GUIDANCE FOR PARENTS AND YOUNG PEOPLE

Careers and education pathways for the future

Germany 2026-2036 · Scenarios to 2040

Which work is likely to remain viable. How incomes could change. Which education opens new possibilities.

The central finding

Particularly promising education pathways combine sound domain knowledge with practical problem-solving, responsibility and competent use of AI. These combinations are often found in technical infrastructure, healthcare and demanding services. Personal fit remains crucial.

88 profiles. Different questions. One clearer perspective.

This report covers 88 selected occupational, activity and business profiles. It combines current pay guidance with qualitative assessments for 2026-2036 and scenarios to 2040. It is not a representative labour-market sample. Vulnerable routine tasks and entrepreneurial paths are shown separately.

An in-demand occupation may be moderately paid. A well-paid occupation may become harder to enter. Employment, income and education quality therefore need separate consideration.

Future Skills Institut

Literature-based guidance report · 4 October 2026 · Version 3.3

With FSI scenarios and occupational assessments.

This report supports decisions under uncertainty. It does not guarantee employment or income. Assessments may change when assumptions change. English edition of the German report; the geographic focus remains Germany.

01 FINDINGS

What families can take from the analysis

1. Real-world technology deserves particular attention

Electrical and energy engineering, building services, maintenance and the integration of automated systems combine physical installations with diagnosis, safety and responsibility. FSI considers these relatively durable fields. Construction cycles and investment risks remain.

2. Healthcare: lasting need, considered choice

Nursing, therapy and healthcare services benefit from long-term demand. Working hours, physical and emotional strain, and funding can constrain their appeal more than automation.

3. A degree remains valuable

A sound degree opens access to complex work and further transitions. Subject understanding, real projects and the ability to check AI outputs matter. A qualification alone, or a fashionable course title, provides no protection.

4. The first qualification is a foundation

Vocational training or university provides a foundation, not an entire career. Even promising occupations change; willingness to keep learning and transfer knowledge matters. Some people will work in roles partly or wholly unrelated to their initial training, by choice or because the labour market changes. Good pathways combine solid knowledge with opportunities to upskill and change direction.

5. Entry may become harder than the occupation itself

AI research, drafts and basic analysis could remove tasks through which beginners traditionally learned. Education providers must deliberately redesign learning pathways. This is a plausible concern, not a confirmed German employment forecast.

6. Treat routine profiles with caution

Pure data capture, standard transcription and basic document processing are risky as sole qualification goals. This does not mean that all bookkeeping, tax advice or legal-office work will disappear.

7. New pay offers may come under pressure

This may first affect new hires and job changes when less demand meets as many or more qualified applicants. FSI expects frequent, painful adjustments in affected submarkets. This is a qualitative expectation, not evidence of an economy-wide income decline.

FSI synthesis. Empirical starting points: pages 5, 11 and 12; references at the end.

01 THE MATRIX AT A GLANCE

88 occupational profiles at a glance

Read occupational fields A/B, routine tasks C and entrepreneurial paths separately. The numbers lead to the detailed profiles on pages 15-25.

Current pay band	A: Longer-term viability with adaptation	B: Demand and competition pressure
O: Above EUR 5,270	06 · 07 · 11 · 12 · 22 · 23 · 27 · 33 · 49 · 52 · 65	28 · 35 · 36 · 44 · 45 · 46 · 55 · 56 · 66 · 72
M: EUR 3,375-5,270	01 · 02 · 03 · 04 · 05 · 09 · 10 · 13 · 14 · 17 · 19 · 20 · 21 · 24 · 25 · 26 · 29 · 30 · 34 · 40 · 51 · 57 · 58	08 · 15 · 16 · 31 · 32 · 37 · 41 · 43 · 47 · 48 · 53 · 54 · 59 · 67 · 68 · 70 · 71
U: Below EUR 3,375	18 · 62 · 63 · 64	60 · 61
Salary open	39 · 73 · 74 · 78 · 79 · 80	38 · 42 · 50 · 69 · 75

Numbers refer to the register; there is no ranking within the cells. A and B are broad FSI assessments of expected dynamics in the reference scenario, not measured probabilities.

Separate task and business profiles

C: 81-88 are narrowly defined routine tasks at risk of contraction. They are not equivalent to entire occupational fields; a typical salary class remains open. Entrepreneurial paths: 76 (A · V) and 77 (B · V), with variable returns rather than employee earnings.

Pay bands describe current orientation, not a salary forecast. R = connection to a documented occupational pay value; S = FSI estimate. New roles with basis N are provisional directions to explore. The selection of 88 profiles does not represent employment shares.

02 READING GUIDE

How to read this report

Interest	Relevant section
Understand the overall direction quickly	Pages 2-3 and 13-14
Place an occupation in context	Pages 15-25: 88 numbered profiles
Compare vocational training and university	Pages 29-31: pathways and provider criteria
Examine the wage argument	Pages 10-12 and 26-27
Prepare a personal decision	Pages 32 and 34-35
Assess the strength of the analysis	Pages 6-9 and 37-41

Three different types of statement

A finding refers to published data or research results. A projection is a calculation under particular assumptions. An FSI assessment is our qualitative interpretation for career guidance. Entries in the occupational register belong to the third group; they are not official assessments by the institutions cited.

Who the statements concern

The focus is young people choosing an initial occupational qualification in Germany. Region, school qualifications, finances, health, interests and entry requirements change the specific options. International labour markets may differ substantially.

The classification mainly concerns employees with completed qualifications. Exceptional careers, business profits and exceptional talents may lie outside the stated salary class. Occupational titles are abbreviated and apply to all genders.

Ten years is a decision window

2036 is not an expiry date for occupations. The further the view extends to 2040, the more important alternative scenarios become. For children who are younger today, the ability to change direction later is therefore at least as important as the first specialisation. Schooling should open options rather than narrow them prematurely to a supposedly secure occupation.

03 RESEARCH BASE

Findings that support the guidance

Source and date	Finding	Meaning and limitation
BA shortage analysis 2025; published 2026 [01]	157 occupational categories have shortages. Nursing, health, construction and skilled trades remain important shortage fields. Software development is no longer among them in 2025.	Current scarcity differs by region and is not a ten-year guarantee.
ILO 2025 [04]	About one quarter of global employment is in occupations with some GenAI exposure; 3.3% is in the highest category.	Exposure measures affected tasks, not the probability of job loss.
QuBe, eighth wave [05]	Projection to 2040 for 141 occupational groups, starting from existing trends.	Useful reference for structural change, not a prediction of an AGI breakthrough.
IAB AI scenario 2025 [06]	After 15 years, total employment is similar to the reference scenario; around 1.6 million additional jobs are created or eliminated.	Gross movement, not a net loss of 1.6 million jobs. Results depend on model assumptions.
Destatis nursing projection [07]	Depending on the supply variant, a calculated gap of 280,000-690,000 nursing staff emerges for 2049.	Long-term signal of need; funding, conditions and technology affect realised demand.
OECD SME survey [08]	Among GenAI-using firms, 83% report unchanged staffing needs, 9% a decrease and 6% an increase.	Self-reports from seven countries, collected in 2024. No evidence of long-term causality.

These findings are consistent with a labour market experiencing both shortages and displacement. Workers, vacancies and skills are not freely interchangeable. A decline in an office occupation does not automatically fill a vacancy in building services.

OECD percentages are rounded and/or do not cover every response category. Sources [01], [04]-[08].

04 METHODOLOGY

How the occupations are classified

The classification is a qualitative FSI synthesis of literature and expected market dynamics. It estimates neither job-loss probabilities nor future salaries. Change pressure alone does not determine A or B: the decisive consideration is expected demand for human labour relative to suitable labour supply.

