Assembly

A report for BT

Economic Benefits of Digital Migration for Critical National Infrastructure Customers

25 September 2025

Sensitivity: Public

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Assembly

About

About this study

BT asked Assembly for some economic modelling to illustrate the net benefits for digital migration (both fixed and mobile) for CNI customers, taking into account the costs of migration and the potential costs of inaction, particularly given rising fault rates on the PSTN.

About Assembly

Founded in 2017, Assembly is an independent, London-based analyst firm providing custom and subscription-based research on regulatory, policy and legislative developments that affect communications markets and the wider digital economy.

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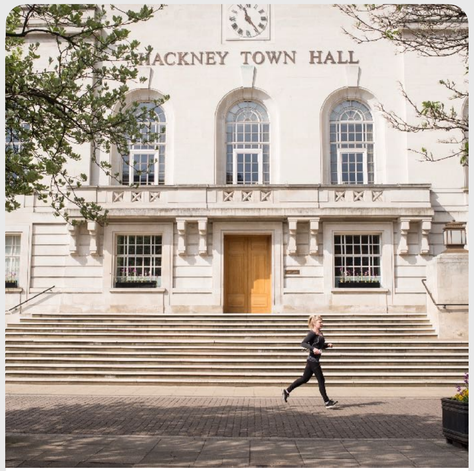
Net benefits of digital migration

Energy sector

£1.4bn

Water sector

£771m



Local government sector

£486m

Health sector (NHS)

£248m

Emergency services sector

£140m

The importance of moving early

Cost of inaction

£437m

Additional benefit of migrating off the PSTN by the end of 2025

£28.7m

Average length of time to recover costs (years)

4.2

Emissions savings from migration (Mt CO2e)

3.42

Prevent more than 1m emergency call outs

1m

Expected benefits

Energy sector

Costs of inaction and economic benefits

Costs of inaction	
General	Rising resilience incidents on legacy networks → Firms that migrate legacy devices avoid the rising costs of service failures

Economic benefits	
Reducing maintenance and outages	Firms upgrade legacy sensing and monitoring devices → Firms are better able to predict and complete proactive maintenance, cutting costs and outage time due to network faults
Reducing avoidable generation	Firms upgrade legacy sensing and monitoring devices → Firms are better able to predict and respond to peaks in electricity demand, cutting unneeded generation at non-peak times

Water sector

Costs of inaction and economic benefits

Costs of inaction	
General	Rising resilience incidents on legacy networks → Firms that migrate legacy devices avoid the rising costs of service failures

Economic benefits	
Reduced electricity demand	Firms upgrade legacy sensing and monitoring devices → Firms are better able to optimise the operations of the water and wastewater system, cutting electricity demand

Health sector (NHS)

Costs of inaction and economic benefits

Costs of inaction	
General	Rising resilience incidents on legacy networks → Firms that migrate legacy devices avoid the rising costs of service failures
Cost of telecare faults	Rising number and length of resilience incidents on legacy networks → More telecare service faults occur, occupying staff time to ensure the safety of users → Users are less able to rely on their telecare services

Economic benefits	
Improved call volume management	NHS trusts upgrade their voice systems from analogue to VoIP → New technical features, including intelligent routing and queue management, increase the manageable number of calls per line
Upgraded telecare devices	NHS care homes adopt digital telecare → Higher data capacity allow for the transition to more proactive and preventative care → Users experience fewer emergency alerts and ambulance conveyances
Upgraded telecare devices (councils)	Local councils upgrade telecare devices → Users experience fewer ambulance conveyances → NHS trusts save the costs of these ambulance journeys

Expected benefits (Cont.)

Emergency services sector

Costs of inaction and economic benefits

Costs of inaction	
General	Rising resilience incidents on legacy networks → Firms that migrate legacy devices avoid the rising costs of service failures

Economic benefits	
Improved call volume management	Emergency services upgrade their voice systems from analogue to VoIP → New technical features, including intelligent routing and queue management, increase the manageable number of calls per line
Fewer false alarms (fire and rescue services)	Businesses upgrade their legacy fire and security alarms → Fewer false, automated alarms as a result of upgrade equipment and new technical features → Fire and rescue services save the cost of unnecessary call outs

Alarms sector

Costs of inaction and economic benefits

Costs of inaction	
General	Rising resilience incidents on legacy networks → Firms that migrate legacy devices avoid the rising costs of service failures

Economic benefits	
Fewer false alarms (businesses)	Businesses upgrade their legacy fire and security alarms → Fewer false, automated alarms as a result of upgrade equipment and new technical features → Businesses save the cost of productivity interruptions due to false alarms

Local government sector

Costs of inaction and economic benefits

Costs of inaction	
General	Rising resilience incidents on legacy networks → Firms that migrate legacy devices avoid the rising costs of service failures
Cost of telecare faults	Rising number and length of resilience incidents on legacy networks → More telecare service faults occur, occupying staff time to ensure the safety of users → Users are less able to rely on their telecare services
Cost of legacy parking meters (2G/3G)	Retaining legacy parking meters leave councils susceptible to high maintenance costs and theft → Councils that migrate save associated costs

Economic benefits	
Improved call volume management	Local councils upgrade their voice systems from analogue to VoIP → New technical features, including intelligent routing and queue management, increase the manageable number of calls per line
Upgraded telecare devices	Local council telecare offerings are upgraded to digital connectivity → Higher data capacity allow for the transition to more proactive and preventative care → Users experience fewer emergency alerts, saving council staff time

Fixed line and mobile SIM retirement estimates

Table 1:

The table below outlines the underlying assumptions of how many commercial PSTN lines and 2G/3G SIMs are in use as of the beginning of our benchmarking. These figures are informed by data provided by BT and by publicly available information from operators and the UK Government on legacy network migration plans.

