



Skills England



**UK Standard Skills
Classification**

UK Standard Skills Classification

Development Report

April 2026



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Project timeline and reporting

The UK Standard Skills Classification (SSC) was proposed in 2022 as a coherent framework and common language for describing the skills, tasks, and knowledge required across UK occupations. The project had 2 main phases:

- Phase 1, undertaken from April to September 2023, resulted in a report, '[A skills classification for the UK - GOV.UK](#)' published in October 2023, outlining user needs and plans for the development of the SSC.
- Phase 2 of the project ran from March 2024 to April 2026. An [interim report](#) was published in November 2025 to provide a progress update.

This report details all the work undertaken in Phase 2 of the project, resulting in Version 1.0 of the UK Standard Skills Classification. It sets out the structure of the SSC, the method of its construction, and potential applications of the classification, as well as proposals for its ongoing maintenance and future development.

For more information on the UK SSC, visit [UK Standard Skills Classification](#).

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Glossary of abbreviations

AGCAS	The Association of Graduate Careers Advisory Services (now Graduate Futures Institute GFI)
ASC	Australian Skills Classification
DfE	Department for Education
DWP	Department for Work and Pensions
ESCO	European Skills, Competences, Qualifications and Occupations
GFI	Graduate Futures Institute
HECoS	Higher Education Coding of Subjects
IER	Institute for Employment Research, University of Warwick
IfATE	Institute for Apprenticeships and Technical Education
JSA	Jobs and Skills Australia
LLM	Large Language Models
NCS	National Careers Service
NOS	National Occupational Standards
Ofqual	Office of Qualifications and Examinations Regulation
ONS	Office for National Statistics
O*NET	US Occupational Information Network
OS	Occupational Standard(s)
SE	Skills England
SOC	Standard Occupational Classification
SSC	UK Standard Skills Classification
STEM	Science, Technology, Engineering and Mathematics
STEM-M&H	Science, Technology and Engineering, Mathematics, Medicine and Health
SUG	Sub-Unit Group (Standard Occupational Classification)
WFH	Workforce Foresighting Hub (Innovate UK)

Executive Summary

The concept of 'skill' underpins employment, education, and training systems. However, the absence of a unified national skills classification has limited the UK's ability to analyse, communicate, and act consistently on skill-related information. To address this, Skills England, working with the Institute for Employment Research (IER) and other partners, has developed the UK Standard Skills Classification (SSC). The SSC provides a coherent framework and a common language for describing the skills, tasks, and knowledge required across the labour market.

This report presents progress from Phase 2 of the project, building on design work completed in 2023. It sets out the SSC's structure, methodological approach, and potential applications, as well as proposals for its ongoing maintenance and future development.

The SSC is structured as a four-level hierarchy comprising 22 Skill Domains, 106 Skill Areas, 607 Skill Groups, and 3,350 Occupational Skills. Each Occupational Skill is linked to associated Tasks, Core Skills, and Knowledge concepts. This design enables detailed mapping between skills, occupations, qualifications, and wider frameworks, ensuring both depth and comparability. Core Skills are also defined, capturing generic, transferable abilities valued across occupations.

Development of the SSC combined artificial intelligence (AI) methods, expert validation, and stakeholder engagement. Task, skill, and knowledge statements were drawn from multiple datasets including those held by the Graduate Futures Institute (GFI), the Institute for Apprenticeships and Technical Education (IfATE) (now embodied within Skills England), the US Occupational Information Network (O*NET), Higher Education Coding of Subjects (HECoS), and UK job vacancy data. They were then refined, clustered and quality assured. AI models were used to generate embeddings, cluster concepts, and propose labels, while manual reviews ensured accuracy, reliability, and UK relevance.

The SSC has been designed to support various groups of users:

- for individuals and careers services, it highlights transferable skills, training needs, and career pathways
- for employers, it supports workforce planning, recruitment, training, and job design
- for local labour market analysts and training providers, it enables more responsive planning and curriculum development

To assist users, the SSC maps to various other classifications, notably the 2020 version of the Standard Occupational Classification at the four- and six-digit levels of detail and is available in formats that identify other groupings of skills, such as STEM skills, green skills, and AI related skills. Browsing the classification is simplified via the use of the associated [UK Skills Explorer](#) tool.

To remain fit for purpose, the SSC will require regular monitoring and revision. Updates will reflect changes in the labour market, education provision, and terminology. Continuous monitoring (such as through vacancy data, foresighting activities, and employer feedback)

will identify emerging skills, while structural revisions will be scheduled on a multi-year cycle.

Looking ahead, there are opportunities to extend the SSC by adding proficiency levels, developing open curricula, and creating sector-specific profiles. These enhancements will strengthen the SSC's role in improving the quality and consistency of skills data available to policymakers, employers, and learners.

Overall, the SSC represents a step-change in the UK's approach to skills classification. By providing a standardised, evidence-based framework, it will enable more effective decision-making across employment, education and training. This will support national, regional and local priorities for measuring and developing skills.

1. Introduction

The concept of ‘skill’ is central to understanding many aspects of work, from the roles individuals perform and the qualifications they hold, to the dynamics of labour markets and the design of training programmes. It also plays a key role in recruitment practices and career guidance. However, despite its widespread use, the UK has lacked a unified system for classifying skills that serves the diverse needs of stakeholders such as employers, job seekers, careers advisors, training providers, and labour market analysts.

This absence of a standardised framework has made it difficult to communicate and analyse skill-related information consistently across employment, education, and policy contexts. The SSC seeks to address this gap by providing a coherent structure that accurately reflects the skills and knowledge required in the UK workforce. By establishing a common language for skills, the SSC will support more effective decision-making in recruitment, training, career development, and labour market analysis.

This report concludes Phase 2 of the project. It outlines the development of the SSC, building on the design work completed during Phase 1 in 2023 and described in the report [A Skills Classification for the UK: Plans for development and maintenance](#). The project was originally funded by the Department for Education (DfE), and is now managed by the Department for Work and Pensions (DWP) following the move of Skills England from DfE to DWP.

The report is organised into 7 main sections, each addressing a key aspect of the development, implementation, and use of the SSC.

Following this introduction, this report introduces the SSC, detailing its overall structure, the definitions and classification principles that underpin it, the logic behind its hierarchical design, and how it maps to existing frameworks. A list of the available mappings is provided in Appendix A.

Section 3 outlines the UK Skills Explorer tool which is an online interface designed to help users access the SSC. The fourth section describes how the SSC might be used, illustrating how the SSC can support various stakeholders across employment, education, and policy domains. This section draws on the collaborations that the project team formed with a wide variety of potential users made possible via the early release of a prototype version of the classification.

Section 5 summarises the methodology used to construct the classification, including the identification of Occupational Tasks, Skills, Core Skills, and Knowledge concepts, as well as unexpected issues encountered during development. A more detailed account of the methodology is presented in Appendix B.

The sixth section outlines the approach to updating the SSC to ensure it remains relevant and responsive to changes in the labour market and that it reflects any changes in terminology.

The final section of this report discusses opportunities for extending the SSC in the future.

2. What is the UK Standard Skills Classification?

The UK Standard Skills Classification (SSC) is a set of standardised lists of the skills, knowledge and tasks required for UK occupations.

2.1 The Structure of the UK SSC

The SSC has a hierarchical classification based on 3,350 separate skills that are required for the competent performance of specific job tasks. Each Occupational Skill is associated with a set of Tasks and Core Skills, the latter being more generic in nature and contributing to the effective performance of the Occupational Skill.

Figure 1: The structure of the UK Standard Skills Classification

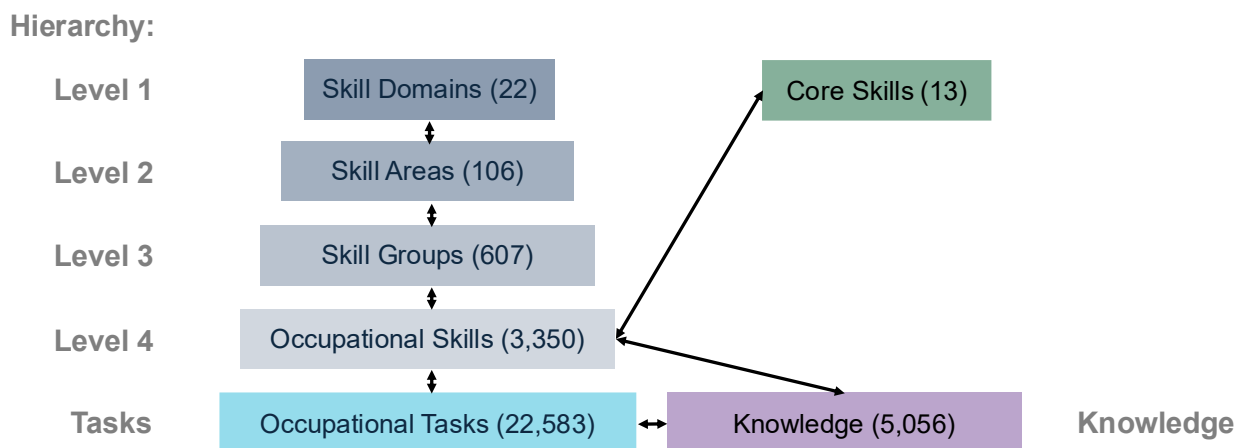


Figure 1 is a diagram showing the different elements of the SSC and how these relate to each other.

Occupational Skills are organised into a four-level hierarchy, from Level 1 at the top to Level 4 at the bottom:

- Level 1 includes 22 broad Skill Domains
- Level 2 splits the Skill Domains into 106 more specific Skill Areas
- Level 3 refines these Skills Areas into 607 Skill Groups
- Level 4, the most detailed level, defines 3,350 individual Occupational Skills across these Skill Groups

Level 4 Occupational Skills are linked to 13 Core Skills.

Level 4 Occupational Skills are also linked to 22,583 Occupational Tasks and 5,056 Knowledge concepts. Finally, there is also a link between Occupational Tasks and Knowledge concepts.

2.2 Definitions and classification principles

Underpinning the construction of the SSC is the definition of the term ‘Skill’. Two classes of skills are recognised, Occupational Skills and Core Skills.

An Occupational Skill is defined as a capability enabling the competent performance of an Occupational Task. An Occupational Task is a job-related activity that typically requires the use of one or more skills. Occupational Tasks form the basis for the specification of a job. A job is defined in the [International Standard Classification of Occupations \(ISCO\)](#) as “a set of occupational tasks and duties performed, or meant to be performed, by one person, including for an employer or in self-employment”.

The term ‘capability’ refers to the ability of a person to undertake a specific task, while the qualifying phrase ‘competent performance’ is an agreed level of proficiency to which the task should be conducted. Levels of proficiency may be set by employers, regulatory bodies, or by the recipient of a service provided by a self-employed person.

Occupational Skills combine with knowledge to provide the required capability for competent performance of a task. For example, the skills needed to install a gas heating boiler are similar to those needed to install a heat pump, but a materially different body of knowledge is required to ensure that the installation is functional and safety compliant.

Core Skills are more generic in nature. Core Skills are fundamental abilities that contribute to the capability to carry out the tasks associated with a specific job. They are often transferable, meaning they can be applied across different sectors of activity and roles. Employers value Core Skills because they show a person’s ability to learn, adapt, and work effectively in a variety of situations.

Other definitions used in the structure of the SSC are the concepts of transferability of a skill, and the main activities associated with the exercise of a specific skill. Skill transferability relates to the ease with which a person who can perform the task or set of tasks associated with a specific skill, can competently perform some other task or set of tasks associated with a different skill. Skill transferability is a key component within the structure of the classification, in that it shows the potential that a person has to move between jobs.

2.3 Principles underlying the hierarchical structure of the UK SSC

The SSC is structured as a four-level hierarchy. At the top level, skills are clustered into Skill Domains. Each Skill Domain relates to a broad activity area. The exercise of a skill represents an activity, defined in part by the active verb that forms the first part of the skill label. Grouping skills in this manner forms the highest level of aggregation of the SSC, the Skill Domains. Twenty-two Skill Domains are identified in terms of these broad activity areas. These are shown in Table 1.