Question	What supports viability	What can create pressure
Will the service still be needed?	Essential services, repair, safety, personal support	Shrinking industry, cyclical dependence, interchangeable offering
How far can automation reach?	Changing real-world situations, difficult exceptions, physical intervention	Standard digital process with readily measurable outcomes
Does productivity generate more demand?	New applications or previously unmet needs	Saturated market; same service with fewer staff
Who carries responsibility?	Acceptance, liability, trust, coordination	Checking can be centralised cheaply
How easily can new suppliers enter?	Long learning period, knowledge of installations, local relationships	Brief induction, global digital competition
Does the occupation remain accessible?	Supervised practice, multiple settings, recognised qualification	Few junior posts, narrow tool specialisation

Decision rules

A: In the reference scenario, human work appears comparatively likely to remain in demand for longer. Development and productivity gains may nevertheless be essential. B: FSI expects a tighter relationship between demand and supply, for example when lower staffing needs meet as many or more suitable applicants. This can affect entry, job changes and new pay offers. C: Narrowly defined routine tasks with substantial contraction risk; not an assessment of entire occupations. Boundaries are fluid and regional differences possible.

Confidence in the classification

H indicates comparatively stronger reasoning, M mixed indications, and N new roles or particularly uncertain assumptions. This basis concerns the employment assessment, not salary data quality. Even A/H is no guarantee. With N, A or B indicates only a provisional direction; the size of the job market may remain unknown.

Application rule: A requires several demand arguments supporting expected staffing needs; B requires specific competition or demand risks. The register contains short rationales, not fully validated individual expert reports. Task change is possible in both groups.

04 PROCESS AND CONTRIBUTIONS

Connecting research and practical experience

Scientists and practitioners from different working environments help shape the Future Skills Institut's work. For this report, we distinguish three contributions: network experience, published data and studies, and future visions from books. Responsibility for the classifications presented here rests with the Future Skills Institut.

Advisory Board and international education practice

As a member of the Advisory Board and Academic Lead - Executive Education & International Practice, Prof. Dr. Marco Habermann contributes the perspective of professional education in the USA. He is O'Bleness Associate Professor of Management and Director, Executive Education at Ohio University. [27] His work on development programmes for young professionals and businesses is an important reference for the question of which learning pathways prepare people for changing tasks.

Future Skills Perspective Panel: 23 members

The panel brings together experience from different companies and industries. According to the Institute's current information, this includes perspectives from RobCo, Bosch, Syntegon, Sto, Mercedes, Infraserv, BASF and Deloitte, as well as skilled-trade businesses, including an electrician, a plumber and a construction worker. This diversity helps compare technical possibilities with the demands of actual working life.

Differences are especially valuable: a digital process in a large company needs different assessment from a repair in an occupied home. Training quality, customer expectations and the practical introduction of new technology become visible from different perspectives.

What these contributions can establish

According to the Institute, the panel has 23 members. There has been no standardised survey or joint assessment of all 88 profiles. Which individual comments changed which classifications is not documented here; panel size is therefore not evidence validating the matrix.

Company names refer to professional backgrounds, not commissioning or approval by those companies.

Panel and FSI roles: Institute information, October 2026. The book authors mentioned are conceptual reference points, not co-authors or reviewers of this report.

04 RESEARCH AND FUTURE VISIONS

Future visions that broaden the analysis

Data describe the observable labour market. Future visions help explore possible discontinuities. Both are useful for career guidance, provided their different evidential status remains clear.

Reference	Contribution to the question	Limit of transfer
Marcus Hutter: Job-Less Utopia [19]	Connects extensive automation, distribution of prosperity and a life with less paid work.	Strong AGI and robotics assumptions; not a robust German occupational forecast for 2036.
Daniel Susskind: A World Without Work [20]	Questions whether technological development always creates enough new human work; opens questions of distribution and meaning.	Long-term argumentative framework, not a calendar for occupations disappearing.
Sven Gábor Jánszky: 2035 Die Zukunft beginnt heute [21]	Vivid future scenarios connect technological developments with changes in everyday life.	Scenarios and dates require checking against primary data; they are not observed outcomes.
The Millennium Project: Future AI-AGI [22]	55 AI thinkers, 22 guiding questions and five scenarios connect technological development and governance.	Expert judgements and alternative futures, not a representative labour-market forecast.

Complementing this with current labour-market research

The World Economic Forum's Future of Jobs Report 2025 analyses expectations from more than 1,000 employers. It estimates 170 million jobs created and 92 million displaced worldwide by 2030. These figures cover multiple structural drivers: they must not be attributed solely to AI or transferred directly to Germany. [23]

Korinek and Suh examine different AGI transitions in an economic model. Wages depend, among other things, on the speed of automation and capital accumulation. This provides a theoretical basis for a scenario of declining labour income, but does not establish that it is inevitable. [26]

Future visions provide ideas, not empirical validation of the matrix. For Hutter, the foreword and central arguments were used; for the other books, the conceptual connections stated here. This does not imply the authors endorse FSI classifications.

04 CRITICAL SOURCE REVIEW

Why dates and assumptions need checking

A future scenario does not become robust merely because it is vivid. Decisions about multi-year education require understandable dates, reference groups and assumptions. Demographic change illustrates how easily different statements can be mixed together.

1964 was the peak of the baby boom

Destatis identifies 1964 as the largest baby-boomer birth cohort. The subsequent fall in births was not an abrupt transition from one large to one small generation. Demographic analyses also include later cohorts, for example through 1969, in the large baby-boomer generation. The German term “Pillenknick” also simplifies a change with several causes. [24, 28]

2031 concerns one cohort, not the whole generation

Under current law, the standard retirement age for the 1964 cohort is 67, reached in 2031. This does not mean everyone in that cohort stops working by then: pension commencement and actual labour-market exit may be earlier or later. Nor will all subsequent large cohorts have reached standard retirement age. [25]

Career guidance must therefore consider the entire succession of large cohorts. A statement about retirement by the mid-2030s can be correct even though the largest individual cohort reaches standard retirement age in 2031. Future-oriented books are consequently checked for their particular reference group and assumptions. A year alone is neither evidence of labour scarcity nor sufficient to refute a scenario.

How different contributions are classified

Analytical step	Purpose
Clarify concepts and period	Distinguish Germany, employment prospects, task profile and salary reference
Differentiate source types	Label official data, model calculations, employer expectations, practical contributions and future visions
Compare mechanisms	Weigh demand, automation, responsibility and potential adjacent fields for each profile
Make uncertainty visible	Classify new roles more cautiously and keep alternative scenarios open

This process describes the report's analytical logic. No formal Delphi process, standardised panel vote or scientific peer review was conducted.

05 SCENARIOS

Three possible labour markets to 2040

Scenario	Assumptions	Consequences for work and income
S1: Gradual restructuring. Matrix reference.	AI is widely used but still depends on integration, oversight and organisational change. Robotics spreads unevenly.	Occupations change. Physical infrastructure and personal services remain in demand. Routine tasks shrink; new tasks emerge.
S2: Accelerated substitution. Stress scenario.	AI agents increasingly handle entire workflows reliably and cheaply. New demand and retraining fail to keep pace.	Stronger entry and wage pressure in digital occupations. Some narrow routine profiles could shrink to residual employment. Skilled trades may benefit with a delay.
S3: Productivity and new demand. Opportunity scenario.	Cheaper services create additional demand. New products, investment and working-time models distribute some of the gains.	More output per working hour; employment and real incomes may remain stable or rise. Distribution remains contested politically and within organisations.