		2025	2026	2027	2028	2029	2030	2031	2032	2033
PSTN lines	Baseline migration scenario[1]	883,122	504,641	0	0	0	0	0	0	0
	Accelerated migration scenario[2]	883,122	0	0	0	0	0	0	0	0
2G SIMs	–	9,503,952	6,566,594	3,629,237	2,851,113	2,072,990	1,294,867	863,245	431,622	0
3G SIMs	–	356,184	0	0	0	0	0	0	0	0

Notes:

1. The baseline PSTN migration scenario refers to retirement by January 2027.
2. The accelerated PSTN migration scenario refers to retirement by December 2025.

Legacy device estimates

Table 2:

The below tables provide estimates on the number of types of devices still connected to the PSTN and 2G/3G networks, and yet to be migrated, as of the beginning of our benchmarking. We project these devices to be retired following the same patterns as the general lines and SIMs detailed in Table 1.

	Energy sector	
PSTN	Gas and electricity supply monitors	1,519
	Phone lines[1]	7,661
	Fire and security alarms[2]	1,772
	Lift alarms	124
2G/3G	Energy grid monitors	33,417
	Smart meters	7,000,000
	Vehicle telemetry devices	22,202
	Fire and security alarms	9,352
	Lift alarms	13

	Water sector	
PSTN	Water and flood monitoring devices	883
	Phone lines	9,916
	Fire and security alarms	2,085
	Lift alarms	146
2G/3G	Event duration monitors	2,515
	Sewer pumping stations	6,533
	Vehicle telemetry devices	16,266
	Fire and security alarms	11,002
	Lift alarms	16

	Health sector (NHS)	
PSTN	Telecare devices (group)[3]	564
	Phone lines	18,486
	Fire and security alarms	3,649
	Lift alarms	255
2G/3G	Telecare devices (group)	269
	Fire and security alarms	19,259
	Lift alarms	13

	Emergency services sector	
PSTN	Phone lines	13,665
	Fire and security alarms	2,638
	Lift alarms	185
2G/3G	Fire and security alarms	13,921
	Lift alarms	20

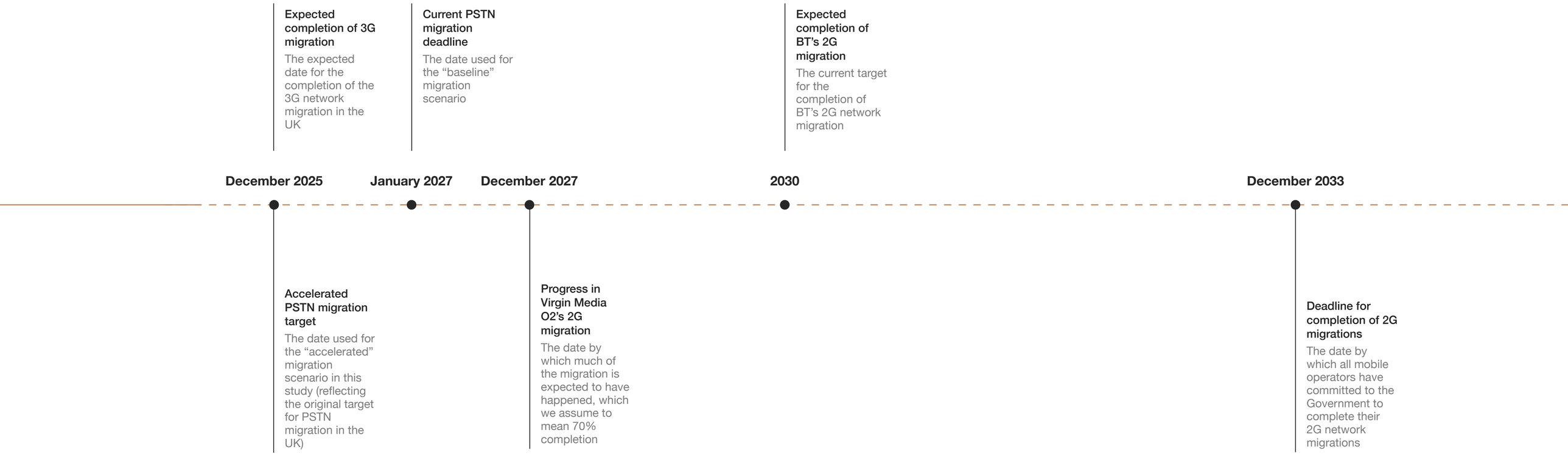
	Alarms sector[4]	
PSTN	Fire and security alarms	124,887
	Lift alarms	278,851
2G/3G	Fire and security alarms	629,066
	Lift alarms	29,877

	Local government sector	
PSTN	Telecare devices (group)	7,335
	Telecare devices (dispersed)[5]	183,365
	Phone lines	30,277
	Fire and security alarms	6,268
	Lift alarms	439
2G/3G	Telecare devices (group)	3,493
	Telecare devices (dispersed)[5]	232,844
	Parking meters	11,400
	Fire and security alarms	33,080
	Lift alarms	47

Notes:

1. We assume phone lines make up the majority of PSTN lines in the sector.
2. Fire and security systems also include CCTV systems.
3. Group telecare alarms are assumed to be connected to commercial lines or SIMs and count each hard-wired system as a single device, even if it serves multiple users with other connected devices.
4. Device figures for the alarms sector are not inclusive of fire and security alarms and lift alarms counted in the other sectors studied.
5. Dispersed telecare devices are assumed to be connected to consumer lines or SIMs and are counted as a single device.