Table 1: Skill Domains and Skill Areas within the UK SSC

Domain ID	Domain name	Skill Areas
SD.01	Researching and Analysing	<ul style="list-style-type: none"> Conducting scientific surveys and research Conducting commercial and legal research Compiling, validating and preparing data Analysing and interpreting information and data Forecasting and predicting outcomes and trends
SD.02	Designing and Creating	<ul style="list-style-type: none"> Designing architecture and building systems Designing landscapes, mining and water systems Designing industrial machinery, equipment and systems Designing industrial processes, materials and techniques Designing non-technical consumer products Designing technical solutions and prototypes Designing digital interfaces and user experiences Creating visual designs, graphics and animations Creating and editing original written material Creating performing arts content and designs
SD.03	Planning and Resourcing	<ul style="list-style-type: none"> Coordinating events, bookings and schedules Plan transportation, travel and logistics Determining project requirements and plans Procuring and managing supplies Planning operations, controls and contingencies
SD.04	Programming and Implementing (Digital Tools and Systems)	<ul style="list-style-type: none"> Designing and managing cloud and network infrastructure Developing digital technology specifications, controls and policies Developing and deploying applications Installing, integrating, securing and maintaining digital technology systems Using and developing AI tools Manage and support online systems and content
SD.05	Constructing and Installing	<ul style="list-style-type: none"> Building external structures and surfaces Installing building interior systems and equipment Installing mechanical and pressurised systems and equipment Installing electrical and electronic systems and equipment

Domain ID	Domain name	Skill Areas
SD.06	Manufacturing and Processing	Manufacturing, assembling and customising components Implementing and refining advanced manufacturing Processing food, beverages and natural materials
SD.07	Operating and Monitoring	Monitoring extraction, production and processing Operating manufacturing and processing machinery and equipment Operating and monitoring outdoor machinery and equipment Operating and monitoring water systems and equipment Operating and monitoring transport systems and equipment Operating and monitoring electrical and electronic equipment Operating and monitoring safety and control systems Operating specialist tools and scientific instruments Joining and moulding components Colouring, coating or finishing objects
SD.08	Planting and Growing	Farming crops and conserving nature Gardening, landscaping and maintaining trees
SD.09	Breeding and Nurturing (Animals)	Diagnosing, breeding and treating animals Caring for and training animals
SD.10	Diagnosing and Treating (Healthcare)	Performing patient diagnostic assessments and tests Diagnosing patients and prescribing treatments Providing medical treatments and procedures Providing therapy, counselling and rehabilitation Providing specialist nursing and maternity care
SD.11	Serving and Caring	Providing personal care and support services Providing hair and cosmetic services Preparing and serving food and drinks Enforcing regulations and laws Rescuing and protecting people

Domain ID	Domain name	Skill Areas
SD.12	Advising and Supporting	<p>Advising and supporting vulnerable people</p> <p>Advising on health, exercise and wellbeing</p> <p>Advising on finance, organisational operations and sustainability</p> <p>Advising and supporting on property and the natural environment</p> <p>Advising and supporting on legal issues, processes and disputes</p> <p>Advising and supporting on education and personal development</p>
SD.13	Educating and Training	<p>Developing instructional plans and materials</p> <p>Teaching academic subjects</p> <p>Teaching creative subjects and skills</p> <p>Teaching work related subjects and skills</p> <p>Teaching and coaching sports and recreation</p>
SD.14	Evaluating and Inspecting	<p>Evaluating individual needs, abilities and performance</p> <p>Investigating accidents, crimes and compliance</p> <p>Inspecting and testing structures and equipment</p> <p>Inspecting and testing facilities, cargo and vehicles</p> <p>Evaluating object characteristics, qualities and function</p> <p>Evaluating environments, conditions and risks</p> <p>Evaluating animal welfare and biosecurity</p> <p>Evaluating service and programme effectiveness</p> <p>Evaluating and verifying information</p>
SD.15	Accounting and Financing	<p>Processing and reconciling financial transactions</p> <p>Managing trades, mergers and investments</p> <p>Managing financial operations and payroll</p> <p>Analysing financial data and forecasting budgets</p>
SD.16	Managing and Directing	<p>Leading organisational operations and improvements</p> <p>Managing and supervising staff</p> <p>Managing facilities, transportation and maintenance</p> <p>Managing projects and processes</p> <p>Coordinating emergency, military and political activities</p>

Domain ID	Domain name	Skill Areas
SD.17	Marketing and Selling	Developing and implementing marketing strategies Selling products in person
SD.18	Communicating and Performing	Communicating complex, technical or sensitive information Communicating effectively with new groups or audiences Performing musical, dance and theatrical routines Communicating, translating and interpreting information in different languages
SD.19	Recording and Documenting	Creating legal and official documentation and records Documenting interviews and compiling reports Managing organisational and operational records
SD.20	Handling and Transporting	Sorting and distributing items Handling and moving heavy items Handling and moving hazardous materials Operating transport and passenger vehicles
SD.21	Maintaining and Repairing (Physical Objects)	Maintaining mechanical and pressurised equipment Maintaining structures and infrastructure Maintaining water systems and equipment Maintaining and repairing products and tools Maintaining electrical and electronic equipment
SD.22	Cleaning and Restoring	Cleaning and restoring items and equipment Cleaning and decontaminating buildings and areas

Beneath the Skill Domains sit 106 Skill Areas and 607 Skill Groups. Each Skill Area elaborates the Skill Domain in terms of the variety of activities that sit within the same domain. For example, the Skill Domain SD.01 'Researching and Analysing' consists of the following 5 Skill Areas:

- Conducting scientific surveys and research
- Conducting commercial and legal research
- Compiling, validating and preparing data

- Analysing and interpreting information and data
- Forecasting and predicting outcomes and trends

Skill Areas are defined to gather distinct sets of skills that fall within the same Skill Domain, yet the activities are sufficiently distinct and may call upon different bodies of knowledge, varied materials worked with, or techniques employed. Extending the above example, the Skill Area 'Conducting scientific surveys and research' is distinct from the other 4 Skill Areas within this domain in that it requires scientific knowledge and expertise in the conduct of surveys.

More detail and description of the activities within each Skill Area is available at the next level of disaggregation – the Skill Groups. Continuing this example, 'Conducting scientific surveys and research' consists of 16 different Skill Groups as listed below. At this level, a degree of transferability is evident, in that a specific job may draw upon skills from one or more of the following Skill Groups:

- Analyse and evaluate chemical properties
- Analyse and interpret research data
- Analyse and manage archaeological findings
- Analyse and monitor air quality data
- Analyse geological and mineral resources
- Conduct agricultural research
- Conduct and design research surveys
- Conduct environmental and hydrographic surveys
- Conduct fish population and migration studies
- Conduct genetic and genome research
- Conduct mechanical and structural analysis
- Conduct qualitative and quantitative research
- Conduct research on medical conditions and treatments
- Develop and design research methodologies
- Research and compile reference materials
- Research and develop chemical products

Each Skill Group is comprised of a set of Occupational Skills.

For example, the Skill Group 'Analyse and evaluate chemical properties' covers the following 7 Occupational Skills:

Table 2: Example skill descriptions

Skill label	Skill description
Analyse chemical substances	Test substances to find what chemicals they contain and measure properties such as purity, concentration, and reactivity.
Analyse samples using NMR (Nuclear Magnetic Resonance) spectroscopy	Use Nuclear Magnetic Resonance (NMR) spectroscopy to read a sample's signal and work out its molecular structure.
Detect and identify poisons	Find and confirm poisons in food, medicines or other samples using tests and equipment and matching results to known toxins.
Perform flow cytometry	Measure and sort cells by passing them in a fluid stream through a laser and recording the light signals.
Perform FTIR (Fourier Transform Infrared Spectroscopy) analysis	Use Fourier Transform Infrared Spectroscopy (FTIR) to shine infrared light through a sample and identify chemicals from the pattern.
Perform radiochemistry analysis	Test samples for radioactive chemicals by separating them and measuring radiation levels using detectors and safe working practices.
Perform toxicology studies	Test how harmful substances affect people, animals, or cells, and estimate safe exposure levels and likely health risks.

It is at this level that the extent of the similarity of skills within the group becomes evident. A chemist may be required to analyse chemical substances, and the skill involved relates to the equipment used, the knowledge required for analysis, and the methods of analysis. With a specific body of knowledge about the chemical properties of toxic substances, this skill can be focussed on the detection and identification of toxic substances, which could form part of the skill set required for a forensic scientist.

Figure 2: Example snapshot of the UK SSC

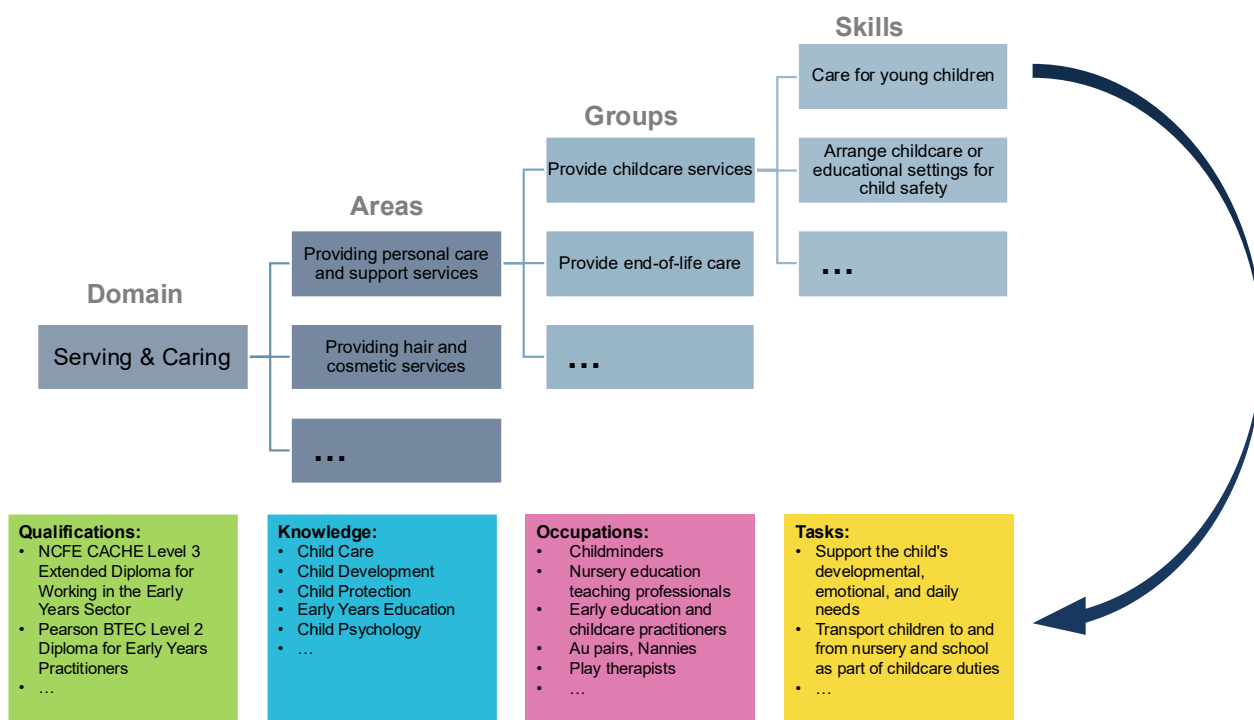


Figure 2 illustrates the components of the SSC, using the 'Serving and Caring' Skill Domain to show example content for each element. It shows a hierarchical framework progressing from the 'Serving and Caring' Skill Domain to:

- Skill Areas: includes 'Providing personal care and support services', 'Providing hair and cosmetic services' and other categories not listed
- Skill Groups: examples include 'Provide childcare services', 'Provide end-of-life care' and other categories not listed
- Skills: examples include 'Care for young children', 'Arrange childcare or educational settings for child safety' and other categories not listed

The skill 'Care for young children' then links to the several examples of Tasks, Occupations, Knowledge and potentially related Qualifications including:

- Tasks: 'Support the child's developmental, emotional, and daily needs', 'Transport children to and from nursery and school as part of childcare duties', and other categories not listed
- Occupations: 'Childminders', 'Nursery education teaching professionals', 'Early education and childcare practitioners', 'Au pairs', 'Nannies', 'Play therapists', and other categories not listed
- Knowledge: 'Child Care', 'Child Development', 'Child Protection', 'Early Years Education', 'Child Psychology', and other categories not listed

- Qualifications: e.g. ‘NCFE CACHE Level 3 Extended Diploma for Working in the Early Years Sector’, ‘Pearson BTEC Level 2 Diploma for Early Years Practitioners’, and other categories not listed

Finally, there are 13 Core Skills. These are presented in Table 3 below.

Table 3: Core Skills in the UK SSC

Core Skill ID	Core Skill Label	Core Skill Definition
SSC.C01	Planning and Organising	Setting goals, prioritising tasks, and creating a structured approach to achieve them
SSC.C02	Adapting	Adjusting strategies, behaviours, or approaches to manage new or changing situations, while remaining effective under pressure or uncertainty
SSC.C03	Working with Others	Collaborating effectively within a team or group to achieve shared goals, while navigating differences and potential conflict
SSC.C04	Listening	Understanding spoken messages, including both verbal and non-verbal signals
SSC.C05	Speaking	Conveying ideas and information clearly, confidently and, effectively through speech
SSC.C06	Leadership	Inspiring, motivating, and guiding others to work towards a common objective
SSC.C07	Learning and Investigating	Searching, gathering, and understanding information to gain new skills and knowledge
SSC.C08	Creating	Developing original ideas, techniques or solutions through imagination, innovation, and practical application
SSC.C09	Problem Solving and Decision Making	Identifying problems, analysing information, and developing and choosing solutions
SSC.C10	Numeracy	Applying mathematical techniques to perform calculations and interpret numerical data effectively

Core Skill ID	Core Skill Label	Core Skill Definition
SSC.C11	Digital Literacy	Using digital tools and technologies to simplify tasks and process information
SSC.C12	Reading	Understanding and interpreting information presented in written form
SSC.C13	Writing	Communicating ideas and information clearly, concisely, and persuasively in written form

2.4 Mappings

2.4.1 Primary mappings

As well as internal concept mappings between Skills, Tasks, Knowledge and Core Skills, the SSC also provides mappings to standard UK occupations and potentially related qualifications. Both Tasks and Occupational Skills are mapped to Sub-Unit Groups (SUGs) and Unit Groups (UGs) as defined in the 2020 version of the UK Standard Occupational Classification (SOC).

