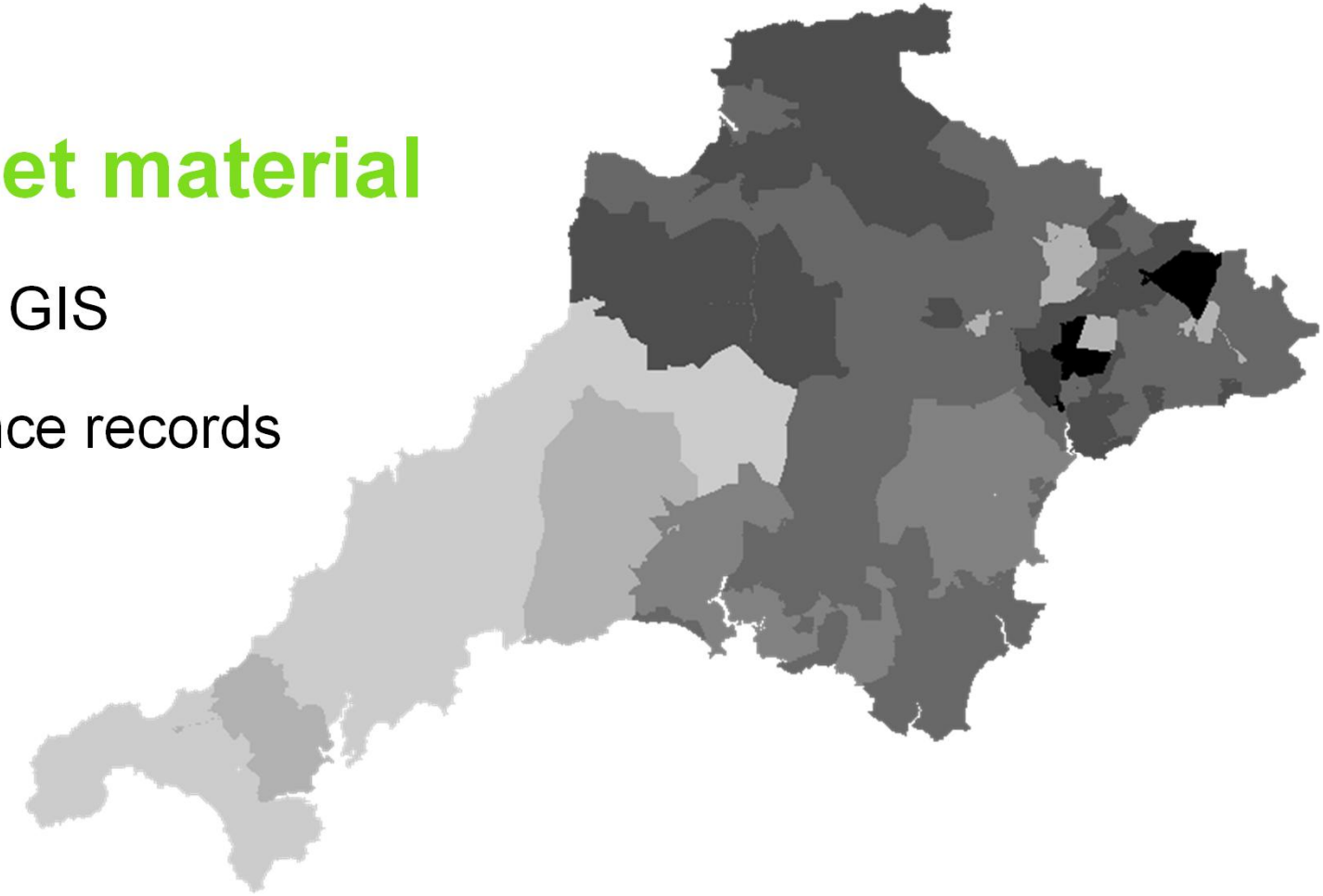
iii. Digitised historic map boundaries

1c. Asset material

i. Corporate GIS

ii. Maintenance records