Timeline for network migration



Sectoral benefits of digital migration

Table 3:

The below table details the expected combined economic impact of PSTN migration and 2G/3G migration on the studied sectors. The baseline PSTN retirement scenario is shown and incorporated into sectoral totals.

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Energy sector[1]	**(£4.4m)**	**(£73.3m)**	**(£95.7m)**	**(£46.5m)**	**(£12.6m)**	**£83.2m**	**£171.4m**	**£269.6m**	**£378.4m**	**£500.6m**	**£629.2m**	**£764m**	**£905.2m**	**£1.1bn**	**£1.2bn**	**£1.4bn**
Costs of migration[2]	(£4.8m)	(£101.3m)	(£84m)	(£21.4m)	(£21.4m)	(£21.4m)	(£11.7m)	(£11.7m)	(11.7m)	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723
Costs of inaction	£23,145	£1.5m	£2.6m	£2.9m	£3.2m	£3.5m	£3.7m	£3.9m	£4m	–	–	–	–	–	–	–
Economic benefits	£408,983	£31m	£59m	£67.7m	£77.2m	£88.4m	£96.2m	£106m	£116.5m	£121.9m	£128.2m	£134.5m	£140.1m	£147.1m	£151.4m	£156.5m
Water sector	**(£2.2m)**	**(£7.2m)**	**£7.5m**	**£38.1m**	**£73.4m**	**£114.5m**	**£161.3m**	**£213.4m**	**£271.2m**	**£332m**	**£396.5m**	**£464.6m**	**£536.5m**	**£612m**	**£690.1m**	**£771.2m**
Costs of migrations	(£2.7m)	(£20.6m)	(£14.7m)	(£3.2m)	(£3.2m)	(£3.2m)	(£1.6m)	(£1.6m)	(£1.6m)	£446,211	£446,211	£446,211	£446,211	£446,211	£446,211	£446,211
Costs of inaction	£27,228	£878,237	£1.4m	£1.6m	£1.8m	£2m	£2.1m	£2.2m	£2.3m	–	–	–	–	–	–	–
Economic benefits	£383,374	£14.8m	£28m	£32.2m	£36.8m	£42.3m	£46.3m	£51.5m	£57.1m	£60.3m	£64m	£67.7m	£71.4m	£75.1m	£77.6m	£80.6m
Health sector (NHS)	**(£8.1m)**	**(£33.6m)**	**(£34.6)**	**(£17.4m)**	**£568,909**	**£19.4m**	**£40.8m**	**£62.6m**	**£84.9m**	**£108.2m**	**£131.5m**	**£154.9m**	**£178.2m**	**£201.5m**	**£224.8m**	**£248.2m**
Costs of migrations	(£9.6m)	(£37.7m)	(£20.8m)	(£3.6m)	(£3.6m)	(£3.6m)	(£1.6m)	(£1.6m)	(£1.6m)	£830,275	£830,275	£830,275	£830,275	£830,275	£830,275	£830,275
Costs of inaction[3]	£51,398	£716,954	£917,133	£1m	£1.1m	£1.3m	£1.3m	£1.4m	£1.5m	–	–	–	–	–	–	–
Economic benefits[4]	£1.4m	£11.5m	£19m	£19.7m	£20.5m	£21.2m	£21.7m	£22.1m	£22.5m	£22.5m	£22.5m	£22.5m	£22.5m	£22.5m	£22.5m	£22.5m
Emergency services sector	**(£2.3m)**	**(£12.8m)**	**(£13.7m)**	**(£5m)**	**£4.3m**	**£14.2m**	**£25.7m**	**£37.6m**	**£49.8m**	**£62.7m**	**£75.6m**	**£88.4m**	**£101.3m**	**£114.2m**	**£127.1m**	**£139.9m**
Cost of migrations	(£3m)	(£16.5m)	(£11m)	(£2.1m)	(£2.1m)	(£2.1m)	(£887,057)	(£887,057)	(£887,057)	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908
Costs of inaction	£10,574	£329,537	£547,833	£616,248	£684,662	£753,076	£791,025	£828,974	£866,923	–	–	–	–	–	–	–
Economic benefits[5]	£688,907	£5.7m	£9.5m	£10.1m	£10.7m	£11.3m	£11.6m	£11.9m	£12.3m	£12.3m	£12.3m	£12.3m	£12.3m	£12.3m	£12.3m	£12.3m
Alarms sector	**(£337.5m)**	**(£1.5bn)**	**(£2.1bn)**	**(£2.2bn)**	**(£2.2bn)**	**(£2.2bn)**	**(£2.2bn)**	**(£2.2bn)**	**(£2.2bn)**	**(£2.1bn)**	**(£2.1bn)**	**(£2bn)**	**(£1.9bn)**	**(£1.9bn)**	**(£1.8bn)**	**(£1.8bn)**
Cost of migrations	(£338.7m)	(£1.2bn)	(£652.8m)	(£128m)	(£128m)	(£128m)	(£71m)	(£71m)	(£71m)	–	–	–	–	–	–	–
Costs of inaction	£210,927	£14.6m	£25.9m	£29.1m	£32.3m	£35.6m	£37.4m	£39.2m	£41m	–	–	–	–	–	–	–
Economic benefits	£1m	£22.9m	£41.1m	£45m	£49m	£52.9m	£55m	£57.2m	£59.4m	£59.4m	£59.4m	£59.4m	£59.4m	£59.4m	£59.4m	£59.4m
Local government sector	**(£54.8m)**	**(£212.8m)**	**(£245.8m)**	**(£187.8m)**	**(£123.4m)**	**(£52.5m)**	**£31.5m**	**£119.7m**	**£212.1m**	**£251.3m**	**£290.5m**	**£329.7m**	**£368.9m**	**£408.1m**	**£447.3m**	**£486.6m**
Cost of migrations	(£58m)	(£199.8m)	(£103m)	(£18.6m)	(£18.6m)	(£18.6m)	(£9.7m)	(£9.7m)	(£9.7m)	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m
Costs of inaction	£399,321	£21m	£36.5m	£42.1m	£47.6m	£53.2m	£56.9m	£60.6m	£64.2m	–	–	–	–	–	–	–
Economic benefits	£2.8m	£20.7m	£33.5m	£34.4m	£35.4m	£36.3m	£36.8m	£37.3m	£37.8m	£37.8m	£37.8m	£37.8m	£37.8m	£37.8m	£37.8m	£37.8m

