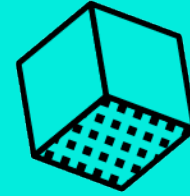


Southampton's Future Skills Framework

Maritime, digital and creative sectors

May 2022



Led by



In partnership with



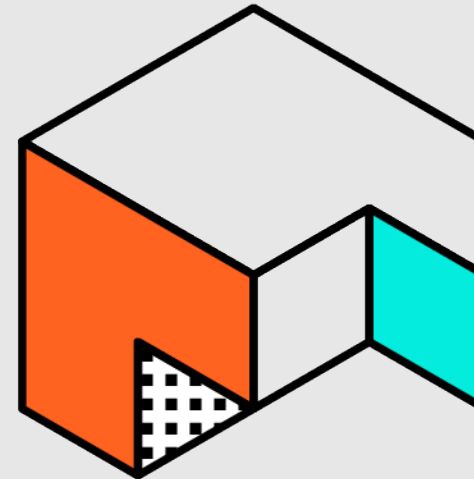
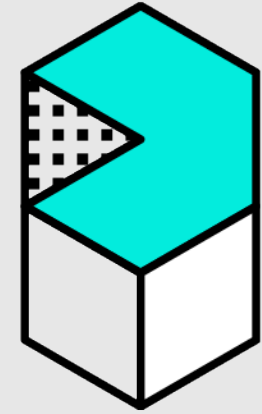
FUTURE LEARNERS
CREATORS
ENTREPRENEURS

NAV/GATR

REAL
IDEAS

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Introduction

Skills frameworks describe the skills, knowledge and competencies required in different jobs. This can provide a common language to improve communication and collaboration between employers, educators, policymakers, learners and other actors in the skills system.

The RSA's Cities of Learning programme uses **digital badges** to make learning, work and development opportunities in places more visible and measurable, and to support learners to articulate their skills and experiences. The programme also develops **pathways** that connect badges together to provide new progression routes for learners.

Together with Southampton City Council we set out to develop a **local skills framework**, to help inform digital badge writing, learning provision and other interventions that could address skills and employment challenges in the local area.

Methodology

We draw inspiration from a range of innovative approaches to skills frameworks and taxonomies.

Our approach uses data from over **300,000 local online job adverts**, provided by our research partners Emsi to identify:

- **Skills in-demand across most occupations** in the city (i.e. core/transferrable skills).
- **Skills in-demand for strategic industries** such as maritime, digital and creative and culture, tourism and the visitor economy.

We complement this with qualitative insights from local stakeholders. Our analysis also situates our findings in the wider literature on the future of work and skills.



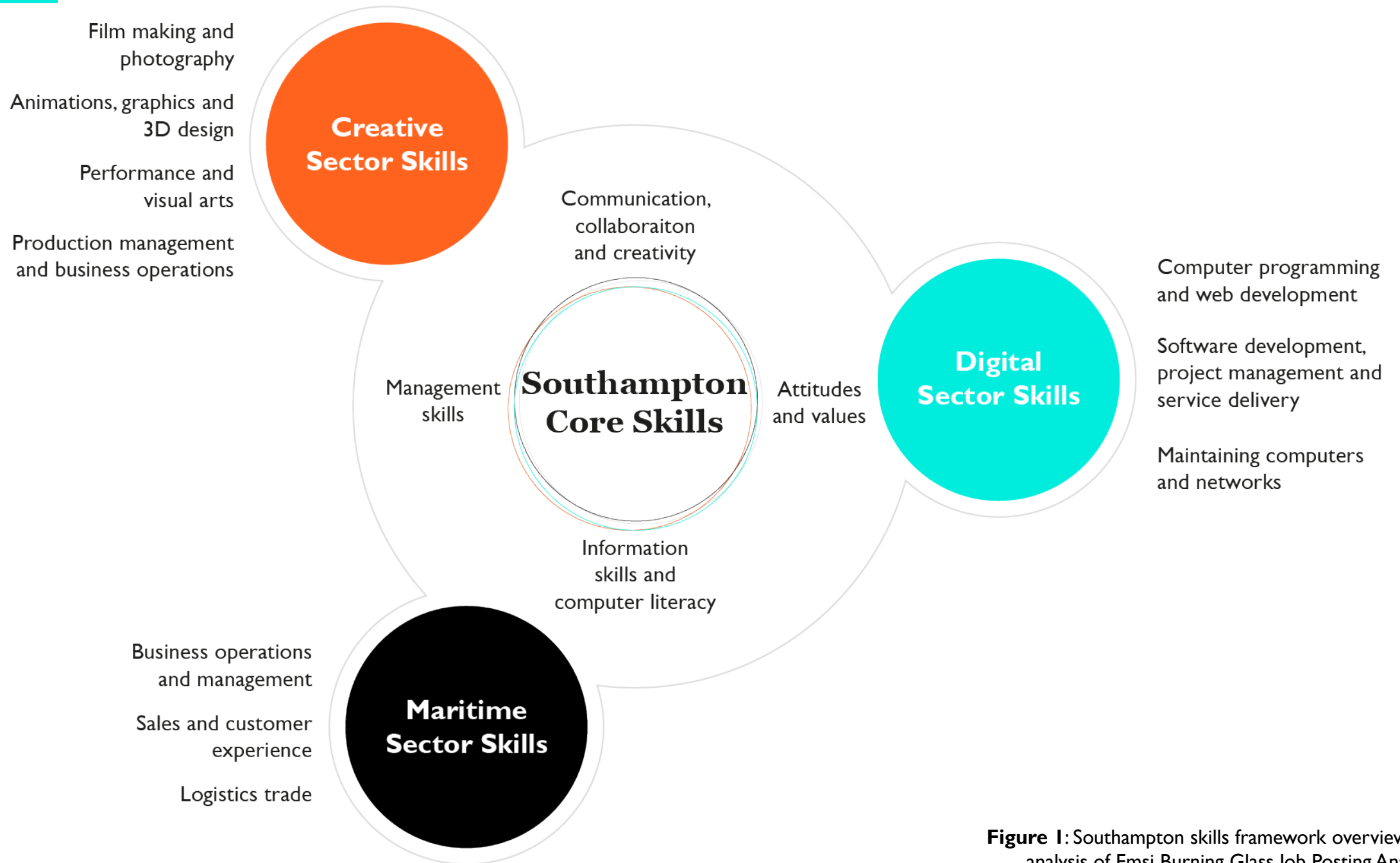


Figure 1: Southampton skills framework overview (RSA analysis of Emsi Burning Glass Job Posting Analytics)

Why Southampton needs a skills framework

A skills framework for Southampton would help ensure that residents have the skills needed to meet the city's strategic ambitions as well as address future of work challenges such as automation and Covid-19.

By providing insights on current and emerging skills demands, a skills framework could have the following impact on different stakeholders in the learning system:

- 1. Employers** will be able to better recognise these skills, invest in appropriate training, develop progression pathways and align job design and recruitment with the changing needs of industry.
- 2. Learners** and workers will be able to communicate their existing skills more effectively and make better decisions about upskilling and reskilling opportunities.
- 3. Educators** will be able to design training programmes that better align with emerging skills demands and ensure that all learners are equipped with the core/transferrable skills needed across a range of occupations.

Rationale for strategic sector skills frameworks



Digital

IT professionals are one of the fastest growing occupations in Southampton and these roles will become increasingly important as more traditional sectors of the economy undergo digital transformation. The city has attracted large firms such as Starling bank and is growing its profile as a tech start-up hub.



Maritime

Southampton is a centre of maritime excellence. However, the sector is expected to undergo significant transformation in the coming years as automation and decarbonisation create new skills demands. Freeports represent a growth opportunity and the city has ambitions to lead on the development of autonomous vessels.



Creative

Southampton are bidding for City of Culture 2025. The 2021 award is expected to have created 900 jobs in Coventry and contributing £211m to the economy. Longer term, the aspiration is that the bid will make the Southampton a more vibrant place to live and help to improve graduate retention.

CASE STUDY #1:

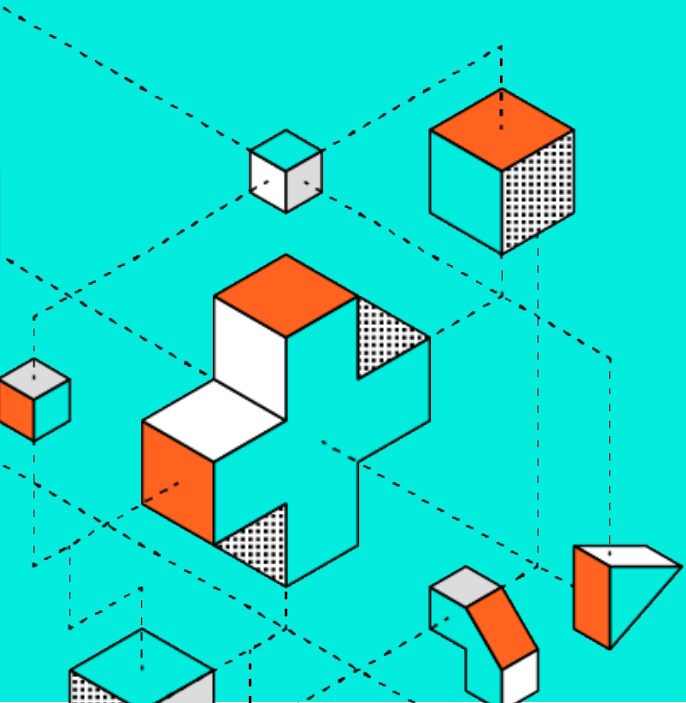
Singapore's Skills Framework

Skills frameworks are an integral part of Singapore's industry transformation maps that are co-created by employers, educators, unions, industry associations and government. Over 30 skills frameworks have been developed for strategically important sectors, detailing information on job roles, career pathways and skills demands, alongside lists of existing training programmes. In total, these frameworks document approximately 51,000 abilities and 55,000 knowledge types, underpinning more than 8,000 unique technical skills.



CASE STUDY #2:

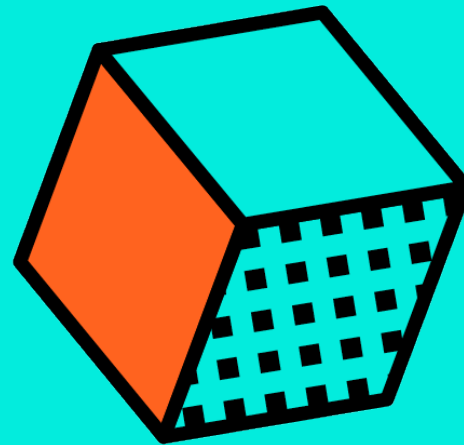
Nesta's Skills Taxonomy



The UK's first skills taxonomy was developed by Nesta and Burning Glass using data from 41m online job adverts. Machine learning was used to hierarchically cluster skills, meaning the more frequently they appeared in similar adverts, the more likely they ended up in the same branch of the taxonomy. The taxonomy also estimates change in demand for each skill cluster over recent years and their value (based on advertised salaries).

According to Nesta, one of the benefits of using online job adverts to create a taxonomy is that it ensures it is based on the language actually used by employers, rather than academics or policy makers. However, more recently they have recognised the limitations of this approach. Not all jobs are advertised online and not all skills are mentioned within job adverts. To avoid these pitfalls, future versions of the skills taxonomy will combine the timeliness of job adverts with the breadth of the ESCO, an already existing expert framework developed by the European Commission.

Core skills frameworks



Our approach: core skills framework

1. **We analysed a list of the top 250 most in-demand skills in Southampton** according to Emsi online job vacancies data. This list included skills that are specific to some of the most widely advertised jobs such as computer programmers and nurses.
2. **We filtered out these skills to identify core skills for the city** that are prevalent across a wide range of occupations in the city and widely considered as transferrable in the literature on the future of work and skills.
3. **We used the ESCO (European Skills, Competences and Occupations) skills hierarchy to enrich this dataset and cluster skills into a framework for the city.** Along with the US O*NET (Occupational Information Network), the ESCO is one of the most well known and widely used skills frameworks.
4. **We engaged with local stakeholders to stress test a draft skills framework,** to ensure that the overarching language resonated and identify potential gaps based on current and emerging skills demands.

Core skills frameworks

During our analysis, we identified a total of 50 core skills for the city of Southampton. The top 5 skills most referenced in online job vacancies were communications, management, customer service, enthusiasm and planning.

More generally, core skills can be found across several broad ESCO categories. Although they are particularly concentrated in communication, collaboration and creativity, management skills and computer literacy.

Several, including self-motivation and resilience, are what the ESCO skills hierarchy describes as attitudes and values (and are often also be described as non-cognitive skills).

When developing our sector skills frameworks, we assume that these core skills are relevant across all roles and only profile **non-core** skills that are more specific to the sector.