What this means for education choices

Technical infrastructure: operation and maintenance support S1; standardised planning and maintenance components may shrink in S2. A would weaken if investment failed to materialise or fewer staff provided the same service. Healthcare: personal care remains relevant in S1 and S2; funded posts and working conditions constrain access. Both fields may benefit from additional demand in S3.

Digital skilled work: in S2, smaller teams and more competition intensify B risk. In S3, additional demand may outweigh productivity effects. The IAB AI scenario even expects additional labour demand among IT and information-service providers [06]. This argues against a blanket downgrading of digital occupations, but guarantees nothing for individual entry profiles.

Time horizon

No occurrence probabilities are assigned to these scenarios. For 2026-2036, staffing needs, applicant supply and new wage offers should be monitored together. The view to 2040 tests possible further discontinuities. These examples are qualitative stress tests, not separate calculations for all 88 profiles.

06 PAY

What above-average means in this report

The salary reference is median gross monthly pay for full-time employees subject to social-insurance contributions: EUR 4,217 in 2025 [02]. Classes refer to this data vintage, not nominal salaries in 2036. Future purchasing power and relative pay positions may develop differently.

Class	Gross monthly guidance	Meaning
O: Above	More than approximately EUR 5,270	More than 125% of the reference median
M: Middle band	Approximately EUR 3,375-5,270	80-125% of the reference median
U: Below	Less than approximately EUR 3,375	Less than 80% of the reference median

The boundaries of 80% and 125% are editorially selected guidance bands. They are not empirically established thresholds for good or poor pay. The middle band includes salaries below the reference median.

Measurable today, uncertain tomorrow

R = reference connection: the profile is approximated to one of the five occupational pay anchors on page 12; official occupational category and profile are not identical. S = estimate: qualitative FSI classification without a dedicated occupational measurement presented here. Open = no sufficiently robust class. The register shows evidence status directly beside the pay class, for example M · R or O · S.

Classes concern qualified employment, mostly beyond the entry phase. O does not mean that salary is attainable on entry or with every employer. For new and particularly varied roles, the class remains open. V indicates business returns outside the salary bands; turnover is not employee pay.

Why median and mean are different

Destatis reports a 2025 annual median of EUR 54,066 and arithmetic mean of EUR 64,441 for full-time employees, including special payments. High incomes pull the mean upwards. The annual Destatis survey and the monthly BA reference-date measure have different coverage; their values cannot be directly converted into one another. [03]

Salary classes provide relative orientation, not a cost-of-living calculation. Part-time work, unpaid care work and household assets are not represented. German codes O/M/U are retained for compatibility with the original matrix.

07 PAY ANCHORS

What selected measured salaries show

Measured occupation or reference	Median gross monthly pay, 2025	Class
All full-time employees subject to social insurance [02]	EUR 4,217	M
Plumbing, heating and air-conditioning systems [10]	EUR 3,884	M
Roofing, skilled-worker level [11]	EUR 3,783	M
Legal and notarial assistance, skilled-worker level [12]	EUR 3,472	M
Software development, highly complex activities [13]	EUR 6,301	O
Physiotherapy, complex specialist activities [14]	EUR 3,452	M

Germany; Entgeltatlas 2025. Occupational categories are broader than individual job profiles. Accessed 3 October 2026. Values are neither entry salaries nor forecasts. [09]-[14]

Good prospects do not automatically mean high pay

Both skilled-trade examples fall within the broad middle band and below the overall median. A future scarcity premium would therefore be a change from today's starting point. A high invoice from a trade business is also not equivalent to the net wage of the worker carrying out the job.

High current pay does not automatically mean easy entry

Software development shows the reverse combination: high pay for demanding tasks alongside a labour market that may change. Established specialists' salaries say little about how many junior posts will be available in three or six years.

What to check before an individual decision

For a specific location, the current Entgeltatlas, actual collectively agreed and advertised pay, and conversations with several employers are more informative than a single national figure. Education comparisons should also include pay during training, time to occupational entry, study costs and achievable weekly working hours.

The five occupational reference values and overall median must be distinguished from the other FSI estimates. Before an individual decision, recheck data vintage, region, requirement level and current offers. R does not claim an exact match between official occupational category and profile.

08 OCCUPATIONAL MATRIX

Considering employment and pay together

Pay level	A: Longer-term viability with adaptation	B: Demand and competition pressure
O: Above	Energy engineering; robotics integration; medicine; IT security	Software development; controlling; complex legal advice; management consulting
M: Middle band	Plumbing/heating and roofing; nursing; IT systems integration; social work	Tax clerks; legal assistance; marketing; professional road transport
U: Below	Care assistance; hairdressing; building cleaning; kitchen work	General retail; warehouse logistics

A and B describe expected market dynamics

A: Human work is likely to remain needed for comparatively longer. Continued learning, new tasks and productivity gains may be essential. B: Lower staff demand may meet an equally large or growing suitable supply. Competition, entry barriers and pressure on new pay offers then intensify. Task change alone does not lead to B; A occupations also change substantially.

C separately covers eight narrowly defined routine tasks with substantial contraction risk, not entire training occupations. Their salaries remain open. Current pay bands are assigned to 67 of the 88 profiles; 19 remain open and two entrepreneurial paths carry V. This selection is not a representative labour-market sample.

Qualitätive FSI assessment for S1. Pay: reference connection R or estimate S; see register and page 11. A/B/C are neither employment guarantees nor statistical probabilities of job loss. With basis N, the direction is particularly provisional.

09 FIELDS TO EXPLORE

Ten fields for individual consideration

These fields are not a ranking. In FSI's view, they combine demand arguments, transferable foundations and progression options. Their order is organisational. Personal fit, regional job markets, working conditions and education quality determine where a family begins.

No. and field / suitable foundation	Important qualification
1. Electrical and energy engineering: vocational training, dual or conventional degree	Mathematical/technical fit and care
2. Building services with diagnostics: plumbing/heating, refrigeration, building automation	Physical demands, regional market
3. Maintenance and automation: mechatronics, plant engineering, PLCs	Industrial cycle, shifts and travel
4. Health and care: nursing, therapy, medicine	Strain, training duration and funding
5. IT systems and security: IT vocational training or computer science with operational practice	Continuous learning and demanding entry
6. Infrastructure and water: environmental technology, civil engineering, utilities	Dependence on investment and budgets
7. Social work and technical education: qualifying social or teaching pathways	Public funding and regional variation
8. Technical sales and service: technical foundation plus customer skills	Sales pressure and accountability for results
9. Digital professions with domain knowledge: software, data, commercial systems	Avoid narrow concentration on routine output
10. Robotics and care tech as advanced specialisms: established occupation plus specialisation	New roles with uncertain numbers of jobs

Technical, social, scientific and creative strengths lead to different starting points. A supposedly secure but unsuitable choice may lead to dropout. What matters is combining personal aptitude, attainable opportunities and a workable everyday life.

10 OCCUPATIONAL REGISTER 1 OF 11

Buildings and energy

Maintenance, diagnosis and connecting multiple technical systems take priority. New construction alone is more cyclical than a broad service business.