Notes:

1. Sectoral totals are inclusive of all costs and benefits to date, representative of the point at which migration yields a positive benefit.
2. Savings from migrating voice services from analogue to VoIP are reflected in the cost estimates of the migration for each sector, resulting in some positive yields in later years of modelling.
3. The cost of inaction for the health and local government sector is inclusive of the cost of telecare device failure to both users and staff monitoring devices.
4. The economic benefit to the NHS is reflective of the cost savings of reducing ambulance conveyances with the migration of local government-provided telecare devices to digital.
5. The economic benefit to the emergency services sector is reflective of the cost savings of reducing false alarms to fire and rescue services.

Economic impact of PSTN migration (baseline)

Table 4:

The below table details the expected economic impact of the PSTN migration on the studied sectors according to the baseline migration scenario (completed by January 2027). The table and total impact figure is inclusive of the expected costs of the migration, the costs of inaction for firms that delay migration and the economic benefit of moving to all-IP or other advanced digital connectivity.

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Energy sector[1]	**(£4.4m)**	**(£11.3m)**	**(£9.4m)**	**(£5m)**	**(£434,211)**	**£4.3m**	**£9.2m**	**£14.4m**	**£19.8m**	**£25.4m**	**£31.3m**	**£37.5m**	**£44m**	**£50.7m**	**£57.7m**	**£64.8m**
Costs of migration[2]	(£4.8m)	(£9.5m)	(£2.1m)	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723
Costs of inaction	£23,145	£104,551	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of reduced maintenance and outages	£90,183	£541,100	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713
Benefit of reducing avoidable generation	£318,799	£2m	£3.1m	£3.2m	£3.4m	£3.6m	£3.7m	£4m	£4.2m	£4.5m	£4.7m	£5m	£5.3m	£5.6m	£5.7m	£6m
Water sector	**(£2.2m)**	**(£5m)**	**(£2m)**	**£2.3m**	**£6.8m**	**£11.5m**	**£16.4m**	**£21.6m**	**£27.2m**	**£33m**	**£39.1m**	**£45.6m**	**£52.4m**	**£59.5m**	**£66.8m**	**£74.5m**
Costs of migrations	(£2.7m)	(£5.1m)	(£904,993)	£446,211	£446,211	£446,211	£446,211	£446,211	£446,211	£446,211	£446,211	£446,211	£446,211	£446,211	£446,211	£446,211
Costs of inaction	£27,228	£122,996	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of reduced electricity demand	£383,374	£2.3m	£3.7m	£3.9m	£4m	£4.3m	£4.5m	£4.8m	£5.1m	£5.4m	£5.7m	£6m	£6.4m	£6.7m	£6.9m	£7.2m
Health sector (NHS)	**(£8.1m)**	**(£18.4m)**	**(£9.5m)**	**£4.2m**	**£18m**	**£31.7m**	**£45.4m**	**£59.2m**	**£72.9m**	**£86.6m**	**£100.4m**	**£114.1m**	**£127.8m**	**£141.6m**	**£155.3m**	**£169m**
Costs of migrations	(£9.6m)	(£18.8m)	(£4m)	£830,275	£830,275	£830,275	£830,275	£830,275	£830,275	£830,275	£830,275	£830,275	£830,275	£830,275	£830,275	£830,275
Costs of inaction[3]	£51,398	£232,177	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of improved call management	£60,494	£362,963	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609
Benefit of advanced telecare	£117,425	£704,577	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m
Benefit of reduced ambulance conveyances[4]	£1.2m	£7.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m
Emergency services sector	**(£2.3m)**	**(£4.1m)**	**£57,538**	**£5.6m**	**£11.1m0**	**£16.6m**	**£22.2m**	**£27.7m**	**£33.2m**	**£38.8m**	**£44.3m**	**£49.8m**	**£55.3m**	**£60.8m**	**£66.4m**	**£71.9m**
Cost of migrations	(£3m)	(£5.1m)	(£754,298)	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908
Costs of inaction	£10,574	£39,963	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of improved call management	£533,525	£2.4m	£3.4m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m
Benefit of reduced false alarms[5]	£155,382	£932,293	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m
Alarms sector	**(£337.4m)**	**(£1bn)**	**(£1.2bn)**	**(£1.2bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1bn)**	**(£1bn)**
Cost of migrations	(£338.7m)	(£677.5m)	(£169.4m)	–	–	–	–	–	–	–	–	–	–	–	–	–
Costs of inaction	£210,927	£952,801	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of reduced false alarms	£1m	£6.3m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m
Local government sector	**(£54.8m)**	**(£151.5m)**	**(£153.1m)**	**(£125.7m)**	**(£98.2m)**	**(£70.8m)**	**(£43.3m)**	**(£15.9m)**	**£11.6m**	**£39m**	**£66.5m**	**£93.9m**	**£121.4m**	**£148.9m**	**£176.3m**	**£203.8m**
Cost of migrations	(£58m)	(£115.3m)	(£27.7m)	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m
Costs of inaction	£399,321	£1.8m	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of improved call management	£1.2m	£7.4m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m
Benefit of advanced telecare	£1.6m	£9.3m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m