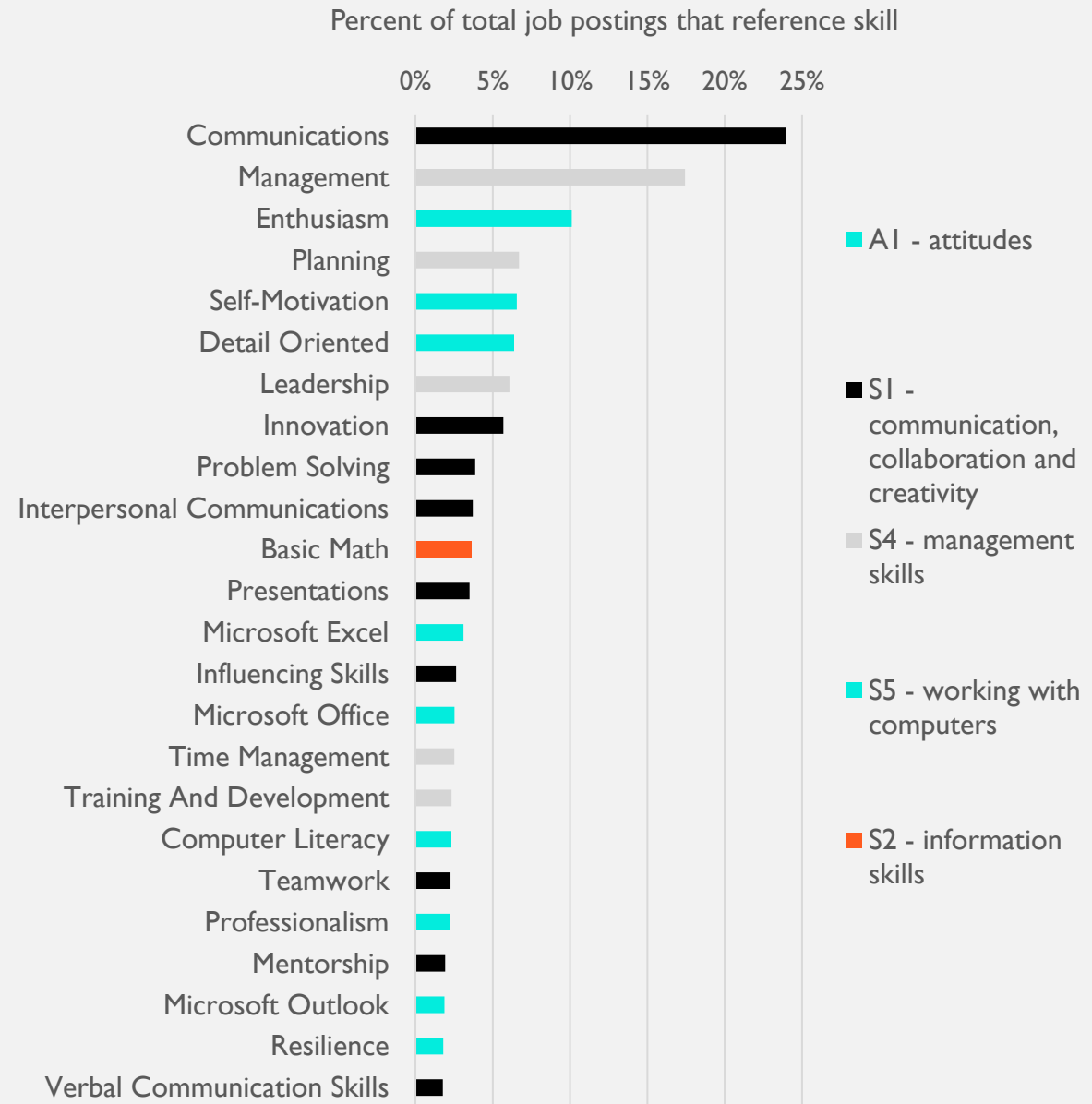
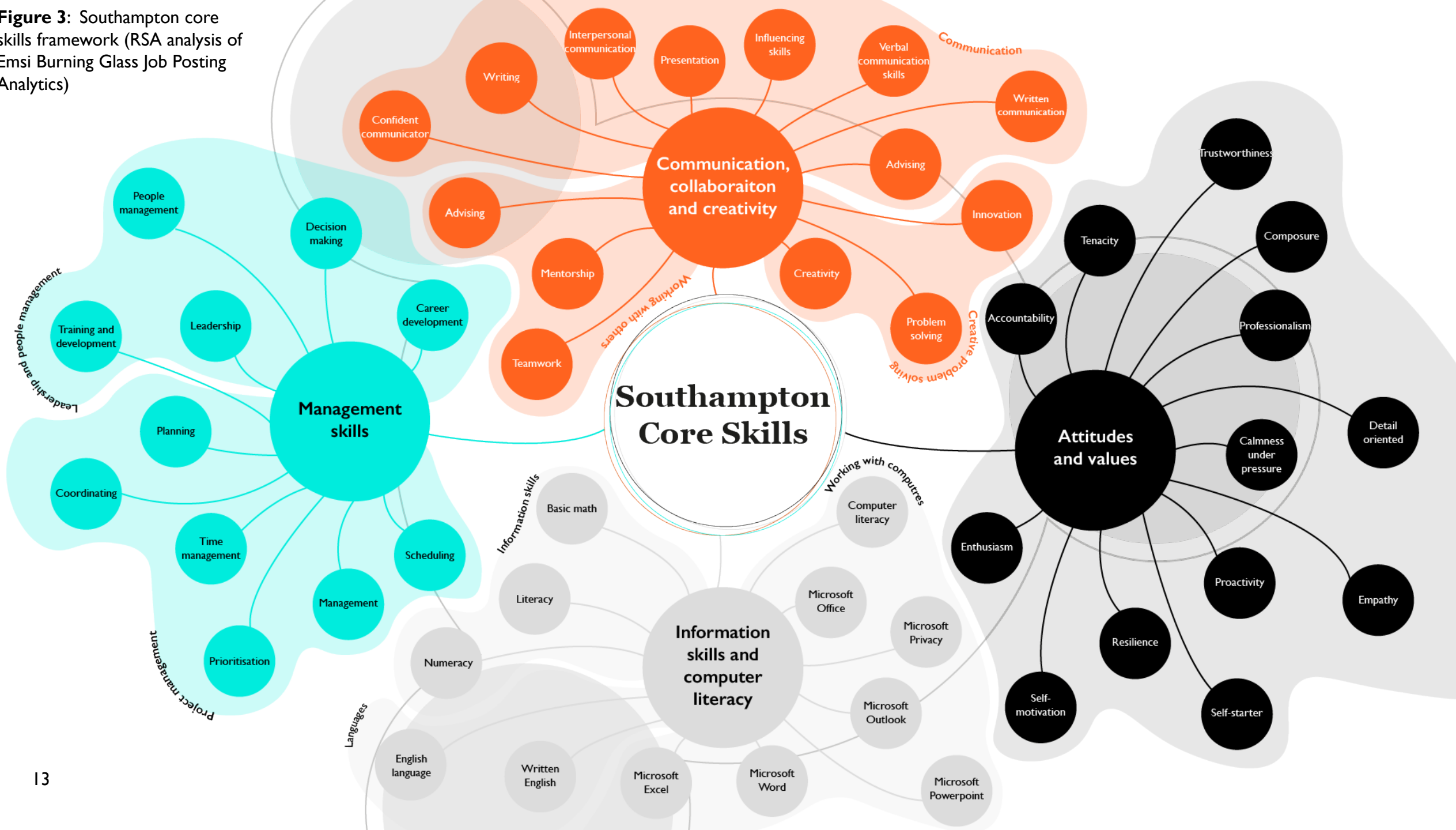
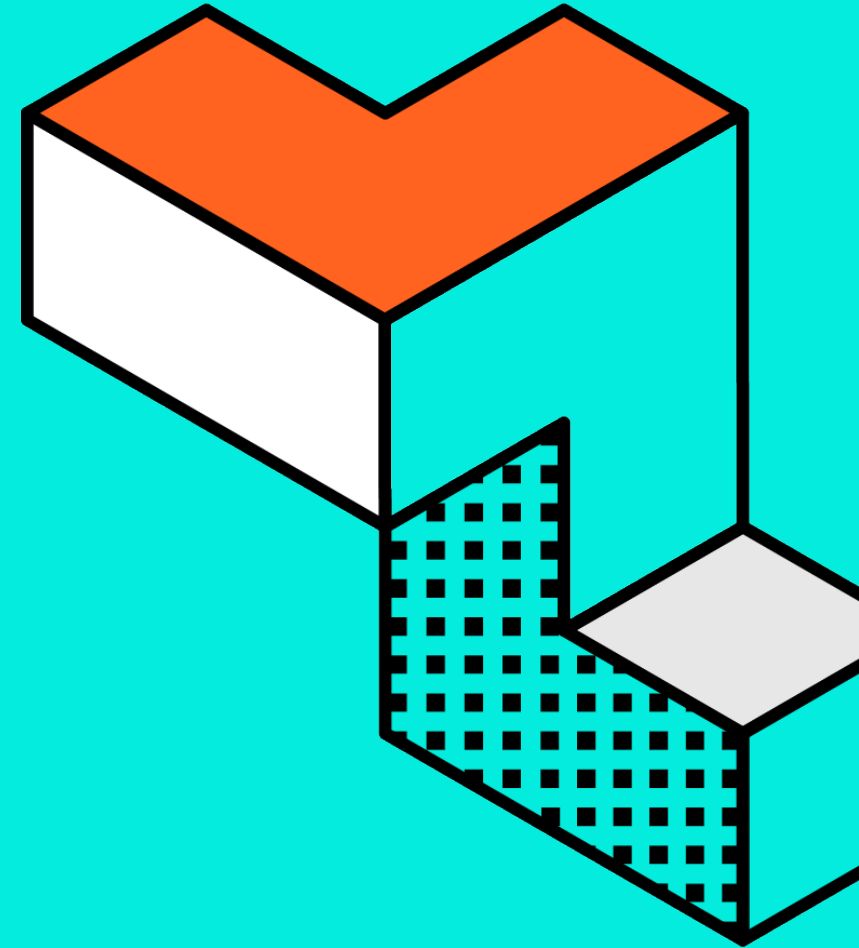
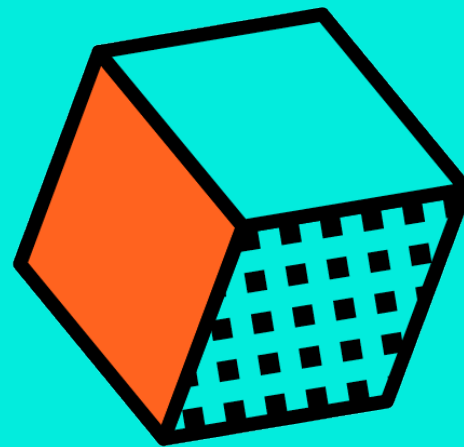


Figure 2: Top core skills in Southampton by ESCO pillar (RSA analysis of Emsi Burning Glass Job Posting Analytics)

Figure 3: Southampton core skills framework (RSA analysis of Emsi Burning Glass Job Posting Analytics)



Sector skills frameworks



Our approach: sector skills frameworks

- 1. We analysed employment data to identify occupations that are important to the Southampton's strategic sectors:** digital, maritime and culture, creative and visitor economy. We define these strategic sectors as a combination of 2-digit Standard Industrial Classification (SIC) codes.
- 2. We analysed online jobs vacancies data to identify the most important non-core skills for these occupations.** This analysis is based on a combination of 3- and 4-digit Standard Occupational Classification (SOC) codes. While our dataset was initially structured around 3-digit SOC codes, we found that 4-digit SOC codes were necessary to provide more detailed insights for some of Southampton's strategic sectors.
- 3. After building skills profiles for selected occupations in Southampton's strategic sectors, we develop a draft skills framework for each group of occupations.** This is loosely based on the ESCO hierarchy but in some cases, where ESCO provides insufficient detail, we diverge from this to define new branches, drawing on insights from our literature review of future skills demands across these sectors.
- 4. We engaged with local stakeholders to stress test these draft skills frameworks,** to ensure that the overarching language resonated and identify potential gaps based on current and emerging skills demands.



SECTOR SKILLS FRAMEWORK:

Digital Sector

Defining digital jobs

According to the Department for Digital, Culture, Media and Sport (DCMS), digital includes a range of sectors. Most of Southampton's employment in digital is in computer programming, consultancy and related activities.

Within digital sectors in Southampton there is one main occupation group: IT and telecommunications professionals.

Although this occupation group encompasses a diverse range of different roles, from computer programmers to project managers and cyber security professionals. To ensure that we provide sufficient detail on these roles we use more detailed 4-digit SOC codes for this occupational group.

We also include data on the skills most in-demand for IT technicians and engineers. In this sense, our digital sector skills framework focuses on skills for digital jobs, rather than those in sales or auxiliary business services. These digital jobs can be found across a range of industries.

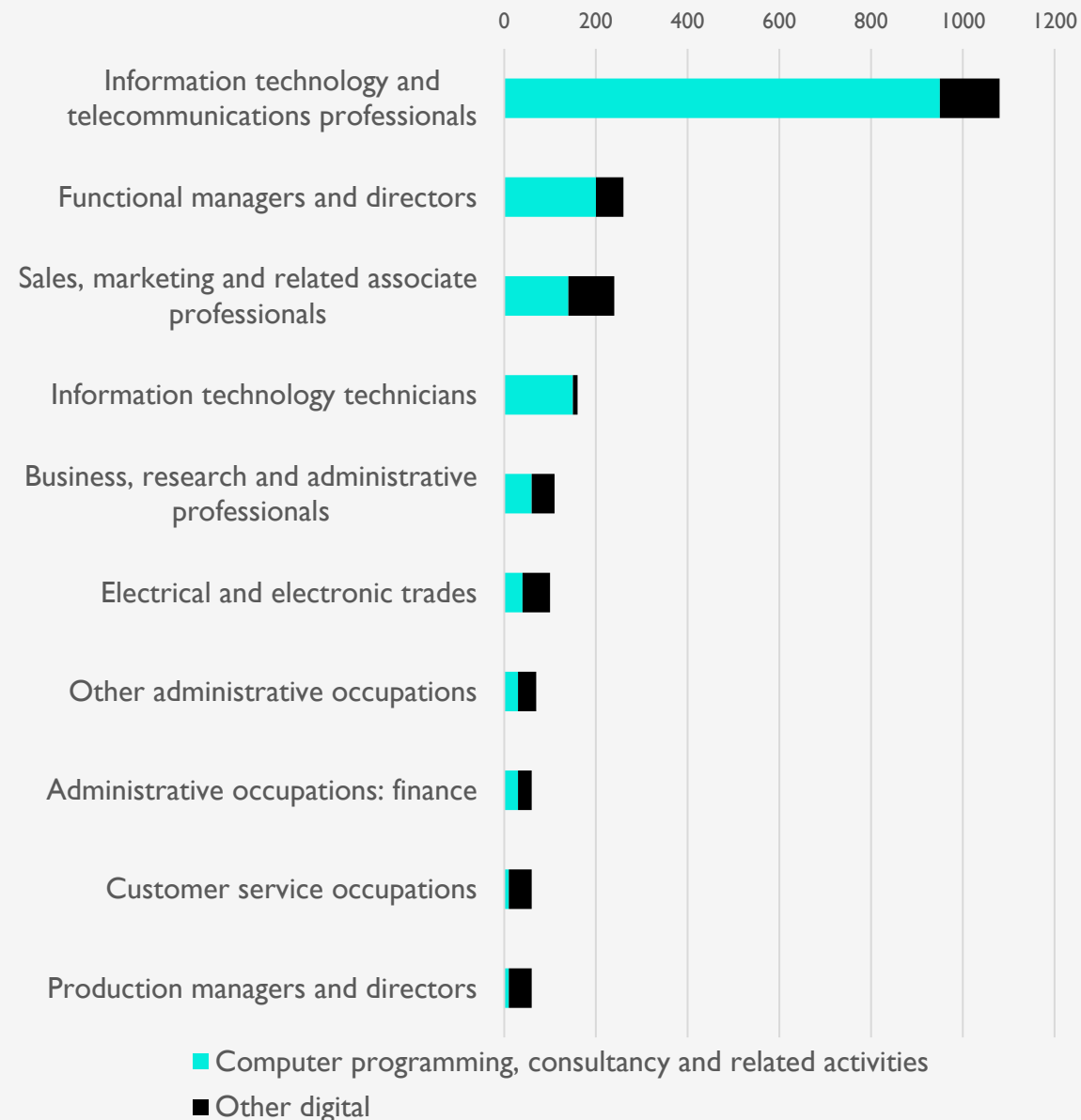


Figure 4: Employment in digital sectors by occupational group (RSA analysis of Emsi Burning Glass 2021.1)

Developing a framework

During our analysis we found identified around 100 skills that are important to digital jobs. Around 15 of these also appeared in our core skills framework.

Aside from core skills, we initially group digital skills into to 3 broad categories that are more or less prevalent in different roles. For example, programmers and web developers have very different skills requirements to IT project managers and business analysts. Cyber security professionals are included in the n.e.c. grouping.

- **Computer programming and web development:** includes programming languages and other tools, frameworks and libraries.
- **Maintaining computers and networks:** includes skills that relate to operating systems and servers, cybersecurity and general technical support.
- **Software development and project management:** includes agile methodologies such as Scrum and other project management approaches.