Skills are given a weighted importance score for each SUG occupation. The weighted importance score is the average of the estimated 'frequency score' (the probability that the skill is required by roles within that occupation) and the estimated 'importance score' (the estimated importance of that skill to competence in a related occupation role if required). Skill-SUG matches with a frequency score below 10 and an average weighted score of below 25 were typically excluded. For skills that still did not have any SUG matches above those thresholds, the other results were inspected and some exceptions below the score thresholds were retained to improve overall coverage. For example, 'S.3102 Teach nanotechnology' was assigned to SOC 2311/00 Higher Education teaching professionals despite the frequency score only being 1%. In addition, a small number of skills that still did not have suitable matches were manually assigned SUGs. For example, 'S.2171 Perform cataract surgery' was assigned to SOC 2212/14 Surgeons.

The SSC Skills and Knowledge concepts are also linked to Ofqual (Office of Qualifications and Examinations Regulation) registered qualifications, the Higher Education Coding of Subjects (HECoS), Skills England Occupational Standards (OS) and National Occupational Standards (NOS). For qualifications, given the limited details typically made available by awarding organisations on the skills gained from their qualifications, these links are difficult to make and so are described as 'potentially related qualifications' in the SSC.

The primary mappings provided by the SSC are summarised in Figure 3.

Figure 3: Primary mappings in the UK SSC



Figure 3 illustrates the interconnectedness of the 6 concepts of the SSC in a network diagram. The concepts sit inside circles which are linked together by lines which represent the connections or mappings between the concepts. The overall shape forms a pentagon.

The 6 concepts are: Skills, Core Skills, Courses, Knowledge, Tasks, and Jobs.

The central concept, Skills, sits inside the shape, and is directly connected to the other 5 circles which form the outer corners of the pentagon. Courses are mapped to Knowledge, Knowledge is mapped to Tasks, Tasks are mapped to Jobs, Jobs are mapped to Core Skills. The final connection between Core Skills and Courses is in a light grey because that mapping is not available.

2.4.2 Secondary mappings

The SSC also provides secondary mappings to several existing classifications. These include:

Skills:

- SSC Skills to ESCO skills (3,350 skills, representing 100% of all SSC Skills, were successfully matched)
- SSC Skills to O*NET Detailed Work Activities (DWAs) (3,253 skills, representing 97% of all SSC Skills, were successfully matched)

Tasks:

- SSC Tasks to O*NET tasks (17,635 tasks, representing 78% of all SSC Tasks, were successfully matched)

Knowledge:

- SSC Knowledge to ESCO knowledge (1,281 knowledge concepts, representing 25% of all SSC Knowledge concepts, were successfully matched)
- SSC Knowledge to O*NET - Knowledge, Tools Used and Technology Skills (1,287 knowledge concepts, representing 25% of all SSC Knowledge concepts, were successfully matched)
- SSC Knowledge to LDCSC - Learn Direct Classification of Subject Codes (1,738 knowledge concepts, representing 34% of all SSC Knowledge concepts, were successfully matched)
- SSC Knowledge to Stack Exchange Topic Tags (693 knowledge concepts, representing 13% of all SSC Knowledge concepts, were successfully matched)
- SSC Knowledge to Wikipedia Article Titles (4,519 knowledge concepts, representing 89% of all SSC Knowledge concepts, were successfully matched)

A full list of the primary and secondary mappings available can be found in Appendix A1 and A2 respectively.

2.4.3 Skill categorisation

The 3,350 SSC Occupational Skills (the most disaggregated level of skills on the SSC) have also been categorised into several other groupings.

These are:

- Numeracy skills
- Digital skills
- Green skills
- Science, Technology and Engineering, Mathematics, Medicine and Health (STEM-M&H) skills, and
- AI skills

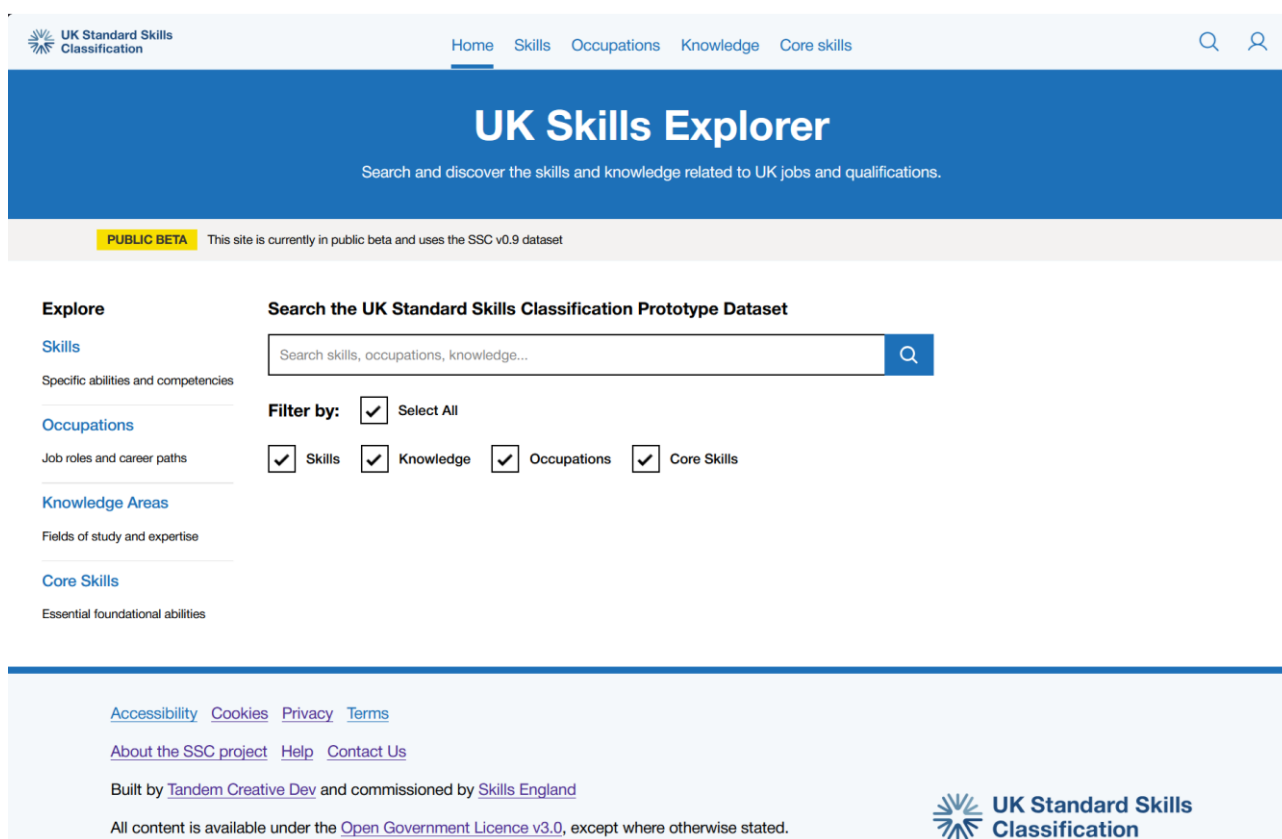
These categorisations will allow users of the SSC to explore the classification in different ways.

3. Accessing the UK SSC: The UK Skills Explorer tool

The [UK Skills Explorer](#) is a new open-access digital tool launched alongside the UK Standard Skills Classification (SSC). It is designed as a user-friendly platform that makes browsing and navigating the classification easier, transforming the SSC data into an intuitive, searchable experience. Its broader purpose is to help establish a clear, shared understanding of skills to create opportunities, reduce barriers, and ensure skills development is targeted and effective.

Figure 4 shows the home/landing page of the [UK Skills Explorer](#).

Figure 4: Home page of the UK Skills Explorer



Core Features and Navigation

- **Intelligent Search:** Located on the home tab, the search function allows users to explore the dataset and filter results across multiple categories.
- **Skills Exploration:** Users can explore skills at the most detailed granular level or aggregate them by skill groups, or domains, or industry sectors using dynamic

filtering. They can also create custom skill lists that can be compared to other lists (e.g. to identify skill gaps) or occupational skills profiles.

- **Occupations:** This section lets users explore occupations based on the 2020 Standard Occupational Classification (SOC), filtering by specific job groups or Sector Subject Areas (SSAs).
- **Knowledge:** Knowledge subjects can be independently explored by search term, SSA, and specific concept types.
- **Core Skills:** This tab explores foundational abilities that underpin various roles, including categories like planning, adapting, leadership, problem-solving, and digital literacy.

Because the SSC and the UK Skills Explorer tool are prototypes, user feedback is crucial. Users can register to use the UK Skills Explorer and submit their feedback directly through built-in functionality found on specific skill, occupation and knowledge pages. Feedback can be provided as open free text or by selecting pre-defined options.

All of the SSC data can be downloaded through the UK Skills Explorer data download link. Access to the SSC is also available via an API.

4. Use cases

The UK Standard Skills Classification (SSC) is designed to be a versatile framework that supports a wide range of stakeholders in understanding and navigating the skills landscape. Its use cases span across individuals and career guidance services, employers, and national and local labour market analysts, each benefiting from its structured approach to skills identification.

Individuals and careers guidance services can use the SSC to identify transferable skills, evaluate career options, and pinpoint skill gaps. This empowers individuals to make informed decisions about their professional development, including selecting appropriate courses to bridge gaps and exploring opportunities in different geographic regions. The SSC plays a key role in personal career planning and mobility.

For employers, the SSC provides a powerful tool to analyse the skills present within their existing workforce. This insight enables them to develop targeted skills plans, adopt skills-based recruitment strategies, and coordinate long-term workforce development initiatives. By aligning strategic decisions with a clear understanding of skill availability and gaps, employers can enhance productivity and future-proof their organisations.

In the context of local labour market analysis and forecasting, the SSC enables a detailed examination of the skills within a workforce and helps identify future needs. This information is crucial for training providers, as it offers clearer direction for curriculum development and helps prioritise course offerings to meet emerging demands. Ultimately, the SSC can support a more responsive and strategic approach to national, regional, and local workforce planning.

Figure 5: Summary of UK SSC Use Cases

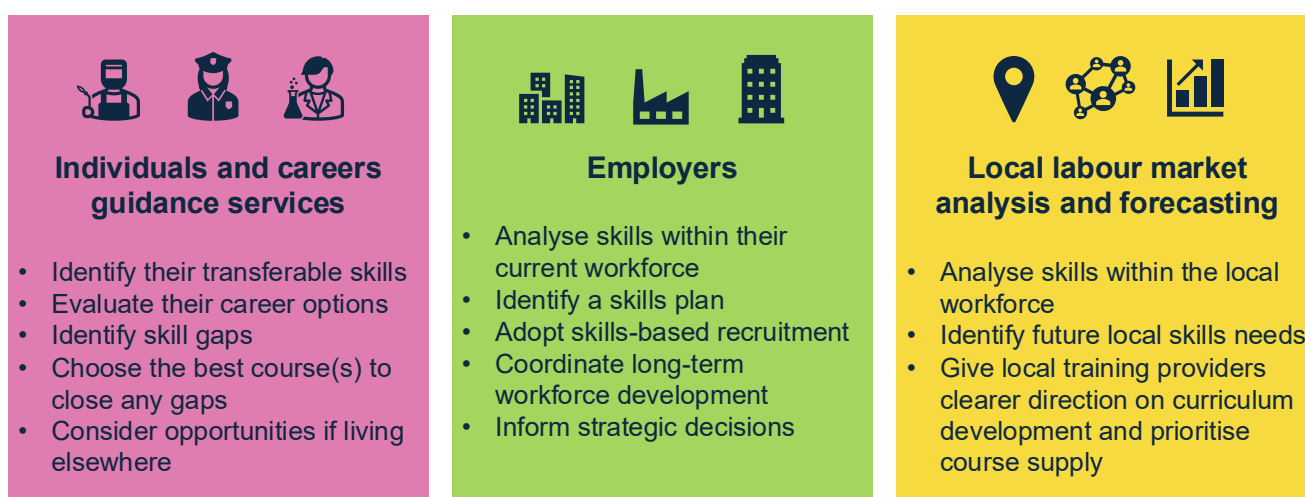


Figure 5 shows the key uses of the SSC by the 3 main user groups: Individuals and careers guidance services, Employers, and Local labour market analysts.