iii. Elicitation



Date range	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
<1945	GI	Pb	Pb	GI	Pb	Pb	Pb	GI
1945 – 49	Cu	Cu	Cu	Cu	Cu	GI	Pb	GI
1950 – 55	Cu	BPE	Cu	Cu	Cu	GI	Pb	GI
1956 - 63	BPE	BPE	Cu	Cu	Cu	GI	Pb	Cu
1964 – 84	BPE	BPE	BPE	BPE	Cu	Cu	BPE	BPE
>1985	MDPE	MDPE	MDPE	MDPE	MDPE	MDPE	MDPE	MDPE

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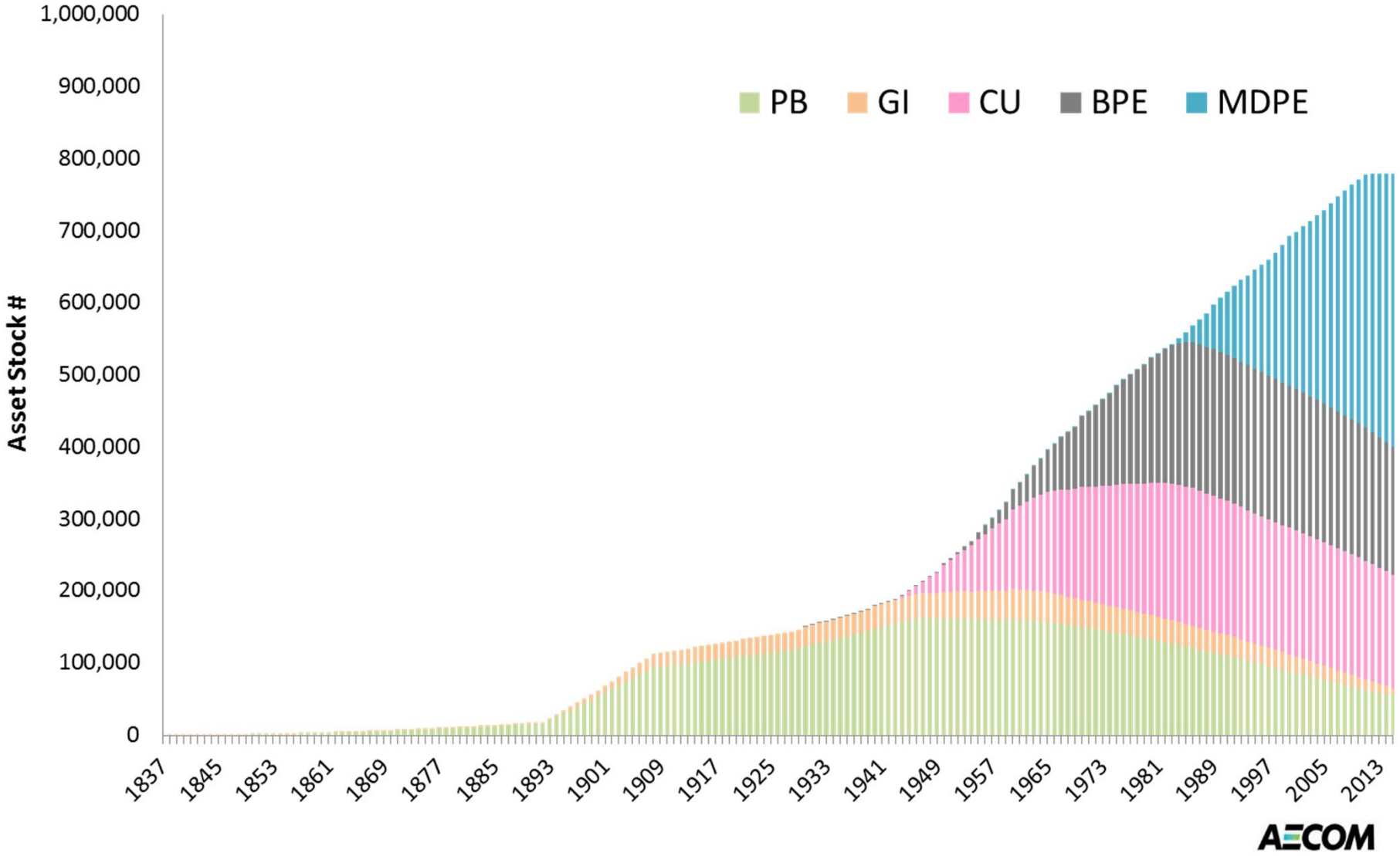
2. Life cycle model