Notes:

1. Sectoral totals are inclusive of all costs and benefits to date, representative of the point at which migration yields a positive benefit.
2. Savings from migrating voice services from analogue to VoIP are reflected in the cost estimates of the migration for each sector, resulting in some positive yields in later years of modelling.
3. The cost of inaction for the health and local government sector is inclusive of the cost of telecare device failure to both users and staff monitoring devices.
4. This economic benefit to the NHS is reflective of the cost savings of reducing ambulance conveyances with the migration of local government-provided telecare devices to digital.
5. This economic benefit to the emergency services sector is reflective of the cost savings of reducing false alarms to fire and rescue services.

Economic impact of PSTN migration (accelerated)

Table 5:

The below table details the expected economic impact of the PSTN migration on the studied sectors according to the accelerated migration scenario (completed by December 2025). The table and total impact figure is inclusive of the expected costs of the migration, the costs of inaction for firms that delay migration and the economic benefit of moving to all-IP or other advanced digital connectivity.

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Energy sector[1]	**(£10.2m)**	**(£11.5m)**	**(£7.2m)**	**(£2.8m)**	**£1.7m**	**£6.5m**	**£11.4m**	**£16.5m**	**£21.9m**	**£27.6m**	**£33.5m**	**£39.7m**	**£46.2m**	**£52.9m**	**£59.8m**	**£67m**
Costs of migration[2]	(£11.2m)	(£5.3m)	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723	£344,723
Costs of inaction	£54,006	£131,899	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of reduced maintenance and outages	£210,428	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713	£841,713
Benefit of reducing avoidable generation	£743,861	£3m	£3.1m	£3.2m	£3.4m	£3.6m	£3.7m	£4m	£4.2m	£4.5m	£4.7m	£5m	£5.3m	£5.6m	£5.7m	£6m
Water sector	**(£5.2m)**	**(£4.2m)**	**£56,700**	**£4.4m**	**£8.9m**	**£13.6m**	**£18.5m**	**£23.7m**	**£29.3m**	**£35.1m**	**£41.2m**	**£47.7m**	**£54.5m**	**£61.6m**	**£69m**	**£76.6m**
Costs of migrations	(£6.2m)	(£2.7m)	£446,212	£446,212	£446,212	£446,212	£446,212	£446,212	£446,212	£446,212	£446,212	£446,212	£446,212	£446,212	£446,212	£446,212
Costs of inaction	£63,533	£155,169	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of reduced electricity demand	£894,540	£3.6m	£3.7m	£3.9m	£4m	£4.3m	£4.5m	£4.8m	£5.1m	£5.4m	£5.7m	£6m	£6.4m	£6.7m	£6.9m	£7.2m
Health sector (NHS)	**(£19m)**	**(£16.3m)**	**(£2.5m)**	**£11.2m**	**£25m**	**£38.7m**	**£52.4m**	**£66m**	**£79.9m**	**£93.6m**	**£107.4m**	**£121.1m**	**£134.8m**	**£148.6m**	**£162.3m**	**£176m**
Costs of migrations	(£22.3m)	(£10.4m)	£830,276	£830,276	£830,276	£830,276	£830,276	£830,276	£830,276	£830,276	£830,276	£830,276	£830,276	£830,276	£830,276	£830,276
Costs of inaction[3]	£119,930	£292,907	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of improved call management	£141,152	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609	£564,609
Benefit of advanced telecare	£274,004	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m	£1.1m
Benefit of reduced ambulance conveyances[4]	£2.8m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m	£11.2m
Emergency services sector	**(£5.3m)**	**(£3m)**	**£2.5m**	**£8m**	**£13.6m**	**£19.1m**	**£24.6m**	**£30.2m**	**£35.7m**	**£41.2m**	**£46.7m**	**£52.3**	**£57.8m**	**£63.3m**	**£68.8m**	**£74.4m**
Cost of migrations	(£6.5m)	(£2.7m)	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908	£614,908
Costs of inaction	£20,098	£49,086	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of improved call management	£853,640	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m	£3.5m
Benefit of reduced false alarms[5]	£362,559	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m	£1.5m
Alarms sector	**(£787.4m)**	**(£1.2bn)**	**(£1.2bn)**	**(£1.2bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1bn)**	**(£1bn)**
Cost of migrations	(£790.4m)	(£395.2m)	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Costs of inaction	£492,164	£1.2m	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of reduced false alarms	£2.4m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m	£9.8m
Local government sector	**(£127.8m)**	**(£165.9m)**	**(£138.4m)**	**(£111m)**	**(£83.5m)**	**(£56m)**	**(£28.6m)**	**(£1.1m)**	**£26.3m**	**£53.8m**	**£81.2m**	**£108.7m**	**£136.1m**	**£163.6m**	**£191m**	**£218.5m**
Cost of migrations	(£135.2m)	(£66.4m)	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m	£1.4m
Costs of inaction	£931,749	£2.3m	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Benefit of improved call management	£2.9m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m	£11.6m
Benefit of advanced telecare	£3.6m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m	£14.5m