Individuals and careers guidance services can:

- identify their transferable skills
- evaluate their career options
- identify skill gaps
- choose the best course or courses to close any gaps
- consider opportunities if living elsewhere

Employers can:

- analyse skills within their current workforce
- identify a skills plan
- adopt skills-based recruitment
- coordinate long-term workforce development
- inform strategic decisions

Local labour market analysis and forecasting can:

- analyse skills within the local workforce
- identify future local skills needs
- give local training providers clearer direction on curriculum development and prioritise course supply

5. Summary of methodology

The UK Standard Skills Classification (SSC) was constructed in 3 distinct stages as set out in the Phase 1 report for this project '[A Skills Classification for the UK: Plans for development and maintenance](#)'. In each stage, Artificial Intelligence (AI) tools, in particular text embedding vector comparison and Large Language Model (LLM) evaluations, were used to validate, deduplicate and standardise multiple input datasets, with additional manual reviews to ensure accuracy, alignment and reliability of outputs.

The 3 main development stages were the creation of:

- an Occupational Task library for the UK Standard Occupational Classification (SOC) 2020 Sub-Unit Groups (SUGs) (6-digit occupations)
- a hierarchical classification of Occupational Skills, consisting of 4 levels, with the most detailed level also linked to a set of Core Skills
- a library of Knowledge concepts

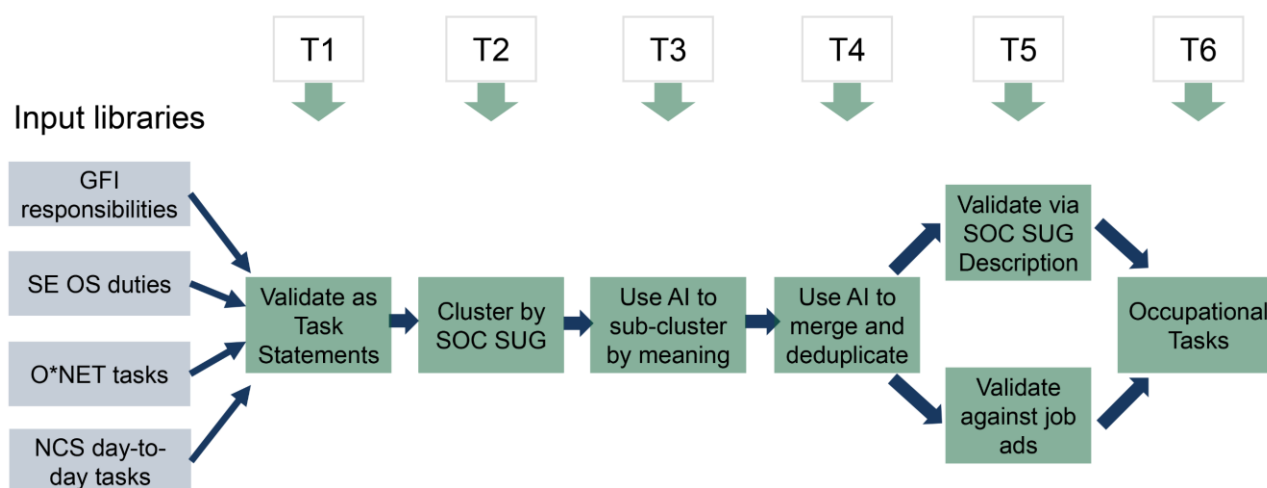
Mappings were then created between these 3 elements and to occupations, potentially related qualifications and other existing classifications.

This section outlines the process followed during each of these 3 main stages and discusses the unexpected issues that led to deviations from the original Phase 1 plan. A more detailed description of the methodology can be found in Appendix B.

5.1 Occupational Tasks

Figure 6 outlines the development process of the SSC Occupational Task library, detailing the input libraries used, the data cleaning steps, and the validation against other information sources.

Figure 6: Development of UK SSC Occupational Tasks



The development of the Occupational Task library is displayed as a series of processing steps from T1 to T6 in a row across the top of the diagram with each step shown below in a flow diagram. On the left-hand side are the 4 main input libraries which feed into the first processing step: T1.

The input libraries from top to bottom are:

- the Graduate Futures Institute (GFI) responsibilities
- Skills England (SE) Occupational Standards duties
- the US Occupational Information Network (O*NET) tasks
- National Careers Service (NCS) day-to-day tasks

The processing steps show:

- T1 'validate as Task Statements'
- T2 'cluster by SOC SUG
- T3 'use AI to sub-cluster by meaning'
- T4 'use AI to merge and deduplicate' which has arrows pointing to 2 steps under T5
- T5 'validate via SOC SUG description' and 'validate against job ads' which both have arrows to step T6
- T6 'Occupational Tasks'

Task statements were collected from the input libraries, then cleaned and standardised using AI tools to ensure clarity, consistency, and UK English usage.

The tasks were refined, deduplicated, and clustered using text embeddings from OpenAI models and hierarchical clustering methods. The resulting clusters of tasks were manually inspected to help merge overlapping clusters. The validation stage involved comparing these tasks to tasks extracted from SOC SUG descriptions and a database of around 8 million UK job vacancies. This ensured tasks were accurately mapped and relevant to real-world job roles. The vacancy data used in this analysis is drawn from the Institute for Employment Research (IER) dataset, funded by the Department for Education (DfE) and covering the period from 2019 to 2024, with updates made in 2025 for the IER.

Finally, the SSC Occupational Task library was completed, comprising 22,583 tasks linked to SSC Skills, Knowledge concepts, and Occupations.

5.2 Occupational Skills and Core Skills

Figure 7: Development of UK SSC Occupational Skills

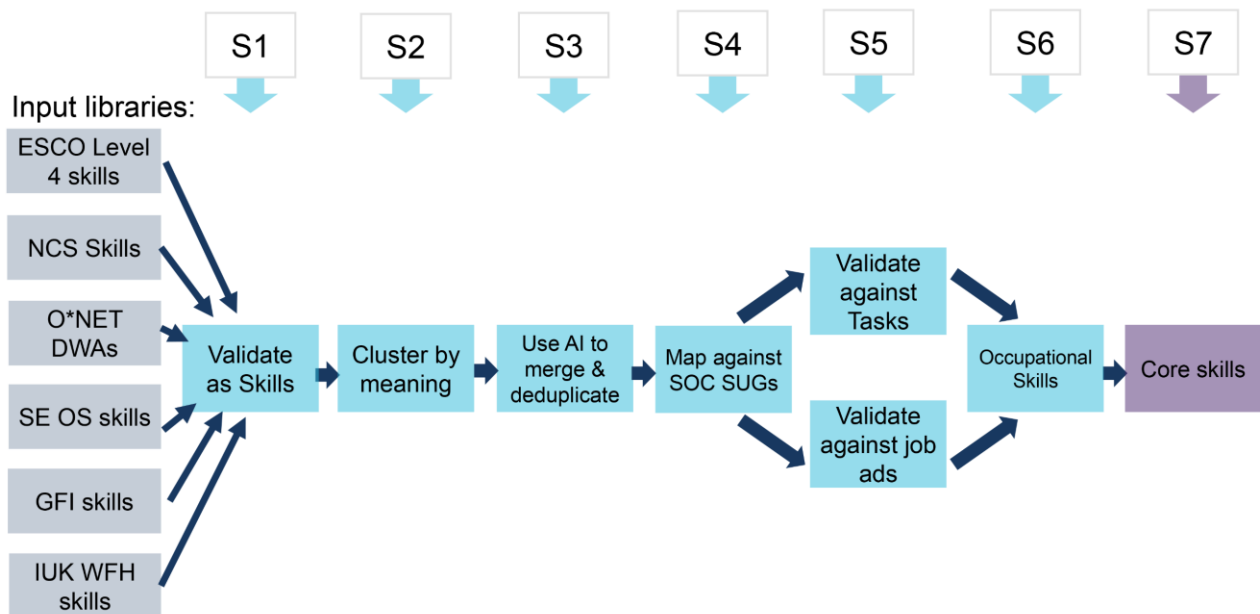


Figure 7 shows the equivalent process for the construction of the hierarchical classification of SSC Occupational Skills together with a set of 13 Core Skills.

This is displayed as a series of processing steps from S1 to S7 in a row across the top of the diagram with each step shown below in a flow diagram. On the left-hand side are the 6 input libraries which feed into the first processing step: S1.

The input libraries from top to bottom are:

- European Skills, Competences, Qualifications and Occupations (ESCO) Level 4 skills
- the National Careers Service (NCS) skills
- O*NET Detailed Work Activities (DWAs)
- Skills England (SE) Occupational Standards skills
- Graduate Futures Institute (GFI) skills
- the Workforce Foresighting Hub, Innovate UK (WFH) skills

The processing steps show:

- S1 'validate as Skills'
- S2 'cluster by meaning'
- S3 'use AI to merge and deduplicate'
- S4 'map against SOC SUGs' which has arrows pointing to 2 steps under S5

- S5 'validate against Tasks' and 'validate against job ads' which both have arrows to step S6
- S6 'Occupational Skills'
- S7 'Core Skills'

Skill statements were sourced from the input libraries. They were then standardised (in terms of structure, specificity, capitalisation, spelling and grammar) and quality assured using AI to ensure clarity, consistency, and relevance. These were refined and clustered using OpenAI embeddings and hierarchical models and then AI-generated labels and descriptions were created for each cluster.

These cluster labels were then manually reviewed and, where necessary, modified to use consistent language patterns to create the prototype set of Occupational Skills (the lowest level of the SSC).

These Occupational Skills were then organised into a hierarchy of Skill Groups, Skill Areas, and Skill Domains, with AI prompts used to validate structure and relatedness. These were then mapped to SOC SUGs and validated against SSC Tasks. Further validation against skills extracted from the job vacancy descriptions was carried out to ensure coverage across occupations and relevance, with additional high-quality skills from the vacancy data added where gaps were found.

A separate set of 13 SSC Core Skills was defined, with AI used to create level definitions and assess proficiency across skills and occupations. The final classification includes 3,350 SSC Occupational Skills, structured into 607 Skill Groups, 106 Skill Areas, and 22 Skill Domains, linked to SSC Core Skills, Tasks, Knowledge concepts, Occupations, and Qualifications.

5.3 Occupational Knowledge concepts

The third main stage in the development of the SSC was the development of a library of Knowledge concepts. This process is outlined in Figure 8.

Figure 8: Development of UK SSC Knowledge concepts

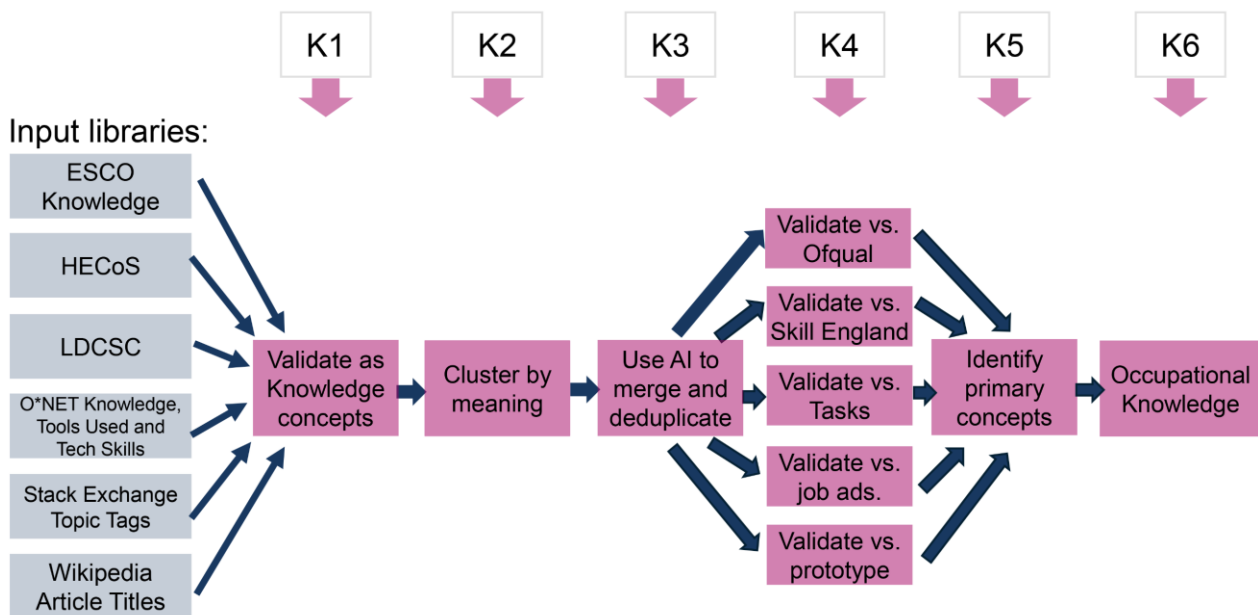


Figure 8 illustrates the process to develop the SSC library of Knowledge concepts.