	Total employment (2019)	Total unique job postings (2015-20)
Programmers and Software Development Professionals	992	8890
Information technology technicians	770	4098
IT Specialist Managers	738	2369
Information Technology and Telecommunications Professionals n.e.c.	496	2662
IT Business Analysts, Architects and Systems Designers	402	2029
IT Project and Programme Managers	238	435
Web Design and Development Professionals	142	3835

Figure 5: Employment and unique job postings in digital roles by detailed occupation group (RSA analysis of Emsi Burning Glass Job Posting Analytics and Emsi Burning Glass 2021.1)

Figure 6: Southampton digital skills framework (RSA analysis of Emsi Burning Glass Job Posting Analytics)

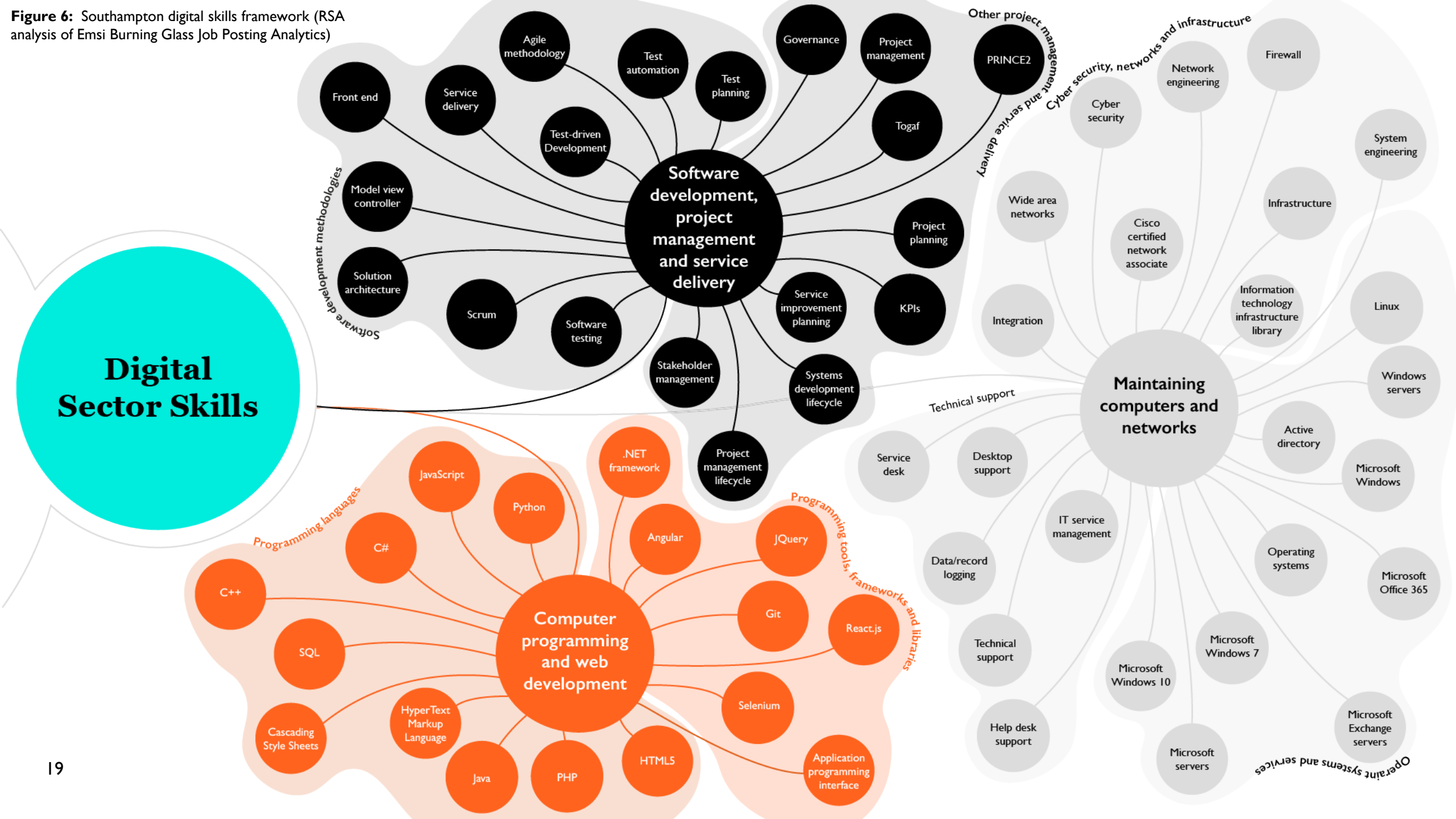
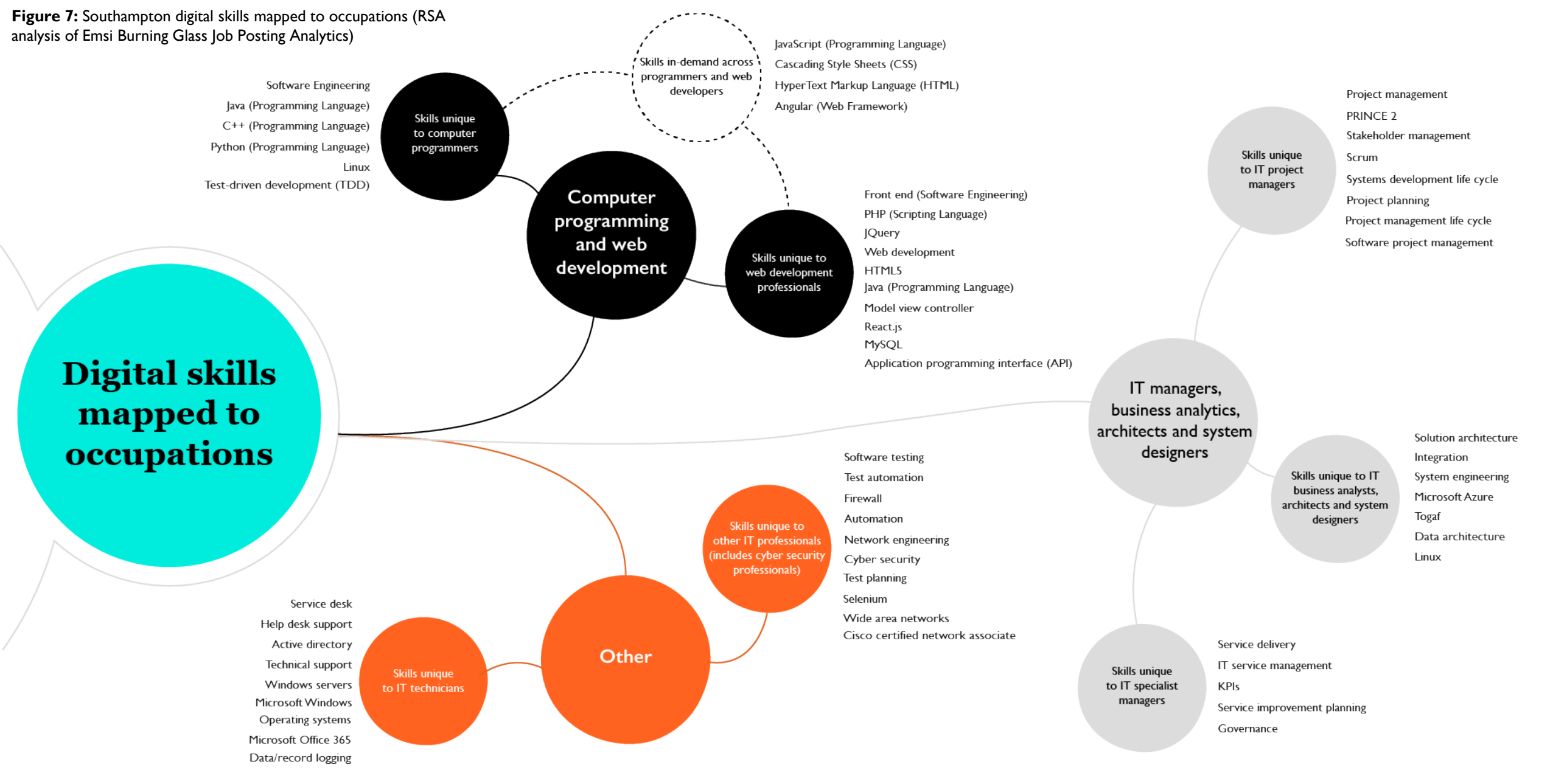


Figure 7: Southampton digital skills mapped to occupations (RSA analysis of Emsi Burning Glass Job Posting Analytics)



Skills in demand across most digital occupations: C# (Programming Language), Agile methodology, infrastructure, SQL (Programming Language), Software development, IT Infrastructure library, .NET framework

Key findings from evidence review: digital

The RSA has previously identified the digital sector as one that is resilient to automation but also likely to experience growth in response Covid-19, as the pandemic is accelerating the pace of technological change.

IT professionals were one of the fastest growing occupations in Southampton between 2011-19. While these jobs are also highly paid, the challenge of gender diversity is well documented, with women currently only accounting for 18% of IT specialists in the EU.

A 2019 study suggests that hi-tech jobs growth also creates local jobs in non-tradeable services such as retail, hospitality, personal services and construction ('the Shoreditch effect?'), most of which are filled by lower skilled workers.

Our analysis aligns with evidence on what jobs and skills are most-demand in the digital sector, such as those identified by the Tech Jobs Barometer.

In-demand jobs	In-demand skills
<ul style="list-style-type: none">• NET Developer• Java Developer• Front End Developer• DevOps Engineer• Full Stack Developer• Developer C#• Business Analyst• Software Developer• Developer .Net C#• PHP Developer	<ul style="list-style-type: none">• Cyber security• Cloud• IT support• Coding• Data analytics• Artificial intelligence• Web designing & UX

However, apart from SQL and Python, skills associated with data science and machine learning don't appear as in-demand for IT professionals and technicians. This is likely due to how these roles are defined in SOC codes but could also reflect relatively low current demand in the city. Following further investigation, we used the Emsi Job Titles Library rather than SOC codes to search for the most important skills across a range of Data Science Professionals at the UK level.

Critically, our analysis may not also capture some of the skills associated with emerging technologies. For example, the World Economic Forum suggest that as well as some of the roles that have been profiled, demand for robotics engineers and Internet of Things (IoT) specialists is also growing. Southampton has expressed ambitions to create an augmented and virtual reality cluster.

Similarly, while Microsoft Azure does appear as in-demand across most digital jobs, this may not fully captured the skills required for cloud computing. While encryption does not currently feature as a skill in-demand for cyber security professionals.

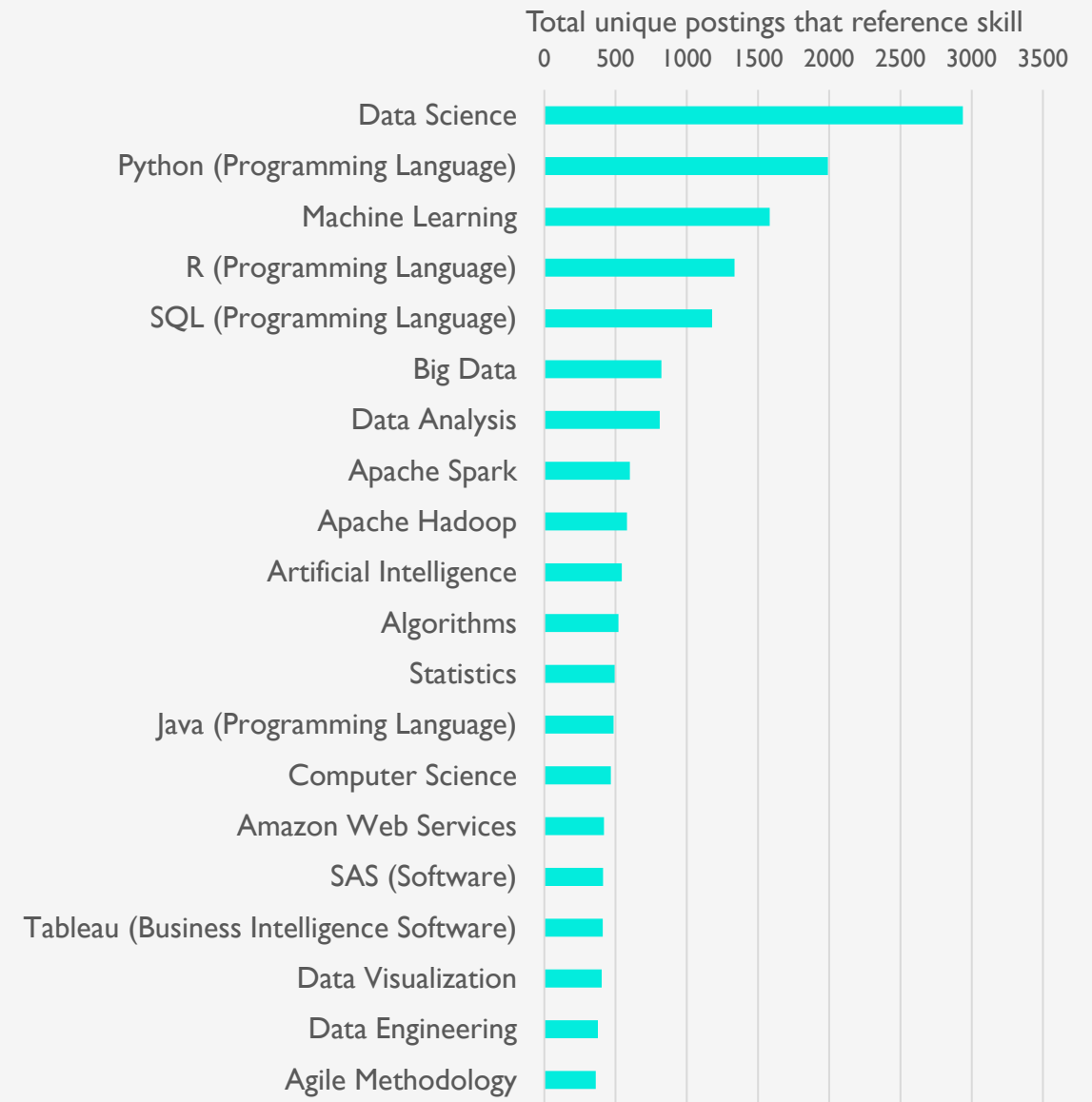


Figure 9: Most important non-core skills for Data Science Professionals (RSA analysis of Emsi Burning Glass Job Posting Analytics)gig



SECTOR SKILLS FRAMEWORK:

Maritime Sector

Defining maritime jobs

We draw on research conducted by the Centre for Economics and Business Research (Cebr) to define the maritime sector. According to their analysis of the economic contribution of sector to the Solent region, maritime includes a diverse range of industries. Our analysis focuses on the shipping and port industry as well as marine engineering.

These maritime industries collectively employ almost 6,000 workers in Southampton, the majority of which work in shipping and ports. According to the Cebr this sector comprises of a range of industries that are not exclusively related to maritime and hence don't map neatly onto SIC and SOC codes. We use the Emsi Job Titles Library rather than SOC codes to search for the most important skills across Maritime Business Service Professional roles at the UK level.

