Annex 5: Further detail on economic assumptions and analysis

Additional Safety Measures

Statement Annex

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A1. Further detail on economic assumptions and analysis

A1.1 This annex provides further information related to the economic analysis used to support our decisions for some of the measures assessed in this Statement. We outline assumptions we have used to develop quantified cost estimates across several of the measures.

General cost assumptions

A1.2 We have made some general assumptions on costs, which apply to our analysis of many of the measures. These general assumptions are usually combined with other assumptions that are specific to each measure to determine the estimated costs of the measure in the chapter in the main body of the statement. Any additional assumptions that are used in the cost analysis are described in the costs section of the relevant chapters.

Labour Costs

A1.3 We used data from the Annual Survey of Hours and Earnings ('ASHE'), to develop our estimates for the labour cost required to implement some code measures. All quantified estimates of costs are provided in 2026 prices, unless otherwise stated, which is the most recent data available.[1] Our June 2025 Consultation used 2024 prices which was the most recently available data at that time.[2]

A1.4 We used the ASHE 2026 gross median earnings[3] for the following Standard Occupational Classification ('SOC') 2020 references:

- Programmers and software development professionals' salary (2134) to estimate the cost of 'software engineer' time used when developing our cost estimates.
- Database administrators and web content technicians salary (3133)[4] to estimate the cost of 'content moderator' time when developing our cost estimates.

[1] Office for National Statistics ('ONS'), 2026. Earnings and hours worked, occupation by four-digit SOC: ASHE Table 14 – Office for National Statistics. 2026 data is provisional at time of writing.
[2] Our December 2024 Statement on Protecting People from Illegal Harms ('December 2024 Statement') and our April 2025 Statement on Protecting Children from Harms Online ('April 2025 Statement') used 2023 prices.
[3] We note that in our June 2025 Consultation annex we stated that we had used the 'gross median *full-time* earnings', however this was not correct. We used gross medium earnings 'for all employee jobs' in our estimates and the salary figures presented in the Annex.
[4] We note that in our June 2025 Consultation annex the salary code was wrongly reported as 3113, not 3133. This four-digit SOC 2020 code (unit group code 3133) includes occupations such as content, chat, web, and website moderators as well as other occupations such as database administrators and web content. technicians.

- Professional Occupations (2) to cover a range of professions that are employed at various online services and might be required to implement code measures.[5] This could be legal employees, operations, product managers and so forth.

We chose these occupations because they are likely to develop and/or manage the systems and processes that in-scope service providers will need to have to comply with the regime.[6]

A1.5 For some service providers median UK wage rates may differ from actual salary rates.

a) This may be especially the case for larger service providers based in the US, who may have higher salary levels. The salary costs of some types of staff, such as software engineers with certain specialisms, may vary and may be considerably higher in some cases. To take account of this, we have calculated a higher salary estimate, which is double the value of our lower estimate.

b) Conversely, some service providers may outsource some relevant work to locations where average pay is lower than the UK, which may reduce costs. To the extent this is the case, our salary range may tend to overstate costs.

A1.6 We applied a 22% uplift to the gross wage costs to account for non-wage labour costs, such as employers' National Insurance contributions.[7] This is calculated based on the most recent 2024 Blue Book data available at the time of writing. Estimates in our June 2025 Consultation used a 21% uplift based on 2023 data, which was the most recent data at the time of that publication.

A1.7 Table A5.1 shows the 'low' and 'high' labour cost estimates for different time periods, including the 22% uplift, for each of the three occupations. The figures are based on annual labour costs, and we have calculated the monthly, weekly and daily estimates.[8]

[5] We note that in our June 2025 Consultation annex we stated that we had used the 'Business, median and public service professionals (24)' salary, however this was not correct. We used 'Professional Occupations (2)' salary in our estimates and the salary figures presented in the Annex. This is also what was used in our cost estimates for our December 2024 and April 2025 statements.

[6] ASHE documentation does not explicitly state that gross salaries include bonuses, but our understanding is that the gross pay includes bonuses, tips and other payments.

[7] ONS, 2021. *Uplifts from wages and salaries to total employment costs: a note on data*. ONS recommends dividing the 'employer's social contributions (D.12)' by 'wages and salaries (D.11)' to arrive at the uplift. Both series are published as part of the annual UK National Accounts: Blue Book time series. They provide economy wide estimates of D.11 and D.12 annually. At time of writing, the most recent data available is for 2024.