This is displayed as a series of processing steps from K1 to K6 in a row across the top of the diagram with each step shown below in a flow diagram. On the left-hand side are the 6 main input libraries which feed into the first processing step: K1.

The input libraries from top to bottom are:

- ESCO (European Skills, Competences, Qualifications and Occupations) knowledge concepts
- Higher Education Coding of Subjects (HECoS)
- Learn Direct Classification of Subject Codes (LDCSC)
- O*NET (knowledge, tools used and technology skills)
- Stack Exchange (topic tags)
- Wikipedia (article titles)

The processing steps show:

- K1 ‘validate as Knowledge concepts’
- K2 ‘cluster by meaning’
- K3 ‘use AI to merge and deduplicate’ which has arrows pointing to 5 steps under K4
- K4 ‘validate versus Ofqual’, ‘validate versus Skills England’, ‘validate versus tasks’, ‘validate versus job ads’, and ‘validate versus prototype’ which each have arrows to step K5

- K5 'identify primary concepts'
- K6 'Occupational Knowledge'

The Knowledge concept, subject and topic names were collected from the input libraries.

These were cleaned and filtered using AI tools to retain only concepts evidenced in a UK context. The concepts were then refined and grouped by meaning using embeddings and clustering methods. The validation steps involved mapping these knowledge concepts to external sources including Ofqual, Skills England Occupational Standards, SOC SUGs, SSC Tasks, and UK job vacancy data, ensuring relevance and common usage.

Embedding matches were also used to link SSC Skills to Knowledge concepts and assess their importance. Primary concept types and related terms were identified, resulting in a final set of 5,056 SSC Knowledge concepts linked to SSC Tasks, Skills, and subject classifications.

Once these 3 main development stages were complete (SSC Occupational Tasks, SSC Occupational Skills, and SSC Knowledge concepts), AI tools were used to create mappings to other classifications and data sources and to create different groupings of the skills, such as Science, Technology and Engineering, Mathematics, Medicine and Health (STEM-M&H) skills, Green skills and Digital skills.

5.4 Unexpected Issues

5.4.1 Data Inputs

The Specialist Tasks from the Australian Skills Classification (ASC) were planned as an input for the skills library, but the dataset was withdrawn in early 2024 by Jobs and Skills Australia (JSA) as part of a plan to replace the ASC with a National Skills Taxonomy. The JSA cited issues with connectivity to education contexts. Given that the ASC content was originally derived from the O*NET Detailed Work Activity framework which is already included as an input library to the SSC, the decision was taken to exclude ASC Specialist Tasks from the development process.

Data was requested from LinkedIn to supplement other inputs (especially for the Knowledge concept library) but, unfortunately, they were unable to provide access to the level of data required. To improve coverage of newer subjects and Knowledge concepts (such as those related to AI) we included technologies and techniques identified from several other sources such as [Innovate UK Workforce Foresighting Hub challenge cycles](#).

5.4.2 Output Validation

The initial design report included a step to validate the classification against a large CV library but licensing this, or an up-to-date equivalent, proved prohibitively complex and expensive.

5.5 AI Tool Advice and Guidance

The speed and scale of SSC content development and validation would not have been possible without the recent AI-driven advances in natural language processing and generation tools. There are however still limitations and nuances in using these tools and the following guidance is therefore offered to help those attempting similar work.

5.5.1 Text-embeddings

These are generated by machine learning models that convert words, sentences, or documents into numerical vectors (embeddings) that capture their semantic meaning. These embeddings enable computers to identify, compare and cluster text based on underlying meaning rather than just exact word matches.

Embedding Models

There are several embedding models (both commercial and non-commercial) but the 3 Large model from OpenAI was found to be the most useful and reliable for this project.

Short Text-string Embeddings

Embedding comparison scores (typically cosine similarity) are generally less reliable for short phrases, and especially those that are ambiguous (such as “Interpret communication using NLP” which could be referring to “Natural Language Processing” or “Neuro-linguistic Programming”). Concatenating labels with hyphen separated descriptions can be a cost-effective way of mitigating this issue, provided that the descriptions are accurate and unambiguous.

Data cleaning

Input data cleaning and standardisation matters as statements that are inconsistently capitalised, punctuated and structured will not match as reliably. For example, Table 4 shows the embedding vector cosine similarity scores of 3 phrases against the skill label ‘Provide advice on trademarks’

Table 4: Embedding similarity scores to phrase: ‘Provide advice on trademarks’

ID number	Difference	Comparison Phrase	Embedding Similarity Score
ID 1	Statement reworded	Consult with clients about trademark issues	0.78
ID 2	Statement reformatted (capitalisation, grammar and trailing spaces)	consult with clients about trademark issues.	0.65
ID 3	Statement with different meaning	Provide advice on trade controls	0.67

Statement ID 1 is reworded but is syntactically correct and consistent and therefore has a fairly high similarity score of 0.78.

In contrast, statement ID 2 is formatted differently and includes character anomalies such as trailing spaces which add noise to the match resulting in a match score of 0.65.

Statement ID 3, which has a different meaning (trade controls being a distinct concept to trademarks), has a match score of 0.67. This means that, without data cleaning, the original statement would be incorrectly evaluated as a closer match to statement ID 3 rather than statement ID 2.

5.5.2 Large Language Model (LLM) Prompts

These are structured data requests directed at Large Language Model (LLM) APIs to process large volumes of data in a consistent way.

Language model selection

Even over just the 2-year duration of this project, the performance improvements in LLMs have been remarkable. Progress has not, however, been entirely convergent and different LLMs still perform significantly better at some tasks than others. For the SSC, OpenAI models have tended to perform best when compared against others, especially at tasks requiring the assignment of match 'scores' (such as task to skill importance or relatedness).

Prompt design and validation

Despite increasing context windows (i.e. the amount of text or data that can be included in an LLM prompt) there is still a balance to be struck with the number and complexity of instructions included. This is because longer lists of rules or criteria seem to increase the likelihood of some instructions being omitted or ignored. To find this balance, practitioners can use a randomised sample to validate output coverage while also including specific examples to test for known difficulties. Rerunning the prompt against the same dataset can also usefully reveal inconsistencies or ambiguities in both inputs and outputs.

Generative inconsistency and bias

LLMs tend to have a bias toward generating US English. This tendency can be mitigated by explicitly instructing the model to use UK English terms and spelling. Using a UK English dictionary to spell-check the output is also recommended.

Statement or Label Categorisation

For content quality or format checks (such as 'does this statement describe a skill?') LLMs perform more consistently when asked to apply a pre-defined categorisation framework e.g. 'Code #3: Too generic - This statement is too generic and isn't describing a specific skill.' or 'Code #4: Invalid - This statement does not describe a skill and is instead a tool, subject, attitude or outcome'. For a full example of this approach, see the prompt given in Section S1 in Appendix B.

Concept tagging

For mappings (such as tasks to skills), LLMs still struggle to categorise or tag statements from long lists of options. A better approach is to compare a text-embedding of an input (such as a task statement) against text-embeddings for all classification concepts or tags (such as skill labels) to generate a longlist of potential matches. An LLM prompt can then

be used to iterate through and evaluate the potential matches one at a time. An example of this approach is provided in the prompt given in Section S4 in Appendix B.

In summary, AI tools have proved invaluable in the development of the SSC, but they are not entirely reliable and so (both manual and AI) controls and checks are needed at every stage to ensure that outputs conform to requirements.

5.6 Prototype Content Piloting

To extend validation of the SSC prototype content, we collaborated on a number of pilot projects:

5.6.1 Built Environment – Smarter Transformation (BE–ST) – AI PathwaysPro

Overview

This was in the context of a broader project focused on low-carbon upskilling, and specifically Passivhaus, Retrofit and associated digital skills. The pilot evaluated the extent to which the SSC prototype datasets could help map between existing datasets (e.g. NOS and Skills England Occupational Standards) and create or refine related competency-based upskilling profiles and associated pathways. In addition, it assessed how the SSC datasets could inform the development of an ontology of the Retrofit domain as part of the AI PathwaysPro project led by Dynamic Knowledge & Intelartes Ltd.

Key Findings / Corrective Actions

The evaluation found useful links to relevant Passivhaus and Retrofit concepts but also a number of gaps. New knowledge areas such as 'Building airtightness' and 'Mould health issues' were added to the SSC knowledge classification along with several new tasks related to Retrofit activities.

5.6.2 Workforce Foresighting Hub

Overview

This involved the use of SSC prototype content in the analysis and design of workforce transitions across 12 foresighting cycles, including localised vaccine manufacture, nuclear waste processing and automated welding. The SSC task library, skills and knowledge concepts were all used to help define current and future state job profiles and enable comparisons against current training provision.

Key Findings / Corrective Actions

The skills classification performed well and largely met the user need without custom additions. There were however several knowledge areas that were missing key concepts (e.g. Recombinant DNA and Small Modular Reactors (SMRs)). As a result, these were added to the knowledge classification and associated mappings.

5.6.3 UK Retail Bank

Overview

This was in the context of graduate recruitment and in particular an attempt to diversify the educational and gender diversity of applicants into digital roles. The project involved an analysis of graduate role profiles within the bank and matching these via the SSC-HECoS

mapping to undergraduate degree programmes at the Common Aggregator Hierarchy code (CAH3) level.

Key Findings / Corrective Actions

The analysis confirmed that there was sufficient alignment between the graduate roles and the SSC to help identify diverse graduate applicant pools. For example, history graduates had many of the skills required by data analyst roles, psychologists were well aligned to the data science stream and marketing graduates were matched to roles around delivery coordination and management.

5.6.4 DWP – Jobs and Careers Service (JCS)

Overview

This was a small pilot to evaluate the potential to use the SSC to help generate standardised skills profiles from CVs. A process was developed to first use LLMs to extract and convert work history information (such as tasks and skills) from a set of example CVs. The extracted information was then used to identify potential matches to SSC occupational skills, an AI-based evaluation to quantify the relative strength of these matches and then an aggregation process to generate individualised skill profiles.

Key Findings / Corrective Actions

The full output validation was, unfortunately, not possible but face validity of outputs was high. As one key learning, the tasks identified as having potential SSC skill matches should not be evaluated individually by LLMs but rather as a whole list of tasks against all potential SSC skill matches for a related role. This is necessary to avoid similar task statements resulting in skills being overweighted in the final skills profile.

5.6.5 Creative Industries Policy and Evidence Centre (Creative PEC)

Overview

This was an evaluation of the extent to which the SSC could help capture and codify the skills identified as shortages / gaps / in need of upgrading in future as part of the Creative PEC/ Work Advance led Creative Industries Skills Audit.

Key Findings / Corrective Actions

The fully automated (AI-led) match approach yielded some interesting learnings on operationalising the classification (e.g. via employer surveys, data cleaning, AI matching etc) but was not deemed sufficient on its own to evaluate the classification. A manual analysis however concluded that the SSC is generally 'very well-aligned' to the skills demands of the Creative Industries. The exercise identified an opportunity to refine the SSC in places, to more fully capture emerging skills areas, sector-specific technologies and highly specialised technical skills, with the Design Council providing detailed feedback, for example, to strengthen the representation of sustainable design within the new classification.

5.6.6 Other Prototype Content Feedback

Detailed feedback mainly captured using the UK Skills Explorer feedback interface, from a range of organisations and professional bodies including Enginuity and The Royal Society of Chemistry was also used to refine both content definitions and mappings for the SSC.

Given that this is an ongoing process, a cut-off date of 17 April 2026 was established for revisions to be incorporated within SSC Version 1.0.

6. Updating the UK SSC

Procedures for maintaining and updating the UK Standard Skills Classification (SSC) require resources. To aid in identifying the scale of the resources required, this section sets out the reasons underlying the need for revisions to the classification, the procedures to be followed, indicates possible sources of information for updating the classification, and suggests how the processes required for maintenance and updating could be organised.

6.1 The need for revision

To remain fit-for-purpose, the SSC will require ongoing monitoring and maintenance to reflect changes in 3 areas.

The UK labour market:

- occupations emerge and evolve, potentially impacting upon the associated skill requirements meaning that skill requirements are dynamic

Education and training:

- new knowledge, technologies and teaching methods relating to skills development mean that course curricula and qualification criteria need to be kept up to date

Terminology:

- the language used to refer to occupations, skills and technologies is not fixed, they may become better known by different names that need to be recognised for the classification to remain meaningful to users

6.2 Revision procedures

The SSC links occupations to skills via the most detailed level of the UK Standard Occupational Classification (currently SOC2020 at the 6-digit level). Responsibility for monitoring and updating SOC2020 rests with the Office for National Statistics (ONS). The updating process adopted by the ONS is performed in 2 stages:

- **Continuous monitoring** of job titles and job content leads to what are termed 'index changes', where new job titles are allocated within the existing structure of the classification
- **Structural changes** relate to the needs of users for new categories within the classification

These same considerations apply to the SSC. Where new skills are recognised, which are distinct from skills already defined in the SSC, these could be positioned within the existing structure of the SSC. Changes in the structure of the classification, based on feedback from users or from the monitoring of information on skills, are complex and should be undertaken according to an agreed revision cycle.