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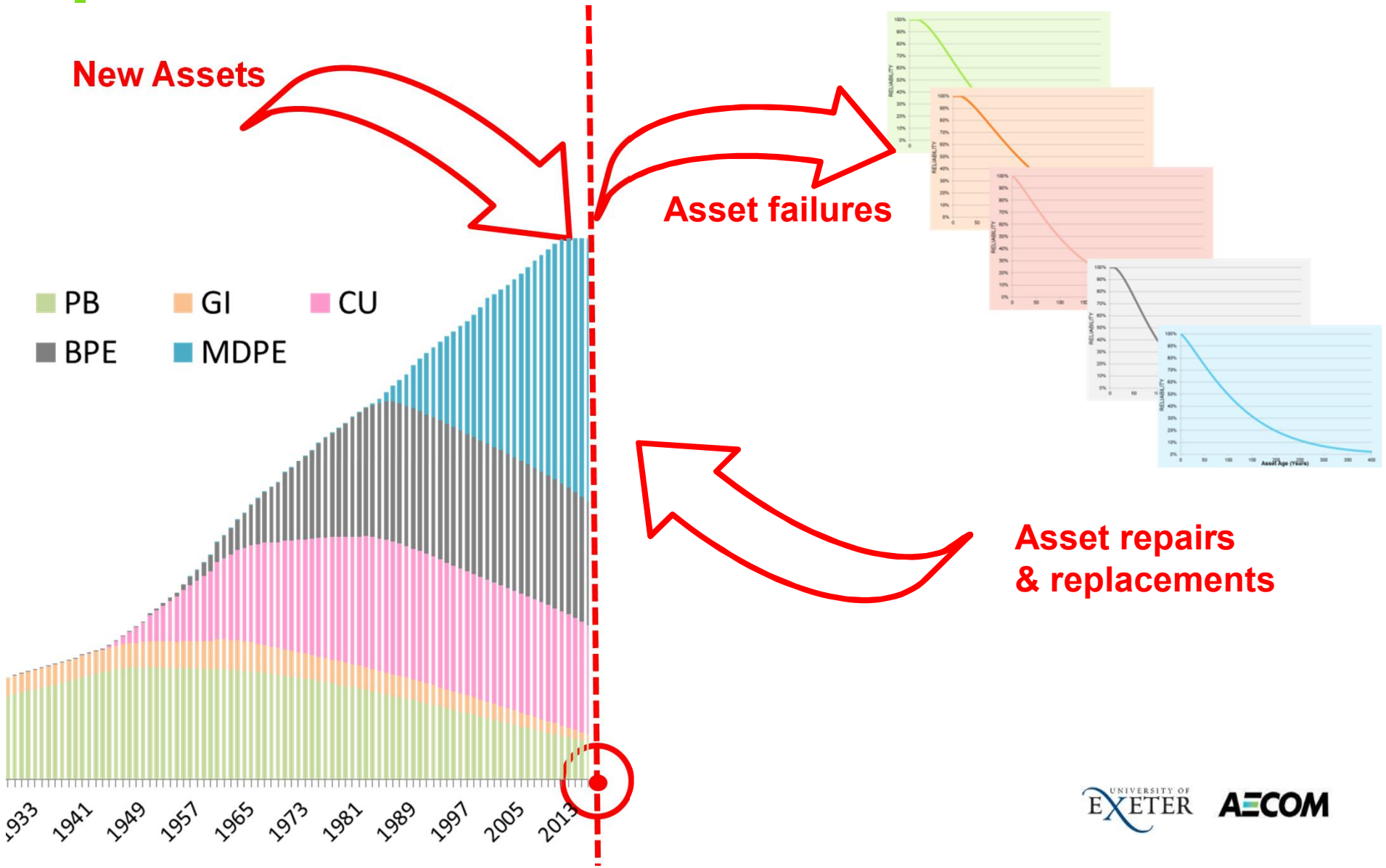
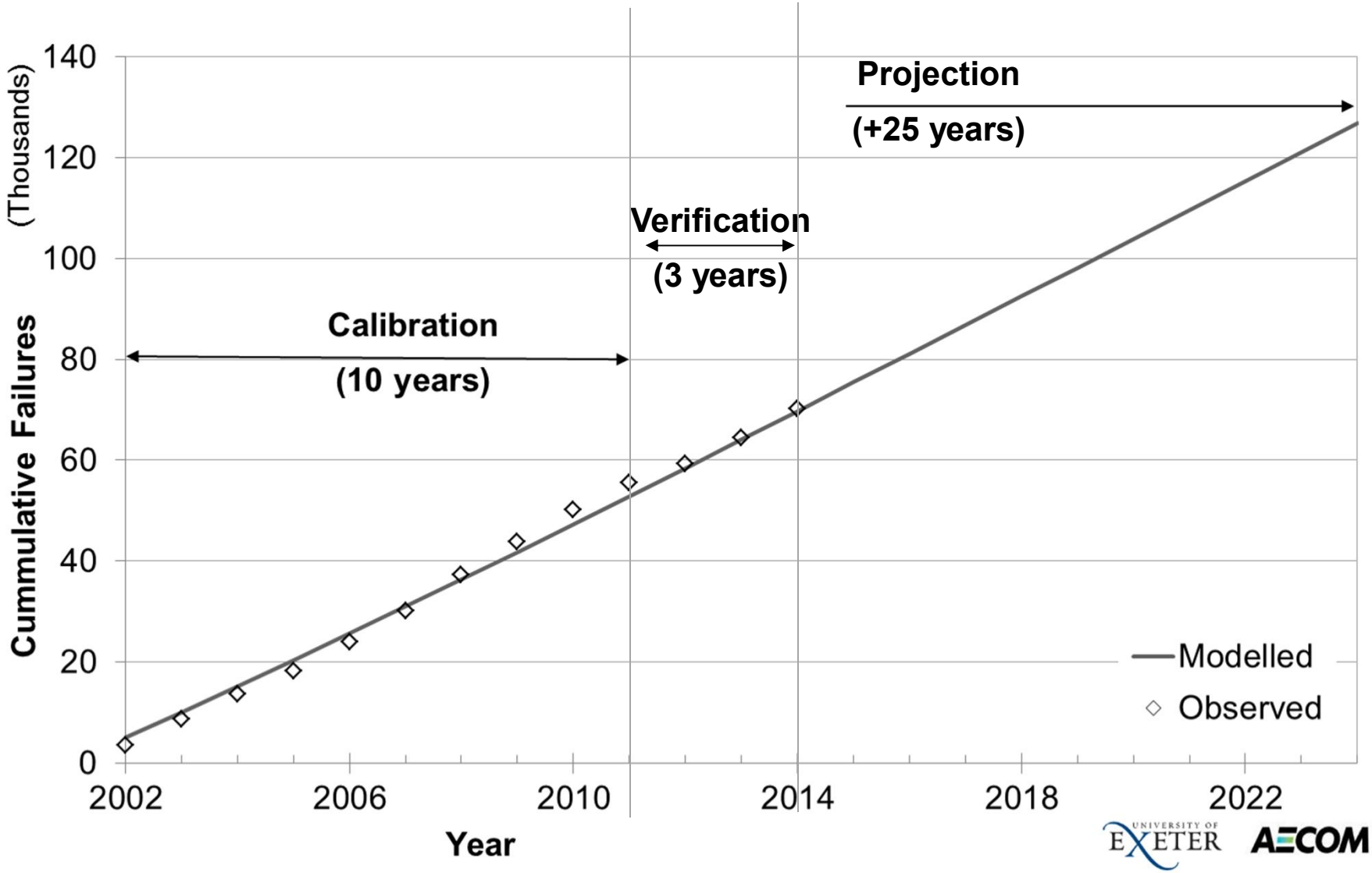
2. Deterioration modelling & WLC