[8] When producing cost estimates for the measures, we have used resourcing estimates based on different time periods (e.g. days/weeks/months) suitable for the particular measure. The annual wages are derived from the ONS, 2026 Earnings and hours worked, occupation by four-digit SOC: ASHE Table 14 - Office for National Statistics, Table 14.7a Gross median annual pay for all employee jobs, 2026 provisional estimates. Monthly, weekly and daily wages are all derived from this annual figure. The monthly wages are derived from dividing the annual wages by the number of months in a year (12). The weekly wages are derived by dividing the annual figure by 45.54 (the number of working weeks per year, calculated by dividing the number of working days by the number of working days in a week). The daily wages are derived from dividing the annual wages by the number of working days in a year. We assume on average there are 228 working days in a year. This assumes people work 5 days a week and that there are 8 bank holidays and on average people take an additional 25 days leave a year.

Table A5.1: Low and High Range – Estimates of Labour costs

Occupation	Annual labour cost estimates	
	Low	High
Software engineer	£71,700	£143,399
Content moderator	£47,077	£94,155
Professional occupations	£57,386	£114,772
	Monthly labour cost estimates	
Software engineer	£5,975	£11,950
Content moderator	£3,923	£7,846
Professional occupations	£4,782	£9,564
	Weekly labour cost estimates	
Software engineer	£1,574	£3,149
Content moderator	£1,034	£2,067
Professional occupations	£1,260	£2,520
	Daily labour cost estimates	
Software engineer	£315	£630
Content moderator	£207	£413
Professional occupations	£252	£504

Source: ONS (2026), Annual Survey of Hours and Earnings. Includes 22% uplift. Calculations are performed based on the underlying median gross salary (the 'low' estimate, before uplift is applied) and then uplifted by 22%.

A1.8 For the measures that require input from senior management, in our consultation and previous publications,[9] we estimated annual labour costs for senior managers and senior leaders at £122,000 to £183,000.[10] These estimates have been updated using recent growth in whole economy earnings. The revised annual labour cost range is £141,000 to £212,000.[11]

Non-engineering Costs for System Changes

A1.9 Where system or other software changes associated with a measure involve a software cost, we typically match the amount of engineering time with an equivalent amount of

[9] Our December 2024 Statement on Protecting People from Illegal Harms ('December 2024 Statement') and our April 2025 Statement on Protecting Children from Harms Online ('April 2025 Statement'.

[10] This was based on simple assumptions we made of £100,000 salary for a senior manager and £150,000 salary for a senior leader, which are then uplifted by the 22% uplift for non-wage labour costs.

[11] Using ONS, 2026. AWE: Whole Economy Year on Year Three Month Average Growth (%): Seasonally Adjusted Total Pay Excluding Arrears. We have updated these figures to account for cumulative growth since 2023.

non-engineering time for work carried out by people in professional occupations. This is to account for labour time that a business might need to spend on a system change, for instance, legal or project management.

Maintenance Costs for System Changes

A1.10 Where system or other software changes associated with a measure involve an initial cost, we have assumed an ongoing annual maintenance cost of 25% of the initial cost. These ongoing costs reflect work likely required to ensure the system continues to operate as intended. We have applied this assumption in the absence of actual information about the ongoing maintenance costs. This is consistent with the approach we took in Our December 2024 Statement on Protecting People from Illegal Harms and our April 2025 Statement on Protecting Children from Harms Online.

Further detail on age assurance cost analysis

A1.11 We analysed the costs of highly effective age assurance in our April 2025 Statement on Protecting Children from Harms Online ('April 2025 Statement'). We have used the same analysis here, using the same data.

A1.12 This sub-section provides further analysis of costs which has been used to support our conclusions on age assurance measures, as set out in section 5, Highly effective age assurance in the Illegal Content Codes.

A1.13 We discuss:

a) Our general cost assumptions for age assurance.

b) Direct costs to service providers. We consider that all direct costs are likely to depend on how a service provider approaches its implementation of the measures, but in all cases we consider that the main costs are likely to relate to:

   i) preparing to implement age assurance; and

   ii) implementing and operating a third-party age assurance method; or

   iii) building and operating an in-house age assurance method.

c) Indirect costs to services due to our requirements to implement age assurance.

Our general cost assumptions for age assurance

A1.14 We adopt several general assumptions to estimate costs. The cost estimates are illustrative and may not capture the full range of possibilities in practice. Providers could face different costs depending on their circumstances (e.g. any existing age assurance capabilities), the age assurance method(s) they adopt and how they implement their age assurance process more broadly.

A1.15 We have assumed that users will have to confirm their age for each service separately. We recognise that where an online service provider manages multiple services it may be possible to share the age credential of a user across more than one service, which may reduce direct costs for the service and friction on users. Reusability of age checks and/or interoperability of age assurance methods may become more widely available in future, for example, where a user can complete an age check that is valid for many service providers.