The need for structural changes arises where users demand changes in Skill Domains, Areas or Groups, or where new skills have been identified that do not sit easily within the

existing structure of the SSC. Implementation of changes in the structure of the classification can impact upon the wide variety of mappings between the SSC and other classifications. As the structure of the SSC is modified, these mappings must also be updated. Such changes can create discontinuities for users of the classification, particularly where such use has led to time-series analysis of the skill structure of labour markets. Structural changes therefore require careful evaluation. The benefits for specific users must be weighed against the potential disruption to the classification as a tool for long-term labour market monitoring.

The Standard Occupational Classification (SOC) has adopted a ten-year cycle for implementation of any structural changes. It is suggested that a somewhat shorter cycle be adopted for the SSC, at least in the first few years after its implementation by various agencies across the UK. The first version of the SSC, launched in April 2026, may be subject to significant changes after one year, thereafter moving to a five-year cycle.

Managing these 2 types of changes requires that resources should be allocated both for continuous monitoring and for structural revisions. How these are organised is an important part of the overall management arrangements for the SSC. There is a need for continuous monitoring of the classification, engaging with users, responding to user queries, identifying and validating the types of information required for the identification of new Occupational Skills, linking these to Tasks, Education and training, and Core Skills. Consideration should also be given to the formation of an SSC User Group to provide a forum in which different users could react to any proposed updates and exchange information on uses of the classification.

6.3 Identifying and validating skill updates

Continuous monitoring of the classification will require collection, categorisation and analysis of several information sources, most likely including:

- UK job vacancy data
- workforce foresighting activities (for example the challenge-led programmes run by Innovate UK's Workforce Foresighting Hub)
- employer forums and associations
- public community forums (for example Stack Exchange and Discord)
- patent filings

These sources could lead both to terminological changes, and to the identification of new skills which would be positioned within the existing structure and linked to Occupations, Tasks, Education and training, and Core Skills.

Once the cycle for structural revision has been agreed, a wide net should be cast to engage with existing and potential users, seeking their views on the adequacy of the SSC for their specific uses and their suggestions for revisions. Suggested additions, revisions and corrections would also be invited by existing users with all amendments

under consideration being visible both to prevent duplicate submissions and to allow users to adopt provisional content prior to formal approval.

7. Extending the UK Standard Skills Classification

As the classification content stabilises and becomes adopted there are several opportunities to extend the framework in useful ways. This section outlines 5 examples.

1. *Proficiency levels for occupational mappings*

Proficiency levels are currently only given for occupations against Core Skills but preliminary stakeholder feedback has indicated a need for proficiency levels for Occupational Skills as well. These would also help define educational pathways and measure progression.

2. *Skill ability requirement profiles (to evaluate potential)*

There are several examples of workplace related models of human ability such as [Fleishman's taxonomy of human abilities](#) which was used as the basis of the [O*NET Ability Framework](#). As well as profiling individuals, these models can be used to profile specific skills and, in turn, predict the relative difficulty that different individuals would face acquiring or improving their proficiency. This would therefore enable estimates of skill development potential (i.e. an individual's innate compatibility with various career/skill development pathways) and tailoring of access to work support.

3. *Open skill and knowledge curricula*

There is potential to build on the existing concept labels, descriptions and proficiency definitions to create basic curricula for each UK Standard Skills Classification (SSC) Skill and Knowledge concept, including links to related education resources and learning outcomes. These would enable or guide self-led learning and simplify the creation of highly personalised learning pathways by educators for students or by employers for new or existing employees.

4. *SSC specialist skill coding index*

While the SSC does include alternate labels of Occupational Skills, it does not include an exhaustive list of skill specialisms (such as data analysis with a niche software library or statistical technique). Such a dataset would be similar to the existing [ONS Standard Occupational Classification \(SOC\) Coding index](#) published to help users match job titles to SOC groups. Creating a method to capture and map specialist skills to existing SSC concepts in a similar way would help improve the accuracy of both automated (such as AI-driven) and ad-hoc matching. It would also help identify skills that do not fit into the existing classification and indicate where new skill concepts may need to be added, or existing ones changed in scope.

5. *Sector-specific SSC standard occupational profiles*

The size of the UK limits the granularity of labour market information that can be collected cost-effectively which, in turn, limits the specificity of the Standard Occupational Classification (SOC). Skill and Knowledge requirements can therefore vary significantly between job roles coded to the same occupational group, even at the more detailed six-digit SUG level. This means that SSC Skill or Task profiles linked to SOC groups are imprecise and are therefore of limited use in assigning skills or expertise to incumbents. SSC SOC profiles could however be broken down further to, for example, sector-specific specialisms. This would simplify skill profiling as an individual would only need to provide a job title and specific employer context to identify and compare acquired and required skillsets.

Appendices

Appendix A Available mappings

This appendix lists the primary and secondary mappings that are available between the separate components of the UK Standard Skills Classification (SSC) and various other classifications. These mappings demonstrate the interoperability of the SSC.

For further information on the SSC, visit [UK Standard Skills Classification](#).

A1 Primary mappings

- SSC Skills to SSC Skill Groups, Skill Areas and Skill Domains
- SSC Skills to SSC Core Skills
- SSC Skills to SSC Knowledge
- SSC Tasks to SSC Skills
- SSC Tasks to SSC Knowledge
- SOC SUGs to SSC Skills, Skill Groups, Skill Areas and Skill Domains
- SOC UGs to SSC Skills, Skill Groups, Skill Areas and Skill Domains
- SOC SUGs to SSC Core Skills
- SOC SUGs to SSC Tasks
- SOC SUGs to SSC Knowledge
- SOC SUGs to SOC SUGs via SSC Skills
- Skills England Occupational Standards to SSC Skills
- Skills England Occupational Standards to SSC Knowledge
- Skills England Occupational Standards Skill Statements to SSC Skills
- Skills England Occupational Standards Duty Statements to SSC Tasks
- Skills England Occupational Standards Knowledge Statements to SSC Knowledge
- National Occupational Standards (NOS) to SSC Skills
- National Occupational Standards (NOS) to SSC Knowledge
- Ofqual Qualifications to SSC Skills
- Ofqual Qualifications to SSC Knowledge

- HECoS Subjects to SSC Skills
- HECoS Subjects to SSC Knowledge

A2 Secondary mappings

- SSC Skills to ESCO Skills
- ESCO Skills to SSC Skills
- ESCO Level 3 Skills to SSC Skill Groups
- SSC Skills to O*NET Detailed Work Activities (DWAs)
- O*NET DWAs to SSC Skills
- O*NET tasks to SSC Tasks
- O*NET Intermediate Work Activities (IWAs) to SSC Skill Groups
- The Skills Framework for the Information Age (SFIA) to SSC Skills
- SSC Skills to The Skills Framework for the Information Age (SFIA)
- The Skills Framework for the Information Age (SFIA) to SSC Knowledge
- SSC Skills to SIC Classes
- SSC Knowledge to ESCO knowledge
- SSC Knowledge to O*NET - Knowledge, Tools Used and Technology Skills
- SSC Knowledge to LDCSC - Learn Direct Classification of Subject Codes
- SSC Knowledge to Stack Exchange Topic Tags
- SSC Knowledge to Wikipedia Article Titles

Appendix B Full methodology

Throughout the process to create the UK Standard Skills Classification (SSC), we relied heavily on the use of Artificial Intelligence (AI), particularly Large Language Models (LLMs). These were mostly OpenAI models (and generally the best available model at the time) but during early development we also used open-source Llama models for some of the more data intensive tasks that would have been too costly using OpenAI. At each stage, we manually reviewed exceptions and inspected the outputs from the AI models, sometimes having to check large amounts of data. During the development of SSC Version 1.0, we investigated the performance of GPT-5.4. Evaluation of importance score differences between GPT-5.4 outputs and the GPT-4.1-derived prototype outputs for a sample of mappings showed a noticeably more accurate performance by GPT-5.4. This led to the decision to regenerate all primary and secondary mappings using GPT-5.4 for SSC Version 1.0.

A central part of our AI approach was the use of text embeddings. These are numerical representations (vectors) of text that allow computers to understand the semantic meaning of a piece of text. Text embeddings are used in clustering text and to compare meanings of text strings. To understand how related 2 text strings are to each other, we calculate the distance between the vectors using cosine similarity. The larger the score, the closer the 2 text strings are in semantic meaning. This method of comparing text strings was used extensively throughout the project. Early in the project, we experimented with different embeddings models and decided on the use of OpenAI 3-Large (OAL3) embeddings in the main. For the development of SSC Version 1.0, we re-checked the performance of OAL3 against newer embedding models (e.g. Qwen3) but it remained the best performing for our specific needs.

AI was also used in other ways in the project. We used AI prompts at many stages of the project, for example to quality assure skill and task statements and to detect inconsistencies and errors in mappings. Designing and refining prompts often involved several iterations as we learnt the best ways to interact with the AI to get the desired results.

The steps below outline the main stages in the creation of the SSC.

B1 Tasks

Figure 9: Development of UK SSC Occupational Tasks

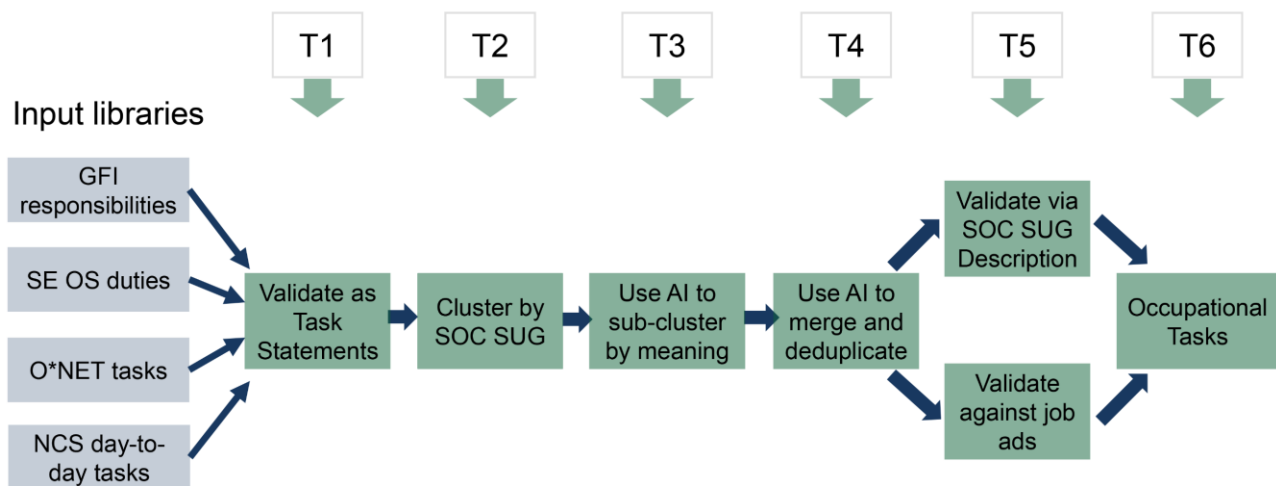


Figure 9 outlines the development process of the SSC Occupational Task library, detailing the main input libraries used, the data cleaning steps, and the validation against other information sources.

This is displayed as a series of processing steps from T1 to T6 in a row across the top of the diagram with each step shown below in a flow diagram. On the left-hand side are the 4 input libraries which feed into the first processing step: T1.

The 'T' prefix for each step ID (such as T1) relates to 'Task'. For similar processes shared in later sections an 'S' prefix relates to 'Skills' and a 'K' prefix to 'Knowledge'.

The input libraries from top to bottom are:

- the Graduate Futures Institute (GFI) responsibilities
- Skills England (SE) Occupational Standards duties
- the US Occupational Information Network (O*NET) tasks
- National Careers Service (NCS) day-to-day tasks

The processing steps show:

- T1 'validate as Task Statements'
- T2 'cluster by SOC SUG'
- T3 'use AI to sub-cluster by meaning'
- T4 'use AI to merge and deduplicate' which has arrows pointing to 2 steps under T5

- T5 'validate via SOC SUG description' and 'validate against job ads' which both have arrows to step T6
- T6 'Occupational Tasks'

T1 Process and validate inputs

Task statement libraries were obtained from GFI (responsibilities), Skills England Occupational Standards (duties), O*NET (tasks), and National Careers Service (day-to-day tasks). These libraries were cleaned and standardised using AI tools. AI tools were then used to quality assure the tasks statements and correct tasks that were too generic, too specific, too wordy, incorrectly structured, compound tasks or not tasks. The quality assurance process also converted US spellings and phrasing to UK English.

