Skills of Tomorrow

January 2024

In collaboration with accenture

INTESA SANPAOLO

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Italy's future depends on the nation's ability to meet the challenge resulting from **three major trends**:
green transition, **human centricity**, **digitalization**

Investing now to create jobs that support **environmental sustainability**, **enhance societal well-being** and **increase digitalization** will be critical to Italy's future growth

Which and how many jobs must Italy create to reach the level of today's "**benchmark" Countries?**

Which skills must Italy invest in?

This research seeks to answer these questions
to understand today the needs of tomorrow

Contents

Foreword 5

Highlights 6

1. Green Jobs 8

1.1 Green: Context 9

1.2 Green Jobs: Italy vs. “benchmark” Countries 10

1.3 Main skills required for Green Jobs in Italy 13

2. Education & Health Jobs 18

2.1 Education & Health: Context 19

2.2 Education & Health Jobs: Italy vs. “benchmark” Countries 20

2.3 Main skills required for Education & Health Jobs in Italy 23

3. Business, Engineering, Science & Technology (B.E.S.T.) Jobs 28

3.1 Business, Engineering, Science & Technology: Context 29

3.2 B.E.S.T. Jobs: Italy vs. “benchmark” Countries 30

3.3 Main skills required for B.E.S.T. Jobs in Italy 33

What’s Next? 41

Methodology 43

Foreword

The World Economic Forum's **Jobs of Tomorrow White Paper** series includes the white paper: *Social and Green Jobs for Building Inclusive and Sustainable Economies*"[1]. Published in collaboration with Accenture, the paper **investigates the unmet need in terms of Green and Social Jobs** that are needed to achieve the **green transition** and **improved social mobility** by **2030** in 10 major economies: Australia, Brazil, China, Germany, India, Japan, Spain, South Africa, UK and USA.
To calculate unmet need, **current levels of employment** in the **10 sample countries** are benchmarked against those in the Countries considered **benchmark**[2].

Intesa Sanpaolo is leaning on this paper to understand the distance Italy has yet to travel to become **a more inclusive, socially mobile and sustainable society and economy**.

How can **concentrating jobs** in the **Green** and **Education & Health** areas help **combat the fallout from climate change** and **improve the wellbeing and quality of life** for citizens? That is the question underpinning this research which, for Italy, also includes an additional area of critical analysis: digital transformation, supported by professions related to the **Business**, **Engineering**, **Science**, and **Technology** (B.E.S.T.) sectors.

A more sustainable environment and **a more inclusive society cannot be achieved without also growing digital competences**. Italy ranks **18th in Europe** in terms of **digitalization**[3] and over half of Italians do not have basic digital skills.

This research analyzes the **skills most needed** by the jobs market in Italy across the Green, Education & Health and B.E.S.T. areas.

Our goal is to help **Institutions, Businesses** and the **Third Sector** identify the **jobs** and **skills** to invest in across the areas analyzed.

[1] WEF_Jobs_of_Tomorrow_2023
[2] Denmark, Norway, Sweden and Finland [WEF Energy Transition Index (2021), WEF Global Social Mobility Index (2020)]
[3] Digital Economy and Society Index of the EU, 2022

Highlights

- Three forces are combining to rapidly reshape the society we live in - and the jobs we do: the urgency to decarbonize the world economy and **become more sustainable**; the drive to achieve **greater wellbeing across society** through increased health, education and personal support services; and the **acceleration of the digital transition** by new technologies (such as Generative AI, Quantum Computing, Cloud and Robotics).

- To meet these challenges, investments will need to be channeled toward developing jobs in 3 key areas: **Green**, **Education & Health** and **Business**, **Engineering**, **Science** and **Technology**.

- To cover the unmet need in these areas, Italy would need to create **more than 2 million jobs by 2030**, based on a **comparison with the "benchmark" Nordic Countries**[1] (Denmark, Norway, Sweden, Finland): the **excellence in terms of employment in Green, Education & Health** and **B.E.S.T. Jobs**.
  This would also help Italy to close the gap with the Nordics in terms of environmental sustainability, societal wellbeing and digital advantage.

- Green, Education & Health and B.E.S.T. Jobs **account** for approximately **20%** of total jobs in Italy today[2].
  Of this share, **0.5%** are in the **Green** area; **15.3%** are in **Education & Health**; and **5.5%** are in **Business, Engineering, Science & Technology**.
  To equal the "benchmark" Countries by 2030, Italy will need to have **30%** of its workforce employed in these areas.

+2 million

new jobs **needed** in the **Green, Education & Health** and **B.E.S.T.** areas if **Italy** is to **equal the Nordics by 2030**

20% vs 30%

incidence of Green, Education & Health and B.E.S.T. Jobs **on total employment** in Italy **today** vs. **2030**

[1] Source: WEF Energy Transition Index (2021), WEF Global Social Mobility Index (2020), Digital Economy and Society Index of the EU (2022)
[2] Data refer to 2022. Source: ISTAT

- Within the 3 scope areas, the report identifies the **job categories** with the greatest unmet need as well as the **main skills** required to fulfill them:

Green Jobs	Job Category	**Agricultural, Forestry and Fishery Workers and Labourers** (e.g., Crop farm labourers, Fishery and aquaculture labourers)
	Main Skills	Ability to **prevent harmful effects** related to human activities (such as those typically possessed by environmental engineers) and to support the community in **waste management**
Education & Health Jobs	Job Category	**Personal care workers in health services** (e.g., Health Care Assistants, Home-based Personal Care Workers)
	Main Skills	**Nursing skills** (such as administering medical therapies and monitoring vital parameters) and the ability to **offer assistance to disabled** persons in terms of physical and emotional support
B.E.S.T. Jobs	Job Category	**Science and Engineering Associates and Professionals** (e.g., physicists, biologists, architects) and **Information and Communications Technology Professionals and Technicians** (systems analysts and programmers)
	Main Skills	Ability to **analyze and interpret data** and knowledge of the principles and tools at the core of **cybersecurity**, such as the design and monitoring of computer security systems

- The recent advent of **Generative Artificial Intelligence** – now a top priority for business leaders everywhere – is set to generate an unprecedented level of change and require **new professions and competencies**, **new ways of working** and **improved productivity** across the jobs market.

- To respond, **governments, institutions** and the **business community** must lay the foundations for a **sustainable future in which work enables growth**. By quantifying the **unmet need** across the Green, Education & Health and B.E.S.T. areas and identifying **the skills they most need,** this research is a **call to action** **for political and business leaders in Italy** to increase investment in job creation across the 3 key areas today and help citizens build the skills they will need for the jobs of tomorrow.

Green Jobs

Green: context

Environmental transition is no longer just nice. It's a must. Italy's NRRP is a first step in the journey to achieving it

Concern about the environment has **spiked** this past decade, culminating in the global Paris Agreement of 2015. As climate conditions continue to deteriorate, the EU countries have committed to make their economies carbon neutral by 2050.

With severe **climate events** occurring more frequently than ever, **societies and economies** routinely experience serious disruption that disproportionately impacts the weaker sections of the population.

For Italy, stemming the fallout from climate risk is one of the pillars of the 2023 National Plan for Adaption to Climate Change promoted by the Ministry for the Environment and Energy Security.

Italian companies are now acutely aware that the **green transition** **is a challenge they cannot ignore**. Encouraged by the legislative push to align with international standards, companies across the EU have **sharply increased** **Green job opportunities**. In Italy, the demand for Green jobs **grew by almost 50% between 2019 and 2022**[1].

[1] Lightcast, The Growth of Green Jobs, 2023

Green Jobs: Italy vs. “benchmark” Countries

Unmet Need for Green Jobs

"Green Jobs" means jobs that in some way contribute to **environmental sustainability** and the **transition to a greener economy.** The definition includes all the professions that **require the specifically "green skills"** now needed across market areas. The common denominator among these jobs is their focus on **promoting environmental protection** and **reducing the negative impact** on the planet caused by human activity.

In Italy today, almost **120,000 jobs** (**0.47%** of total jobs) can be classified as **Green Jobs**.
To reach the standard of today's "benchmark" Countries[2], Italy needs to create almost **80,000** extra jobs in this area by **2030** – an **increase of 66%** – growing its share of total jobs to **0.8%**.