Notes:

1. Sectoral totals are inclusive of all costs and benefits to date, representative of the point at which migration yields a positive benefit.
2. Savings from migrating voice services from analogue to VoIP are reflected in the cost estimates of the migration for each sector, resulting in some positive yields in later years of modelling.
3. The cost of inaction for the health and local government sector is inclusive of the cost of telecare device failure to both users and staff monitoring devices.
4. This economic benefit to the NHS is reflective of the cost savings of reducing ambulance conveyances with the migration of local government-provided telecare devices to digital.
5. This economic benefit to the emergency services sector is reflective of the cost savings of reducing false alarms to fire and rescue services.

Economic impact of 2G/3G migration

Table 6:

The below table details the expected economic impact of the 2G and 3G network migrations on the studied sectors. The table and total impact figure is inclusive of the expected costs of the migration, the costs of inaction for firms that delay migration and the economic benefit of moving to all-IP or other advanced digital connectivity.

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Energy sector[1]	**–**	**(£62m)**	**(£86.3m)**	**(£41.5m)**	**£13.1m**	**£78.9m**	**£162.2m**	**£255.2m**	**£358.6m**	**£457.2m**	**£597.8m**	**£726.4m**	**£861.2m**	**£1bn**	**£1.1bn**	**£1.3bn**
Costs of migration	–	(£91.8m)	(£81.9m)	(£21.7m)	(£21.7m)	(£21.7m)	(£12m)	(£12m)	(£12m)	–	–	–	–	–	–	–
Costs of inaction	–	£1.3m	£2.6m	£2.9m	£3.2m	£3.5m	£3.7m	£3.9m	£4m	–	–	–	–	–	–	–
Benefit of reduced maintenance and outages	–	£6.2m	£11.7m	£13.2m	£14.6m	£16.1m	£16.9m	£17.7m	£18.5m	£18.5m	£18.5m	£18.5m	£18.5m	£18.5m	£18.5m	£18.5m
Benefit of reducing avoidable generation	–	£22.3m	£43.3m	£50.5m	£58.4m	£68m	£74.8m	£83.4m	£92.9m	£98.1m	£101.4m	£110.1m	£116.2m	£122.2m	£126.3m	£131.1m
Water sector	**–**	**(£2.3m)**	**£9.6m**	**£35.8m**	**£66.6m**	**£103m**	**£144.9m**	**£191.8m**	**£224m**	**£299m**	**£357.3m**	**£419m**	**£484.1m**	**£552.5m**	**£623.3m**	**£696.7m**
Costs of migrations	–	(15.5m)	(£13.8m)	(£3.7m)	(£3.7m)	(£3.7m)	(£2m)	(£2m)	(£2m)	–	–	–	–	–	–	–
Costs of inaction	–	£755,241	£1.4m	£1.6m	£1.8m	£2m	£2.1m	£2.2m	£2.3m	–	–	–	–	–	–	–
Benefit of reduced electricity demand	–	£12.5m	£24.3m	£28.3m	£32.7m	£38.1m	£41.7m	£46.7m	£52m	£55m	£58.4m	£61.7m	£65.1m	£68.4m	£70.7m	£73.5m
Health sector (NHS)	**–**	**(£15.2m)**	**(£25m)**	**(£21.6m)**	**(£17.4m)**	**(£12.3m)**	**(£4.6m)**	**£3.4m**	**£12m**	**£21.6m**	**£31.2m**	**£40.8m**	**£50.4m**	**£60m**	**£69.5m**	**£79m**
Costs of migrations	–	(£18.9m)	(£16.8m)	(£4.5m)	(£4.5m)	(£4.5m)	(£2.5m)	(£2.5m)	(£2.5m)	–	–	–	–	–	–	–
Costs of inaction[2]	–	£484,777	£917,133	£1m	£1.1m	£1.3m	£1.3m	£1.4m	£1.5m	–	–	–	–	–	–	–
Benefit of advanced telecare	–	£164,075	£310,415	£349,176	£387,955	£426,716	£448,217	£469,718	£491,219	£491,219	£491,219	£491,219	£491,219	£491,219	£491,219	£491,219
Benefit of reduced ambulance conveyances[3]	–	£3.1m	£5.8m	£6.5m	£7.2m	£7.9m	£8.3m	£8.7m	£9.1m	£9.1m	£9.1m	£9.1m	£9.1m	£9.1m	£9.1m	£9.1m
Emergency services sector	**–**	**(£8.7m)**	**(£13.6m)**	**(£10.6m)**	**(£6.9m)**	**(£2.4m)**	**£3.6m**	**£9.9m**	**£16.6m**	**£24m**	**£31.3m**	**£38.7m**	**£46m**	**£53.3m**	**£60.7m**	**£68m**
Cost of migrations	–	(£11.5m)	(£10.2m)	(£2.7m)	(£2.7m)	(£2.7m)	(£1.5m)	(£1.5m)	(£1.5m)	–	–	–	–	–	–	–
Costs of inaction	–	£289,574	£547,833	£616,248	£684,662	£753,077	£791,025	£828,975	£866,924	–	–	–	–	–	–	–
Benefit of reduced false alarms[4]	–	£2.5m	£4.6m	£5.2m	£5.8m	£6.4m	£6.7m	£7m	£7.3m	£7.3m	£7.3m	£7.3m	£7.3m	£7.3m	£7.3m	£7.3m
Alarms sector	**–**	**(£511.7m)**	**(£939.7)**	**(£1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1.1bn)**	**(£1bn)**	**(£961.7m)**	**(£912.1m)**	**(£862.5m)**	**(£812.9m)**	**(£763.3m)**	**(£713.7m)**
Cost of migrations	–	(£542m)	(£483.4m)	(£128m)	(£128m)	(£128m)	(£71m)	(£71m)	(£71m)	–	–	–	–	–	–	–
Costs of inaction	–	£13.7m	£25.9m	£29.1m	£32.3m	£35.6m	£37.4m	£39.2m	£41m	–	–	–	–	–	–	–
Benefit of reduced false alarms	–	£16.6m	£31.3m	£35.3m	£39.2m	£43.1m	£45.3m	£47.4m	£49.6m	£49.6m	£49.6m	£49.6m	£49.6m	£49.6m	£49.6m	£49.6m
Local government sector	**–**	**(£61.3m)**	**(£92.6m)**	**(£62.2m)**	**(£25.2m)**	**£18.3m**	**£74.8m**	**£135.6m**	**£200.5m**	**£212.3m**	**£224m**	**£235.8m**	**£247.5m**	**£259.3m**	**£271**	**£282.8m**
Cost of migrations	–	(£84.4m)	(£75.3m)	(£19.9m)	(£19.9m)	(£19.9m)	(£11.1m)	(£11.1m)	(£11.1m)	–	–	–	–	–	–	–
Costs of inaction[5]	–	£19.2m	£36.5m	£42.1m	£47.6m	£53.2m	£56.9m	£60.6m	£64.2m	–	–	–	–	–	–	–
Benefit of advanced telecare	–	£3.9m	£7.4m	£8.4m	£9.3m	£10.2m	£10.7m	£11.2m	£11.8m	£11.8m	£11.8m	£11.8m	£11.8m	£11.8m	£11.8m	£11.8m