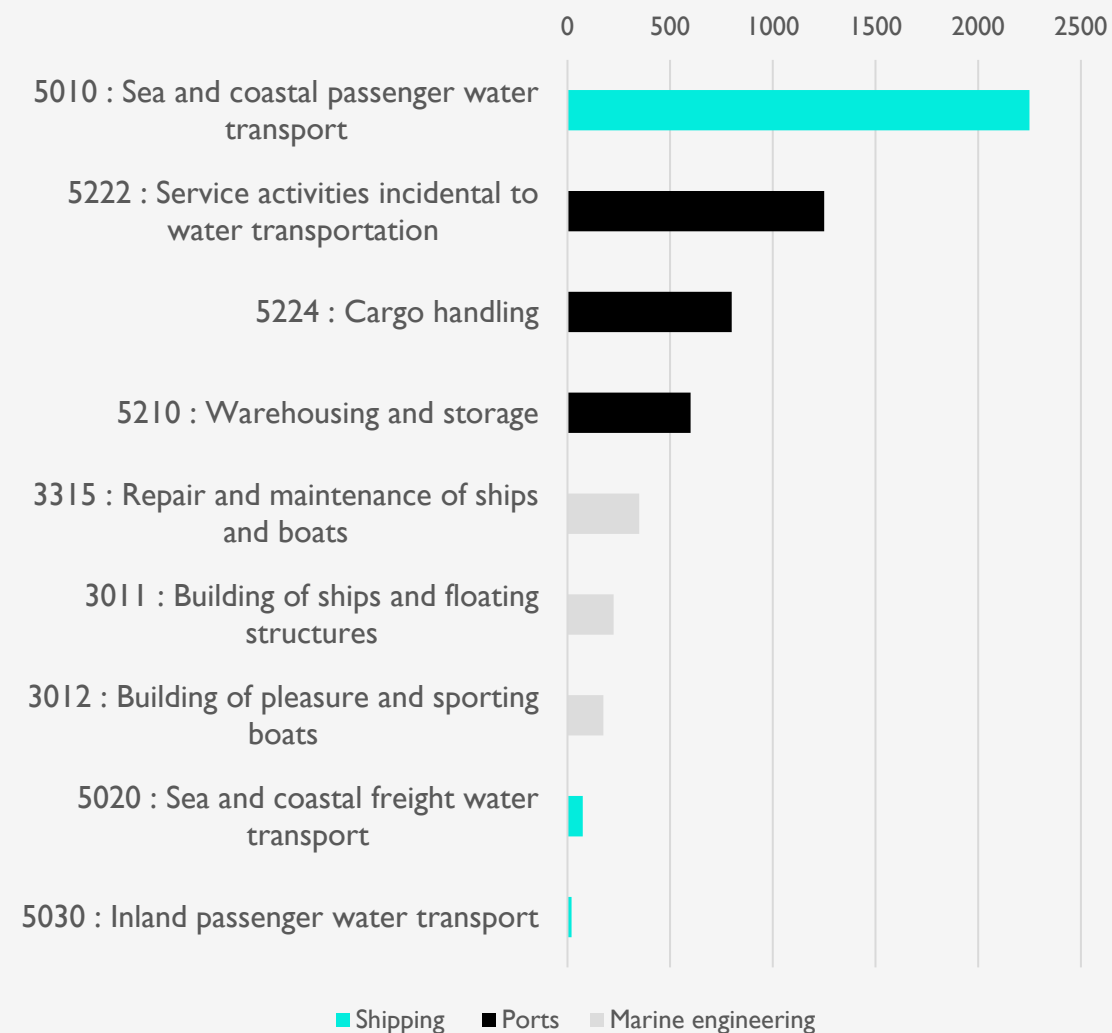


Figure 10: Employment in maritime by detailed industry (RSA analysis of Business Register and Employment Survey)

Defining maritime jobs: shipping and ports

Within the shipping and ports industries in Southampton there are several main roles, including transport associate professionals (includes ship and hovercraft officers), other drivers and transport operatives (includes marine and waterway transport operatives). However, since these maritime roles are not well captured by online job vacancies data, we are unable to identify associated skills demands through Emsi data. We draw on other sources to provide a broad overview of the skills required for these roles. Managers and directors in transport and logistics, road transport drivers, administrative occupations: records and elementary storage occupations are other important roles for the port industry that we are able to include in our skills framework. While leisure and travel services are an important for the cruise and yachting industry, we profile these roles separately in our creative, culture and visitor economy skills framework.

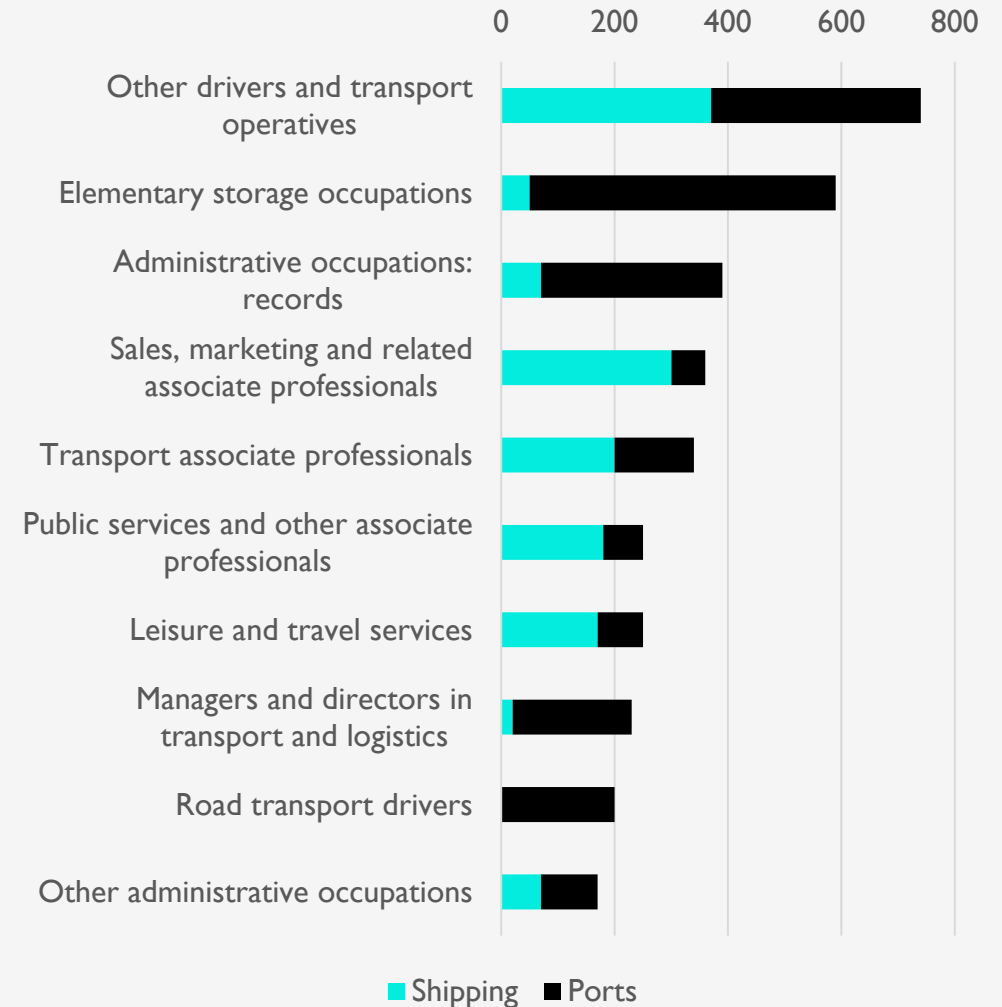


Figure 11: Employment in maritime shipping and ports sectors by occupation group (RSA analysis of Emsi Burning Glass 2021.1)

Defining maritime jobs: engineering

Engineering has a considerably smaller employment footprint than shipping and ports. For example, around 400 workers are employed in the building of ships while 350 are involved in repair and maintenance. However, these roles are particularly important to include since there is evidence to suggest that there are skills shortages in these roles that are inhibiting the sector. According to a recent study by [the University of Southampton](#) – local skills shortages are prevalent in electronics, mechanical engineering, marine and systems engineers as well as design engineers/naval architects.

Environmental scientists are another in-demand role that we include in our skills framework. These green jobs will be particularly important as the sector works to reduce its carbon emissions and environmental impacts. Forthcoming RSA analysis identifies water transport as one of the top ten most carbon intensive industries, according to its greenhouse gas emissions per job.

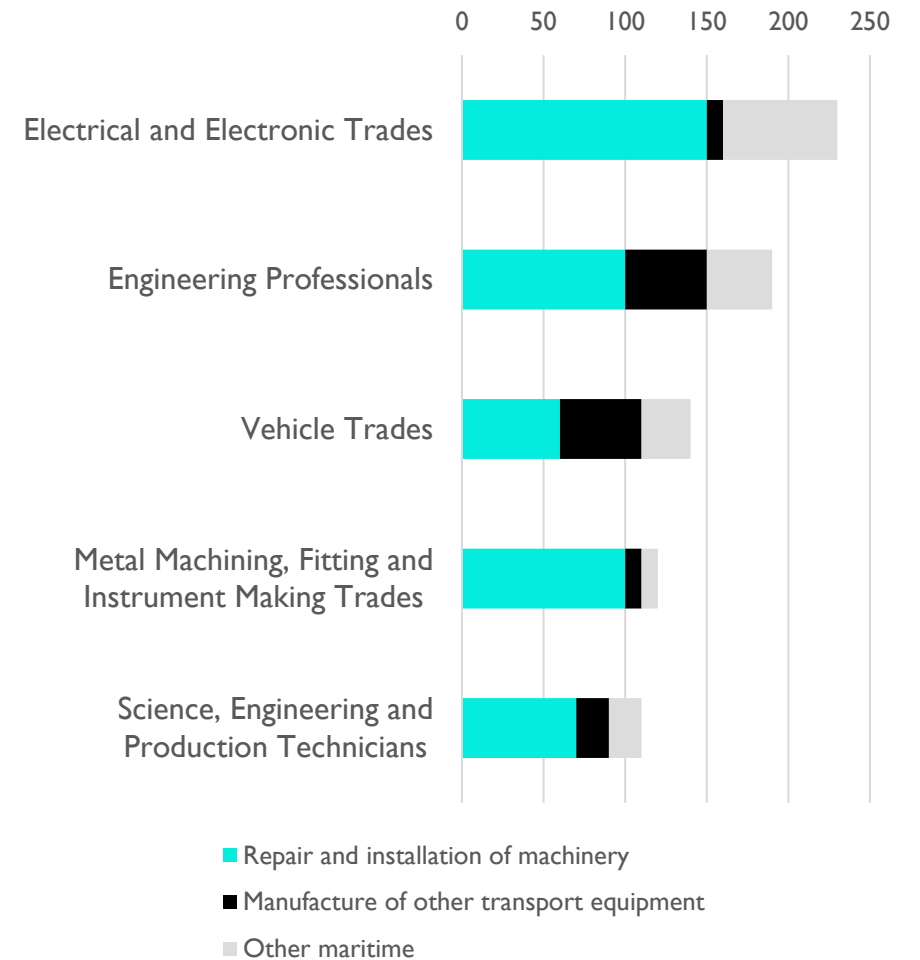


Figure 12: Employment in maritime engineering occupations by occupation group and sector (RSA analysis of Emsi Burning Glass 2021.1)

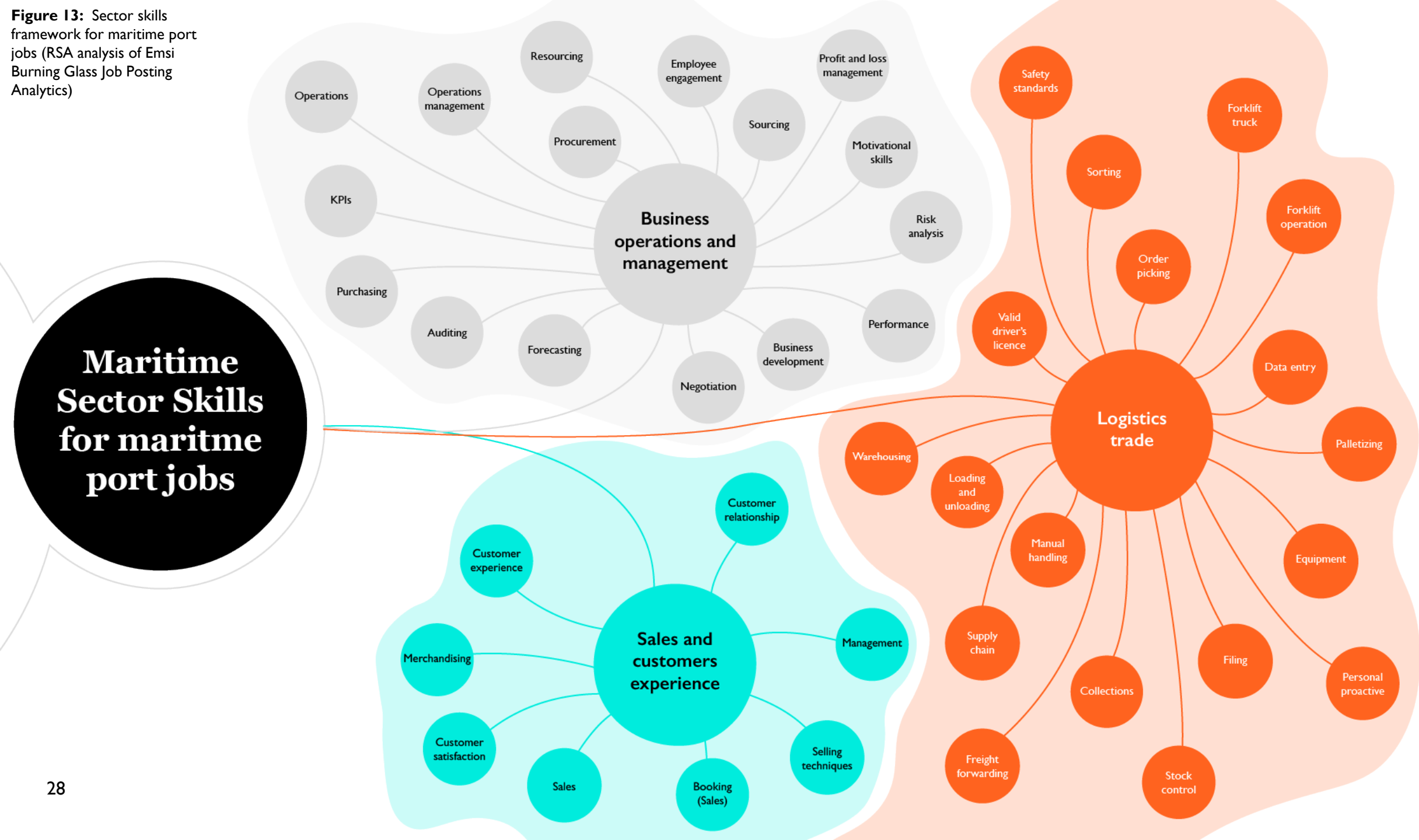
Developing a skills framework

During our analysis we found identified 85 skills that are important to maritime shipping and ports jobs. 44 of these also appeared in our core skills framework. Aside from core skills, maritime skills can be grouped according to 3 broad categories that are more or less prevalent in different roles:

- **Business operations and management:** includes skills for people and resource management, setting and evaluating business strategy (e.g. KPIs) and relates to pillars S4.1, S4.2, S4.3 and S4.6 of the ESCO skills hierarchy.
- **Sales and customer experience:** includes specific sales techniques and the use of tools such as CRM and relates to pillar S1.6.
- **Logistics trade:** includes skills relating to moving, handling and sorting goods and using specialist machinery and equipment. Relates to pillars S6.1, S6.2, S6.3 and S8.1 and S8.2.



Figure 13: Sector skills framework for maritime port jobs (RSA analysis of Emsi Burning Glass Job Posting Analytics)



Developing a skills framework

During our analysis we found identified 76 skills that are important to engineering jobs. 26 of these also appeared in our core skills framework. Aside from core skills, engineering skills can be grouped according to 4 categories that are common across most of the roles we profile:

- **Engineering sciences:** includes an extensive range of different natural sciences and engineering branches. The ESCO skills hierarchy considers this knowledge rather skills.
- **Product design and innovation:** includes skills in product development as well as tools such as computer aided design (S5.6 – using digital tools for problem solving) .
- **Health, safety and sustainability:** includes skills that mostly relate to ensuring business operations are safe and sustainable.
- **Business operations:** includes other skills required to deliver engineering services.