No. and profile	Matrix	Education pathway and rationale
01 Plumbing, heating and air-conditioning systems	A · M · R; basis H	German dual vocational training; later a master craftsperson qualification or technical college. Existing systems need installation and servicing. Subsidy policy and local competition affect orders.
02 Electrical systems for energy and buildings	A · M · S; basis H	German dual vocational training; add networking and energy storage skills. Physical installation and fault-finding remain central. Standard installation is more price-driven.
03 Refrigeration mechatronics	A · M · S; basis H	German dual vocational training; deepen systems control knowledge. Cooling, maintenance and safe commissioning combine specialist knowledge with on-site work.
04 Roofing	A · M · R; basis M	German dual vocational training; refurbishment and solar integration. Differences between buildings make full automation difficult. Weather, health and construction cycles impose limits.
05 Structural carpentry	A · M · S; basis M	German dual vocational training; digital planning and existing buildings. Refurbishment offers opportunities; prefabrication changes workflows. New construction remains dependent on investment.
06 Building automation and control engineering	A · O · S; basis M	Electrical vocational training plus further training or a degree. System integration and optimisation create value. The upper pay band requires advanced specialisation.
07 Electrical power engineering	A · O · S; basis M	Electrical engineering degree with practical plant experience. Grids, protection systems and operations require systems understanding. Investment delays remain possible.
08 Energy consultancy with implementation expertise	B · M · S; basis M	A technical foundation plus further training. Advice becomes more readily available digitally. Combining it with planning and implementation is more resilient.

A: longer-term viability with adaptation. B: demand and competition pressure. C: narrow routine tasks. Pay O/M/U: page 11. R: reference connection; S: FSI estimate; open: no class. Basis H/M/N concerns employment assessment only. Education pathways and access require individual checking.

10 OCCUPATIONAL REGISTER 2 OF 11

Industry and technical integration

Robots need more than programming: they need safe integration into installations, processes and teams. Demand also depends on the industrial location.

No. and profile	Matrix	Education pathway and rationale
09 Industrial electrical engineering	A · M · S; basis H	German dual vocational training; control and safety systems. Keeping physical plants operational supports demand. Factory closures create location-specific risks.
10 Mechatronics in industrial maintenance	A · M · S; basis H	German dual vocational training; diagnosis across several types of plant. Unplanned faults are difficult to standardise fully. Predictive maintenance changes tasks.
11 Automation and PLC engineering	A · O · S; basis M	Vocational training plus a technician qualification or a suitable degree. Commissioning and responsibility for processes are valuable. Purely standard programming faces greater pressure.
12 Robotics integration	A · O · S; basis M	Mechatronics or electrical engineering plus integration experience. Customer processes, safety and hardware must work together. An emerging role with inconsistent job titles.
13 Wind turbine service engineering	A · M · S; basis M	Technical vocational training plus industry-specific experience. Operation and repair require physical presence. Travel and work at height must suit the individual.
14 Medical equipment servicing	A · M · S; basis M	Technical vocational training or a medical engineering degree. Working equipment and reliable operation remain important. Dependence on manufacturers can limit options.
15 Machining	B · M · S; basis M	German dual vocational training; machine setup and process optimisation. Standard manufacturing continues to automate. Complex one-off parts and responsibility for equipment are more resilient.
16 Industrial assembly of standardised products	B · M · S; basis M	Metalworking or electrical training rather than narrow on-the-job instruction. Robotics, relocation and demand determine employment. Broad technical qualifications make transitions easier.

A: longer-term viability with adaptation. B: demand and competition pressure. C: narrow routine tasks. Pay O/M/U: page 11. R: reference connection; S: FSI estimate; open: no class. Basis H/M/N concerns employment assessment only. Education pathways and access require individual checking.

10 OCCUPATIONAL REGISTER 3 OF 11

Health and personal care

Need is not the same as a funded post. Working conditions, regional provision and sustainable personal resilience belong in the decision.

No. and profile	Matrix	Education pathway and rationale
17 Registered nursing	A · M · S; basis H	Qualifying nursing vocational training or a nursing degree. Personal care and clinical assessment remain central. Shift work and workload matter.
18 Nursing assistance	A · U · S; basis M	An officially recognised qualifying programme. High demand for personal care; narrower qualifications can limit pay and progression. Some collective agreements place pay in the middle band.
19 Physiotherapy	A · M · R; basis M	A professionally qualifying vocational programme or degree. Individual treatment and relationships remain important. Pay and self-employment conditions vary widely.
20 Occupational therapy	A · M · S; basis M	A professionally qualifying vocational programme or degree. Therapy for everyday activities in changing situations supports demand. Funding limits earning potential.
21 Speech and language therapy	A · M · S; basis M	A professionally qualifying vocational programme or degree. Relationships and individual assessment complement digital exercises. Local care structures matter.
22 Medicine: primary care	A · O · S; basis H	Medical degree and postgraduate clinical training. Diagnosis receives technical support; responsibility and care remain. Training is lengthy and workloads are high.
23 Psychotherapy	A · O · S; basis M	A qualifying degree and postgraduate training pathway. Trust and complex cases support continuity. Access, funded places and payment models impose limits.
24 Medical practice assistance	A · M · S; basis M	German dual vocational training; practice organisation and patient work. Patient-facing tasks support demand. Routine appointments and documentation become easier to automate; some local pay falls in the lower band.

A: longer-term viability with adaptation. B: demand and competition pressure. C: narrow routine tasks. Pay O/M/U: page 11. R: reference connection; S: FSI estimate; open: no class. Basis H/M/N concerns employment assessment only. Education pathways and access require individual checking.

10 OCCUPATIONAL REGISTER 4 OF 11

Education and social services

Relationship-based work appears comparatively durable. Public funding and regional age structures can nevertheless change the number of posts.

No. and profile	Matrix	Education pathway and rationale
25 Early childhood education and care	A · M · S; basis M	A training pathway recognised under German state law. Relationships and supervision are central. Falling child numbers may reduce regional demand.
26 Social work	A · M · S; basis H	A relevant degree with extensive casework experience. Complex life circumstances require relationships and coordination. Local government budgets impose limits.
27 Teaching technical subjects at vocational schools	A · O · S; basis M	A suitable teacher-training or other recognised entry pathway. Subject expertise and teaching skills connect education with practice. Demand varies by state and subject.
28 Teaching at general schools	B · O · S; basis M	Teacher-training degree and professional practical qualification. Human support for learning remains important. Subject, school type and region prevent blanket claims of shortages.
29 Disability support and care	A · M · S; basis M	Recognised vocational training with practical components. Individual support is difficult to standardise. Staffing ratios and workload are decisive.
30 Workplace training in technical occupations	A · M · S; basis M	Specialist vocational training plus a teaching qualification. Passing on experience and practising safely become more important. Simple content delivery is easier to automate.
31 Learning and development and training	B · M · S; basis M	A relevant degree or professional experience plus teaching skills. Standard courses become cheaper. Demand remains for transfer, assessment and organisational change.
32 General coaching without specialisation	B · M · S; basis N	A sound specialist foundation and demonstrable advisory quality. Low entry barriers and AI services increase competition. Earnings fluctuate strongly, often also falling in the lower band.

A: longer-term viability with adaptation. B: demand and competition pressure. C: narrow routine tasks. Pay O/M/U: page 11. R: reference connection; S: FSI estimate; open: no class. Basis H/M/N concerns employment assessment only. Education pathways and access require individual checking.

10 OCCUPATIONAL REGISTER 5 OF 11

Digital systems and AI

Digital skills remain important. Profiles combining systems responsibility and a specialist domain are attractive; pure production of standard digital outputs faces greater pressure.