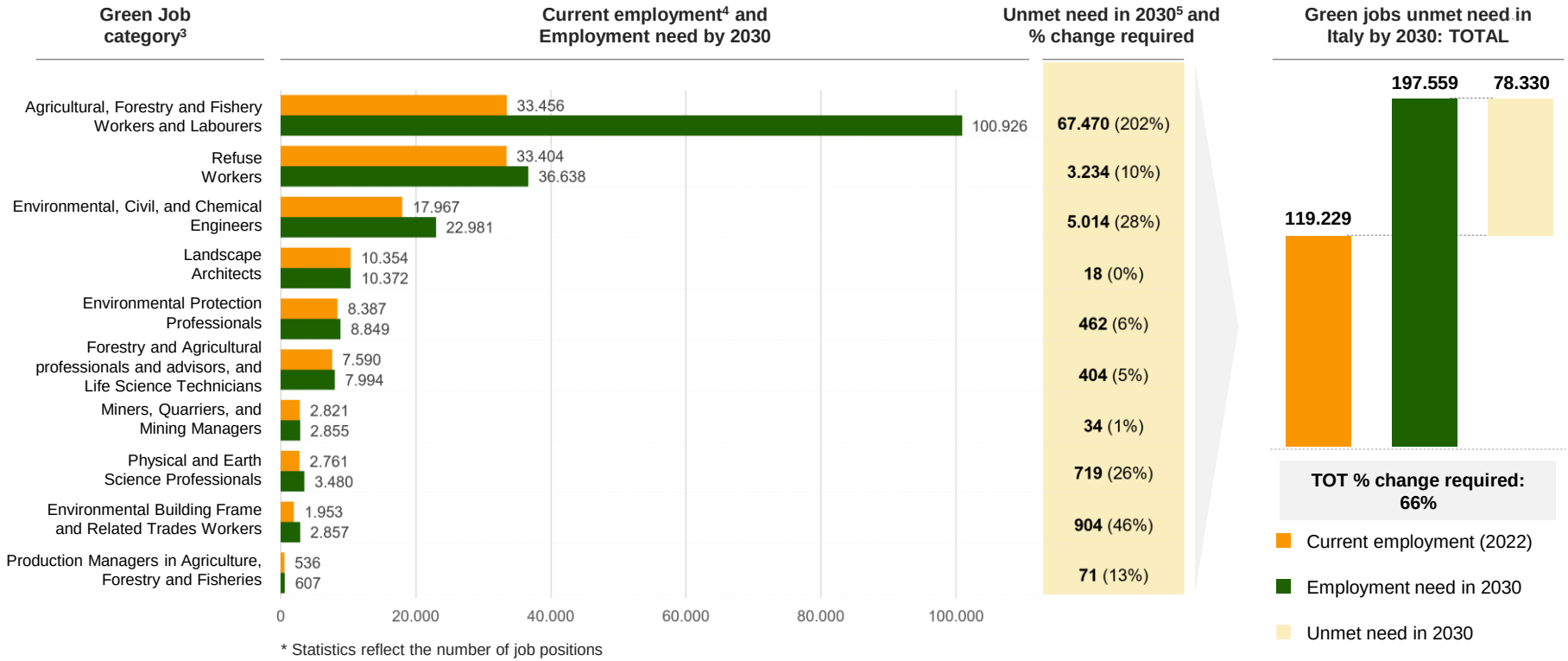
The category with the greatest need for Green Job creation is **Agriculture, Forestry and Fishing Workers and Labourers**.
The current unmet need for farm workers, gardeners, fishermen, etc., translates into a shortage of approximately 67,470 jobs – almost **90% of the total unmet need for Green Jobs**.

The number of people holding Green Jobs will increase as **the expanding Green Economy** creates new enterprises and employment opportunities. While not all of these will require highly specialised professions (who specifically need green skills), they will certainly **accelerate Italy's transition to a greener society**.

+66%
increase needed to **close the Green Jobs gap** by **2030**

[2] Benchmark countries are Denmark, Norway and Sweden, i.e. those at the top of the WEF Energy Transition Index (2021)

Unmet need for Green Jobs



[3] Defined using Lightcast database of job postings and taxonomy of skills to identify jobs that require skills within the Green area
[4] Data refer to the year 2022
[5] Adjusted to free workforce availability (assumption: unemployment rate remains constant at the level of 2022)
Source: Accenture Research on ISTAT

Main skills required for **Green Jobs** in Italy

Main skills required for Green Jobs in Italy

To close the current gap in the jobs market and create **almost 80,000 new jobs** **by 2030**, it is first necessary to understand which **skills** the **Green** area most urgently needs.

The chart below maps out the main skills[6] candidates for Green Jobs will need to possess. These skills are defined based on two parameters:

- **Demand Growth**: compound annual growth rate of job postings published from 2019 to 2022 that require a specific green skill;
- **Transferability**: the total number of professions mentioned in job postings published from 2019 to 2022 that require a specific skill.

Skills are grouped into the following 4 domains:

Energy, Resource Circularity and Decarbonization
Includes the spectrum of technical skills needed to manage and optimize resources, such as recycling and sustainable use of energy, and reduce carbon emissions.

Environmental and Sustainability Management
Includes the strategic skills needed in decision-making around environmental issues and to integrate sustainable practices in production. Examples include the identification, assessment and management of environmental risks and impact; the development and roll-out of strategies and policies to promote sustainability.

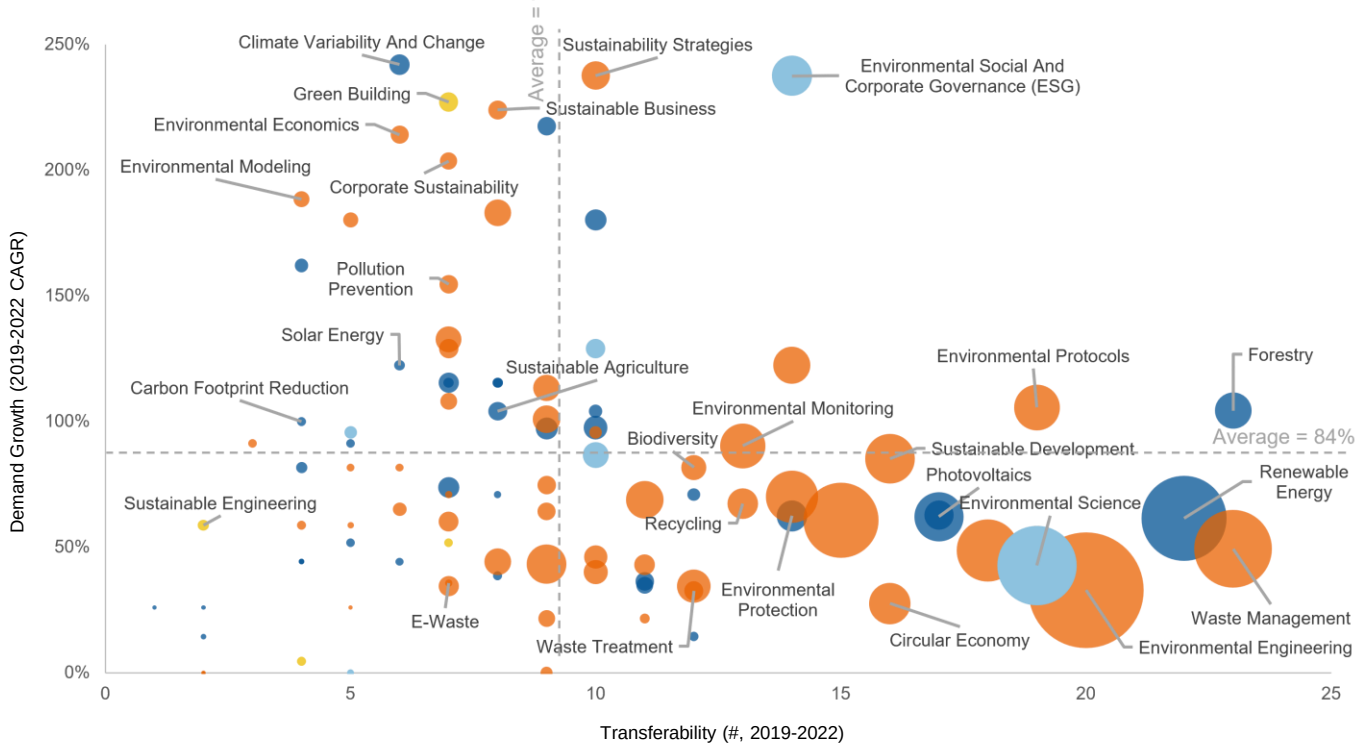
Science and Research
Includes skills in analysis and the sciences such as biology, chemistry and earth science.