2b. Model calibration & verification



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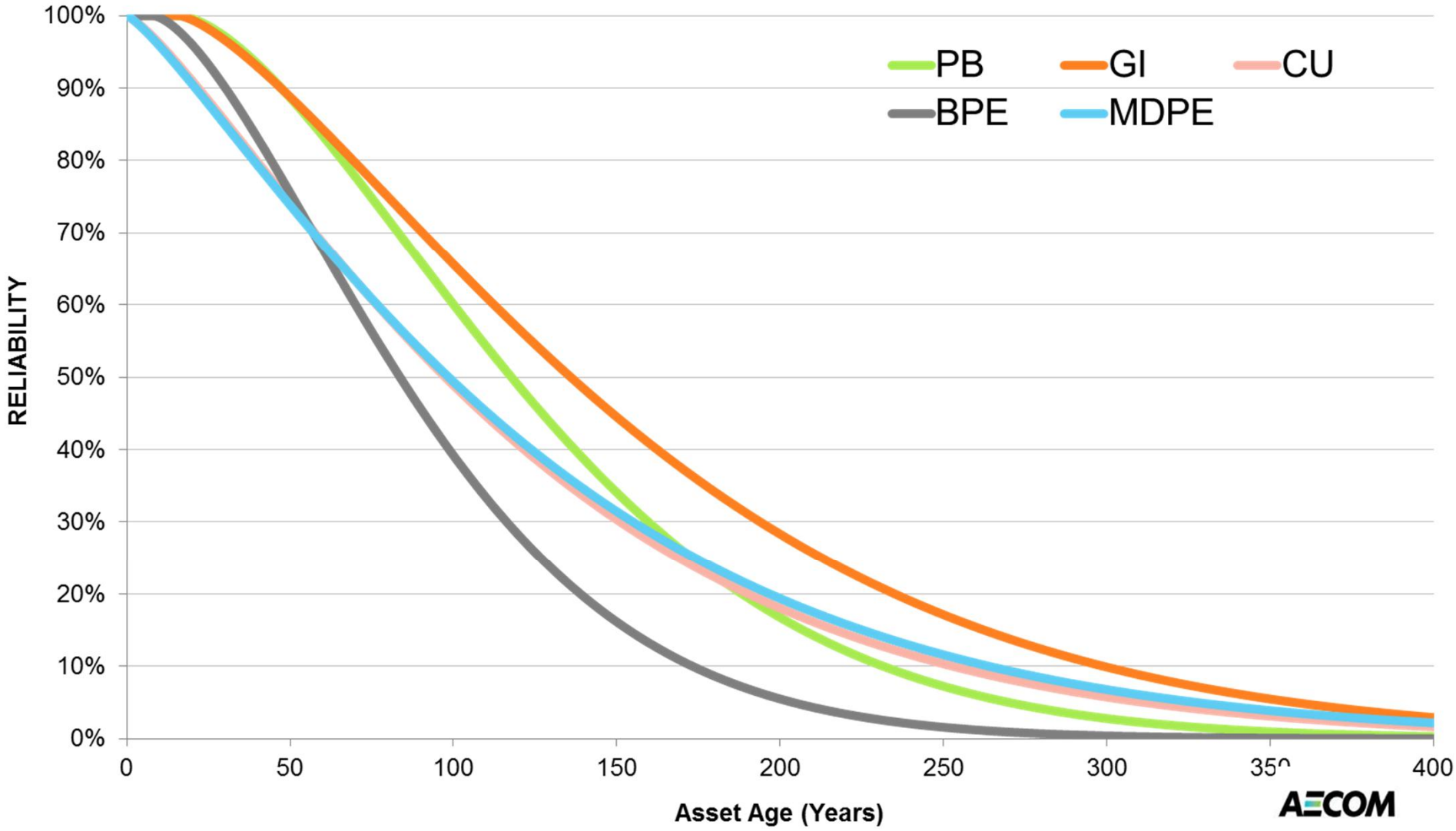