No. and profile	Matrix	Education pathway and rationale
33 IT security with operational responsibility	A · O · S; basis M	Computer science or IT vocational training plus security experience. Attacks, errors and complex systems generate demand. AI simultaneously automates many checks.
34 IT systems integration	A · M · S; basis M	German dual vocational training; networks and cloud operations. Organisational integration and troubleshooting support demand. Standard administration becomes easier to automate.
35 Data engineering and data platforms	B · O · S; basis M	Computer science or a related degree plus operational experience. Reliable data remain necessary. Tools reduce effort per task; increased demand is not guaranteed.
36 Software development with systems responsibility	B · O · R; basis M	Computer science or IT vocational training plus complex projects. Architecture, integration and quality matter. Productivity gains may increase demand or reduce jobs.
37 Junior software development for standard applications	B · M · S; basis M	Sound IT qualifications with supervised projects. Simple implementation is exposed to AI. Entry is more promising with testing, domain knowledge and real responsibility.
38 AI engineering and model integration	B · open; basis N	Computer science, mathematics or a specialist degree with AI experience. Currently receiving strong attention; standard platforms may rapidly consolidate specialist tasks.
39 AI governance and technical auditing	A · open; basis N	A technical or legal foundation plus audit experience. Traceability and accountability create tasks. The number of standalone positions is uncertain.
40 Data centre operations and infrastructure	A · M · S; basis M	Electrical, IT or refrigeration engineering with operational experience. Power, cooling and availability connect physical and digital systems; opportunities depend on location.

A: longer-term viability with adaptation. B: demand and competition pressure. C: narrow routine tasks. Pay O/M/U: page 11. R: reference connection; S: FSI estimate; open: no class. Basis H/M/N concerns employment assessment only. Education pathways and access require individual checking.

10 OCCUPATIONAL REGISTER 6 OF 11

Commercial and legal work

There is wide variation within these occupations. Standard processing and responsible casework should be assessed separately.

No. and profile	Matrix	Education pathway and rationale
41 Tax assistance	B · M · S; basis M	German dual vocational training with client advice and digital processes. Documents are automated. Special cases, client contact and involvement in financial statements improve resilience.
42 Financial accounting and closing	B · open; basis M	Commercial vocational training plus an advanced professional qualification. Responsibility for financial statements is more resilient than transaction volume. Pay depends strongly on role and employer; no clear single band.
43 Legal assistance	B · M · R; basis M	German dual vocational training with deadline management and client experience. Standard correspondence is exposed. Deadlines, difficult cases and reliable coordination remain important.
44 Tax advice	B · O · S; basis M	An authorised qualification pathway with professional experience. Responsibility and complex structuring support demand. Standard advice and preparatory work are increasingly automated.
45 Legal practice for complex matters	B · O · S; basis M	Legal qualifications and practical specialisation. Negotiation and responsibility are less easy to standardise. Research and drafting become cheaper.
46 Management accounting and business partnering	B · O · S; basis M	Business degree or advanced professional pathway. Supporting decisions is more resilient than producing reports. Smaller teams remain possible.
47 HR administration and recruitment	B · M · S; basis M	Commercial vocational training or a relevant degree. Administrative procedures automate; conflict resolution and demanding selection processes remain differentiators.
48 Banking and insurance advice for standard customers	B · M · S; basis M	German dual vocational training with risk and advisory skills. Digital self-service and centralised advice change branch networks. Specialist cases create options.

A: longer-term viability with adaptation. B: demand and competition pressure. C: narrow routine tasks. Pay O/M/U: page 11. R: reference connection; S: FSI estimate; open: no class. Basis H/M/N concerns employment assessment only. Education pathways and access require individual checking.

10 OCCUPATIONAL REGISTER 7 OF 11

Planning, science and public functions

High qualifications do not protect against change. Professional judgement becomes particularly valuable when decisions have practical consequences.

No. and profile	Matrix	Education pathway and rationale
49 Civil engineering for infrastructure	A · O · S; basis M	Civil engineering degree with construction-site experience. Maintaining and adapting physical infrastructure supports demand. Planning becomes more efficient; budgets and approvals constrain activity.
50 Architecture: general building design	B · open; basis M	Architecture degree with implementation and existing-building experience. Design partly automates. On-site responsibility helps. Pay varies widely; no reliable single band.
51 Surveying	A · M · S; basis M	German dual vocational training; geospatial data and fieldwork. Physical surveying and verification remain necessary. Automatic capture changes the task mix.
52 Environmental engineering and water management	A · O · S; basis M	Engineering degree or advanced technical pathway. Operations, adaptation and infrastructure combine several demand drivers. Public investment matters.
53 Public administration: complex casework	B · M · S; basis M	Public administration vocational training or a corresponding degree. Routine procedures automate. Discretionary cases, public contact and implementation remain demanding.
54 Scientific laboratory work	B · M · S; basis M	Laboratory vocational training or scientific qualifications. Standardised experiments automate; practical fault analysis and quality remain important.
55 Applied research and development	B · O · S; basis M	A relevant degree with experimental project work. AI accelerates research and simulation. Funding, industry and real-world testing determine opportunities.
56 Management consulting: general analysis	B · O · S; basis M	A sound degree with industry and implementation experience. Standard analysis and presentations become cheaper. Implementation responsibility offers stronger differentiation.

A: longer-term viability with adaptation. B: demand and competition pressure. C: narrow routine tasks. Pay O/M/U: page 11. R: reference connection; S: FSI estimate; open: no class. Basis H/M/N concerns employment assessment only. Education pathways and access require individual checking.

10 OCCUPATIONAL REGISTER 8 OF 11

Mobility, utilities and everyday services

Low GenAI exposure alone does not make an occupation attractive. Robotics, working conditions and customers' willingness to pay also matter.

No. and profile	Matrix	Education pathway and rationale
57 Water supply and wastewater operations	A · M · S; basis H	Relevant environmental technology vocational training. Essential services and troubleshooting support demand. Plant automation changes staffing structures.
58 Railway operations and maintenance	A · M · S; basis M	Relevant railway or technical vocational training. Infrastructure and safety require skilled staff. Operational policy and automation affect roles differently.
59 Professional road freight transport	B · M · S; basis M	Qualifying vocational training in transport. Current demand may coincide with future autonomous driving. The transition varies by route.
60 Warehouse logistics	B · U · S; basis M	Vocational training with process and systems competence. Standard picking can be robotised. Equipment coordination and exception handling offer progression towards the middle pay band.
61 Retail: general sales	B · U · S; basis M	Vocational training with advisory and inventory-management skills. Online retail and self-service put pressure on standard sales. Specialist advice can stand out.
62 Cooking and hospitality	A · U · S; basis M	Chef training or a related vocational programme. Diverse physical work remains. Costs, working hours and closures limit security; top roles pay more.
63 Hairdressing	A · U · S; basis M	German dual vocational training; advice and entrepreneurship. Local personal services are resilient. Limited willingness to pay often keeps earnings low.
64 Building cleaning across changing sites	A · U · S; basis M	Vocational training or qualified practical experience. Unstructured tasks remain; floor-cleaning robots replace some tasks. Price competition remains strong.

A: longer-term viability with adaptation. B: demand and competition pressure. C: narrow routine tasks. Pay O/M/U: page 11. R: reference connection; S: FSI estimate; open: no class. Basis H/M/N concerns employment assessment only. Education pathways and access require individual checking.

10 OCCUPATIONAL REGISTER 9 OF 11

Communication, design and markets

Creativity remains important, but the costs of standard digital production are falling. Demand for original work does not guarantee enough paid posts.