T2 – T4 Refine, deduplicate and cluster

Text embeddings were generated using 2 models: OpenAI 3-Large and Bidirectional Encoder Representations from Transformers (BERT) MP-Net. A variety of cluster models were then tested and compared to remove duplicate and similar tasks. OpenAI 3-Large embeddings with a hierarchical clustering model was found to have the best results.

Clustered tasks were sorted by meaning (based on embeddings) to identify overlapping and close clusters and merged through manual inspection. Orphan clusters (those containing only one task) were integrated with multi-task clusters using results from other clustering and embeddings models.

The centroid task statement within each cluster was identified and became the task label. These cluster labels then became the initial version of the SSC Task library.

T5 Validate against other sources

SOC SUGs

Tasks were extracted from all SOC SUG descriptions (except n.e.c. groups ending /99) using the Llama3 LLM and then embeddings were created to enable matching to the SSC Tasks. The similarity between the SUG description task embeddings and the SSC Task embeddings was calculated to provide a numerical score representing the degree of similarity. The best matching SSC Task for each SUG description task was identified so that SSC Tasks were assigned to all relevant SOC SUGs. Potential Task to SUG matches were also identified via an analysis of existing job profiles such as those within O*NET where associated task statements appear in clusters used to derive SSC Tasks.

Further AI prompts were used to check the combined mappings and estimate the relatedness of these tasks to the associated SUGs. Significant discrepancies between a legacy mapping (such as a task match with a high level of importance within an O*NET profile but rejected by the AI analysis) were manually checked and reconciled.

Vacancy data

The IER holds a large vacancy database which is coded to SOC SUGs. A sample of distinct vacancy descriptions was created with a maximum size of 200 vacancies per SUG. The sample was selected from vacancies with longer job descriptions and those that were well coded to each SUG.

Llama3 was used to extract tasks from this database of vacancy descriptions and then the tasks were quality assured, clustered, and embeddings created using a similar process to the creation of the task library (T2-T4). These embeddings were then compared to the SSC Task embeddings. Vacancy tasks that were quality assured as being ‘good’ tasks but had a low similarity score to an existing SSC Task were manually inspected to identify any tasks that should be added to the SSC Task library.

The database of vacancy tasks was also used to identify additional tasks for SUGs with no or low numbers of associated tasks and similarly for SSC Skills with no linked SSC Tasks.

T6 Final SSC Occupational Tasks

The final list of SSC Tasks consists of 22,583 tasks. This is based primarily on the SSC prototype version but, following analysis of tasks added to O*NET, Skills England Occupational Standards (i.e. duty statements) and GFI responsibilities since the original task library was created, an extra 692 tasks were added. This extended library was then re-mapped to SSC Skills and Knowledge concepts and to occupations.

B2 Skills

Figure 10: Development of UK SSC Occupational Skills

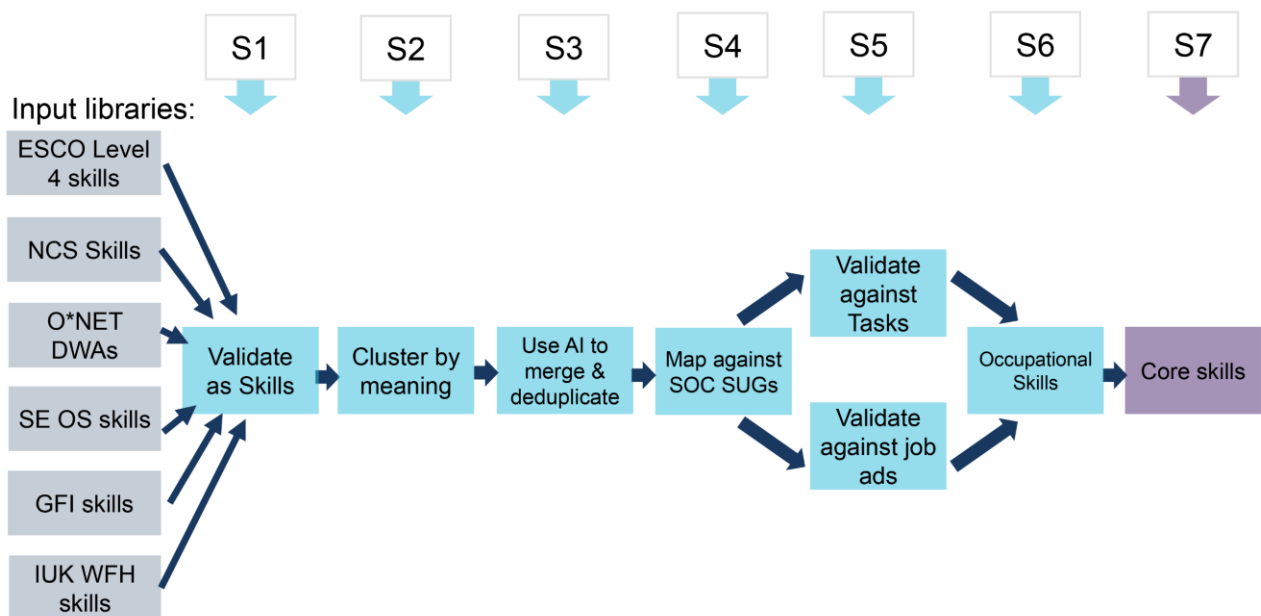


Figure 10 shows the equivalent process for the construction of the hierarchical classification of SSC Occupational Skills together with a set of 13 Core Skills.

This is displayed as a series of processing steps from S1 to S7 in a row across the top of the diagram with each step shown below in a flow diagram. On the left-hand side are the 6 input libraries which feed into the first processing step: S1.

S1 to S7 refer to each processing step in the creation of the Occupational Skills library.

The input libraries from top to bottom are:

- European Skills, Competences, Qualifications and Occupations (ESCO) Level 4 skills
- the National Careers Service (NCS) skills
- O*NET Detailed Work Activities (DWAs)
- Skills England Occupational Standards skills
- GFI skills
- the Workforce Foresighting Hub, Innovate UK (WFH) skills

The processing steps show:

- S1 'validate as Skills'
- S2 'cluster by meaning'
- S3 'use AI to merge and deduplicate'
- S4 'map against SOC SUGs' which has arrows pointing to 2 steps under S5
- S5 'validate against Tasks' and 'validate against job ads' which both have arrows to step S6
- S6 'Occupational Skills'
- S7 'Core Skills'

S1 Process and validate inputs

Skills statement libraries were obtained from GFI (skills), ESCO (Level 4 skills), Skills England (skills), Innovate UK Workforce Foresighting Hub (skills), O*NET (Detailed Work Activities) and the National Careers Service (skills). These libraries were cleaned and standardised using AI tools. AI tools were again used to quality assure the skill statements and correct any that were too generic, incorrectly structured, compound, invalid, elementary, ambiguous, traversal, or too specific.

The text below shows an example of a prompt used to quality assure skill statements:

```
prompt_text="""
```

A good occupational skill label complies with all of the following criteria:

1. It describes a skill that requires significant training and practice to acquire.
2. It describes a skill and not an attitude or outcome. For example, 'maintaining a positive outlook' or 'Ensuring customer satisfaction' would therefore not qualify as occupational skills.
3. It describes a skill that is developed and not innate. For example, 'a good sense of smell' is not a skill although "Smelling foods and ingredients to evaluate quality" is.
4. It begins with an action-based verb followed by a specific noun (i.e. describes something being actively done to an object).
5. It is no more than nine words long (and ideally between three and six).

6. It is unambiguous (i.e. it describes a specific skill and couldn't be misinterpreted as something else)
7. It describes a specialist skill and therefore is only relevant to a subset of jobs. For example, "supervise workers" is too broad
8. It describes a skill that is broad enough to be relevant to or transferable between multiple jobs but not overly generic

Examples of good occupational skill labels include:

1. Install heat pumps
2. Administer standardised psychological tests
3. Manage software development projects
4. Read musical scores
5. Inspect aircraft to check airworthiness
6. Design relational database schemas

Quality Evaluation Category Codes, Category Names & Rewriting Guidance:

For evaluation and, where necessary, editing, occupational skill labels can be classified into one or more of the following categories:

1. Good - This label meets all the criteria
2. Compound - This describes multiple skills. It needs to be split into multiple skill labels, one per different skill.
3. Too Generic - This is too generic and isn't describing a specific skill.
4. Invalid - This does not describe a skill and is instead a tool, subject, attitude or outcome. It needs to be removed.
5. Too Complex – The vocabulary used to define the skill is verbose and unnecessarily difficult to read. It needs to be simplified.
6. Disordered – This label does not follow the verb-noun sequential format. It needs to be rewritten to present the information in this order.
7. Elementary - This is an unskilled or very low-skilled activity
8. Ambiguous - This label could represent two totally different skills
9. Traversal - This is a skill that is very broad and is required in a wide variety of unrelated job role
10. Too Specific - This is a skill that is too specialised and only relevant to a specific part of one job

Quality Evaluation Category Examples:

Examples of skill labels assigned to the various evaluation categories (some examples may belong to more than one category)

1. Good – "Administer standardised psychological tests."
2. Compound – "Design, administer & interpret standardised psychological tests."
3. Too Generic – "Analyse data."
4. Invalid – "Stay positive."
5. Too Complex – "Apply research ethics and scientific integrity principles in research activities."
6. Disordered – "Safe working Practices: Meet legal, industry and organisational requirements."

7. Elementary - "Fill kettle with water" or "Pass dental instruments."
8. Ambiguous - "Conduct pipeline analysis" (this is ambiguous as it could refer to an oil or data pipeline)
9. Traversal - "Think analytically"
10. Too Specific - "Repair vehicles with fuel-injection problems"

With this context, please evaluate the occupational skill labels in the provided list of tuples (containing the `statement_id` and `statement_text`) and assign each one to one or more of the of the Evaluation Category codes.

Next step:

Rewrite each statement by applying the rewriting guidance for all of its category codes as well as using the original criteria for good occupational skill labels and examples of good skill labels provided.

For example, a code 2 (Compound) statement should be split into two distinct skill labels. If the original statement does not contain enough information to apply the guidance properly then instead assign a label "Insufficient content to rewrite".

Finally, return a json list of dictionaries (one dictionary per record) containing (in the following order):

- 1) `Statement_id`:
- 2) `Statement_text`:
- 3) `Evaluation_categories`: A comma separated list of the Evaluation Category codes and their corresponding names
- 4) `Statement_refined`: The rewritten statement or statements or the label "Insufficient content" (*If there is more than one statement, these should be separated by the "#" character.)

""""

Please note that this prompt was developed in May 2024 and used with the LLM model OpenAI GPT-4.0. Current LLMs are significantly more capable and the prompt could be improved (quite possibly by an LLM) to produce better results. Use of this exact prompt is therefore not recommended.

S2 – S3 Refine, deduplicate and cluster

OpenAI 3-Large embeddings were created and a hierarchical clustering model was used to deduplicate and refine the library of skills.

Skill clusters were then sorted by meaning to identify overlapping clusters and these were manually inspected for inclusion or deletion. AI prompts were used to analyse the consistency of the skill clusters and generate a new skill label to best describe the cluster of skills (rather than using the centroid skill as the label).

The verbs in the skill labels were standardised and became the SSC Skills.

AI tools were used to write a description of the SSC Skill label and then a further prompt identified any ambiguous skills labels and descriptions which were rewritten.

Create Skill Groups, Areas and Domains

The SSC Skills were clustered to create Skill Groups and parent or child overlaps were manually checked. An AI prompt was used to check the SSC Skills within each Skill Group and identify any overlapping Skill Groups.

The Skill Groups were then clustered to create Skill Areas and the language of the Skill Groups and Skill Areas was standardised. An AI prompt was used to check the skills in each Skill Area and return a skill relatedness score.

The Skill Areas were then mapped to Skill Domains and an AI prompt used to check SSC skills within Skill Domains.

S4 Map against SOC SUGs

The original prototype mapping from SOC SUGs to SSC Skills was based primarily on the occupational mappings in the input skill libraries. The final Version 1.0 mapping was however entirely regenerated by first identifying potential matches from a text embedding comparison of the new Version 6 SOC SUG titles and descriptions against SSC skills and descriptions. The potential match lists were then extended by the addition of any of the top 30 skill matches from the original mapping not already included.

The original SUG to skill mapping contained only a single weighted importance score but, even with the latest LLMs (e.g. GPT-5.4), prompts to generate similar importance scores were inconsistent (i.e. running the same prompt against the same dataset would generate significantly different scores). This aligned with broader concerns about prototype mapping score accuracy. SUGs are quite broad occupational concepts and skills within some related roles may be very important while unrelated to others. For example, different application developer roles will involve using different programming languages and libraries which, in turn, will need different skills. A prompt evaluating the requirement 'probability' for a skill within an SUG, and then the percentage 'importance to competence' separately led to the generation of significantly more consistent scores. Moreover, these were significantly more correlated with a sample of independent importance evaluations of the existing SSC skill matches than the original mapping.