Green Infrastructure and Mobility
Includes skills such as the capacity to plan, design and promote sustainable mobility, and manage infrastructure lifecycles, from design and build through maintenance and reconversion.

[6] Source: database Lightcast, 2019-2022

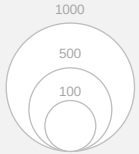
Main skills required for Green Jobs: distribution across domains

Demand Growth and Transferability of Green skills in Italy



Domains

- Energy, Resource Circularity and Decarbonization
- Environmental and Sustainability Management
- Science and Research
- Green Infrastructure and Mobility



Bubble size: Count of 2022 job postings that mention the skill

Note: The Lightcast database global skills taxonomy includes ~390 specific green skills. This research considered only those skills which were requested for jobs in Italy and appeared in job postings at least once in both 2019 and 2022. Skills with demand growth <0 were excluded
Source: Accenture Research based on Lightcast database, 2019-2022

The chart clearly shows that the domain where the number of skills in demand is highest is **Environmental and Sustainability Management**. Specifically:

- **Environmental Engineering**, such as the design of interventions to protect water, land and subsoil, and the impact assessments of anthropic activities across the environmental landscape. This skill is highly transferable and was mentioned in an impressive 1,276 job postings in 2022.
- **Waste Management**, the capacity to manage all forms of waste in a sustainable and environmentally viable manner, analyzing the efficacy of the solutions adopted and developing new strategies to safely dispose of waste. The skill, too, is highly transferable and featured in 573 job postings.
- **Sustainability Strategies**, includes the skills needed to develop strategies to preserve and safeguard natural resources and control pollution. This is one of the green skill that grew the fastest (+2385) in the time frame considered.

The data show that the skills in the **Energy, Resource Circularity and Decarbonization** domain are in growing demand though they appeared less often in job postings and have a lower degree of transferability. In particular, **Climate Variability and Change** was the skill that, from 2019 to 2022, grew the most (+242%). Included here are skills that enable us to understand the past, present and future global change experienced by our planet to help contain the effects of climate change.

Other skills showing growing demand are **Green Building** (+227%) and **Environmental Social and Corporate Governance** (+238%). The former includes skills based on knowledge of the environmental impacts of the entire lifecycle of a construction project and the design, build and management of sustainable buildings. The latter includes all the skills needed to design, roll out and account for sustainable policies and pathways within organizations.

Main skills required for Green Jobs: examples of professions

Domain	Skill	Demand Growth	Transferability	Examples of Professions[7]
Energy, Resource Circularity and Decarbonization	Climate variability and change	242%	6	Geologists and Geophysicists; Farming, Forestry and Fisheries Advisers; Environmental Protection Professionals
	Forestry	104%	23	Agricultural Technicians; Forestry and Related Workers; Agricultural and Forestry Production Managers
	Renewable energy	62%	22	Civil Engineers; Government Regulatory Associate Professionals; Agricultural Technicians
Environmental And Sustainability Management	Environmental Engineering	33%	20	Environmental Engineers; Chemical Engineers; Environmental Protection Professionals
	Waste Management	49%	23	Refuse Sorters; Garbage and Recycling Collectors; Chemists
	Sustainability Strategies	238%	10	Life Science Technicians; Environmental Protection Professionals; Farming, Forestry and Fisheries Advisers
Science And Research	Environmental Social and Corporate Governance (ESG)	238%	14	Mining Managers; Environmental Engineers; Government Regulatory Associate Professionals
	Environmental Science	43%	19	Meteorologists; Geologists and Geophysicists; Life Science Technicians
Green Infrastructure and Mobility	Green Building	227%	7	Landscape Architects; Town and Traffic Planners; Civil Engineers

[7] Defined based on ISCO classifications

Education & Health Jobs

Education & Health: context

A rapidly ageing nation rebounding from a major pandemic that highlighted strategic vulnerabilities. Italy needs to become more resilient

Italy's **population is ageing rapidly**. ISTAT[1], statistic show that in 2041, 6 million people will be over 80 (vs. 4.5 millions today), while 1.4 million will be over 90.

Already today, Italy is the European nation with the highest ratio of **over 65s compared to the working population** (aged between 15 and 65)[2].

Against this background, the availability of qualified professionals to provide **personal care to the elderly** is a national **priority**.

The current socioeconomic context in Italy, on the other hand, has been greatly affected by the emergency caused by **COVID-19**, a pandemic that has highlighted a substantial **shortage of health professionals**[3].
While the health emergency revolutionized the way of working across almost all areas, it had major repercussions on citizens' **mental health**[4].

The macro socio-economic reality has recently been worsened by new **wars** and the consequent **migrant crisis**.

[1] ISTAT Annual Report, 2023
[2] Eurostat, 2023
[3] Survey FADOI, 2022
[4] Harvard Business Review, «*It's a New Era for Mental Health at Work*», 2021

Education & Health Jobs: Italy vs. “benchmark” Countries

Unmet need for Education & Health Jobs

"Education & Health Jobs" means jobs that involve teaching and training or providing healthcare and personal care, and which **help increase** the overall **wellbeing of society** by **improving** people's **quality of life** and **creating a sustainable economy**. This area includes all those professions whose practitioners must possess **specific "education & health skills"**.

In Italy today, approximately **3.9 million** people hold **Education & Health Jobs** (**15.3%** of total jobs). To reach the standard of today's "benchmark" Countries[5], Italy needs to create almost **1.2 million** extra jobs in this area by **2030** – an **increase of 30%** – growing its share of total jobs to **19.9%**.

The job category where the gap with the "benchmark" Countries is widest is **Personal Care Workers in Health Services** which includes healthcare workers and assistants who care for the elderly and the disabled. This category alone accounts for 47% of the total unmet need in Education & Health Job area. To close the gap by 2030, some 545,844 jobs need to be created.

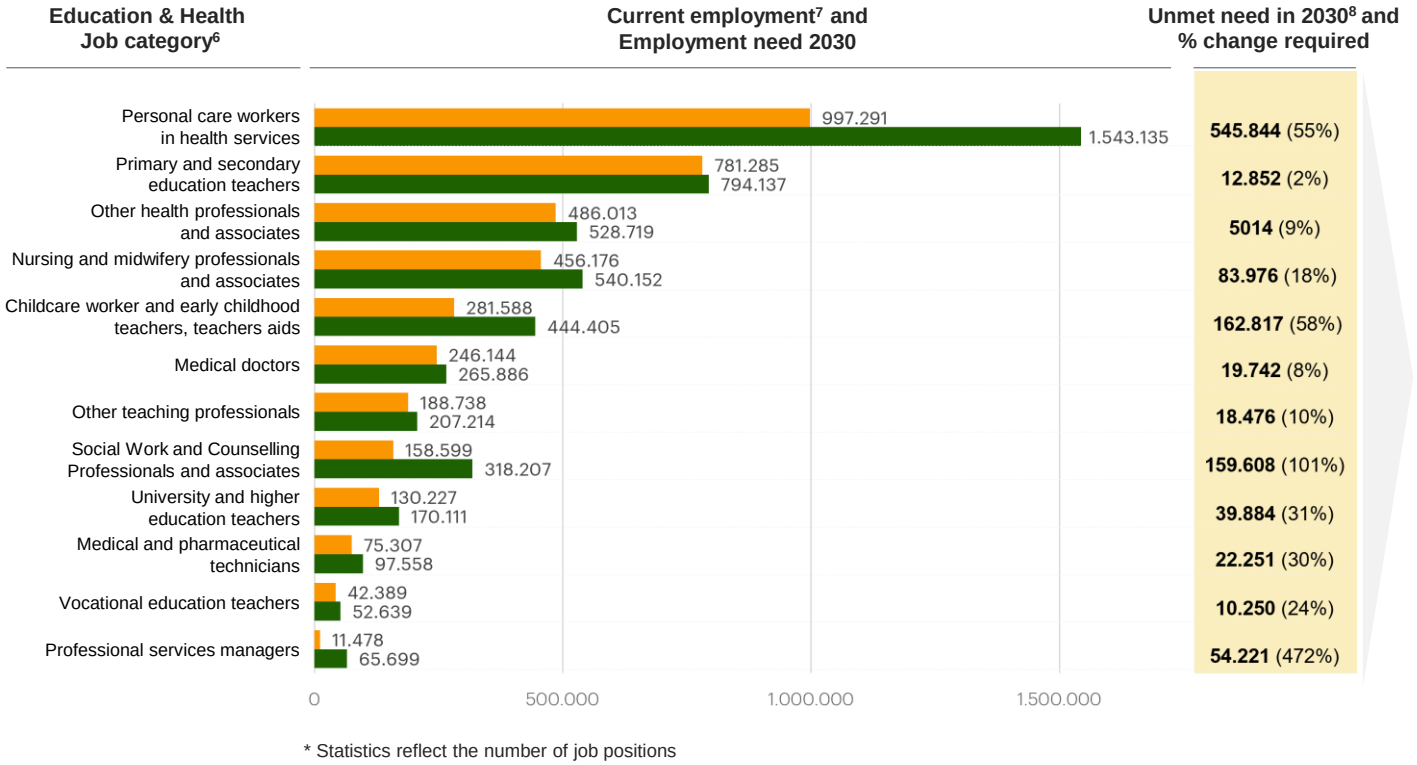
Other categories where the gap is considerable include **childcare workers, early childcare teachers, teachers aids** and **social workers and counseling professionals** (e.g. psychologists). The unmet need here equates to 162,817 and 159,608 jobs respectively.