No. and profile	Matrix	Education pathway and rationale
65 Technical B2B sales	A · O · S; basis M	A technical or commercial foundation plus specialist experience. Complex solutions and negotiations support demand. The upper band requires complex products and responsibility.
66 Strategic procurement	B · O · S; basis M	Business or technical qualifications. Supplier risks and negotiation remain important. Standard purchasing automates.
67 Journalism and editing	B · M · S; basis M	Sound subject knowledge plus reporting experience. Original reporting is more resilient than rewriting. Revenue models can reduce employment independently of AI.
68 Graphic and communication design	B · M · S; basis M	Design qualifications with real clients. Standard drafts become cheaper. Concept, brand and team implementation differentiate practitioners.
69 UX and service design	B · open; basis M	Design, psychology or computer science plus research experience. Understanding users and product outcomes matter. Routine layouts automate; job scopes and pay are inconsistent.
70 Translation and interpreting in complex contexts	B · M · S; basis M	Language qualifications plus subject specialisation. Negotiation, sensitive content and responsibility for consequences are more resilient than standard translation.
71 Marketing and campaign management	B · M · S; basis M	A business or communications foundation plus experimentation. Content production automates. Market understanding, impact measurement and budget responsibility help.
72 Project management for complex implementation	B · O · S; basis M	Specialist qualifications plus demonstrated delivery. Conflicts and dependencies remain. Pure status reporting is not a resilient specialism.

A: longer-term viability with adaptation. B: demand and competition pressure. C: narrow routine tasks. Pay O/M/U: page 11. R: reference connection; S: FSI estimate; open: no class. Basis H/M/N concerns employment assessment only. Education pathways and access require individual checking.

10 OCCUPATIONAL REGISTER 10 OF 11

New roles and entrepreneurial paths

These profiles are directions to explore, not established large occupational markets. The best entry usually involves an established occupation followed by specialisation.

No. and profile	Matrix	Education pathway and rationale
73 Care technology and assistive robotics integration	A · open; basis N	Technical or healthcare qualifications plus experience bridging both areas. Technology must work in everyday care. Procurement and funding limit the market.
74 Robot fleet operations and service coordination	A · open; basis N	Mechatronics, IT or logistics with equipment experience. Maintenance and incidents create tasks. The number and scope of standalone positions remain open.
75 AI process integration in small and medium-sized businesses	B · open; basis N	Domain expertise plus IT and change experience. Value emerges within processes. Standard tools and consulting competition can quickly squeeze margins.
76 Business succession in technical trades	A · V; basis N	Specialist vocational training, a master craftsperson pathway and commercial experience. An existing customer base can ease entry. Business profit depends on purchase price, utilisation and operating costs.
77 Solo entrepreneur providing AI services	B · V; basis N	Sound specialist expertise plus paid pilot projects. AI lowers costs and entry barriers simultaneously. A reliable basis for typical entrepreneurial earnings is lacking.
78 Operation of local energy and storage systems	A · open; basis N	Electrical or energy engineering with operational experience. Decentralised systems need support. Standalone jobs depend on scale and business model.
79 Technical accessibility and assistive systems	A · open; basis N	IT, design or social technology with user experience. Implementation and testing connect technology with real needs. Market size and willingness to pay remain open.
80 Industrial circular economy and repair planning	A · open; basis N	Technical vocational training or a degree plus materials experience. Reuse requires diagnosis and organisation. Economics relative to new parts are decisive.

A: longer-term viability with adaptation. B: demand and competition pressure. C: narrow routine tasks. Pay O/M/U: page 11. R: reference connection; S: FSI estimate; open: no class. Basis H/M/N concerns employment assessment only. Education pathways and access require individual checking.

V denotes variable returns outside the salary matrix for the two entrepreneurial profiles. A separate viability calculation is needed before a decision.

10 OCCUPATIONAL REGISTER 11 OF 11

Narrowly defined routine profiles

C denotes substantial contraction risks. Minimal residual employment is plausible only in the accelerated scenario, not an established situation for 2036. These are activity profiles, not entire vocational occupations.

No. and profile	Matrix	Education pathway and rationale
81 Purely manual data entry	C · open; basis M	Not recommended as a sole qualification objective. Structured input is easy to digitise. Exceptions and data quality remain as different tasks.
82 Routine account coding without financial closing	C · open; basis M	Extend a commercial foundation with financial closing and systems skills. Standard documents offer substantial automation potential. This is not equated with the whole accounting profession.
83 Standard transcription without specialist review	C · open; basis M	Add domain knowledge and quality assurance. Automatic speech recognition reduces routine demand. Difficult recordings and sensitive contexts remain.
84 Standard translation of simple everyday texts	C · open; basis M	Add specialist and contextual responsibility to language skills. Machine translation increases price pressure. No typical employee salary is asserted for this narrowly defined service.
85 Scripted first-level text support	C · open; basis M	Extend customer service with technical and escalation skills. Frequent standard enquiries suit automated systems. Difficult cases require different skills.
86 Routine production of product descriptions	C · open; basis M	Marketing or editing with specialist and market knowledge. Variants and descriptions are easy to scale. Independent research is a different profile.
87 Template-based legal office correspondence only	C · open; basis M	Broad legal office training with casework and client contact. Standard drafts are highly exposed. Legal assistants as a whole remain in category B.
88 Pure transfer of data into standard reports	C · open; basis M	Add analytical understanding and decision support. Automatic interfaces and AI reduce manual preparation. Judgement and responsibility remain distinct tasks.

A: longer-term viability with adaptation. B: demand and competition pressure. C: narrow routine tasks. Pay O/M/U: page 11. R: reference connection; S: FSI estimate; open: no class. Basis H/M/N concerns employment assessment only. Education pathways and access require individual checking.

11 INCOME

Why new salary offers may come under pressure

FSI expects more frequent painful salary adjustments in new hires and job changes in submarkets with declining staff demand and continuing applicant supply. This is a qualitative expectation, not a measured frequency or wage forecast. An economy-wide income decline does not follow from it; that remains a conditional stress scenario [26].

Demand and supply affect new offers first

When companies replace fewer departing staff and applicants have fewer alternatives, lower offers may become enforceable. A study of Germany in 2012-2022 finds stronger wage responses to labour-market tightness among new hires [29]. It mainly examines increasing scarcity; neither an equally large effect under oversupply nor a specific salary reduction can be inferred.

A reported case from a chemical laboratory

According to a practical account supplied for this revision, a team-leader position in a chemical laboratory was offered at EUR 60,000; the predecessor reportedly received EUR 115,000. Numerous applicants and market conditions were reportedly cited as the reason. Despite considerable disappointment, candidates reportedly considered the offer their best available alternative. The case has not been independently verified. Period, compensation components, experience and comparability of responsibility are undocumented. It illustrates a possible mechanism but establishes neither an industry trend nor an AI effect.

Existing employment may provide a time buffer

Established pay structures and company-specific knowledge may give current employees a stronger negotiating position. FSI therefore expects weaker market conditions often to appear earlier in new offers. Existing employees may nevertheless be affected through smaller raises, variable pay, reduced hours or job loss. An unchanged nominal salary does not guarantee stable purchasing power.

Counterforces include new demand, investment, retirement and institutional wage-setting. In the IAB scenario, employment effects largely offset one another [06]. New salary offers, existing salaries, real purchasing power and earned income per person must be distinguished. Even a rising average among employees can coincide with falling employment.

12 SKILLED TRADES

How long a scarcity premium might last

A temporary income advantage in skilled trades is especially plausible where demand, retirement and slowly renewed expertise coincide. However, the effect does not occur in every trade, nor does it automatically reach employees to the same extent.

Phase	Possible mechanism	What to observe
1. Shortage	Orders meet limited capacity. Firms can raise prices or choose orders.	Long waits, rising tender prices, higher offers to new hires
2. Response	More trainees, career changers and suppliers enter. Firms improve productivity.	More qualifications and new hires, shorter waits
3. Normalisation	Additional capacity and weaker demand may limit margins and wage premiums.	More competition for orders, lower utilisation, fewer price rises
4. Differentiation	Specialist diagnosis, quality and customer retention support viability better than interchangeable standard installation.	Differences between service firms, specialists and installation-only providers

Why more trainees do not immediately mean more supply

Training takes time. Professional experience, reliable diagnosis and customer responsibility develop in addition. Dropout, occupational changes and retirement can reduce net growth. More people entering training is therefore not, by itself, evidence of future oversupply.