Notes:

1. Sectoral totals are inclusive of all costs and benefits to date, representative of the point at which migration yields a positive benefit.
2. The cost of inaction for the health sector is inclusive of the cost of telecare device failure to both users and staff monitoring devices.
3. This economic benefit to the NHS is reflective of the cost savings of reducing ambulance conveyances with the migration of local government-provided telecare devices to digital.
4. This economic benefit to the emergency services sector is reflective of the cost savings of reducing false alarms to fire and rescue services.
5. The cost of inaction for the local government sector is inclusive of the cost of telecare device failure to both users and staff monitoring devices as well as the maintenance and theft-relate costs of retaining legacy parking meters.

Social and environmental benefits

Table 7:

The below table details the social and environmental benefits of legacy network migration for the sectors studied. The relevant unit for each benefit is specified in the row.

		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	Total
Energy sector	Emissions saved (Mt CO2e)	0.0005	0.0382	0.0732	0.0846	0.0973	0.1126	0.1236	0.1377	0.1530	0.1615	0.1714	0.1813	0.1914	0.2012	0.2080	0.2160	**2.1516**
Water sector	Emissions saved (Mt CO2e)	0.0006	0.0234	0.0441	0.0507	0.0579	0.0667	0.0730	0.0811	0.0900	0.0950	0.1009	0.1066	0.1125	0.1183	0.1223	0.1270	**1.2701**
Health sector (NHS)	Staff hours saved (hours)[1]	3,987	25,882	40,919	41,381	41,843	42,306	42,562	42,818	43,075	43,075	43,075	43,075	43,075	43,075	43,075	43,075	**626,297**
	Ambulance conveyances saved (trips)[2]	3,197	27,102	44,822	46,693	48,564	50,435	51,472	52,510	53,548	53,548	53,548	53,548	53,548	53,548	53,548	53,548	**753,179**
Local government sector	Staff hours saved (hours)[3]	61,593	451,529	729,945	749,311	768,677	788,043	798,785	809,528	820,270	820,270	820,270	820,270	820,270	820,270	820,270	820,270	**11,719,569**

Notes:

1. Staff hours saved by the health sector has also been converted into an economic value and reported as an economic benefit.
2. Ambulance conveyances has also been converted into an economic value, based on the cost of an ambulance journey to the NHS, and reported as an economic benefit.
3. Staff hours saved by the local government sector has also been converted into an economic value and reported as an economic benefit.

Appendix

Concise methodology

General

- All calculations are based on projections of remaining PSTN lines and 2G/3G SIMs. This modelling does not account for economic impact relating to lines or SIMs that have already been migrated off these legacy networks.
- All projections for the PSTN migration begin in Q2 2025, based on the most recent available data provided by BT on remaining commercial PSTN lines. All projections for 2G and 3G migration begin in 2025.

Line migration: All commercial PSTN lines

- We estimated the total number of commercial PSTN lines remaining nationally based on the proportion of lines attributable to each operator at the network's peak and projected two scenarios, a baseline and accelerated scenario, for possible migration paths.
- We projected the number of commercial lines attributable to five (energy, water, healthcare, emergency services, government) relevant CNI sectors by applying known proportions of lines for these sectors and distributing lines attributed to an unknown sector based on the known proportions.