The specific are showing the greatest gap to be closed – though in absolute terms the actual number is lower than in other categories – is **Professional Services Managers** (+472%). This category includes, for example, those who manage social workers and childcare workers.

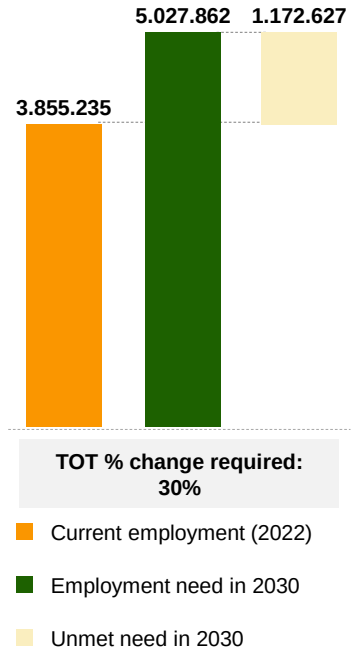
+30%
Increase needed to **close the Education & Health Jobs gap** by **2030**

[5] Benchmark countries are Denmark, Sweden, Finland and Norway, i.e. those at the top of the WEF Global Social Mobility Index (2020)

Unmet Need for Education & Health Jobs



* Statistics reflect the number of job positions



[6] Defined using Lightcast database of job postings and taxonomy of skills to identify jobs that require skills within the Education & Health area
[7] Data refer to the year 2022
[8] Adjusted to free workforce availability (assumption: unemployment rate remains constant at the level of 2022)
Source: Accenture Research on ISTAT

Main skills required for **Education & Health Jobs** in Italy

Main skills required for Education & Health Jobs in Italy

To close the current gap in the jobs market and create **almost 1.2 million new jobs** **by 2030,** it is first necessary to identify the **skills** that the **Education & Health** area most urgently needs.

The chart below maps out the main skills[9] that candidates for Education & Health Jobs will need to possess. These skills are defined based on two parameters:

- **Demand Growth**: compound annual growth rate of job postings published from 2019 to 2022 that require a specific education & health skill;
- **Transferability**: the total number of professions mentioned in job postings published from 2019 to 2022 that require a specific skill.

[9] Source: Lightcast database, 2019-2022

Skills are grouped into the following 3 domains:

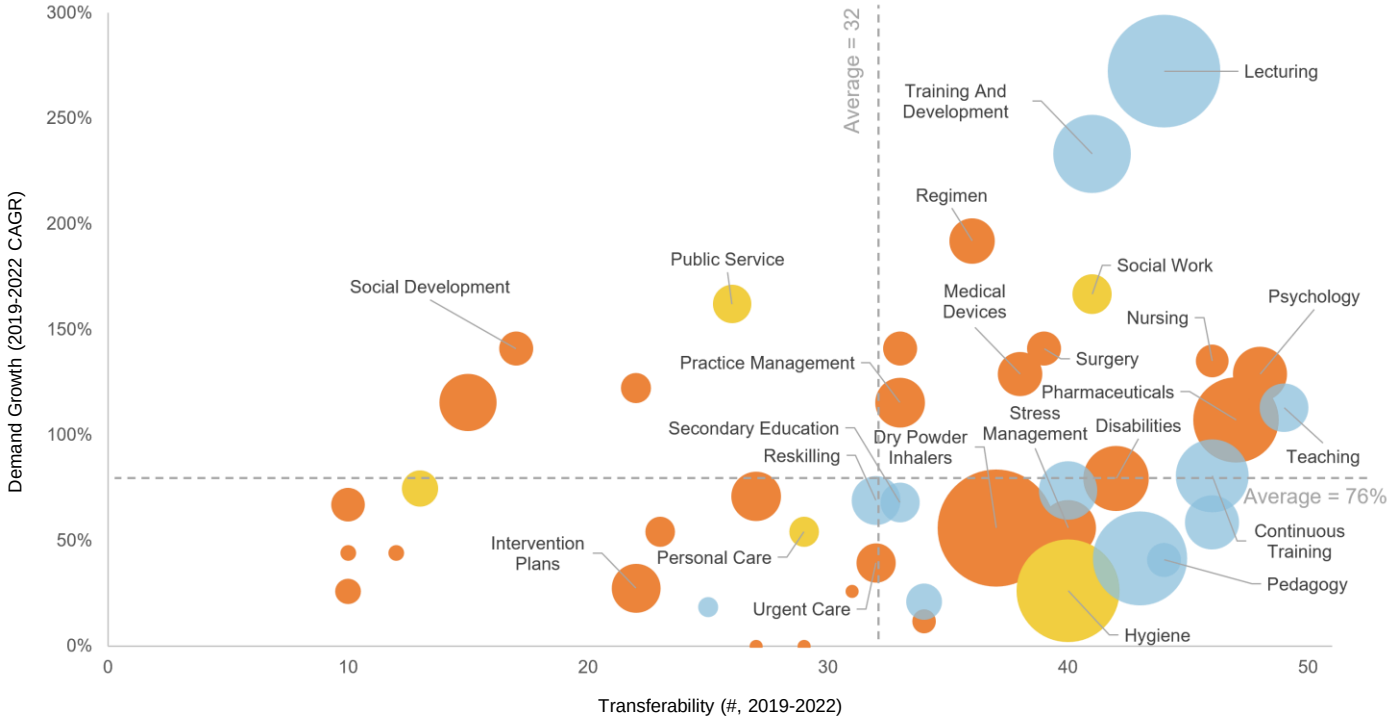
Health and Wellness
Includes the skills that promote and develop people's health and physical and psychological well-being. These skills go beyond healthcare to include illness prevention, lifestyle practices and mental health.

Teaching and Learning
Includes the skills that involve teaching, lecturing and learning to optimize other people's performances, helping them reach their full potential.

Person-centred Care
Includes the skills needed to support or care for other people. Examples include domestic help workers, personal care workers, childcare workers, social and community workers and professional consulting services.

Main skills required for Education & Health Jobs: distribution across domains

Demand Growth and Transferability of Education & Health skills in Italy



Note: The Lightcast database global skills taxonomy includes ~2,900 specific education & health skills. This research considered only those skills which were requested for jobs in Italy and appeared in job postings at least once in both 2019 and 2022. Skills with demand growth <0 were excluded
Source: Accenture Research based on Lightcast database, 2019-2022

Our analysis shows that the domains where the number of skills in demand is highest are Teaching & Learning and Health & Wellness. Closer inspection reveals that the skills related to **Teaching and Learning** are concentrated on the right side of the chart, indicating a high degree of transferability. Prominent among these are:

- **Lecturing**, the ability to convey teaching content in an engaging and efficient manner. Professors, lecturers and teachers need skills that are rooted in the subject being taught and an ability communicate and adapt the content to different teaching contexts. In addition to being easily transferable, the skill was mentioned frequently in job postings (155) and is the one in Teaching and Learning domain for which demand has grown fastest (+272%).
- **Training and Development**, the ability to design, develop and roll out effective training programs. This is a highly transferable skill and demand for it grew impressively during the time frame considered (+233%).