What else determines returns

Higher end-customer prices may be absorbed by materials, vehicles, administration, warranty obligations and idle time. Self-employed people bear utilisation and investment risks. Employees are more likely to benefit when firms compete for them or pay is negotiated accordingly. Physical wear and possible later changes must enter a lifetime assessment.

For education choices, a broad technical foundation with service, fault diagnosis and further qualifications appears more durable than a bet on one subsidy boom. The possibility of moving later into planning, supervision or running a business increases option value.

Analytical mechanism, not an empirically estimated wage curve. Available sources do not support reliable dates for the phases.

13 VULNERABLE TASKS

Why bookkeeping and legal-office work need a closer look

A blanket category of “soon only minimal employment” would currently be too strong for these entire occupations. Many tasks genuinely can be automated technically; whether that leads to job cuts also depends on process quality, demand and organisation.

Activity	More exposed to pressure	More durable extension
Bookkeeping	Transferring receipts, standard account coding, rules-based reconciliation	Closing accounts, exceptions, internal controls, data quality and advice
Legal assistance	Standard drafts, template correspondence, simple document sorting	Deadline management, client contact, complex workflows and reliable quality control
Controlling	Producing regular reports, copying data, standard commentary	Checking causes, evaluating measures, challenging assumptions and supporting decisions
Software development	Simple functions and standard interfaces without system context	Understanding requirements; integrating, testing and operating systems

More demanding work can also come under pressure

Moving into complex tasks is not an unlimited escape route. If ten people previously handled routine work and exceptions together, automation need not create a new expert position for all ten. This is precisely why combining professional knowledge with adjacent fields matters.

Consequences for education providers

A modern commercial or legal programme should teach real processes, case understanding and digital systems. If trainees mainly transfer data and fill templates, their profile becomes too narrow. Practical case discussion and reasoned decisions demonstrate more future relevance than simply using a chatbot.

For qualified workers, extending existing capabilities often makes more sense than a radical change without practical testing. Young people should examine which responsible tasks will actually be accessible after training.

FSI task-based analysis. The global ILO exposure index [04] supports distinguishing task change from complete occupational disappearance, but supplies no German job count for these profiles.

14 EDUCATION PATHWAYS

When vocational training and advanced qualifications make particular sense

Good vocational training can provide practical competence, income and a recognised foundation early. Its strength is particularly clear where reliable execution, diagnosis and experience with real installations are central. The training employer matters, not just the occupation's name.

Foundation	Possible progression	What matters
Electrical engineering or mechatronics	Maintenance, automation, technical college, master craftsperson qualification, potentially later university	Several installations and systematic fault diagnosis, rather than installation only
Plumbing/heating or refrigeration	Service, controls, complex systems, project leadership, business succession	Maintenance and commissioning alongside installation
IT vocational training	Systems operations, security, demanding development or subsequent degree	Networks, data and tests; real supervised projects
Commercial occupation	Process responsibility, closing accounts, purchasing, advice or advanced qualifications	Connections and exceptions rather than narrow data-entry routines
Health occupation	Specialisation, practice instruction, coordination, possibly university	Good supervision, working conditions and achievable progression

The option value of a recognised qualification

A broad foundation makes it easier to move between employers and fields. A short certificate course may complement this foundation but cannot automatically replace it. In highly regulated activities, the specific qualifying credential also determines access.

Why not to decide too quickly

A supposedly secure occupation is unsuitable if everyday work persistently does not fit the person. Trades often require physical presence, early hours and careful execution; nursing requires closeness and resilience. A holiday job or supervised placement reveals this more clearly than a career video.

Pathways are guidance examples, not individual admissions advice. BIBB describes quality mechanisms and workplace training planning [15]. Progression assessments are FSI judgements.

Prepare transitions rather than merely demand adaptation

First assess existing capabilities and missing entry qualifications. Adjacent tasks may be accessible through supervised practice and further training; others require a new qualification. Duration, funding, possible income gaps and real vacancies should be examined beforehand. Willingness to learn helps but does not guarantee a transition. Employers and providers must create accessible learning opportunities.

15 CHOOSING A UNIVERSITY

What makes a degree more future-ready

A degree is particularly valuable when it teaches relationships that extend beyond the current tool. Mathematics, scientific methods, systems understanding and subject depth can help people use new technology critically. Practice and theory should improve each other.

Universities and universities of applied sciences

A university may be an excellent fit for theoretical depth and research-oriented pathways. A university of applied sciences may excel in practical projects and regional employer relationships. Institution type alone is insufficient as a quality measure: teaching design, support and specific projects are decisive.

Dual study programmes

A dual programme combines higher education and professional practice. Training-integrated variants may include a recognised vocational qualification alongside a degree; practice-integrated variants do not automatically do so. Curricular integration is central. [16]

The practice partner strongly influences development. A demanding degree loses value if practical phases consist mainly of routine tasks. Conversely, a good employer may offer real problems and responsible supervision early. Contractual commitment periods, workload and opportunities to switch belong in the comparison.

Subject areas as starting points

Electrical engineering, computer science, civil and environmental engineering, and suitable health and social degrees appear interesting for different talents. Business, legal and creative degrees remain possible; here it should be especially clear which specialist domain, practical experience and differentiation will be added.

“AI” in a title is not enough

A programme with lasting value teaches foundations, independent problem-solving and verifiable project results. Very narrow programmes built around a current tool age faster. For entrants, a sound specialist degree with AI applications is often more useful than a broad collection of superficial tools.

A programme's accreditation can be checked in the Accreditation Council database [17]. It is a quality signal, not a guarantee of subsequent employment or high pay.

16 COMPARING PROVIDERS

Ten criteria for education quality

This checklist is an FSI proposal for structured conversations. Each criterion can receive 0 points for absent quality, 1 for vague claims and 2 for concrete evidence. The total only supports comparison of similar offers; it is not a validated quality index.

Criterion	Meaningful evidence
1. Recognised qualification	Exact qualification, responsible authority, accreditation or recognised training foundation
2. Durable foundations	Module or training plan showing subject understanding rather than mainly tool operation
3. Real tasks	Projects with actual users, customers, installations or cases
4. Supervision and feedback	Named trainers or lecturers, scheduled feedback, time for error analysis
5. Independent performance	Evidence learners can explain, check and improve a result
6. Meaningful AI use	Verification, data protection and quality assurance alongside application training
7. Broad deployment options	Multiple technologies, departments or sectors rather than narrow supplier dependence
8. Transition to employment	Traceable graduate pathways with reference year, response rate and definition of the metric
9. Learning and working conditions	Hours, strain, equipment, handling problems and support
10. Progression and costs	Further training, switching opportunities, total costs and contractual commitments

Exclusion factors outweigh the score

An unclear qualification, unmet entry requirements or an unsustainable daily routine cannot be offset by good marketing material. Very high placement rates are meaningful only when it is clear who was counted and whether employment is relevant and lasting.

Speaking to current learners and graduates can reveal whether they actually work on projects themselves. Asking about a failed project is also revealing: good providers can explain what was learned from it.

FSI checklist; starting points for formal quality and integration: [15]-[17]. No assessment of individual providers.

17 INDIVIDUAL FIT

Three examples of different good decisions

Starting point	Plausible pathway	Questions to clarify before deciding
Technically interested; prefers practical work to prolonged abstraction	Electrical or mechatronics training with a good employer, followed by targeted specialisation	Enjoy precise fault-finding? Good supervision? Access to multiple installations?
Strong in mathematics; curious about complex systems	Electrical engineering or computer science with laboratories, student employment and real projects	Does theoretical depth also fit? Are results tested rather than merely presented?
Strong social awareness; wants direct impact	Health or social occupation with good supervision and development opportunities	How are closeness, conflicts, shifts and emotional strain experienced?