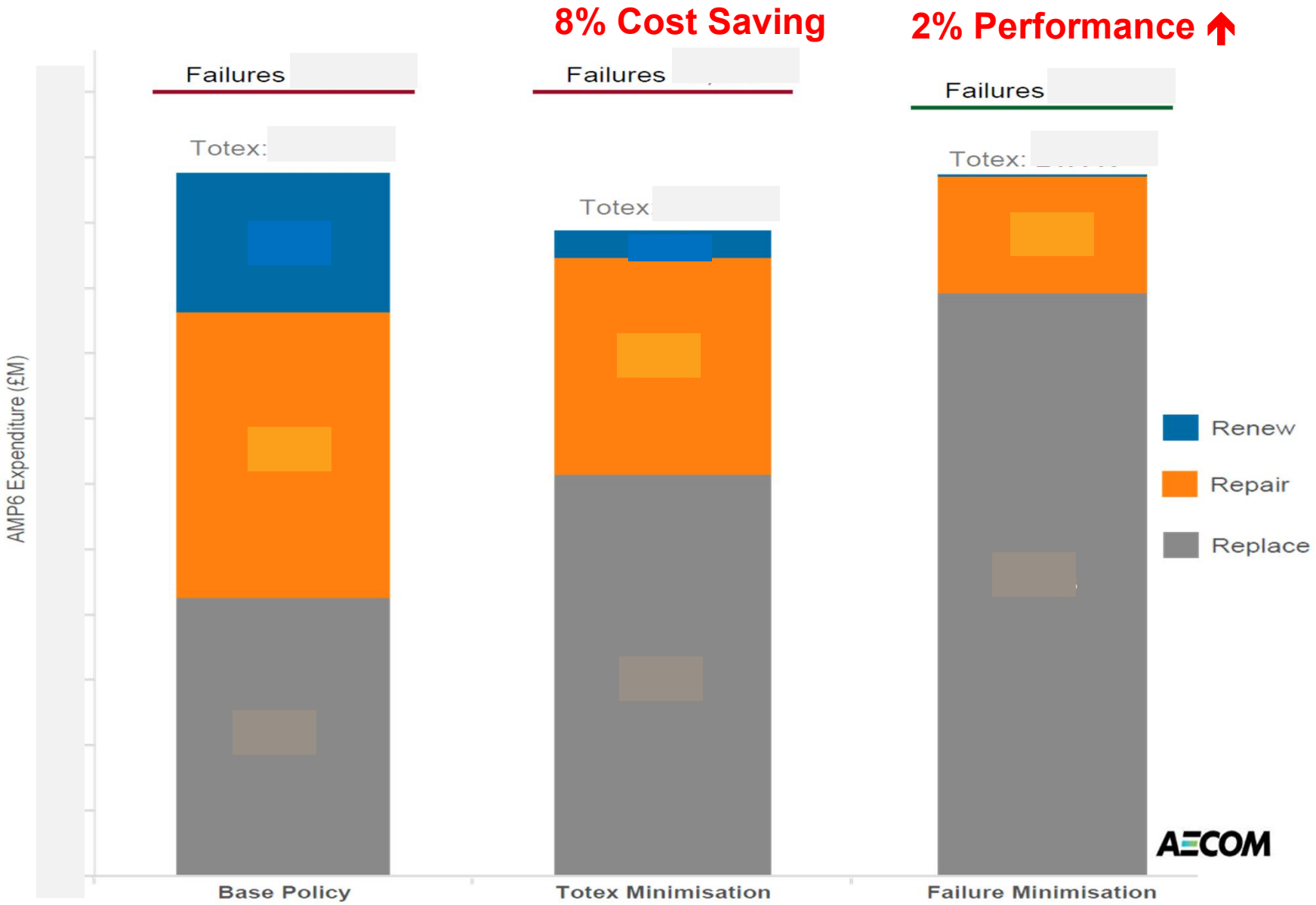
2a. Deterioration curves



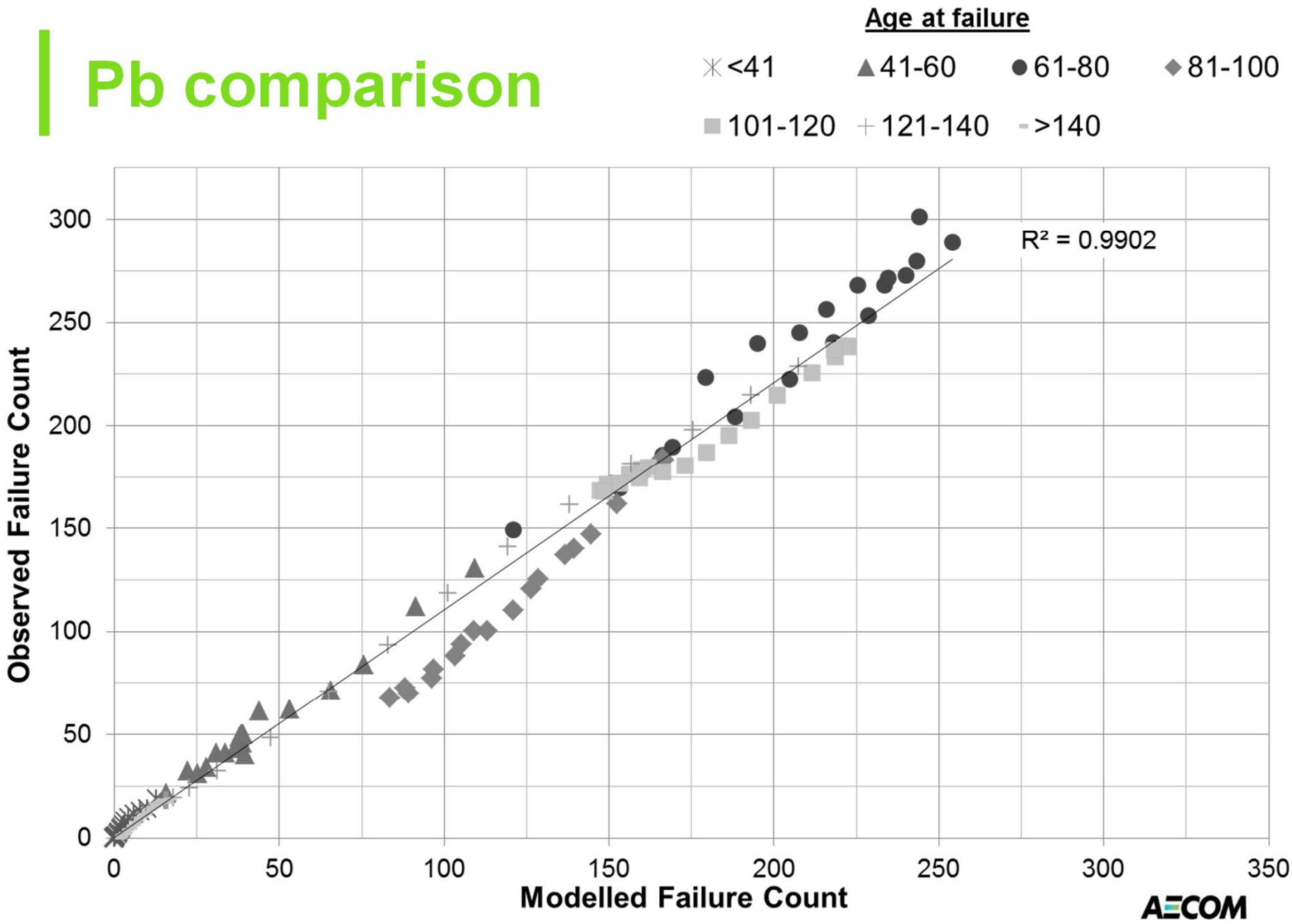
Sensitive information removed

3. Results – AMP6 Expenditure