Figure 14: Sector skills framework for marine engineering jobs (RSA analysis of Emsi Burning Glass Job Posting Analytics)

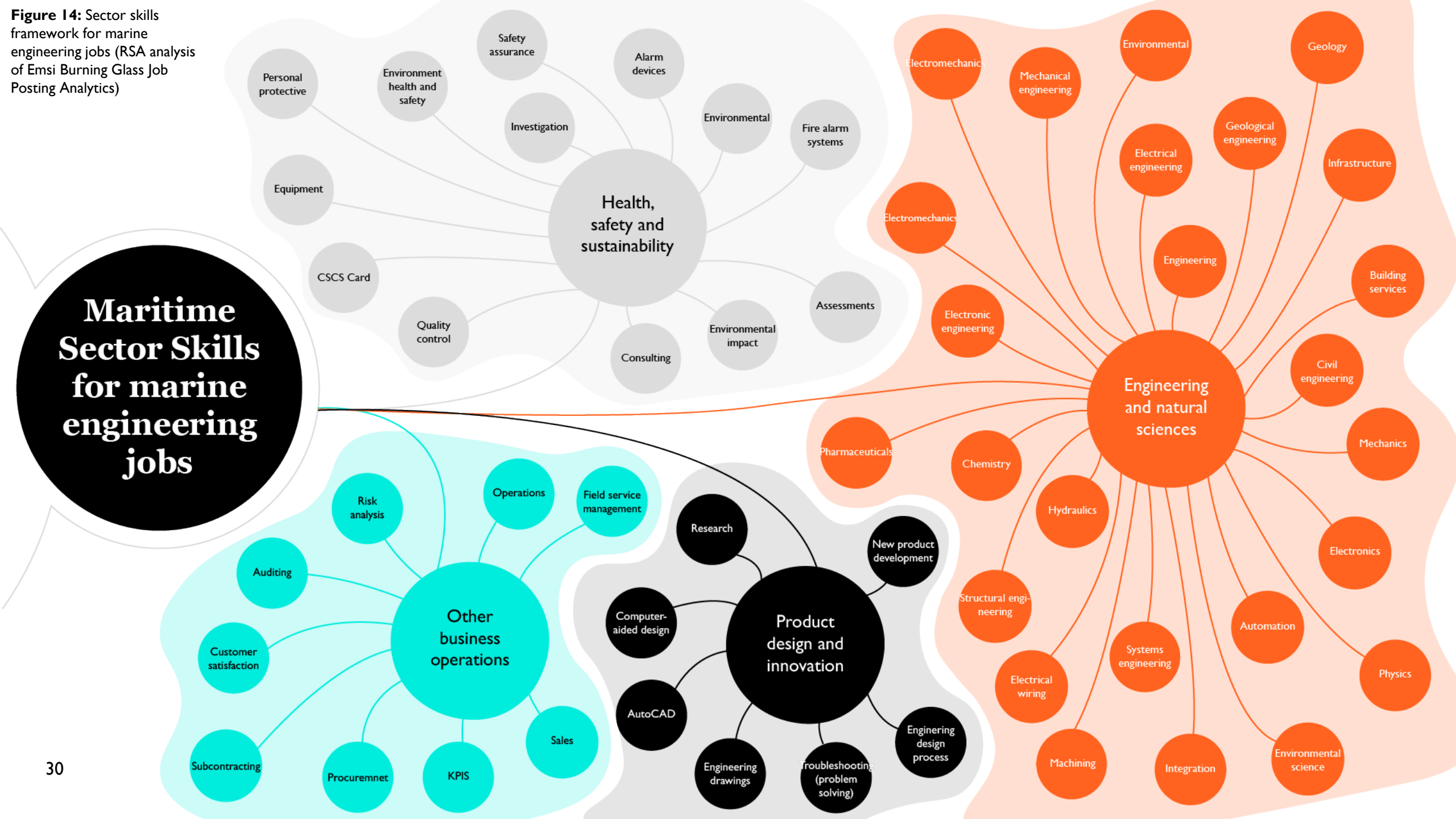
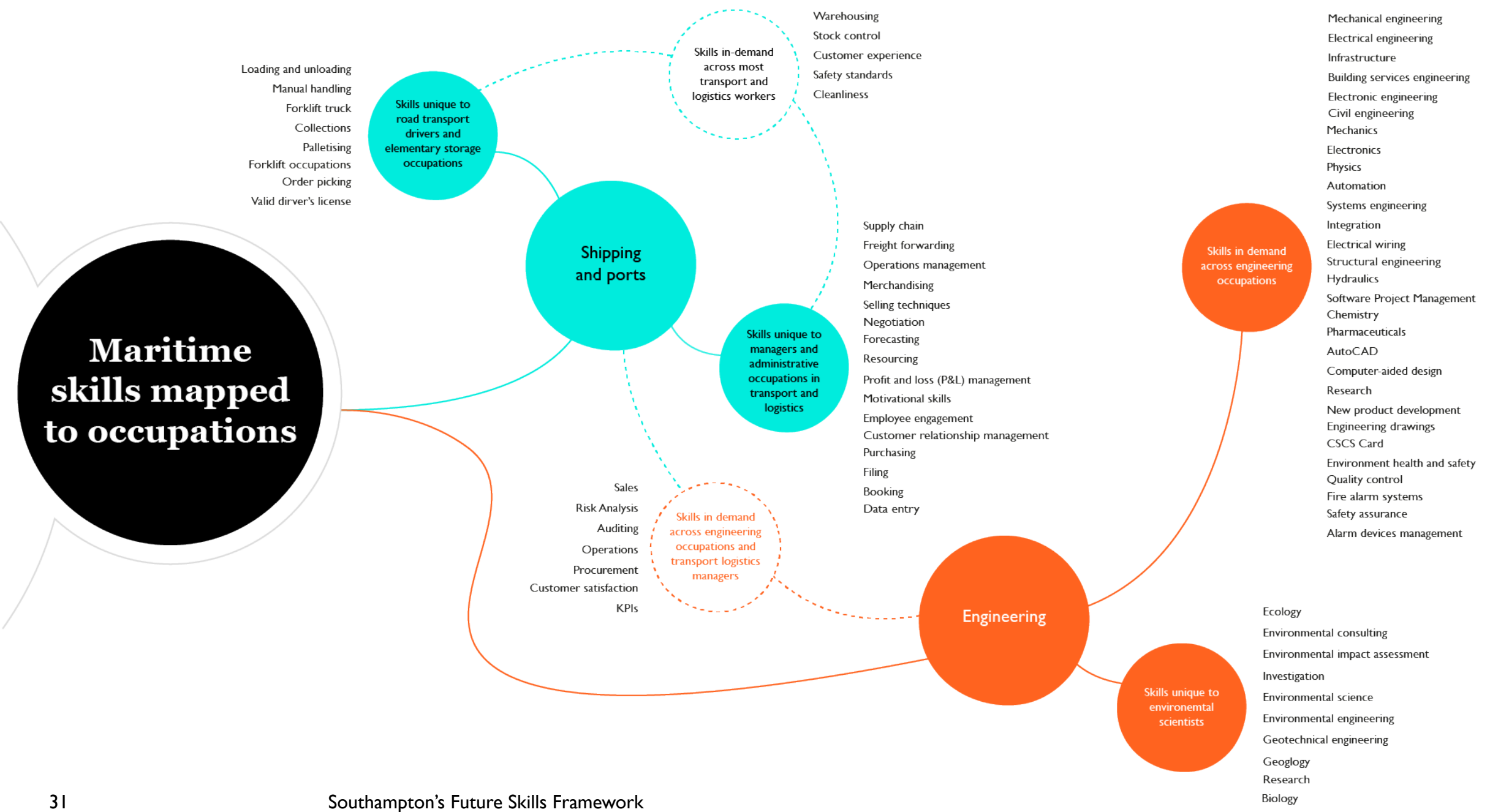


Figure 15: Southampton maritime skills mapped to occupations (RSA analysis of Emsi Burning Glass Job Posting Analytics)



Developing a skills framework

While the ESCO does not provide as granular insight into current skills demands as online job vacancies data, it does have broader occupational coverage, meaning that it can be used to address gaps in our analysis relating to water transport roles that are not well captured by this data.

According to our analysis of the ESCO, the most important skills for these roles relate to operating watercraft and communications equipment and ensuring health, safety and security by complying with guidelines and procedures. Core skills relating to leadership and team work are also particularly important.

ESCO pillar	ESCO skill	Rank
S8 - working with machinery and specialised equipment	operating watercraft	1
	operating communications equipment	4
	maintaining mechanical equipment	6
S6 - handling and moving	loading and unloading goods and, materials	10
	cleaning tools, equipment, workpieces and vehicles	13
S4 - management skills	directing operational activities	3
	leading and motivating	9
	planning and scheduling events and activities	16
	supervising a team or group	19
S3 - assisting and caring	complying with health and safety procedures	2
	complying with legal and organisational guidelines	5
	maintaining and enforcing physical security	7
	providing general assistance to people	18
S2 - information skills	monitoring, inspecting and testing equipment, systems and products	8
	analysing and evaluating information and data	11
	monitoring safety or security	12
S1 - communication, collaboration and creativity	maintaining operational records	15
	following instructions and procedures	14
	practising sports	17
	working in teams	20

Figure 16: Most important skills for ships deck officers, deck crew and related workers (RSA analysis of ESCO Skill-Occupation Matrix)

Developing a skills framework

More detailed information on the skills needed for these roles may be needed. Particularly for those that relate to operating watercraft and communications equipment, as well as ensuring health and safety. This can be found in other sources, including the recent [Seafarer Cadet Review](#) report from the Maritime Skills Commission.

Alongside these technical skills, the review suggests that employers want officers to develop a range of broader competencies, including facilitation, situational awareness and 1:1 team coaching.

Interestingly, the review also highlights how greater attention is being given to the impact of long working hours and extended periods away from home on crew mental health and that greater understanding here will be needed from leadership in the future.

1. College (22 weeks)

Digital literacy

Cargo and construction

Bridge operations

STCW basic training (basic training for seafarers, efficient deck hand, designated security duties)

Enclosed space entry

Tanker familiarisation

2. Sea (36-42 weeks)

3. College (38 weeks)

Navigational Maths

Maritime Operations

Maritime Law and Management

Bridge Management

Stability and Engine room Operations

Ship Handling and Advanced Navigation

GMDSS (Radio equipment training)

STCW Advanced training (Medical First Aid and Advanced Fire Fighting)

NAEST (O) (Simulator training course)

Signals

HELM (O) (Human Element at Operational Level).

4. Sea (36 to 42 weeks)

5. College (12 weeks)

Maritime Management

STCW Advanced Training and Certification issue (Proficiency in Survival Craft & Rescue Boats, Efficient Deck Hand, Advanced Fire Fighting, Tanker Safety course)

Developing a skills framework

The UK is a world leader in maritime business services, including shipbroking, insurance, legal and financial services. According to [PwC](#), these industries are largely concentrated in London, with maritime insurance accounting for around 65% of their total GVA. However, Southampton has particular strengths in education and consulting as well as related technical services such as marine classification. In 2014, Lloyd's Register moved from London to Southampton to be closer to Southampton University.

We use the Emsi Job Titles to profile the most important skills across Maritime Surveyor, Consultant, Analyst, Underwriter and Ship Broker roles in the UK, finding that there is significant overlap with many of the sales, business operations and management and engineering skills required for other roles in the sector.

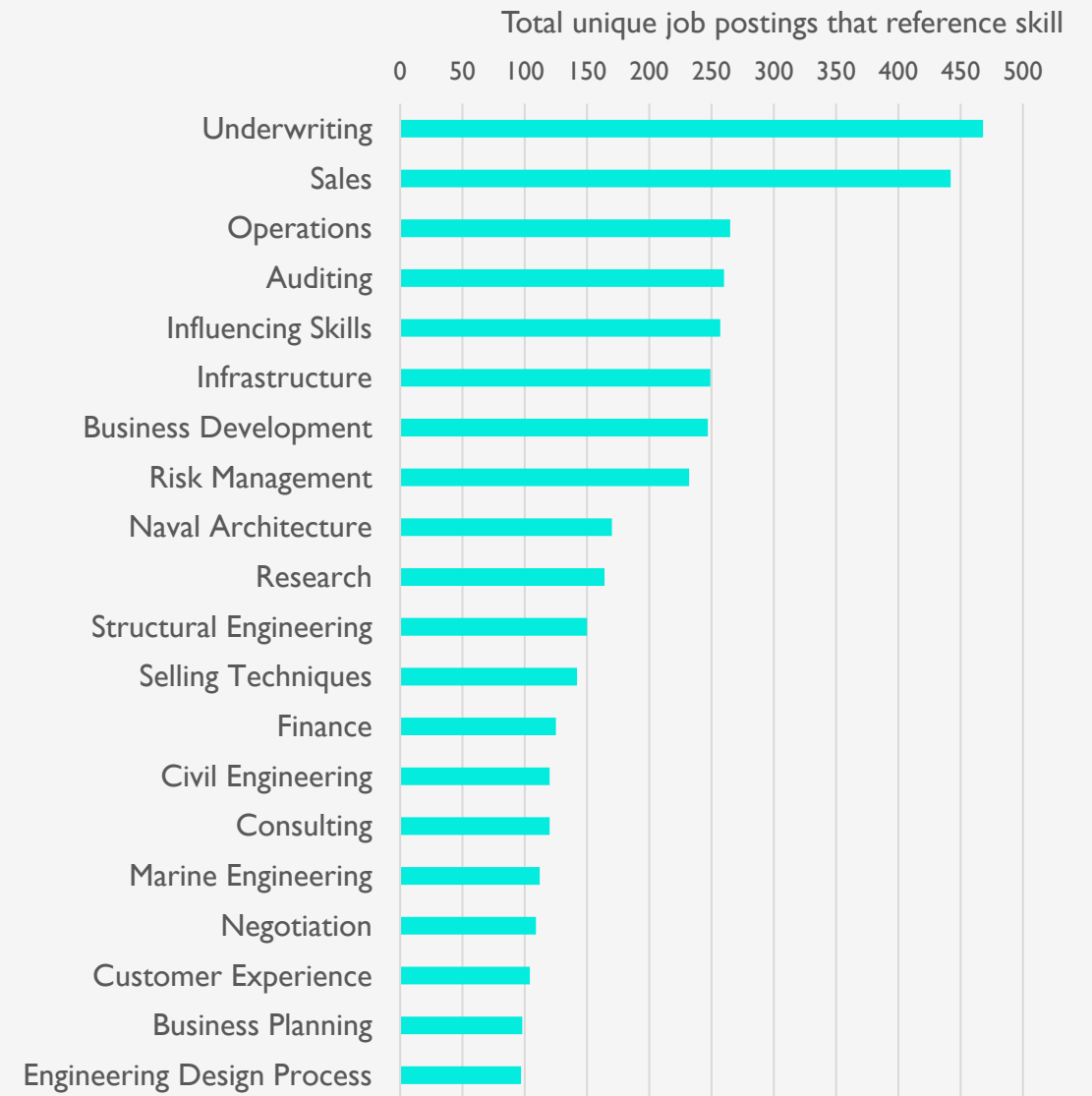


Figure 18: Most important non-core skills for Maritime Business Service Professionals (RSA analysis of Emsi Burning Glass Job Posting Analytics)

Key findings from evidence review: maritime

While most occupation groups in the maritime industry have experienced growth in recent years, many are at a relatively high risk of automation. This includes both manual and administrative roles relating to shipping and ports. Some local stakeholders we engaged with suggested that the industry “still relies heavily on paper based systems and needs to digitise to increase productivity”.

While the UK Maritime Services Review has suggested that a ShipTech industry is starting to emerge around blockchain and cloud computing. Managerial and engineering roles are less at risk to these forces and likely to grow in importance.

Maritime Strategies International have suggested decarbonisation could lead to demand shocks, as renewables don’t require as much shipping capacity as fossil fuels. Although the transition to net zero will also create new green jobs in the city.

	Probability of automation (UK)	Mean average earnings (UK)	Local jobs growth since 2011
Elementary Storage Occupations	63.5	9.76	11%
Road Transport Drivers	63.1	10.82	12%
Other Drivers and Transport Operatives	57.1	16.97	32%
Administrative Occupations: Records	54.9	11.5	8%
Vehicle Trades	54.1	13.02	-7%
Metal Machining, Fitting and Instrument Making Trades	52.4	13.4	39%
Leisure and Travel Services	50.5	11.44	21%
Electrical and Electronic Trades	48.7	14.67	10%
Science, Engineering and Production Technicians	39.8	14.65	23%
Managers and Directors in Transport and Logistics	32.9	16.64	17%
Transport Associate Professionals	28.5	28.05	39%
Engineering Professionals	28.4	20.94	14%

Figure 19: Automation risk, earnings and employment growth for selected maritime roles (RSA Risk Register and analysis of Emsi Burning Glass 2021.1)

Key findings from evidence review: maritime

The University of Southampton suggests that the most anticipated future skills relate to three broad areas, automation and robotics, digital and IT and skills in aspects of power and decarbonisation.