This could reduce costs and make implementing and operating age checks more cost effective for more services, and more convenient for users.

A1.16 We have assumed that service providers have no existing systems in place that can facilitate age assurance. Where services already have systems to gate access for users in some way or to obtain user information that may be relevant for age assurance (e.g., a payment system for subscription charges), the costs of implementing age assurance may be lower than our estimates suggest. This includes cases where a service may also be subject to regulatory requirements related to age assurance in other jurisdictions.

A1.17 We assume that age checks are one-off. As we set out in the draft Part 3 HEAA Guidance, we have not set specific expectations for service providers to repeat age checks. However, service providers should determine whether repeated age checks are needed to meet the robustness criterion based on the features of their service and age assurance process. For example, service providers may decide to conduct an age check each time an unregistered user visits a service. We note that services which do not offer accounts or where users do not choose to create accounts, could incur higher costs. Service may also face higher costs if users repeat the age check, e.g., children who repeat the age check after turning 18. However, we understand that some age assurance providers offer volume discounts to services[12] which could reduce the overall costs of these age checks for services which have to repeat age checks for users.

A1.18 We have assumed that services apply age assurance to all users. In practice, some services may be able to only age assure a subset of users. Depending on the specific context of a service, this may significantly reduce costs compared to the estimates we present. For instance, if a service conducted age checks for 50% of its users, and its costs were primarily driven by unit costs per age check, then we would estimate its ongoing costs related to conducting age checks to be up to 50% lower.

A1.19 We recognise that our cost estimates are dependent on the assumptions we have made. In practice costs could be higher or lower, depending on how service providers have decided to comply with their online safety duties and implement age assurance.

Preparatory costs relating to the introduction of age assurance

A1.20 All U2U services are likely to incur some one-off preparatory labour costs relating to the preparation of adopting age assurance. These may include staff familiarising themselves with the measures and guidance, familiarising themselves with ICO guidance, researching and assessing the suitability of different age assurance options for their service, considering how to implement age assurance in a way that is highly effective, meeting the relevant criteria and having regard to the other principles (such as accessibility).

A1.21 Where a service provider decides to use a third-party age assurance provider, the procurement process is likely to involve some time and effort related to governance and budget processes, evaluation of providers and senior management engagement. For larger businesses with relatively complex governance and procurement processes, a formal tendering process could tie up internal staff's time and take significantly longer.

A1.22 Overall, these preparatory costs are likely to depend on the size and type of service and are expected to be larger for large services because of different governance processes but also the number of employees likely to be involved.

[12] DSIT, 2024. Online Safety Act impact assessment, paragraph 190.

Costs associated with third-party age assurance methods

A1.23 There may be upfront costs linked to the age assurance provider setting up a client account to prepare the age assurance method for use, or in some cases, this charge may be part of an ongoing maintenance support service.[13] We recognise that these upfront costs may be substantial for larger, more complex services, e.g. if the existing service infrastructure needs adjusting or there are other complexities with linking up the third-party technology with the services' systems or data. For instance, a report commissioned by DSIT found an example of a 'large gaming organisation' which received cost estimates from a third-party age assurance provider that it would incur '2-3 months of 4-5 developer's time' to implement the technology on its service.[14] However, our overall assessment is that this cost is likely to be small for most smaller services. For instance, we understand that some third-party methods are developed with ease of integration in mind, meaning that connecting to a services' existing systems should be relatively easy and cheap.

A1.24 The service provider may also need to train some of its staff who work closely with the age assurance process (e.g., software engineers maintaining the running of the age assurance software) when the process becomes operational. We expect such costs would be relatively small and could be larger in an alternative approach where age assurance technology is developed and implemented fully in-house.

A1.25 The main cost component relating to third-party age assurance methods is the per-check cost, including the cost to check the age of existing users and new users on an ongoing basis. These costs are likely to vary depending on the age assurance process and provider, as underlying costs and pricing approaches vary. According to DSIT's impact assessment of the Online Safety Act, some age assurance providers offer volume discounts to services requiring a large number of checks and discounted fees for small clients and start-ups in some cases,[15] while subscription-based verification packages often include a fixed number of checks for users.[16] DSIT's evidence indicates that price per check ranges from less than 1p to £1, depending on the provider and method used.[17]

A1.26 To illustrate what these costs may mean for a service, we set out cost examples for hypothetical services with a different number of users in the table below. According to the Government's impact assessment on the Online Safety Act, most per-check costs provided were 10p or lower.[18] Our approach reflects the variety of methods and prices available in the market, as well as uncertainty about how the market may evolve in future.