Questions

Pb comparison



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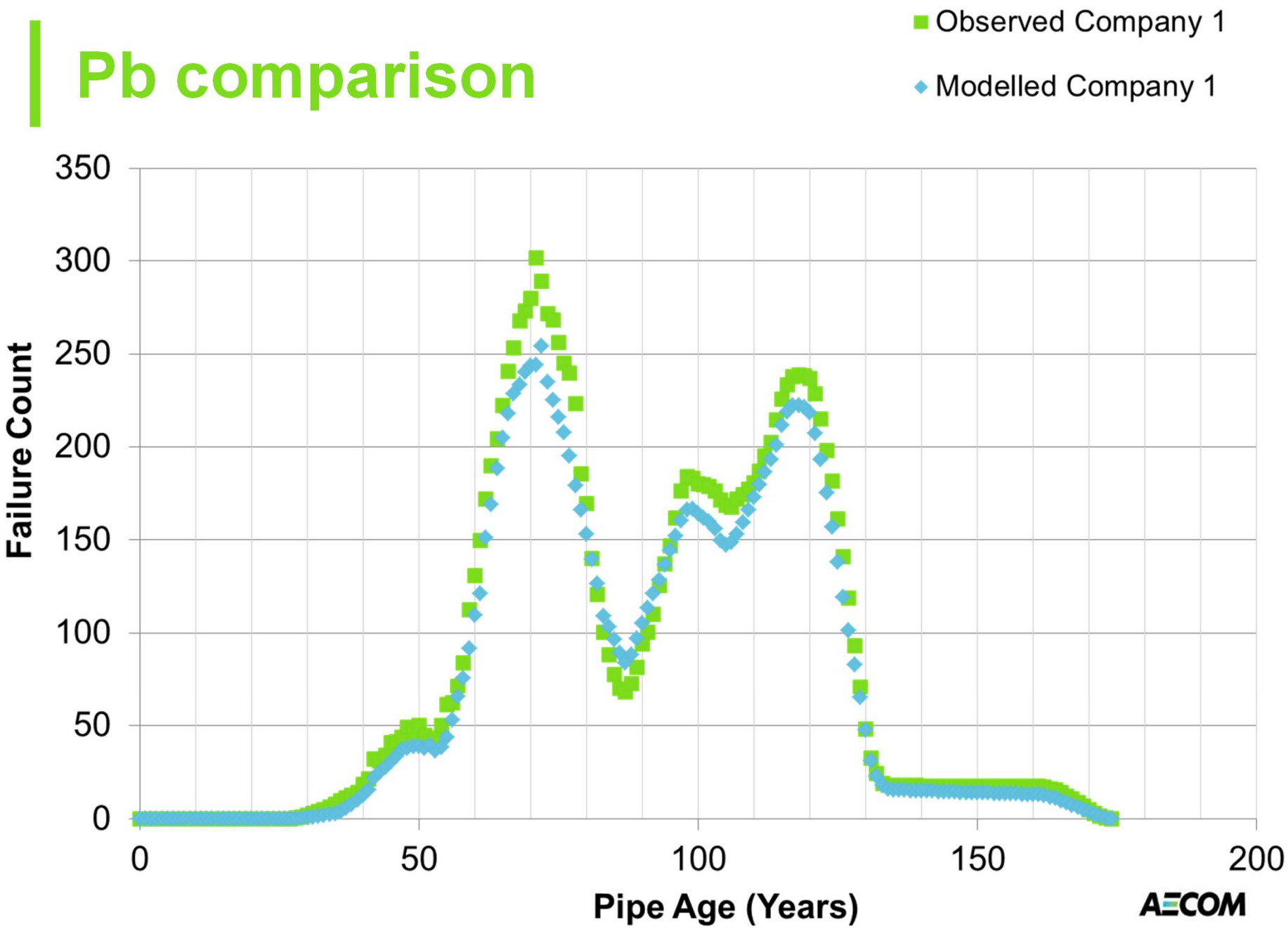
Pb comparison