- 1. Automation and robotics:** maritime will need more advanced skills in autonomy, electrical software and robotics given the advance of autonomous vessels. There is a recognition that Solent already has expert capabilities here, particularly in small and subsea vessels, sensors and drones. Beyond this, however, there is less clarity from employers about what skills will be most needed.
- 2. Digital and IT:** another priority area relates to maritime data systems, and the communication, analysis, management and interpretation of digital data. These skills will be essential across shipping, port operations and businesses services but while employers recognise the importance of skills like cyber security, they know less about them than automation. Our digital skills framework may be able to help deepen understanding here. Although there are also concerns about having to compete with other sectors for talent.
- 3. Power and decarbonisation:** there is a consensus more needs to be done to 'green' maritime but considerable debate about what alternative fuels should be pursued, with potential limitations associated with both hydrogen (too expensive, insufficiently green and difficult to store) and ammonia (potentially toxic). This makes it difficult to identify what specific green skills might be required for the sector in the future.



SECTOR SKILLS FRAMEWORK:

Creative Sector

Defining creative and culture, tourism and visitor economy jobs

We draw on the DCMS definitions to identify jobs that are important to Southampton's City of Culture bid. These sectors are harder to neatly define than digital or maritime. They also account for a smaller share of total employment, which makes it difficult to develop robust skills profiles for some roles.

Our definition includes creative arts and entertainment, film, video, tv, music and sound production, libraries, museums and other cultural activities and programming and broadcasting. However, we exclude creative professional services, such as advertising, architecture, and graphic design, which require different skillsets and are less directly related to the City of Culture bid.

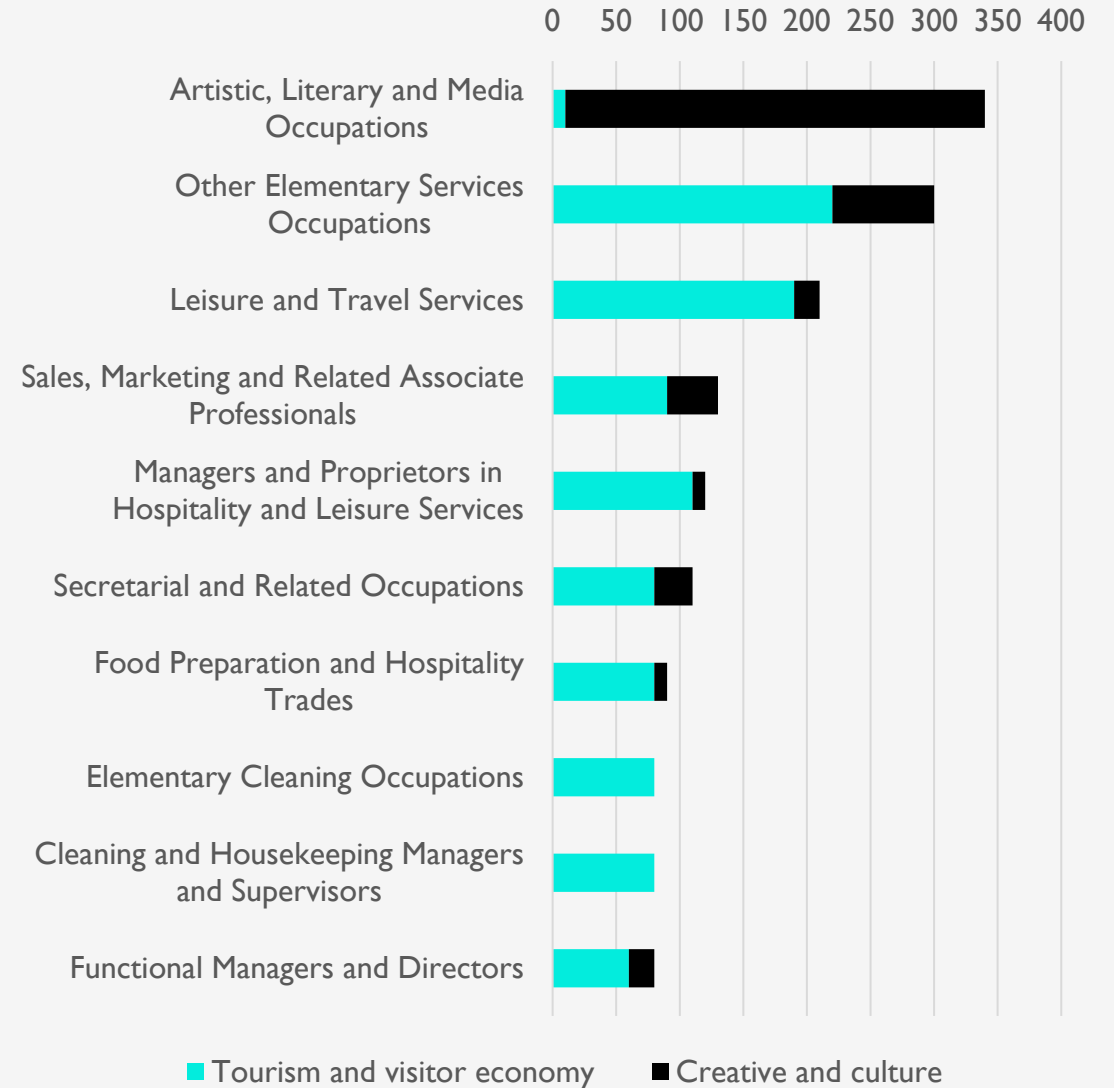


Figure 20: Employment in creative and cultural, tourism and visitor economy sectors by occupation group (RSA analysis of Emsi Burning Glass 2021.1)

Defining creative and culture, tourism and visitor economy jobs

Within these sectors in Southampton there are several important occupation groups, including artistic, literary and media occupations, elementary services occupations (such as bar staff), leisure and travel services (such as travel agents and tour guides), food preparation and hospitality trades and cleaning and housekeeping managers.

Like for the digital sector, our skills framework here does not include auxiliary business service or administrative roles. However, it is important to note that many of the roles we do include are concentrated in food and drink services, which is one of the largest sectors in Southampton, accounting for over 7,000 jobs. Our skills framework may therefore be significantly influenced by the skills needed in pubs and restaurants.

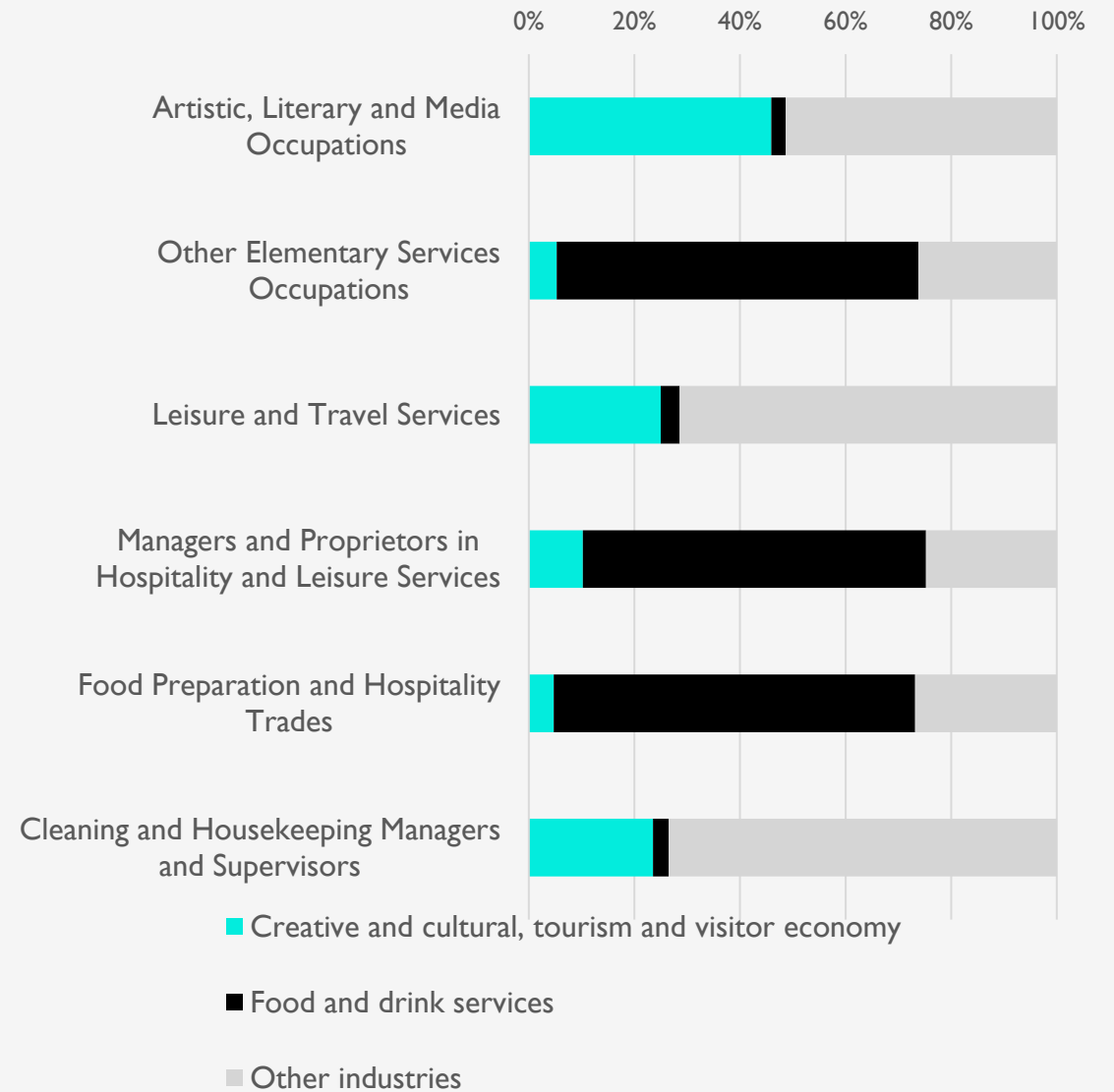


Figure 21: Share of employment in creative and cultural, tourism and visitor economy jobs across different sectors (RSA analysis of Emsi Burning Glass 2021.1)

Developing a skills framework

During initial exploratory analyses we found that the online job vacancies data for artistic, literary and media occupations was skewed towards translator roles. We were able to access more detailed data for some corresponding 4-digit SOC codes, including artists, arts officers, producers and directors, as well as photographers, audio-visual and broadcasting equipment operators.

However, these findings need to be interpreted with more caution, for these roles are not currently widespread in Southampton and so may not be well represented by online job vacancies data. Other roles such as musicians and dancers did not show up at all in our dataset. To address these issues we analyse UK-level Emsi Job Posting Analytics.

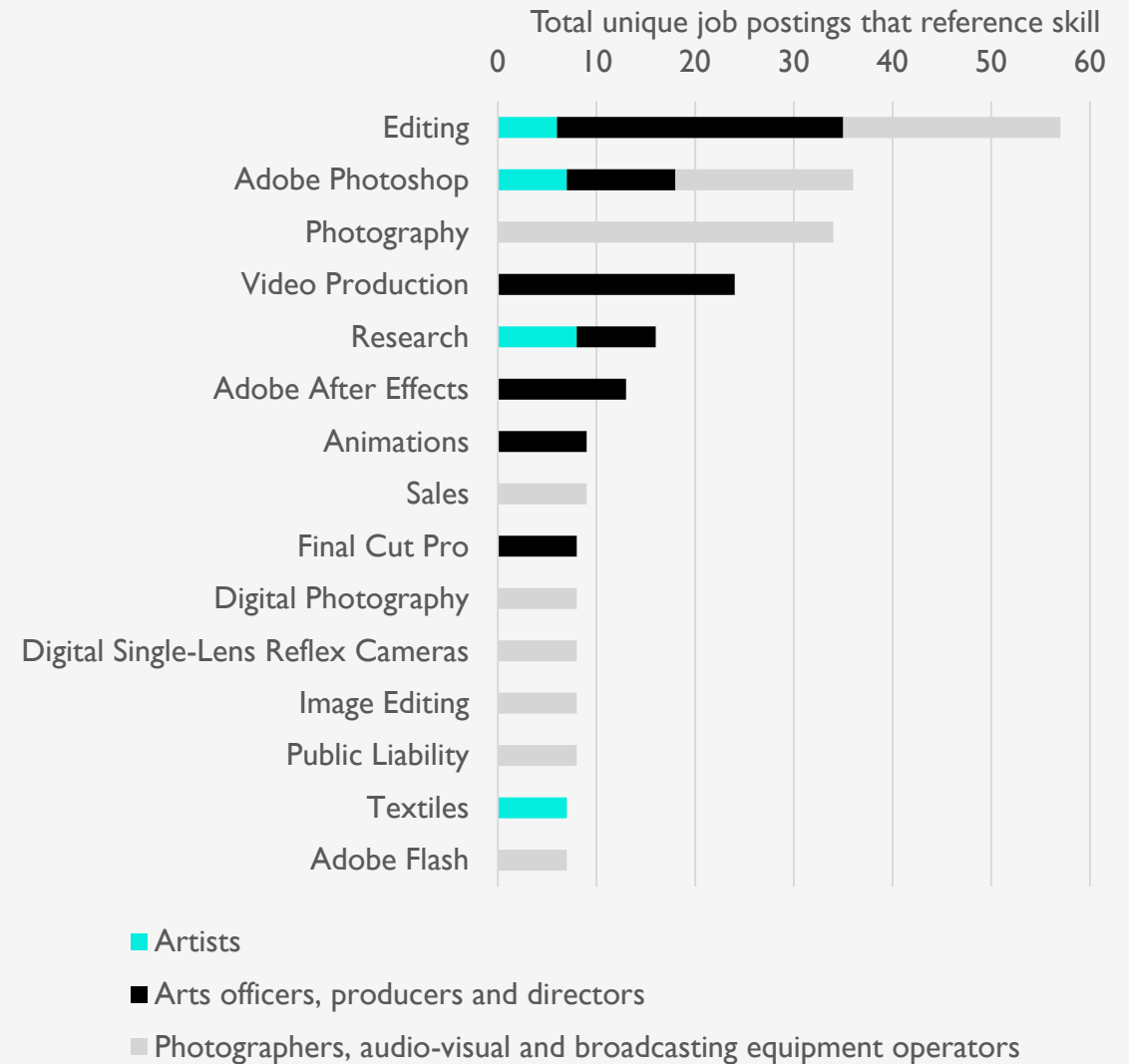


Figure 22: Most important non-core skills for selected creative and cultural occupations (RSA analysis of Emsi Burning Glass Job Posting Analytics)

Developing a skills framework

For occupations in the sector related to the creative arts, we identified over 80 non-core skills that are important for these jobs. These skills span a broad range of areas.

Many relate to film making and photography as well as animation and 3D design. Alongside technical skills in media production, a range of specialist software skills are required, including Adobe and Autodesk packages and tools such as the Unreal Engine used in video game design. These skills relate to ESCO pillars S1.12 – creating visual, artistic or instructive material, S8.6.2 - operating audio-visual equipment and

S.5.6.4. using digital tools for processing sound and images.

Other clusters of skills relate to the performing arts (S1.14 – performing and entertaining) and teaching (S1.3) as well as production management and business operations.