The augmented potential match lists were therefore evaluated using the AI prompt format below to generate these 2 distinct estimates of relatedness. Matches with a frequency score below 10 and an average weighted score of below 25 were typically excluded, although some were retained to improve overall coverage (see Section 2.4.1 for details).

Example prompt:

““““

You are a skills analyst and need to evaluate the importance of skills within a list to a specific UK occupation.

To do this you will be given a list object that contains:

1) An occupation_id

2) An occupation_title and description (hyphen separated e.g. 'Chemical engineers - Chemical engineers design and develop large scale chemical and physical production processes.')

3) A list of ; seperated tuples containing a skill_id and a hyphen-separated skill_label and skill_description

For example:

```
[1132/02,'Sales directors - Sales directors are responsible for overseeing all sales operations for an organisation or business.',(S.2978;Supervise sales staff - Set daily priorities, monitor calls and deals, coach staff on products, and review progress against targets.);(S.0106;Analyse sales data - Analyse sales figures to find trends by product, customer or region and spot issues affecting revenue.);(S.2862;Set sales targets - Set measurable sales targets based on past results and forecasts, such as revenue, units sold or new customers.)]
```

For each of these occupation_skill lists please evaluate each skill and then:

1) Assign a % probability (as an integer value) that in a UK context the skill would be required for roles within the occupation described (for example, an application developer role would be more likely to require the skill of Python programming as a skill rather than Scala or Rust). Remember this score as the skill_required_probability_percentage..

2) Assign a % score (as an integer value) to indicate the importance of competence in that skill to overall competence of roles belonging to that occupation and requiring that skill (For example an application developer role requiring Django). Remember this as the skill_importance_if_required

3) Don't include any rationale, return only a json list of dictionaries (one dictionary per occupation-skill pair) containing (in the following order):

a) occupation_id:

b) skill_id:

c) skill_required_probability_percentage:

d) skill_importance_if_required

“““““

Weighted frequencies were then calculated to show how SUGs relate to SSC Skill Groups and SSC Skill Areas.

S5 *Validate against other sources*

SSC Tasks

The SSC Skills embeddings were compared to SSC Tasks embeddings to identify links between them. This mapping was then checked using an AI prompt and a further prompt defined the importance score of the SSC Skill to the SSC Task.

Vacancy data

Following a similar process to the validation of tasks using vacancy data, skills were extracted from a sample of vacancy descriptions using Llama3. These were quality assured using AI and then embeddings were created and the vacancy skills were

clustered within each SUG and then across all SUGs. The centroid embedding within each cluster became the vacancy skill label. These were then compared to the SSC Skills embeddings to check coverage and any vacancy skills quality assured as being of good quality with a low similarity score to the SSC Skills were inspected for inclusion. This resulted in eight new concepts (e.g. S.1388 - Install EV charging points) being added to the prototype classification.

S6 Final SSC Occupational Skills

The set of SSC Skills consists of a hierarchy of 3,350 Occupational Skills, 607 Skill Groups, 106 Skill Areas and 22 Skill Domains. This is based primarily on the prototype classification but, following user feedback and evaluation of pilot outputs, 10 new occupational skills were added, 27 skill labels modified (e.g. ‘S.0271 - Build axed arches and haunch brickwork’ changed to ‘Build arches and angled brickwork’ to improve clarity) and 2 redundant concepts removed. All occupational skills descriptions were also revised using GPT-5.4 to improve consistency and readability. The datafile changelog contains full details.

S7 Core skills

The Skills Builder Partnership essential skill concepts were considered and then a list of 13 SSC Core Skills and definitions were drawn up.

AI prompts were used to help create definitions for each of the 5 skill levels of each SSC Core Skill and then to evaluate the level of Core Skill proficiency in each SSC Skill and each SOC SUG. Several AI models were used in this step to try to attain the best and most consistent results.

B3 Knowledge

Figure 11: Development of UK SSC Knowledge concepts

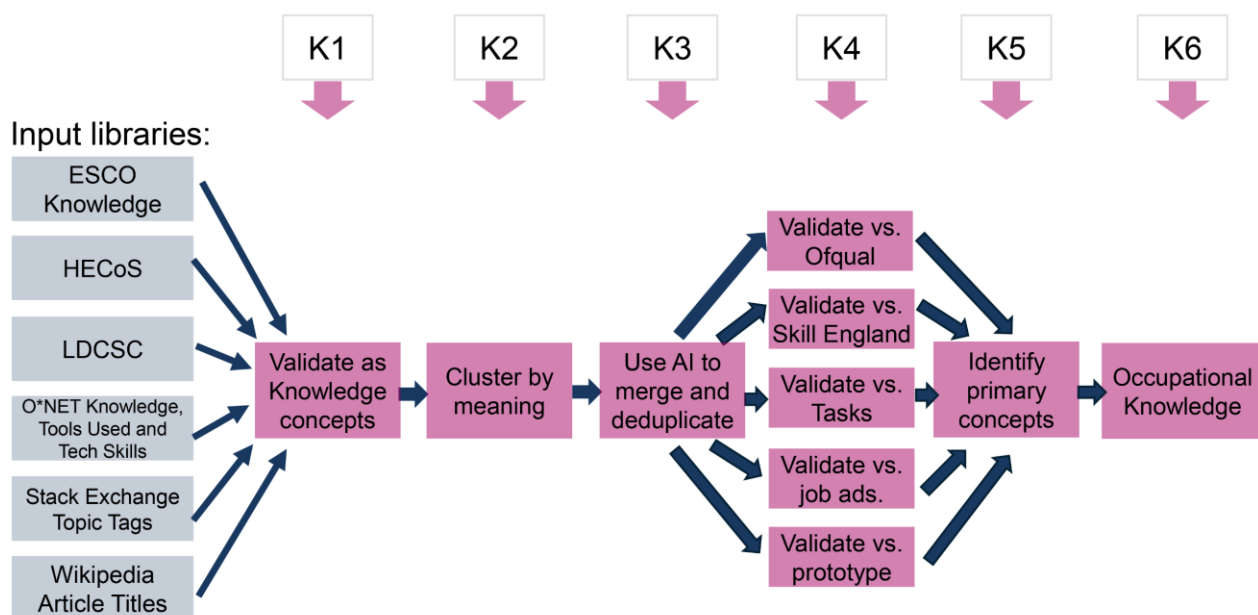


Figure 11 illustrates the process to develop the SSC library of Knowledge concepts.

K1 to K6 refer to each processing step in the creation of the Occupational Knowledge library.

The main input libraries from top to bottom are:

- ESCO (European Skills, Competences, Qualifications and Occupations) Knowledge concepts
- Higher Education Coding of Subjects (HECoS)
- Learn Direct Classification of Subject Codes (LDCSC)
- O*NET (knowledge, tools used and technology skills)
- Stack Exchange (topic tags)
- Wikipedia (article titles)

The processing steps show:

- K1 'validate as Knowledge concepts'
- K2 'cluster by meaning'
- K3 'use AI to merge and deduplicate' which has arrows pointing to 5 steps under K4
- K4 'validate versus Ofqual', 'validate versus Skills England', 'validate versus tasks', 'validate versus job ads', and 'validate versus prototype' which each have arrows to step K5
- K5 'identify primary concepts'
- K6 'Occupational Knowledge'

The Knowledge concept, subject and topic names were collected from the input libraries.

K1 Process and validate inputs

Knowledge libraries were obtained from ESCO (Knowledge), HECoS (Higher Education Coding of Subjects), LDCSC (Learn Direct Classification of Subject Codes), O*NET (Knowledge, Tools Used and Technology Skills), Stack Exchange (Topic Tags) and Wikipedia (Article Titles). These were cleaned and standardised using AI tools. The list of Knowledge concepts was checked for any matching or equivalent terms and then filtered to only include concepts that were evident within a UK context.

K2 – K3 Refine, deduplicate and cluster

Knowledge concepts were clustered by meaning using embeddings and further deduplicated using clustering methods.

K4 Validate against other sources

Ofqual

Up to 50 potential matches per qualification were identified by comparing a text embedding vector of a concatenated text string of each qualification title and its associated qualification units against a text embedding for each SSC Knowledge concept label.

Text embedding vectors were generated using the OpenAI 3-Large Model with a cosine-similarity match threshold of 0.3 being applied. Matches above this threshold were then evaluated by prompting an LLM (GPT-5.4) with a simplified text string for each qualification (its simplified title and up to 5 example qualification units) to validate each match and also, where appropriate, assign a percentage probability that “a significant amount of knowledge in that area would be learnt by achieving that qualification”. Following a sample inspection, matches assigned a match probability score below 50% were rejected.

The closest Sector Subject Areas were identified using embedding matches and validated using an LLM prompt and manual inspection.

IfATE and Skills England

Up to 10 potential matches per Occupational Standard Knowledge statement were identified by comparing a text embedding vector of a concatenated text string of each statement and its associated occupational standard against a text embedding for each SSC Knowledge concept label. Text embedding vectors were generated using the OpenAI 3-Large Model with a cosine-similarity match threshold of 0.3 being applied. Matches above this threshold were then evaluated by prompting an LLM (GPT-5.4) and, where appropriate, assigning a percentage importance of the knowledge to that statement. Following a sample inspection, matches assigned a probability score below 50% were rejected.

SSC Tasks

Embeddings matches were also used to assign SSC Knowledge concepts to SSC Tasks and then an AI prompt checked whether the Knowledge concepts had been correctly assigned to Tasks. An AI prompt was then used to define the importance score of the Knowledge to the Task.

Vacancy data

The sample of vacancy descriptions was searched for the SSC Knowledge concepts to check that they are all terms in common usage.

K5 Primary concepts

The primary concept type and potentially related concepts were identified using embeddings matches and checked using LLM prompts.

K6 Final SSC Occupational Knowledge concepts

The final set of SSC Knowledge concepts consists of 5,056 concepts linked to SSC Tasks, SSC Skills and subjects. This is based primarily on the prototype classification but, following user feedback, evaluation of pilot outputs and a re-analysis of previously excluded terms, 145 new concepts were added, 10 concept labels were modified to improve clarity (e.g. ‘K.0663 – Casting’ changed to ‘Casting (Manufacturing)’) and 15 redundant concepts were removed. All concept descriptions were also revised using GPT-5.4 to improve consistency and readability. The datafile changelog contains full details.

B4 Secondary mappings

Secondary mappings to existing classifications of Skills, Tasks and Knowledge concepts were created using embeddings matches. The full list of secondary mappings available can be found in Appendix A2.

B5 Skill categorisations

B5.1 Numeracy skills and Digital skills

These classifications were created using the SSC Skills that were rated as requiring an expert level of proficiency in the SSC Core Skills of Numeracy and Digital Literacy.

B5.2 Green skills

An AI prompt was used to score each SSC Skill in how related (directly or indirectly) it is to the UK's net zero emissions target and other environmental goals. Using previous work to define the Green SOC (see [Warhurst, C., Harris, J., Cardenas-Rubio, J. C., and Anderson, P. \(2025\). A just transition?: Green jobs, good jobs and labour market inclusivity in Scotland. European Journal of Workplace Innovation, 9\(1-2\), 63-79.](#)), the skills mapped to green SUGs were also identified. A manual inspection of the skills with high AI green scores and those mapped to green SUGs was then carried out to identify a list of Green and Green enabling skills.

B5.3 STEM-M&H (Science, Technology and Engineering, Mathematics, Medicine and Health) skills

The definitions of STEM-M&H used to define SUGs as STEM-M&H in [previous work for The Royal Society](#) were used in an AI prompt to score the SSC skills against each of the 4 categories. After a manual inspection and comparison to the STEM-M&H SUGs linked to each skill, a threshold score was applied to define the STEM-M&H category.

B5.4 Artificial Intelligence (AI) skills

A model was developed to define 4 different categories of AI skills as listed in Table 5 below:

Table 5: AI Skills Categories within the UK SSC

AI Skill Category Name	AI Skill Category Description
AI Development Skills	Technical skills that help develop, implement and maintain Artificial Intelligence (AI) tools and capabilities
AI Operation Skills	Skills that directly relate to the use of Artificial Intelligence (AI) tools and capabilities
AI-Augmented Skills	Skills that can be performed without AI tools and capabilities but can be materially simplified,

accelerated, improved or scaled through their use.

AI Oversight Skills

Skills that help plan, govern, monitor, audit, assure, validate, regulate, approve, or oversee the safe, lawful, ethical, effective, or responsible use of Artificial Intelligence (AI) tools and capabilities

An AI prompt was used to assign a percentage score for each of the categories for each SSC Skill. For scores above 50% a rationale was also generated for validation purposes.



Skills England

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