The chart shows that the skills in the **Health and Wellness** domain are distributed more dynamically. In particular:

- **Pharmaceuticals**, the capacity to understand and apply pharmaceutical knowledge and practices. This highly transferable skill was mentioned frequently in job postings (89).
- **Dry-Powder Inhalers**, the knowledge of the devices that dispense the recommended doses of powder-based pharmaceuticals and the correct use of the devices to administer the required doses. Although growth in the demand for this skill was below the domain average, it was the one mentioned most often in job postings (167).
- **Regimen**, includes the full range knowledge around diets, nutrition and physical exercise programs. Growth in demand for this skill is well above average (+192%).

Although the skills in the **Person–centred Care** domain are numerically lower than those in the other two, they still deserve particular attention. Specifically:

- **Social Work**, the capacity to support individuals, families or communities with specific needs to improve their quality of life. This skill is easily transferable and demand for it is growing fast (+167%).
- **Hygiene**, the capacity to define safe and hygienic conditions for an environment and maintain them. The skill here includes identifying potential health and hygiene risk factors, applying the most appropriate hygiene procedures and assessing their efficacy. It appeared frequently in job postings (129).

Main skills required for Education & Health Jobs: examples of professions

Domain	Skill	Demand Growth	Transferability	Examples of Professions[10]
Health and Wellness	Pharmaceuticals	107%	47	Health Care Assistants; Pharmacists; Nursing Professionals
	Dry-Powder Inhalers	107%	47	Home-based Personal Care Workers; Nursing Professionals; Environmental and Occupational Health and Hygiene Professionals
	Regimen	192%	36	Dieticians and Nutritionists; Physiotherapists; Midwifery Professionals
Teaching and Learning	Lecturing	272%	44	Information Technology Trainers; Other Language Teachers; Education Methods specialists
	Training and Development	233%	41	University and Higher Education Teachers; Education Methods specialists; Education Managers
	Teaching	113%	49	Early Childhood Educators; Special Needs Teachers; Other Arts Teachers
Person-centred Care	Social Work	167%	41	Social Work and Counselling Professionals; Social Welfare Managers; Childcare Services Managers
	Hygiene	26%	40	Home-based Personal Care Workers; Dental Assistants and Therapists; Environmental and Occupational Health and Hygiene Professionals
	Public Service	162%	26	Nursing Professionals; Ambulance Workers; Social Work Associate Professionals

[10] Defined based on ISCO classifications

Business, Engineering, Science & Technology

Jobs

Business, Engineering, Science & Technology (B.E.S.T.): context

Closing the Technological and Digital gap is possible. To get there, Italy will have to speed up: The European Commission's DESI index ranks the country in 18th place for digitalization

The speed of **technological and digital transformation** **continues to accelerate**, pushing companies to embark on major change programs to keep pace with innovations driven by emerging technologies, like **Generative AI**, **Quantum Computing**, **Cloud**, and **Robotics**[1]. These technologies are not only deeply reshaping the known business landscape; they are also **ushering in new ways of working and living**.

Although Italy has made remarkable progress in recent years in terms of the digitalization of its economy and society, the journey is far from over.
In 2021, fewer than 50% of Italians possess basic digital skills[2].

[1] The Five Forces of Change, Accenture, 2023
[2] Digital Economy and Society Index, UE, 2022

B.E.S.T. Jobs:

Italy vs. “benchmark” Countries

Unmet need for B.E.S.T. Jobs

"Business, Engineering, Science & Technology Jobs" refers to a broad range of roles. Some, such as that of data scientist, software developer, or cybersecurity expert, are technical in nature. Others include professionals in marketing and communication, mathematics, physics and even construction architects. Their common denominator is the role of **technology** as a **cornerstone enabler** of professional success and competitiveness within a given area of business.

In Italy today, there are almost **1.4 million B.E.S.T. Jobs,** accounting for a **5.47%** share of total jobs[3]. To reach the standard of today's "benchmark" Countries[4], Italy needs to generate more than **760,000** extra jobs by 2030 – an **increase of 55%** – taking the share of B.E.S.T. Jobs to **8.5%** of total jobs.

+55%
Increase needed to **close the B.E.S.T. Jobs gap** by **2030**

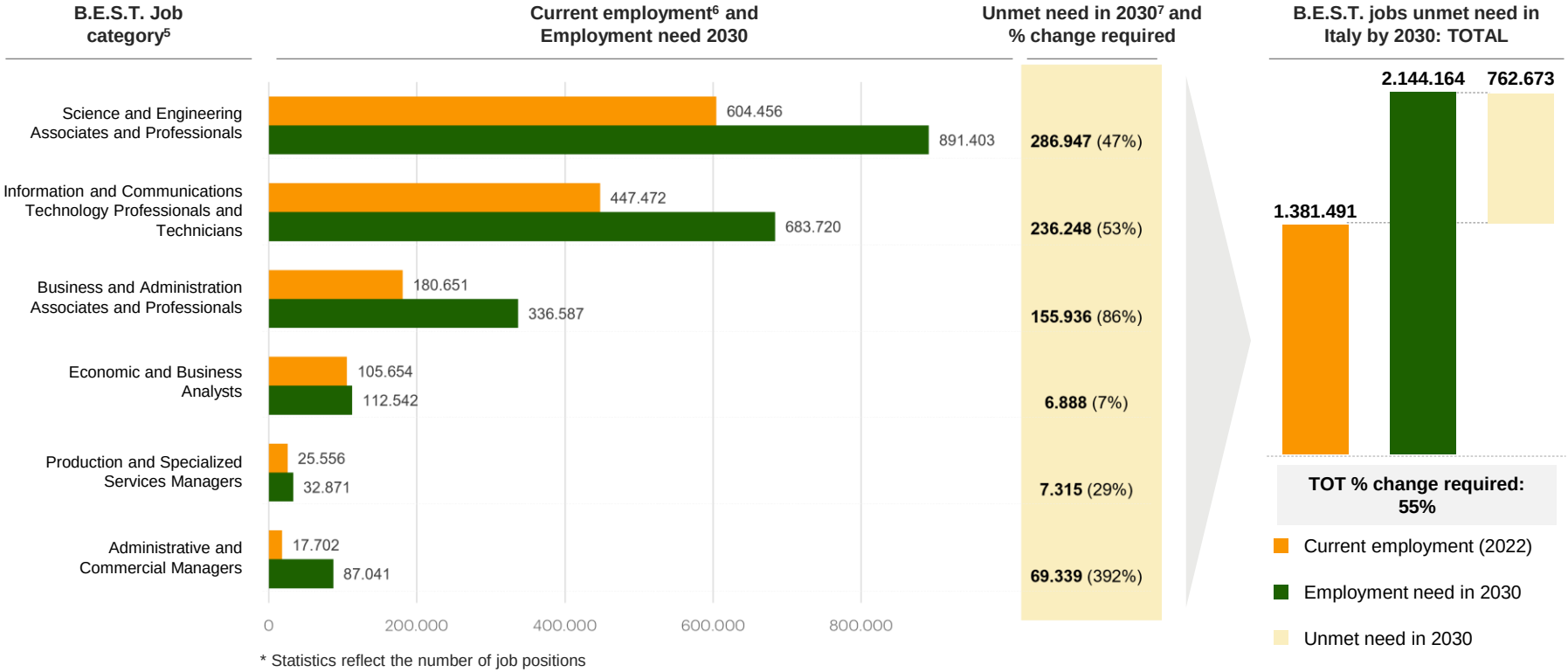
The categories showing the greatest need for new job creation, and which cumulatively are set to account for almost **90% of the unmet need in** 2030, are:

- **Science and Engineering Associates and Professionals**, which includes – for example – physicists, biologists and architects. The number of jobs in these areas will need to grow by 290,000 (+47%);
- **Information and Communications Technology Professionals and Technicians**, which includes – for example – systems analysts and programmers. Over 230,000 new jobs will be needed in these areas (+53%);
- **Business and Administration Associates and Professionals**, which includes – for example – financial and investment consultants. These areas will require an extra 150,000 jobs (+86%).

The **Administrative and Commercial Manager** category is the one where the need for jobs growth is most severe, requiring an increase of +392%.