Occupation	Total unique postings	Example job titles
Arts officers, producers and directors	51,143	Video Editors, Producers, Studio Managers, Video Producers, Videographers
Photographers, audio-visual and broadcasting equipment operators	44,804	Photographers, Audiovisual Technicians, Videographers, Audio Visual Managers, Lighting Designers
Artists	14,239	Art Technicians, Animators, Environment Artists, VFX Artists, Character Artists
Musicians	2,590	Musicians, Sales Models, Music Video Directors, Composers, Music Composers
Dancers and choreographers	2,044	Dance Instructors, Dance Teachers, Children's Coordinators, Assistant Dance Teachers, Drama Teachers

Figure 23: Example job titles and unique job postings for creative sector roles by detailed occupation group (RSA analysis of Emsi Burning Glass Job Posting Analytics)

Figure 24: Sector skill framework for creative jobs (RSA analysis of Emisi Burning Glass Job Posting Analytics)

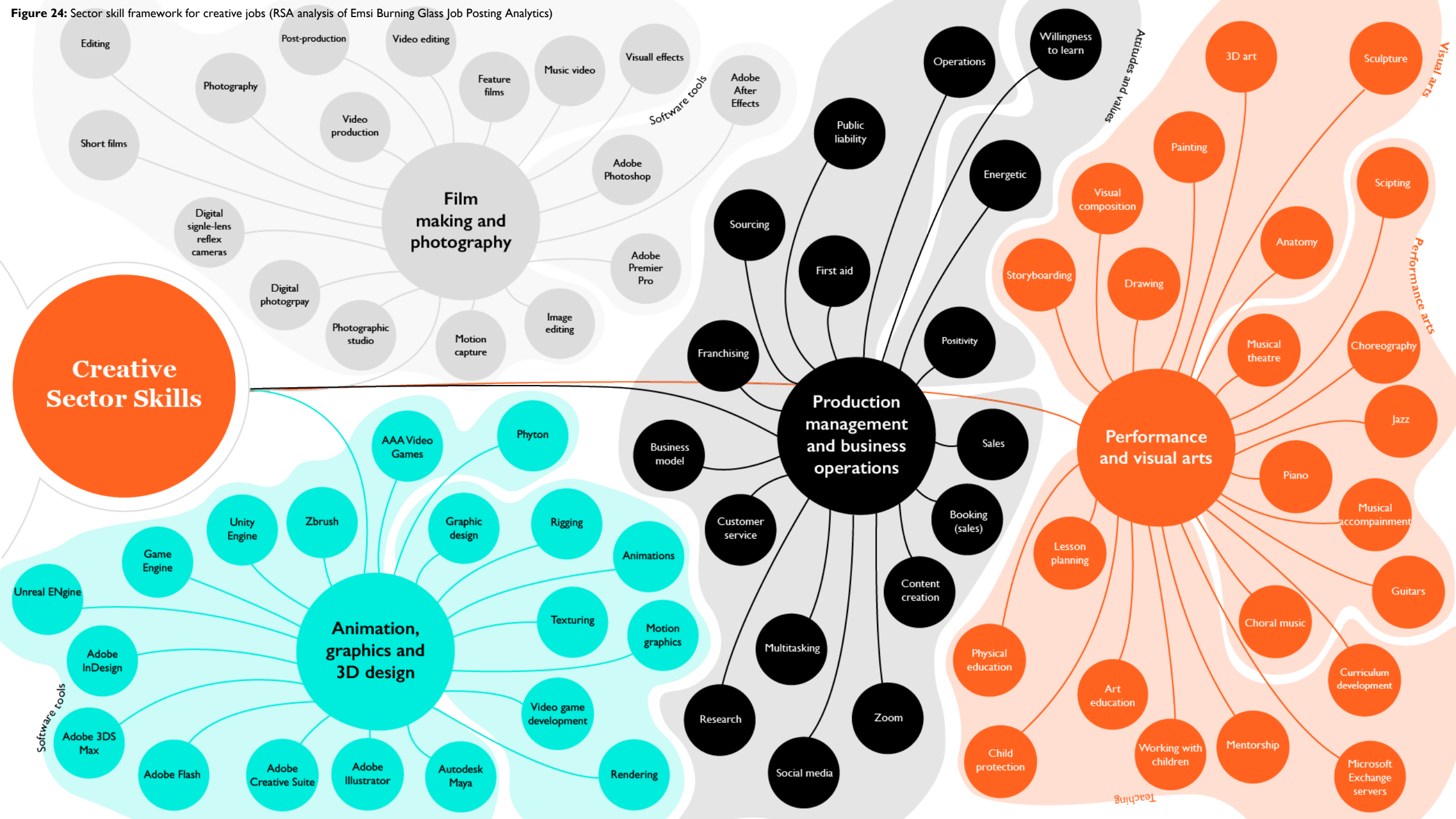
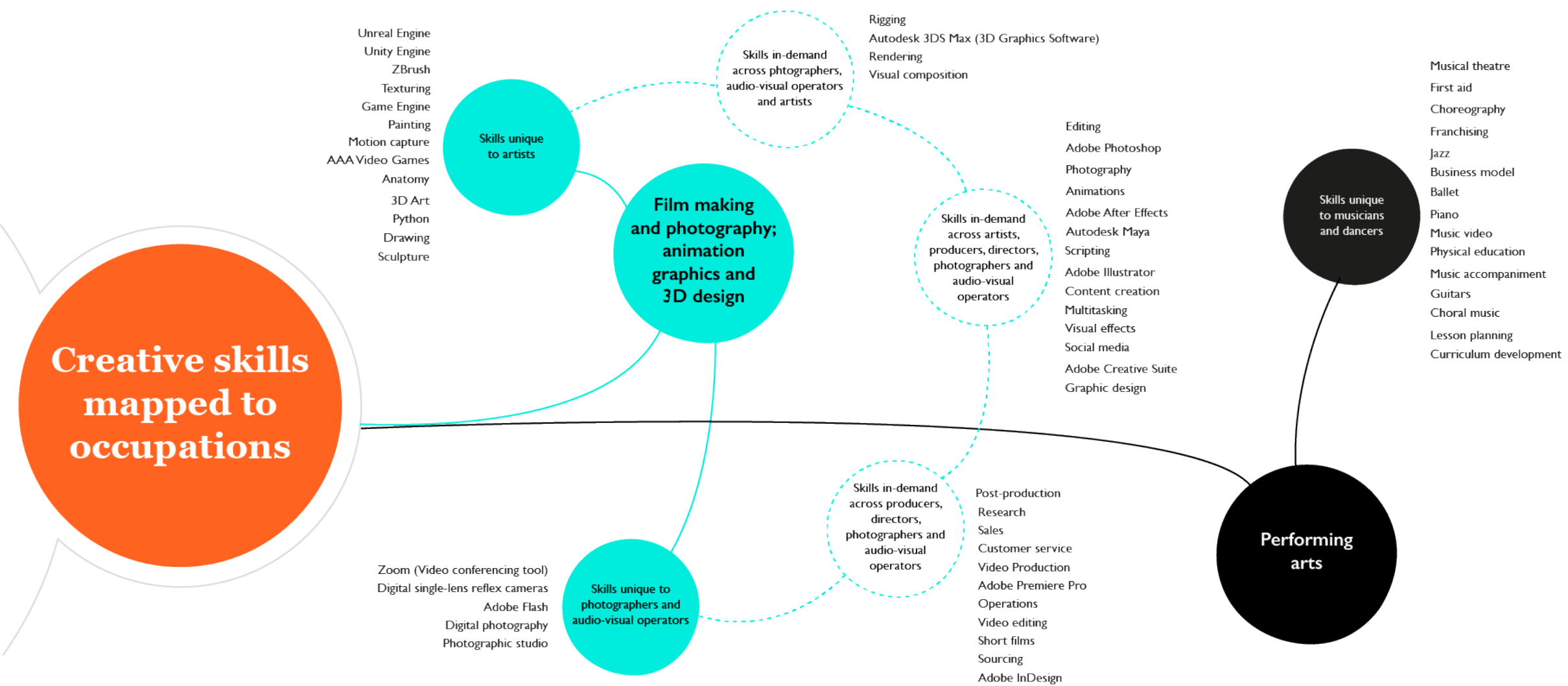


Figure 25: Creative skills mapped to occupations (RSA analysis of Emsi Burning Glass Job Posting Analytics)



Skills in demand across most creative occupations: Teaching, Willingness to learn, Booking (Sales), Energetic, Mentorship, Positivity, Working with children, Public liability

Developing a skills framework

For occupations in the sector related to tourism and hospitality, we identified over 40 non-core skills that are important for these jobs. Around half of these skills needed for these jobs were those that appear in our core skills framework for Southampton.

Aside from these core skills, many skills relate to business strategy and operations, people and resource management (or pillar S4.1, S4.2, S4.3 and S4.6 of the ESCO skills hierarchy).

Other clusters of skills that emerged relate to sales (S1.6) and customer experience or are specific to the restaurant trade and food preparation. While French and German are needed for some leisure and travel roles.

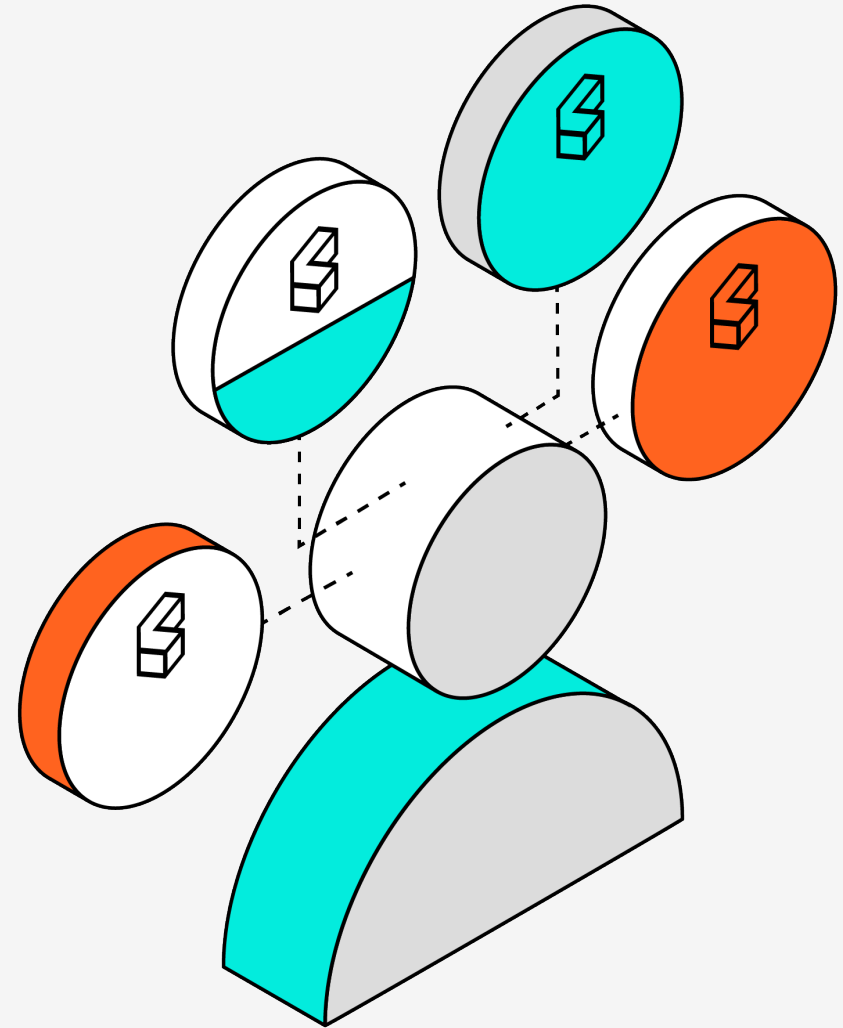


Figure 26: Sector skills framework for tourism and visitor economy jobs (RSA analysis of Emsi Burning Glass Job Posting Analytics)

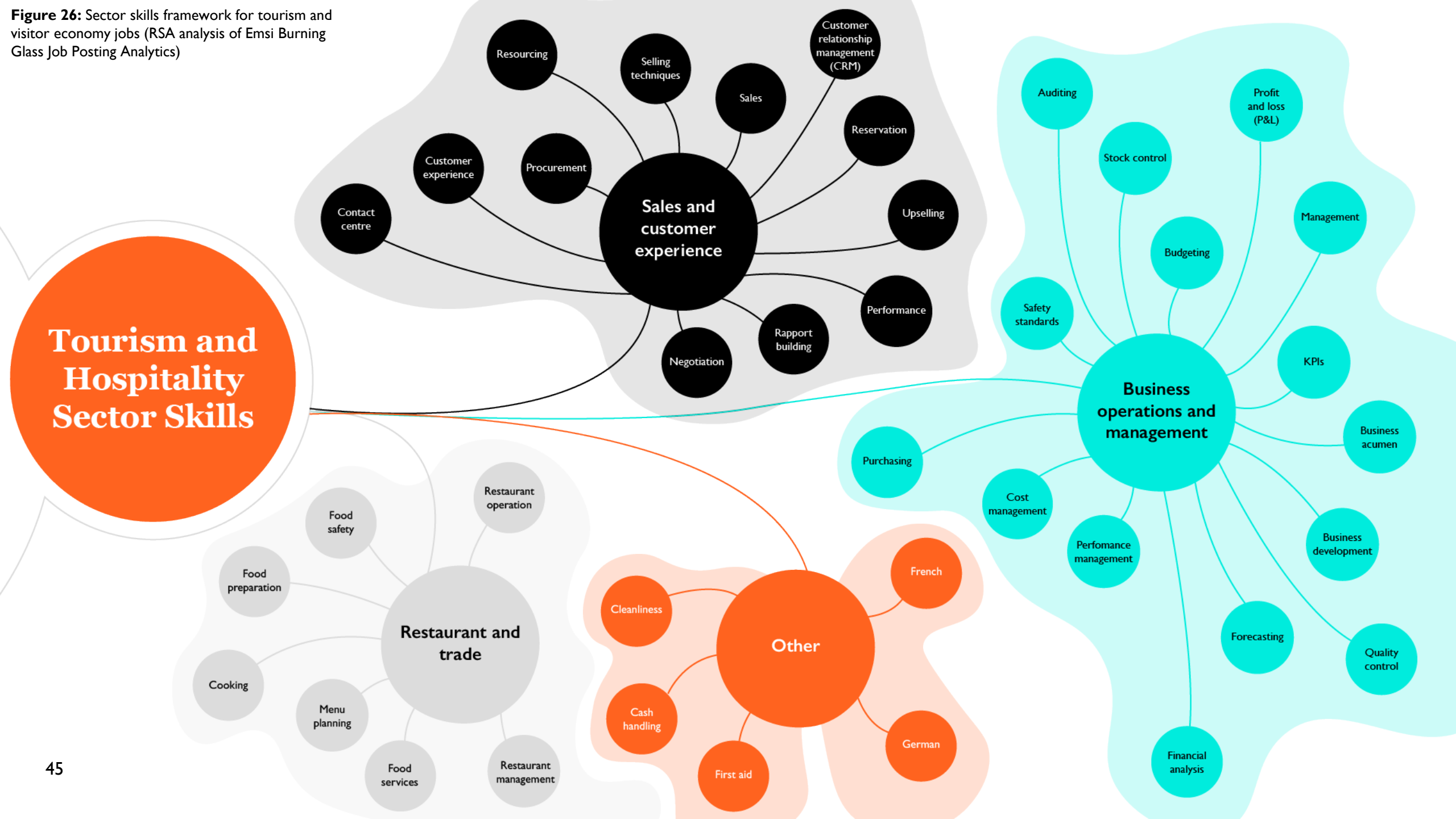
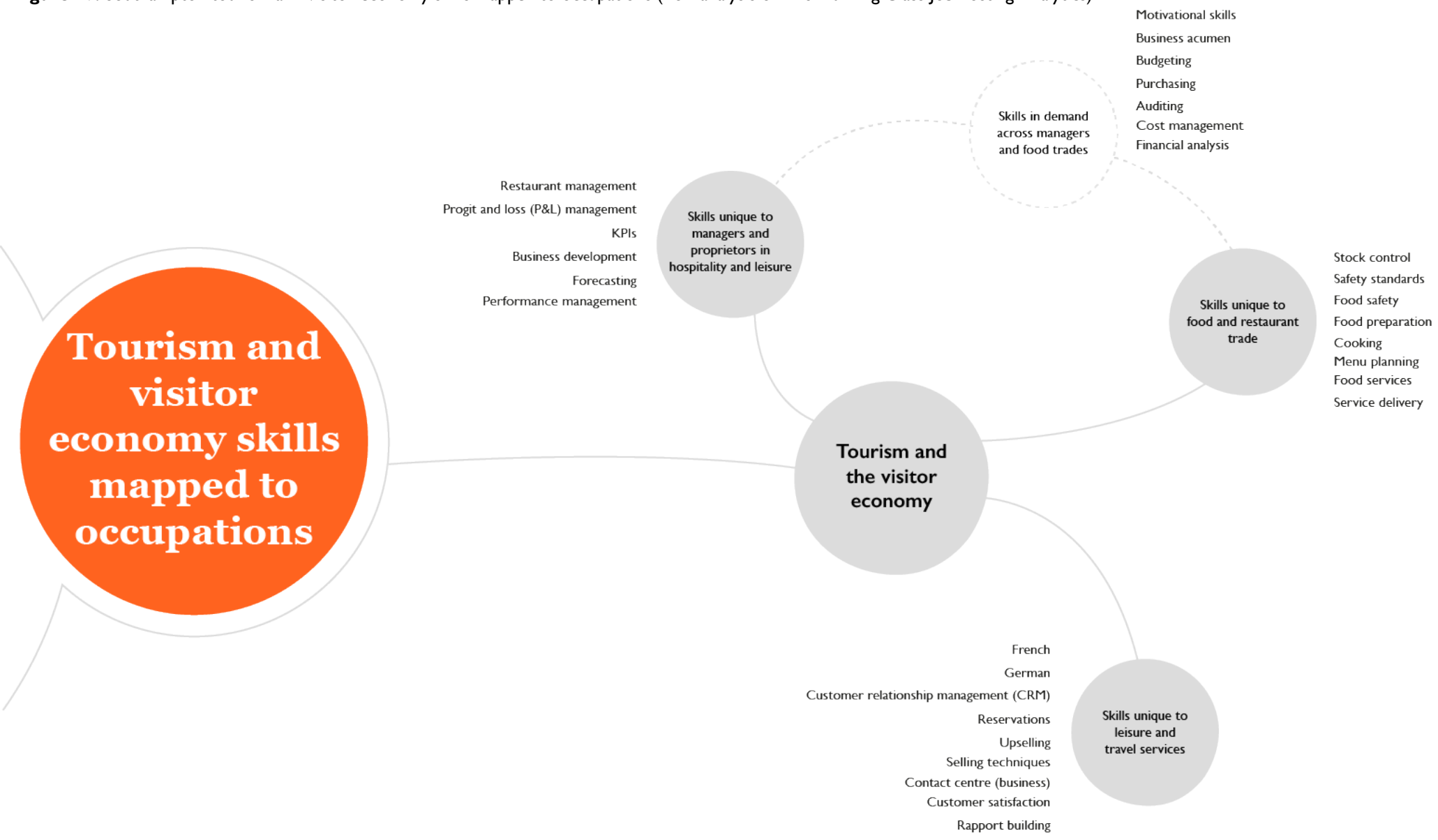