A1.27 We maintain a low estimate of 5p per check and a high estimate of 30p, considering the prevalence of volume discounts, we expect a smaller service is more likely than a larger service to incur per-check costs closer to the high estimate. However, this is partly mitigated by large services being likely to face more substantial preparatory costs or requiring a significantly higher volume of age checks.

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[13] For example, based on Yoti's price list data from May 2022, setting up an organisational account is £750 per organisation. GC-13 Yoti Age Verification Pricing (digitalmarketplace.service.gov.uk).
[14] DSIT, 2024. Potential impact of the Online Safety Bill.
[15] DSIT, 2024. Online Safety Act impact assessment, paragraph 190.
[16] DSIT, 2024. Online Safety Act impact assessment, paragraph 186.
[17] It is possible that due to inflation that these examples are now out of date. Publicly available per check prices are greater than the bottom end of this range, and in these cases, it is not clear who these prices would apply to. DSIT, 2022. DSIT, 2024. Online Safety Act impact assessment, paragraph 190.
[18] DSIT, 2024. Online Safety Act impact assessment, paragraph 190.

A1.28 In our July 2026 report on the Use of Age Assurance[19] we estimated the cost of implementing HEAA. Based on information collected from a sample of regulated services, we calculated a median estimated cost of around £0.06 per check, with most services reporting per-check costs at or below £0.10.[20] This is broadly consistent with the assumptions used in our June 2025 Consultation. While this information was primarily obtained from larger services, the reported costs were generally towards the lower end of our estimated range. These findings provide support for our estimated range of third-party per-check HEAA costs.

Table A5.2: Illustrative cost estimates of age checks via third-party age assurance providers*

Existing UK user base	New users each year	Age assurance for existing users (**one-off**)	Age assurance for new users (annual ongoing cost)
1,000	100	£50 - £300	£5 - £30
10,000	1000	£500 - £3000	£50 - £300
100,000	10,000	£5,000 - £30,000	£1,000 - £3,000
350,000	35,000	£18,000 - £105,000	£2,000 - £11,000
700,000	35,000	£35,000 - £210,000	£2,000 - £11,000
1,000,000	50,000	£50,000 - £300,000	£3,000 - £15,000
7,000,000	70,000	£350,000 - £2,100,000	£4,000 - £21,000
20,000,000	200,000	£1,000,000 - £6,000,000	£10,000 - £60,000

Source: Ofcom analysis

**Note: For existing UK user base of 100,00 and more, cost estimates have been rounded up to the nearest thousand. These illustrative examples assume a faster rate of user base growth, in proportionate terms, for the smallest services (10% growth rate) and a lower rate for the largest services (1% growth rate).*[21]

A1.29 We assume that our code measures will mean that services will incur a one-off cost of checking the age of their entire existing user base.[22] To estimate costs illustrative costs, we multiply the number of users by the per-check cost (for example, 100,000 users x 5p = £5,000).

A1.30 We also estimate the annual ongoing cost of carrying out age checks for new users. We make illustrative assumptions about the volume of new users, assuming a higher growth rate for smaller services (10%) compared to larger services (1%).

[19] Ofcom (2026), Use of Age Assurance Report 2026, paragraphs 7.9-7.16.
[20] All reported costs were within our estimated range of £0.05 to £0.30 per check.
[21] We had not presented illustrative cost estimates corresponding to existing user base of 1,000 and 10,000 in the April 2025 Statement. We derive these additional illustrative cost estimates using the same assumptions and methodology as for the remaining cost estimates.
[22] We recognise that in practice this may take place over time as some users may not use the service frequently. We also acknowledge that the requirement to undergo age assurance may result in some user-drop off.

A1.31 For simplicity, we assume that ongoing age checks on new users will continue, and that: (a) the cost per check remains unchanged over time; (b) all checks for a service cost the same; and (c) the nature of the service does not influence the per-check cost. Table A15.2 sets out a cost estimate for these ongoing checks.

A1.32 Services may incur other costs including for example software licensing costs, training costs and data storage costs. In most cases we assume these would be included in the ongoing age check costs.

A1.33 Various testing and evaluation activities are recommended under our highly effective age assurance criteria. Where services use third-party age assurance providers, we expect that those third parties would carry out the bulk of these activities, which may limit further costs incurred by services. However, service providers would still be expected to maintain due oversight and understanding of any third-party testing and evaluation, as it is the service providers in scope of our age assurance measures who are ultimately responsible for ensuring that their approach to age assurance is highly effective. This may therefore require some staff time on an ongoing basis.