[3] Accenture Research based on Lightcast database, 2022
[4] Benchmark countries are Denmark, Sweden and Finland, i.e. those at the top of the EU Digital Economy and Society Index (2022)
These countries also feature among the Top Ten in the IMD World Digital Competitiveness Ranking: Denmark 1st, Sweden 3rd, and Finland 7th

Unmet need for B.E.S.T. Jobs



[5] Defined using Lightcast database of job postings and taxonomy of skills to identify jobs that require skills within the B.E.S.T. area
[6] Data refer to the year 2022
[7] Adjusted to free workforce availability (assumption: unemployment rate remains constant at the level of 2022).
Source: Accenture Research on ISTAT

Main skills required for **B.E.S.T. Jobs** in Italy

Main skills required for B.E.S.T. Jobs in Italy

To close the current gap in the jobs market and create **almost 760,000 new jobs** **by 2030,** it is first necessary to identify the **skills** that the **Business, Engineering, Science & Technology** area most urgently needs.

The chart that follows shows the main skills[8] needed for B.E.S.T. Jobs today, defined based on two parameters:

- **Demand Growth**: compound annual growth rate of job postings published from 2019 and 2022 that require a specific skill;
- **Transferability**: the total number of professions mentioned in job postings published from 2019 to 2022 that required a specific skill.

[8] Source: Lightcast database, 2019-2022

Skills are grouped into the following 5 domains:

AI, Data and Analytics
Includes the skills needed to analyze and interpret data and are required in technology areas of both low complexity, such as data analysis and utilization, and more highly complex areas such those involving the application of AI.

Cloud, Systems and Infrastructure
Includes the skills required for the implementation and administration of cloud infrastructure, databases and 5G networks.

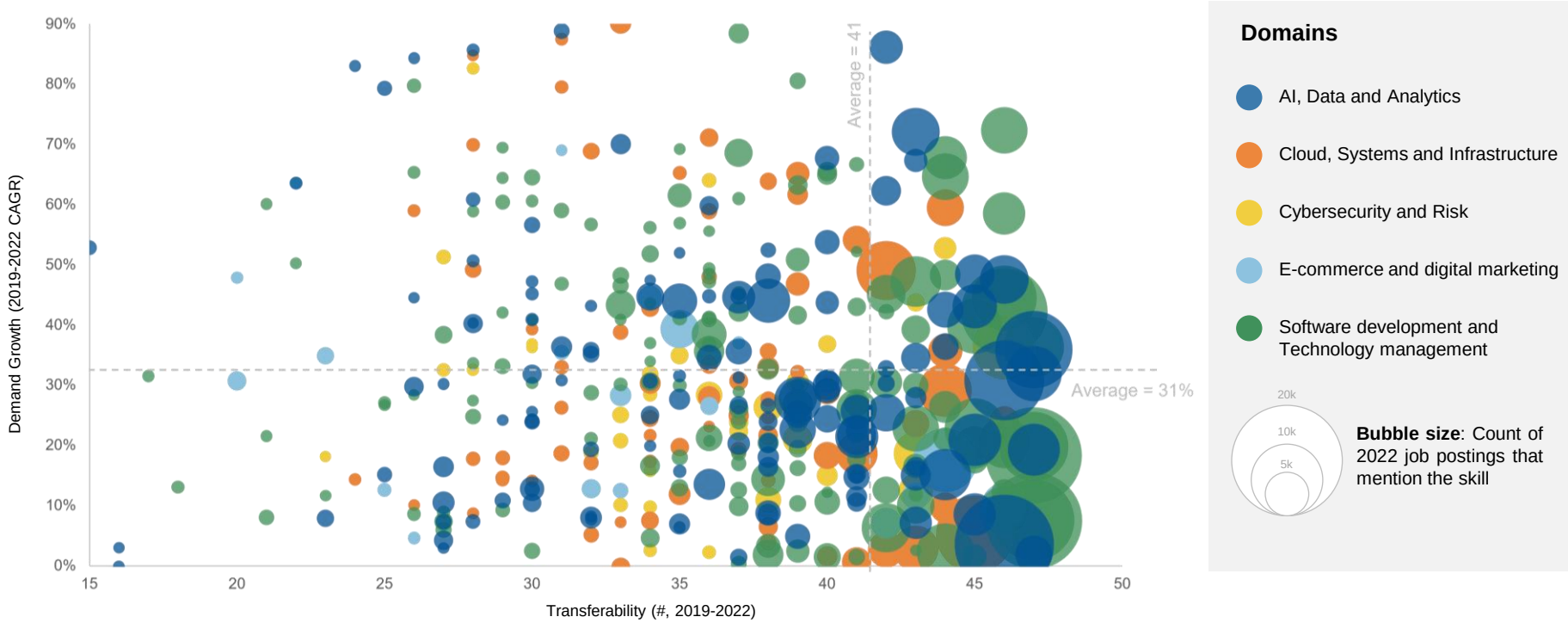
Cybersecurity and Risk
Includes the skills needed to guarantee the security of data and information systems from cyber attacks.

E-commerce and Digital Marketing
Includes the skills needed to understand the dynamics of online selling, content creation, and digital marketing strategies.

Software Development and Technology management
Includes the skills needed to design, build and manage application interfaces and technology solutions.

Main skills required for B.E.S.T. Jobs: distribution across domains

Demand Growth and Transferability of skills required for B.E.S.T. Jobs in Italy



Note 1: The global taxonomy of skills in the Lightcast database encompasses approximately 6,500 specific skills. For research relevance, however, only skills that found resonance in the Italian job market were considered. These are skills that were mentioned in job postings at least once both in 2019 and 2022. Additionally, all skills with demand growth <0 were excluded.
Note 2: For clarity, the chart does not show skills whose transferability is <15 and those whose bubble size is <325
Source: Accenture Research based on Lightcast database, 2019-2022

The chart shows the high number of skills needed for B.E.S.T. jobs, clearly demonstrating that the digital component is transversal to all market areas and in increasing demand.

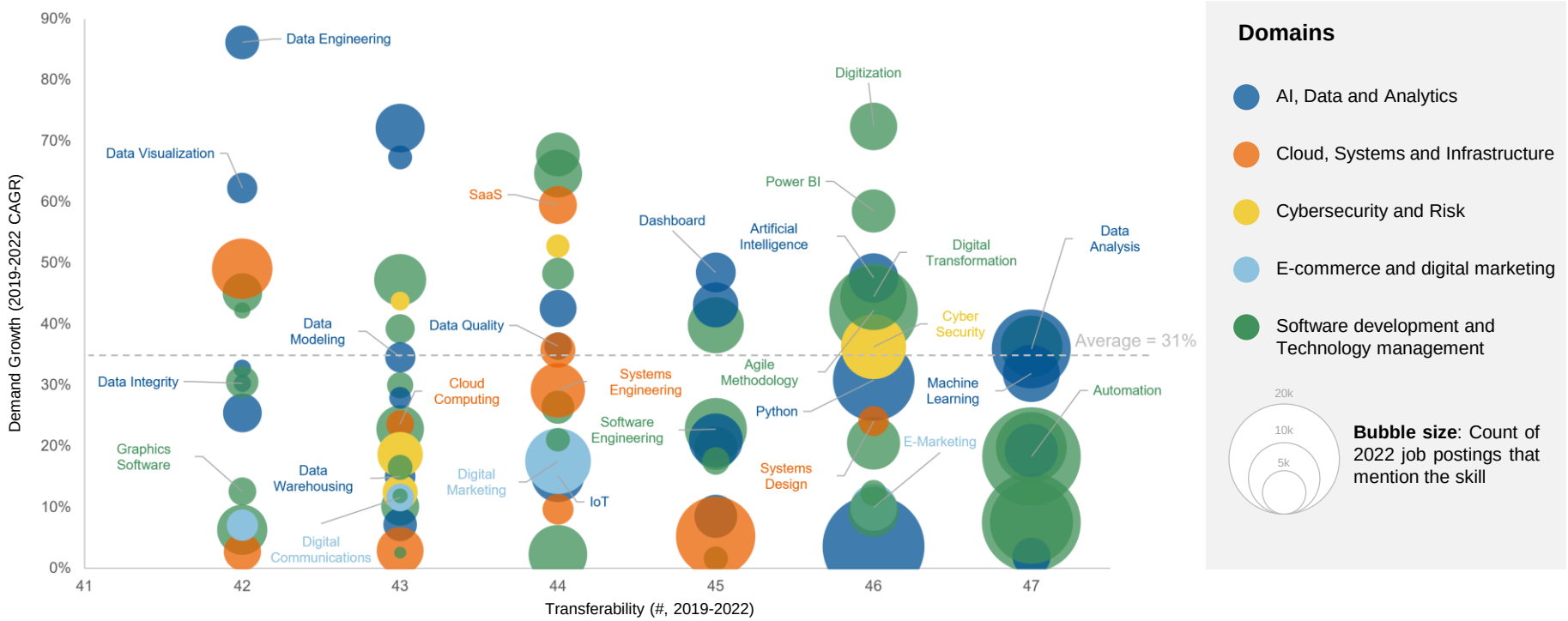
Skills belonging to the **Software development and Technology management** domain and the **AI, Data and Analytics** domain appear to be the most numerous: 156 and 131 respectively. In 2022, skills required for B.E.S.T. Jobs featured in 318,804 job postings in the former domain and in 250,937 in the latter.