Line migration: All 3G SIMs

- We estimated the remaining number of commercial 3G SIMs and the trend of retirement through the end of 2025 based on publicly available information from an operator.

Line migration: All 2G SIMs

- We estimated the remaining number of commercial 2G SIMs based on data provided by BT and publicly available information from two operators.
- We charted the path of migration for the 2G network based on publicly available information from operators and the UK Government on targeted shutdown dates.

PSTN device benchmarks:

- We estimated the number of fire and security alarms, lift alarms and telephone lines in each CNI sector based on the proportion of those devices at the network peak.
- We also estimated the number of sector specific devices still using the PSTN based on publicly available reporting and budgets and feedback from relevant sectoral stakeholders, including:
  - Energy: Gas and electricity supply monitors
  - Water: Water and flood monitoring devices
  - Healthcare: Group telecare devices
  - Local government: Group and dispersed telecare devices
- We also projected the total number of fire and security alarms and lift alarms still connected to the PSTN in the UK based on device proportions at network peak and excluding those counted in the other studied sectors.

2G/3G device benchmarks:

- We estimated the number of fire and security alarms and lift alarms in each CNI sector based on desk research on the total volume of these devices and the proportions of these devices attributable each sector in the context of the PSTN.
- We also estimated the number of sector specific devices still using the 2G/3G networks based on publicly available reporting and budgets and feedback from relevant sectoral stakeholders, including:
  - Energy: Smart meters, grid monitors and vehicle telemetry devices
  - Water: Event duration monitors, private sewer pumping stations and vehicle telemetry devices
  - Healthcare: Group telecare devices
  - Local government: Group and dispersed telecare devices and parking meters

Cost of migrations:

- We estimated the cost of migrating legacy devices based on desk research into publicly available budgets and applied these sourced costs to the baseline and accelerated PSTN scenarios and 2G/3G migration pattern to create a schedule of costs for each sector.
- We apply a percent decrease in voice costs to all migrated telephone lines based on stakeholder feedback.
- We do not account for recurring costs of migration and assume that devices are replaced at the time costs are incurred.

Cost of inaction:

- For most lines and SIMs, we estimated a cost of inaction based on the avoided cost of resilience incidents and related losses of service when firms migrate off these networks. We applied a generic £ value of these incidents sourced from previous modelling.

Concise methodology (Cont.)

Cost of inaction (continued)

- For telecare devices, we calculated the expected cost to both staff monitoring telecare devices and users of these devices based on the output per hour of relevant staff and costs to users from previous modelling.
- For parking meters, we calculated the ongoing costs of maintenance and theft when legacy meters are maintained based on reports from local councils.

Economic benefits of migration

- All benefits are reported in annual estimates for both the baseline and accelerated scenarios of PSTN retirement and the migration pattern for the 2G and 3G networks.
- We do not account for any thresholds at which certain benefits may be realised or below which no benefits may be realised.

Energy: Reduced maintenance and outage

- We estimate the possible reduced spending on maintenance and reduced cost of outage time when legacy electricity distribution network sensing devices are upgraded.
- We use values from previous modelling to assign a £ value for reduced maintenance and a percent decrease in customer minutes lost and customer interruptions.

Energy: Reducing avoidable generation

- We estimate the possible reduced avoidable generation when legacy electricity distribution network sensing devices are upgraded.
- We use values from previous modelling to assign a percent decrease in generation from technological upgrade. We also convert this decrease in generation to emissions savings.

Water: Reducing electricity demand

- We estimate the possible reduced electricity demand when legacy water system sensing devices are upgraded.
- We source the percent reduction in electricity demand with upgrades from previous modelling and convert this decrease in demand to emissions savings as well.

Health: Improved call volume management

- Based on stakeholder feedback, we estimate a percent improvement in the efficiency of call volume management when voice lines are upgraded to VoIP.
- We assign an economic value to this efficiency improvement based on the staff time saved.

Health: Advanced telecare

- We estimate the possible reduction in emergency calling and ambulance journeys from adopting more advanced telecare devices based on advanced connectivity.
- We adopt percentage values from previous modelling on possible reductions, assign a £ value to reduced emergency calling based on staff time saved and a £ value to ambulance journeys based on costs to the NHS.

Emergency services: Improved call volume management

- Based on stakeholder feedback, we estimate a percent improvement in the efficiency of call volume management when voice lines are upgraded to VoIP.
- We assign an economic value to this efficiency improvement based on the staff time saved.

Alarms: Reduced false alarms

- We estimate the number of reduced false fire alarms per year possible with upgrading automated legacy alarms to advanced connectivity.
- We calculate the value of productivity savings to businesses and the value of cost savings to fire and rescue services, the latter of which we report as an economic benefit to the emergency services sector.

Local government: Improved call volume management

- Based on stakeholder feedback, we estimate a percent improvement in the efficiency of call volume management when voice lines are upgraded to VoIP.
- We assign an economic value to this efficiency improvement based on the staff time saved.

Local government: Advanced telecare

- We estimate the possible reduction in emergency calling and ambulance journeys from adopting more advanced telecare devices based on advanced connectivity.
- We adopt percentage values from previous modelling on possible reductions, assign a £ value to reduced emergency calling based on staff time saved and a £ value to ambulance journeys based on costs to the NHS.
- We report the savings from fewer ambulance journeys as an economic benefit to the health sector.

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