A1.34 Due to the fast-developing age assurance industry and emerging new verification tools the future costs of third-party age methods are uncertain. We think there is a significant likelihood that costs of age assurance will fall over time, as well as the possibility of interoperability of different solutions to increase in the future.

Costs of developing an age assurance method in-house

A1.35 For illustrative purposes, we have also considered what an age estimation method could cost to develop and run.[23] We assume that the initial phase of work phase may take at least six months, which includes the design, development, testing and deployment of age assurance software. Development time and costs are likely to vary by the approach taken. The estimates we present below are intended to provide an illustrative example of the broad magnitude of costs associated with developing a single in-house age assurance method.

A1.36 The main costs are likely to be:

a) One-off labour costs relating to the upfront expense of developing, testing, and deploying the software. This would include ensuring that the age assurance process met the four criteria set out in our guidance: technical accuracy (evaluating methods against appropriate metrics), robustness (evaluating methods in real-world conditions), reliability (producing reproducible results), and fairness (testing and training the method on diverse datasets).

b) Ongoing staff costs of monitoring, supporting, and maintaining of the age assurance model. This would include meeting recommendations related to reliability, including monitoring key performance indicators and rectifying issues related to unexpected or unreliable predictions.

[23] In this section, we use estimates of labour costs based on 2023 ASHE data, as in the April 2025 Statement. We have also checked these estimates using 2026 ASHE data but the numbers have not changed due to rounding.

A1.37 Our high-level indicative analysis in the context of a large business (which we consider the more likely scenario),[24] suggests that the upfront costs of staff involved in the relating to development, testing and deployment of an in-house solution could be in the region of many hundreds of thousands and potentially up to £1 million.[25] The total staff costs, including other non-technical expertise, e.g. legal, may exceed this amount. In addition to these costs, a provider may incur substantial one-off costs relating to acquiring relevant datasets for developing its age assurance method and one-off software/hardware costs relating to additional computational resources to develop and train its age assurance method, which may include cloud infrastructure and data security.[26] A large service may be able to use existing infrastructure and resources for the purpose of a new age assurance process, there is still an opportunity cost to this because these resources are not available for other uses.

A1.38 There would also be ongoing staff costs relating to monitoring, evaluation and maintenance, and there could be additional ongoing data costs if the method requires significant improvements and/or changes in the future. We estimate that these ongoing staff costs could reach £1 million annually or potentially more, depending on a service's approach. Our estimates are based on the same salary assumptions for upfront and ongoing costs. In practice, it is possible that some ongoing activities could be conducted by more junior staff on lower salaries, such that ongoing costs could be lower than suggested here.[27]

A1.39 As with our examples on third-party methods, these cost estimates are only intended to be illustrative and depend on the different assumptions we have made. The analysis above relates to the development of a single method. Where a service develops multiple methods for use as part of its age assurance process, the total costs are likely to be significantly higher.

A1.40 Any services seeking to develop age assurance methods in-house are likely to be relatively large, due to the substantial upfront costs relating to software development and testing. This could be more cost effective if a service anticipates a high volume of age checks over time and lower ongoing engineering costs compared to the alternative of using a third-party age assurance provider. Large services may also already have the necessary employees to develop age assurance methods, including those with advanced skills who may be required.

A1.41 To the extent that smaller services have the relevant capabilities to pursue an in-house approach, it is possible that they may be able to do so more cheaply than suggested by our indicative cost estimates (e.g. due to having simpler organisational processes and lower overheads in relation to the relevant activities).

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[24] For example, Google has appeared in a registry of providers approved by the Age Check Certification Scheme (ACCS), the UK's program for age verification systems.

[25] We assume that the upfront costs are based on staff input on a full-time equivalent (FTE) basis for around six months from c.16 software engineers, while for the ongoing labour costs we assume require c.14 FTEs annually. Costs may increase if the age assurance method involves a particularly high level of expertise, e.g., machine learning. This may be an overestimate given that we expect services could use more junior staff for some model monitoring, maintenance, and support functions.

[26] A service developing an age assurance method is likely to require a cloud security solution that runs all the time and scans information regularly. Securing the data and systems is needed from the development phase but the service will continue to incur this as the systems and data need to be secured on an ongoing basis.

[27] The ongoing labour costs we assume require 14 FTEs annually.

A1.42 The service may also incur some one-off staff training costs after age assurance is deployed to users, but these are likely to be relatively small in comparison to the one-off and ongoing costs relating to developing and deploying age assurance approach in-house and will depend primarily on the number of people that need to be trained and how much training is required.