It is also possible to observe that the **skills are largely concentrated** on the **right side of the chart**, especially those mentioned most frequently in job postings (represented by the biggest bubbles). Hence, it emerges as the **skills most in demand** are also **the most easily transferable**.

It follows a **specific analysis** of the right side of the chart: a focus on the skills with **above average rate of transferability** (41).

Focus on skills required by B.E.S.T. Jobs with above average transferability

Demand Growth and Transferability of B.E.S.T. skills in Italy



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Note 2: For clarity, the chart does not show skills whose transferability is <15 and those whose bubble size is <325
Source: Accenture Research based on Lightcast database, 2019-2022

Drilling down into the **Software development and Technology management** domain reveals more details regarding specific skills:

- **Digitization**, the knowledge of the process of transforming information or entire documents from the analogue environment to the digital. It is the skill with the highest demand growth (72%).
- **Power BI**, the knowledge of advanced business intelligence functionalities enabled by the Microsoft platform emerges as a highly transferable skill with above average demand growth (59%).
- **Automation**, the knowledge of the main programming languages and automation tools needed to design and build automation systems for equipment, plant or processes. This skill is characterized by a high level of transferability and appears in a very high number of job postings (22,918). Demand growth for this skill was below average in the timeframe analyzed, meaning that it remained constant over the years.

In the **AI, Data and Analytics** domain, there are two skills with a particularly high degree of transferability: **Data Analysis** – which involves the application of statistics or technical logic for the analysis and interpretation of data – was cited in 14,730 job postings in 2022; and **Machine Learning** – which encompasses skills in mathematics, statistics and programming needed for innovation, and in algorithms for adaptive systems – appeared in 7,635 job postings.

Although mentioned less often in job postings (2.722), **Data Engineering** – the capacity to gather, convert and validate data for analysis – emerged as the skill with the highest demand growth (86%) among all those required for B.E.S.T. Jobs in the timeframe considered.

Other skills that deserve attention are:

- **Software as a Service (SaaS)**, the capacity to manage end-to-end all aspects of the SaaS model. It was mentioned in only 3,379 job postings in 2022 but has demand growth well above average (59%).
- **Cybersecurity**, with above-average demand growth (36%), a high degree of transferability and a reasonable number of mentions in job postings (10,002).
- **Digital Marketing**, which, despite not showing a particular demand growth, has a discrete level of transferability and number of mentions in job postings (10,158).

Main skills required for B.E.S.T. Jobs: examples of professions

Domain	Skill	Demand Growth	Transferability	Examples of Professions[9]
AI, DATA AND ANALYTICS	Data Analysis	36%	47	Advertising and Marketing Professionals; Management and Organization Analysts; Financial Analysts
	Machine Learning	32%	47	Application Programmers; Translators, Interpreters and Other Linguists; Mathematicians, Actuaries and Statisticians
	Data Engineering	86%	42	Systems Analysts; Web and Multimedia Developers; Database Designers and Administrators
CLOUD, SYSTEMS AND INFRASTRUCTURE	SaaS	59%	44	Sales and Marketing Managers; Management and Organization Analysts; Web and Multimedia Developers
	Cloud Computing	24%	43	Computer Network and Systems Technicians; Database Designers and Administrators; Systems Administrators
	Systems Design	24%	46	Systems Analysts; Computer Network Professionals; Systems Administrators
CYBERSECURITY AND RISK	Cybersecurity	36%	46	Information and Communications Technology Services Managers; Web Technicians; Software Developers

[9] Defined based on ISCO classifications

Main skills required for B.E.S.T. Jobs: examples of professions

Domain	Skill	Demand Growth	Transferability	Examples of Professions[10]
E-COMMERCE AND DIGITAL MARKETING	Digital Marketing	18%	44	Advertising and Public Relations Managers; Information and Communications Technology Sales Professionals; Web and Multimedia Developers
	Digital Communications	12%	43	Advertising and Marketing Professionals; Sales and Marketing Managers; Graphic and Multimedia Designers
SOFTWARE DEVELOPMENT AND TECHNOLOGY MANAGEMENT	Automation	18%	47	Industrial and Production Engineers; Mechanical Engineering Technicians; Systems Analysts
	Digitization	72%	46	Software Developers; Web Technicians; Computer Network and Systems Technicians
	Power BI	59%	46	Management and Organization Analysts; Web and Multimedia Developers; Financial Analysts

[10] Defined based on ISCO classifications

What’s next?

The promise of Generative Artificial Intelligence

Generative Artificial Intelligence is the buzzword technology of the moment.
It brings the triple promise of **reinventing how we do business, how we work and how we live**.

The professions and skills within the three scope areas of this research – Green, Education & Health and Business, Engineering, Science & Technology – were identified based on an analysis of **job postings** in Italy as logged in the Lightcast database. The **emerging professions** linked to Generative Artificial Intelligence – for example, **Prompt Engineers** – and the skills they require did not feature to a relevant extent in the job postings in the Lightcast database and are therefore not discussed in this paper.

What's next?

AI-powered chatbots have already abundantly demonstrated to the world the **extraordinary potential** that Generative AI can deliver. This technology is headline news every day because it continues to **evolve at lightning speed**.

If evolution continues at this pace over the coming years, it is foreseeable that **professions** and **skills** will be more and more influenced by **Artificial Intelligence**, in a kind of "**prompt mindset**".
Professionals such as software developers will no longer be required to write long strings of code. Instead, they will be able enter relevant enquires in intelligent machine which will do the work for them, far faster.

Accenture estimates that in the next few years, Generative Artificial Intelligence **will support** or **enhance** up to **40% of all hours worked**[1].

If Italy accelerates its adoption of **AI**, **Cloud** and **Data** technologies, it will succeed in raising its rates of productivity[2], allowing the nation to **more rapidly address part of its unmet need** and be among the **leaders** in terms of **environmental sustainability**, **societal wellness** and **digitalization**.

This is a challenge that Italy can win.
To do so, the country will need to holistically **embrace** the accelerating wave of **technological transformations** and **upskill** and **reskill today's workforce to have the talents** for a fast-approaching tomorrow[3].

[1-2-3] Innovazione, sarà l'AI generativa il punto d'incontro tra fisico e digitale - CorCom (corrierecomunicazioni.it)

Methodology

Calculating the unmet need for Green, Education & Health and B.E.S.T. Jobs

	Baseline Employment	Needs Determination	Calculate Difference
Green Jobs	Apply a skills-based definition of **Green Jobs** (using Lightcast database of job postings and taxonomy of skills) and estimation of baseline green employment in Italy	Identification of **target ratio** of Green Jobs using the green employment levels in three benchmark Countries[1] to calculate the ratio of green employment per 1,000 employees in each industry	Calculate the current **ratio of green employment** per 1,000 employees in each industry in Italy and calculate the difference against the target ratio to inform the unmet need for Green Jobs
Education & Health	Obtain employment data in Italy and identify baseline employment for **Education & Health Jobs** across three foundational areas: education, healthcare, and care	Create **density ratios** by **Education & Health** occupation in benchmark Countries[2] based on populations being served (e.g., teachers per 1000 children or nurses per 1000 people)	Calculate unmet need by taking the **difference** between the relevant target ratio and the Italy specific density ratios of Education & Health Jobs
B.E.S.T. Jobs	Apply a skills-based definition of **B.E.S.T. Jobs** (using Lightcast database of job postings and taxonomy of skills) and estimation baseline B.E.S.T. employment in Italy	Identification of target ratio of B.E.S.T. Jobs using the B.E.S.T. **employment levels** in three benchmark Countries[3] to calculate the ratio of Business, Engineering, Science & Technology employment per 1,000 employees in each industry	Calculate the current ratio of B.E.S.T. employment per **1,000 employees** in each industry in Italy and calculate the difference against the target ratio to inform the unmet need for B.E.S.T. Jobs