Figure 27: Southampton tourism and visitor economy skills mapped to occupations (RSA analysis of Emsi Burning Glass Job Posting Analytics)



Skills in demand across most tourism and visitor economy occupations: Sales, Operations, Cleanliness, Customer experience, Restaurant operation, Upselling, Quality control, First aid, Personal protective equipment

Key findings from evidence review: culture

- **Despite machine learning being used to create original artistic content, creative roles are likely to remain resilient to automation.** While Previous RSA research found that across the UK, the creative arts and entertainment was one of the fastest growing industries between 2011-19, growing by more than 30%. Although the industry actually experienced a decline in Southampton during this period.
- **Some practitioners even argue that we should not overestimate the impact that new technologies will have on skills demands in the sector.** Fiona Morris, CEO and Creative Director of The Space suggests in a recent report for the Digital Innovation Fund for the Arts in Wales “with regard to immersive technologies like VR and AR, arts organisations get distracted by the operation of the technology rather than focus on the far more important fact that they already have extensive knowledge of how to create immersive experiences and direct audience attention within a narrative”.
- **However, the creative arts and entertainment have arguably been the hardest hit industry during the pandemic, with theatres and nightclubs unable to turn a profit while adhering to social distancing.** The pandemic may have also created new skills demands in the sector, including a greater focus on engagement via social media and online or hybrid experiences.

Key findings from evidence review: culture

A study 2019 by [Nesta](#) uses online jobs vacancies data from burning glass to identify **creative and digital** or ‘createch’ skills.

These skills are those that both strongly correlate with the term creativity and obviously digital in that they involve specific software (or could reasonably be expected to).

The findings are similar to those for our analysis and offer more detail on what skills are important for graphic designers, photographers and audio-visual equipment operators, artists, arts officers, producers and directors and product, clothing and related designers.

1. Adobe Photoshop	11. Animation
2. Adobe InDesign	12. Website design
3. Adobe Illustrator	13. Creative direction
4. Adobe Creative Suite	14. Art direction
5. Adobe Acrobat	15. Motion graphics
6. Graphic design	16. Video editing
7. Creative design	17. Photography
8. Typesetting	18. Cinema 4D
9. Adobe After Effects	19. Adobe Premiere Pro
10. Digital design	20. Video production



Stakeholders feedback

We gained feedback on the skills framework from a small group of stakeholders

BENEFITS

- Provides a **clear methodology and detailed overview of skills needs** in various sectors
- Provides a useful **tool to signpost** employers, employees and other stakeholders where they can find skills and HR requirements
- Provides **evidence of city skills gaps** in relation to the UK economy
- **Prioritises local skills needs**
- Includes a helpful **categorisation** under job roles and use of **skills grades**
- Highlights **strategic sectors** for the city
- Could **assist with employer discussions**
- Could be helpful for **training providers** to plan future programme delivery and course content for (e.g. FE)

LIMITATIONS

- The language is **quite academic** and difficult to understand
- Lack of an indication of the **academic level of the skills needs** (e.g. showing the education level for entry level jobs for each sector)
- Lack of clarity on how the skills link to the **government priorities** for Skills Funding
- Absence of an **action plan for sharing** amongst key stakeholders/how the framework is reviewed
- There does not appear to be any linkages to **supply side plan** (e.g. do new curricula need to be developed?)
- It might need **further work around performing arts and teaching for cultural sector**



I think the [working] of it needs to relate to end users in an intuitive approach almost like a very efficient search engine.

Whilst stakeholders found alignment to the sectors analysed, they made suggestions in regards to the sectors' focus and scope:

- Exploring '[...] an additional opportunity to focus on the sectors that will also support the social growth such as **Hospitality and Leisure** - and the skills needed in these sectors, especially in light of the pandemic.'
- Focusing on 'sectors that are important to the city [...] such as **Health, Construction, Retail and Logistics**.'
- Making the Culture and Creative sector framework more representative of the sector in Southampton. The RSA suggest that a preliminary step here could involve carrying out a comprehensive mapping of businesses that are key to the City of Culture bid.



I work with many different employers within the local marine industry and there is a constant request for suitable applicants for job roles, which we are unable to fill because we don't have the numbers training. Without the demand for training from employers or people enrolling on courses we are unable to invest in newer training opportunities or update and expand existing provision.

How stakeholders see Southampton implement the framework

Many stakeholders said that they would benefit from sharing the framework with their wider operation and policy teams.

Most of them remarked how this would be useful in helping them review content, CPD and training, develop new courses, ensure consistent standards and as a communication tool for young people.

Some comments were made about how to make it more accessible (i.e. easily searchable).

SUGGESTED USES

- **Engagement and consultation** with local employers
- **Collaboration, knowledge exchange and alignment** across stakeholders in the skills systems, employers and those involved in workforce planning and national bodies
- **For Southampton to take the lead**, modelling a 'Digital Eagles' approach
- **As a guide to FE, HE and training providers** to better inform the education offer, direct funding towards these priorities and inform careers information
- **To raise the standard** of provision and role offered
- **To create pathways** into employment

“ The Council needs to communicate this clearly to key business stakeholders as well, so that organisations like the Chamber of Commerce are clear on how it is useful and should be used and can promote that

POTENTIAL CHALLENGES

- **Stakeholder buy-in** and support for implementation (particularly smaller employers)
- **Community-level support**
- **Learners engagement**
- **Influencing policymakers**
- **Implementing local pilots** to test this work and approach
- **Raising awareness in schools** (and feed into existing frameworks i.e. LEP)
- **Longevity of the project** (it might need a refresh every 3 years)
- **Funding** – ensuring that employers are prepared to fund the skills development needed
- **Over saturation of working groups with similar strategies** (see Solent LEP, Freeports, Maritime UK, British Marine)
- **Access to tech**

Local stakeholders quotes

“ We would use the framework to review our current delivery offer as a Training Provider. We would also use the framework in future bids/tenders to ensure that our skills offer is relevant and that funding is attracted to the areas of need.

“ I'd like to see post-16 colleges using the framework to help inform course design and to communicate to young people about careers and job opportunities.

“ Yes, as a training provider, we are willing to work with any and all employers within the city to create the courses needed, or develop certain skills within required by industry.

Local stakeholders quotes

“ Yes, as a training provider, we are willing to work with any and all employers within the city to create the courses needed, or develop certain skills within required by industry.

“ I'd like the strategic sectors to be very widely communicated to all educational institutions, so that everyone is clear on what they are and why they've been chosen.

“ Highlight training opportunities within the City to encourage the collaborative processes.



Appendix: notes on Emsi Job Posting Analytics

Emsi

Emsi brings economic geography and data science together to better understand local economies and what drives them. They link official statistics, proprietary data and robust economic modelling to provide a multi-dimensional view on labour markets and business activity down to the local authority level.

Emsi provides two main sources of data that can be used to understand local labour markets:

- **Structural labour market intelligence, derived from official sources produced by government, but enhanced with robust modelling to minimise the ‘ suppressions ’ which leave local details blank and projections to extrapolate trends into the future.**
- **Job posting analytics, gathered by harvesting and deduplicating hundreds of thousands of online job postings every month and categorising them by place, job title, company and skills to capture intelligence on the talent employees are seeking out.**

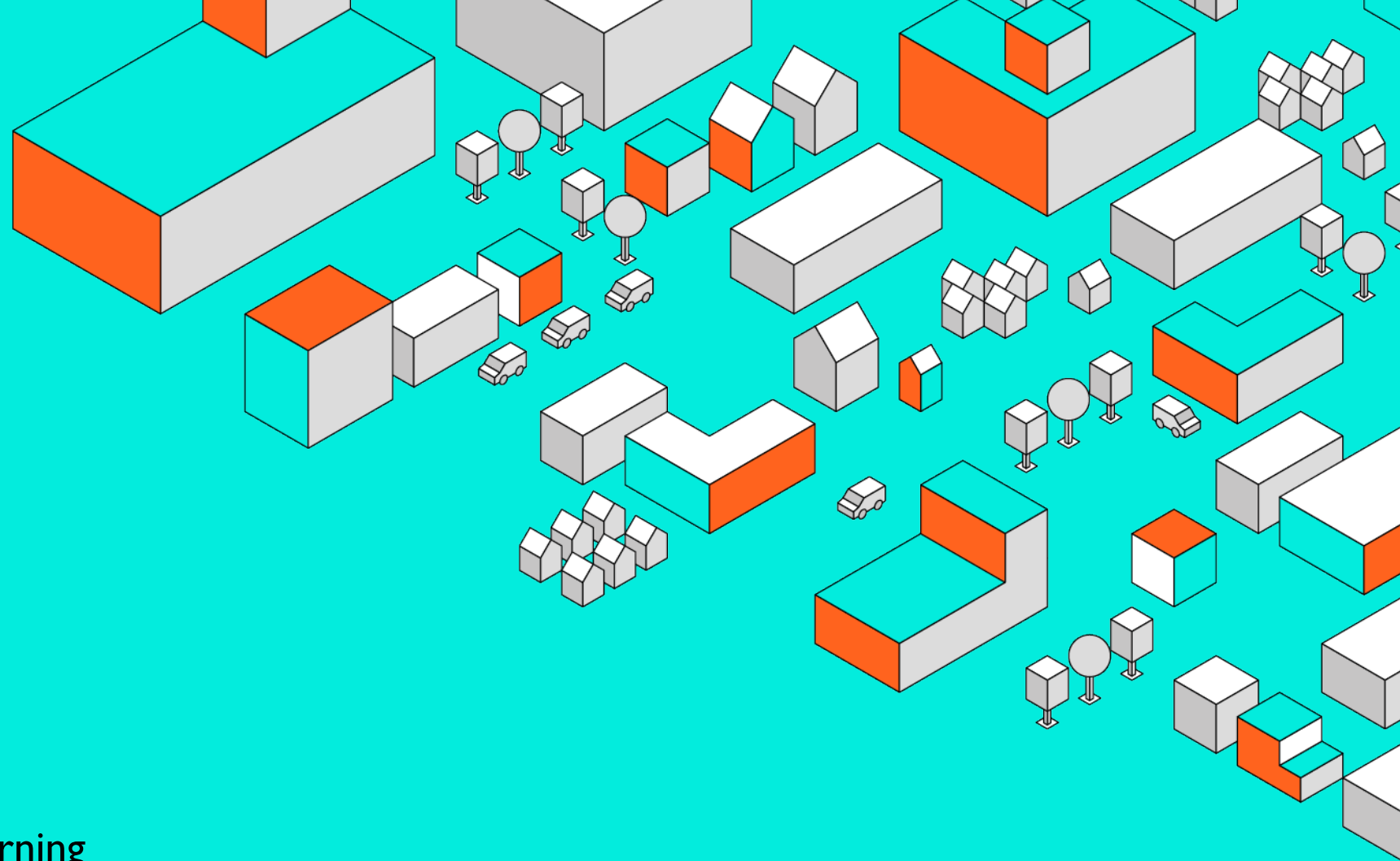
Emsi brings together different data sources to create a robust composite dataset that provides detailed labour market intelligence on hundreds of industries and occupations at the lowest geographic levels. By joining together these datasets, Emsi can provide unique insights into the relationship between industry trends and associated occupational requirements.

Emsi job posting

Emsi job postings data is collected from a range of different company sites, major job boards, and staffing agencies. In a typical month, Emsi aggregates between 0.8 and 1 million job postings across Great Britain. These postings are then deduplicated to avoid overstating the demand for a particular job and we measure how long the posting is live for and the ratio of duplicates as a measure of recruiting effort.

Job posting analytics have to be handled with care: they represent employers' on-line recruitment activity, and that can have an uncertain alignment with recruitment and employment volumes. Nevertheless, alongside the structured labour market data Emsi uses for its analysis, job posting analytics can provide powerful insights on the qualitative dimensions – where structured data can best tell us what, where and how many, real-time data provides the rich detail which allows for much greater understanding.

Between the government data and job postings, this can provide a well-rounded picture of the labour market's demands – data which can be useful for planning, project design, commissioning activity, employer engagement, skills planning as well as careers advice and guidance.



Thank you!

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