In all **three areas**, **demographic forecasts** are used to estimate the value of the indices to **2030**

In addition, **employment constraints** were applied based on **forecasts of available workforce** to **fill the jobs needed**

[1] Analyzed countries' performance against CO2 emissions and selected **Denmark**, **Norway** and **Sweden** for benchmark Countries as they are the highest 3 ranked countries on the WEF Energy Transition Index
Source: Accenture Research on ISTAT

[2] Evaluated unmet need for Education & Health Jobs by selecting the Nordics (**Denmark**, **Sweden**, **Finland**, and **Norway**) as benchmark Countries as they ranked the highest in the WEF Global Social Mobility Index
Source: Accenture Research on ISTAT

[3] Evaluated unmet need for B.E.S.T. Jobs by selecting the Nordics (**Denmark**, **Sweden**, and **Finland**) as benchmark Countries as they ranked the highest in EU Digital Economy and Society Index. These countries are also among top 10 countries in the IMD World Digital Competitiveness Ranking: Denmark (1), Sweden (3), and Finland (7)
Source: Accenture Research on ISTAT

Green Jobs: details of Job Categories and Professions

Job Category	Job*
Agricultural, Forestry and Fishery Workers and Labourers	Forestry and related workers
	Crop farm labourers
	Livestock farm labourers
	Mixed crop and livestock farm labourers
	Garden and horticultural labourers
	Forestry labourers
	Fishery and aquaculture labourers
Environmental Building Frame and Related Trades Workers	Building frame and related trades workers not elsewhere classified
Environmental Government Regulatory Associate Professionals	Regulatory government associate professionals not elsewhere classified
Environmental Building Frame and Related Trades Workers	Environmental protection professionals
Environmental, Civil, and Chemical Engineers	Civil Engineers
	Environmental Engineers
	Chemical Engineers**
Forestry and Agricultural professionals and advisors, and Life Science Technicians	Farming, forestry and fisheries advisers
	Life science technicians (excluding medical)
Forestry and Agricultural professionals and advisors, and Life Science Technicians	Agricultural technicians
	Forestry technicians
Landscape architects	Landscape architects
Miners, Quarriers, and Mining Managers	Mining Managers
	Miners and quarriers
Physical and Earth Science Professionals	Physicists and astronomers**
	Meteorologists**
	Chemists
	Geologists and geophysicists**
Production Managers in Agriculture, Forestry and Fisheries	Agricultural and forestry production managers
	Aquaculture and fisheries production managers
Refuse Workers	Garbage and recycling collectors
	Refuse sorters
	Sweepers and related labourers
Town and Traffic Planners	Town and traffic planners

* Based on ISCO-08 classification
** Estimation for Green and B.E.S.T. are independent

Education & Health Jobs: details of Job Categories and Professions

Job Category	Job*
Childcare Worker And Early Childhood Teachers, Teachers Aids	Teachers' Aides
	Child Care Workers
	Early Childhood Educators
Medical and pharmaceutical technicians	Pharmaceutical Technicians and Assistants
	Medical Imaging and Therapeutic Equipment Technicians
	Medical and Pathology Laboratory Technicians
	Medical and Dental Prosthetic Technicians
Medical doctors	Generalist Medical Practitioners
	Specialist Medical Practitioners
Nursing and midwifery professionals and associates	Nursing Associate Professionals
	Midwifery Associate Professionals
	Nursing Professionals
	Midwifery Professionals
Other health professionals and associates	Medical Assistants
	Health Associate Professionals Not Elsewhere Classified
	Dental Assistants and Therapists
	Physiotherapy Technicians and Assistants
Other health professionals and associates	Community Health Workers
	Environmental and Occupational Health Inspectors and Associates
	Ambulance Workers
	Dispensing Opticians
	Medical Records and Health Information Technicians
	Pharmacists
	Physiotherapists
	Health Professionals Not Elsewhere Classified
	Dentists
	Audiologists and Speech Therapists
	Dieticians and Nutritionists
	Environmental and Occupational Health and Hygiene Professionals
	Optometrists and Ophthalmic Opticians
Other teaching professionals	Special Needs Teachers
	Teaching Professionals Not Elsewhere Classified
	Education Methods specialists
	Other Language Teachers
Other teaching professionals	Other Arts Teachers
	Other Music Teachers
	Information Technology Trainers
Personal care workers in health services	Home-based Personal Care Workers
	Personal Care Workers in Health Services Not Elsewhere Classified
	Health Care Assistants
Primary and secondary education teachers	Primary School Teachers & Secondary School Teachers
Professional services managers	Social Welfare Managers
	Education Managers
	Financial Analysts
	Child Care Services Managers
	Aged Care Services Managers
	Health Services Managers
Social Work and Counselling Professionals and associates	Social Work and Counselling Professionals
	Social Work Associate Professionals
	Psychologists
University and Higher Education Teachers	University and Higher Education Teachers
Vocational Education Teachers	Vocational Education Teachers

* Based on ISCO-08 classification

B.E.S.T. Jobs: details of Job Categories and Professions

Job Category	Job*
Information And Communications Technology Professionals And Technicians	Systems Analysts
	Software Developers
	Web and Multimedia Developers
	Applications Programmers
	Software and Applications Developers and Analysts Not Elsewhere Classified
	Database Designers and Administrators
	Systems Administrators
	Computer Network Professionals
	Database and Network Professionals Not Elsewhere Classified
	Information and Communications Technology User Support Technicians
	Computer Network and Systems Technicians
	Web Technicians
	Broadcasting and Audiovisual Technicians
Administrative And Commercial Managers	Sales and Marketing Managers
	Advertising and Public Relations Managers
	Research and Development Managers
Science And Engineering Associates And Professionals	Physicists and Astronomers**
	Mathematicians, Actuaries and Statisticians
	Biologists, Botanists, Zoologists and Related Professionals
	Industrial and Production Engineers
	Mechanical Engineers
	Chemical Engineers**
	Engineering Professionals Not Elsewhere Classified
	Electronics Engineers
	Building Architects
	Product and Garment Designers
	Cartographers and Surveyors
	Graphic and Multimedia Designers
	Telecommunications Engineers
	Mining and Metallurgical Technicians
	Meteorologists**
	Geologists and Geophysicists**
	Electrical Engineers
Science And Engineering Associates And Professionals	Civil Engineering Technicians
	Mechanical Engineering Technicians
	Chemical Engineering Technicians
	Physical and Engineering Science Technicians Not Elsewhere Classified
Production And Specialized Services Managers	Information and Communications Technology Services Managers
Business And Administration Associates And Professionals	Statistical, Mathematical and Related Associate Professionals
	Financial and Investment Advisers
	Financial Analysts
	Management and Organization Analysts
	Advertising and Marketing Professionals
	Information and Communications Technology Sales Professionals
	Web Technicians
Economic and Business Analysts	Translators, Interpreters and Other Linguists
	Economists
	Philosophers, Historians and Political Scientists
	Archivists and Curators

* Based on ISCO-08 classification
** Estimation for Green and B.E.S.T. are independent

Analysis of skills in Green, Education & Health and B.E.S.T. areas in 2019-2022 in Italy

1
Identification of the main skills

- Identification of the main skills required by the Italian job market for each area – Green, Education & Health and Business, Engineering, Science & Technology - using Lightcast database of job postings and taxonomy of skills

2
Identification of the domains into which to group skills

- Grouping of key identified skills within predefined domains[4], useful for representative and evidence analysis purposes

3
Estimation of the demand growth and transferability for each skill

- Calculation of the demand growth by using the data on number of Green, Education & Health and B.E.S.T. Jobs postings from Lightcast database to quantify annual compound growth rate from 2019 to 2022.
- Calculation of the number of professions mentioned in job postings in each area – Green, Education & Health, B.E.S.T. – for which, over the three-year period 2019-2022, a certain skill is required.

[4] The identification of domains for each area - Green, Education & Health, B.E.S.T. - is the result of an Accenture elaboration

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