A fourth possibility should remain open

Artistic, linguistic or entrepreneurial interests may open viable pathways even in more competitive fields. Particularly good work samples, subject specialisation and realistic funding are then needed. The matrix should not devalue these interests; it should make additional requirements visible.

The quality of exploration matters

A placement is informative when it includes typical activities and less pleasant sides of the occupation. Merely watching a fascinating presentation creates a distorted picture. Small tasks, professional feedback and conversations with entrants as well as experienced staff are more revealing.

Education choices also contain life choices

High pay may come with travel, shift work, lengthy training or major responsibility. Good local opportunities may support family, friendships and health. A pure salary ranking hides these differences. In the Future Skills Institut's approach, the desired life therefore belongs in the assessment of a career option.

For younger children, broad development is especially valuable: reading, mathematical understanding, practical experience, teamwork and enjoyment of independent learning create more later choices. An early fixed future occupation can narrow those choices unnecessarily.

18 NEW OCCUPATIONS

A realistic view of robotics integration and AI entrepreneurship

Care tech connects two worlds

An assistive system is useful only when it works in a facility's everyday life. Needs analysis, adaptation, training, maintenance and collaboration with users are possible tasks. Fraunhofer IPA describes corresponding integration and testing needs in healthcare. This does not establish a robust number of future jobs. [18]

A technical foundation with experience in care settings, or a health qualification with deeper technical training, can build the bridge. A narrow course with a futuristic job title is convincing only when employers, practical requirements and progression qualifications are concrete.

Robotics integration as an advanced technical pathway

Value comes from more than programming a robot. Material flow, safety, interfaces and faults must be managed. A broad technical foundation is therefore a plausible education strategy. Whether this becomes a separate post, an additional task or a service company depends on the organisation.

One person with AI is not yet a viable business

AI can make development, administration and marketing cheaper. Other providers can use the same tools, however. A viable solo business needs paying customers, a relevant problem and a defensible advantage. Reliability, access to an industry or special expertise are more telling than a high number of automated steps.

Before a major investment	Information that makes a difference
Small paid pilot	Does a real customer pay for the result and return?
Full cost calculation	Is there a viable return after acquisition, operations, taxes and protection against risks?
Alternative option	Does the underlying qualification also open employee roles?

Entrepreneurial returns are marked V for variable, outside the three salary bands. Turnover is not employee pay.

19 FUTURE SKILLS

Capabilities that carry across occupational changes

Professional future-readiness combines expertise with the ability to apply it under changed conditions. General buzzwords are insufficient: progress becomes visible when a person can solve a real problem better.

Competency field	Concrete evidence during education
Learning and development	An error is analysed, an approach changed and the improvement tested again.
Self-management	A difficult task is planned realistically; limits and support needs are recognised.
Social and relationship skills	A misunderstanding is clarified; feedback is given in a way that improves collaboration.
Cognition and problem-solving	A problem is clearly defined; alternative causes are examined instead of choosing a solution prematurely.
Innovation and change	A small experiment tests an assumption with manageable effort and a documented result.
Digital and technology skills	An AI result is professionally verified; data, risks and system limitations are understood.

Learn with AI while retaining independent judgement

A ready-made answer can conceal learning. Someone who must locate a technical fault independently, explain something from memory or test a design in practice demonstrates more robust competence. AI can provide feedback and variations. Responsibility for understanding remains with the learner.

Practice alone is also insufficient

Repeating the same task without feedback can reinforce errors. Good learning environments combine practice with understandable quality criteria, manageable difficulties and time to improve a solution. This expectation is as relevant to a trade business as to a university.

A portfolio of a few traceable projects can complement the qualification and show what a person can actually do: starting problem, own contribution, tools used, errors and verified result. Employers can then see how the person learns and takes responsibility.

FSI competency framework and teaching recommendations; no claim of effects measured by this report.

20 WEITER7

From orientation to a testable decision

WEITER7 can structure career guidance. This application proposes a decision process; it is neither an aptitude test nor a certification of effectiveness.

Step	Application to education choice	Tangible outcome
1. Develop a target picture	Consider desired working life and other life domains together.	Realistic picture of work, income, time and place
2. Reality check	Assess interests, past performance, entry requirements and financial room.	Strengths, limits and open questions
3. Derive direction	Compare several suitable occupational fields under different scenarios.	Three to five reasoned options
4. Reflect against the framework	Compare professional requirements and the six competency fields with the starting point.	Specific learning and experience needs
5. Prioritise deliberately	Weigh fit, viability, working conditions and education quality.	Two pathways for deeper examination
6. Design an experiment	Connect a placement, project or job shadowing with a specific question.	Observations of actual everyday work
7. Reflect on learning	Compare experience with expectations and revise the selection.	Reasoned next decision rather than gut feeling alone

A small example

A young woman is interested in robotics but does not know industrial working life. A supervised project and placement reveal whether she enjoys fault-finding, careful documentation and work on installations. Only then does she choose between vocational training, a dual degree and a more theoretical degree.

The aim is not a perfect prediction of one's career. It is an informed next decision with good progression options. Later changes become part of the journey rather than automatically a failure of the initial choice.

21 MONITORING

Signals that would change the matrix

Signal	What to monitor	Possible consequence
Entry positions	Junior vacancies and retention after apprenticeships over several quarters, by region and occupation	Give greater weight to practical access and alternatives after sustained decline
Real pay	New-entry offers, collectively agreed pay and purchasing power, not only top salaries	Reassess salary classes and financial viability
Workplace automation	Productive use, error rates and actual staffing effects	Classify routine profiles more strictly where appropriate
Trade capacity	Training completions, utilisation, waiting times and business closures	Distinguish scarcity premiums from temporary booms
Public funding	Fillable posts and budgets in education, care and infrastructure	Separate need from actually funded demand
New roles	Recurring vacancies with clear tasks across several employers	Only then treat new role titles as broader occupational markets

A sensible update cycle

An annual revision would be sensible for a published FSI overview. Significant technological or regulatory changes may warrant earlier review of individual fields. A specific education decision should also be checked against current regional information.

Statements that need a separate study

More robust priorities would benefit from conversations with employers, entrants and education providers. Particularly relevant are changing junior tasks, actual learning quality in practical phases, and whether productivity gains lead to more sales or fewer staff.

The 23 members of the Future Skills Perspective Panel offer varied occupational perspectives. A future systematic survey could make these contributions more comparable. Generalisations would require disclosure of selection, questions, analysis and limitations. This report does not report a standardised panel survey.

22 LIMITATIONS

What this analysis can offer and what remains open

No official forecast for individual occupations

The 88 entries are deliberately broad and written for guidance. They are not fully mapped to official occupational codes. Training occupations, specialisations, academic activities and new roles sometimes appear alongside one another. The eight C profiles are narrower than most other entries; their number cannot be used to calculate a share of endangered employment.

Salary classes have different proximity to data

Five occupational pay anchors and the overall median are the documented measurements. In the register, R indicates a reference connection, S an FSI estimate and open a deliberately withheld classification. No dedicated occupational measurement is presented here for S. Salary labelling is independent of basis H/M/N: stronger employment reasoning does not make a salary estimate more certain.

Assessments are not validated

The fields to explore are not ranked. Practical contributions were not analysed as a representative survey; no documented expert consensus exists on all 88 profiles. A/B/C remain working hypotheses. More robust individual assessments require occupational mapping, regional data and transparent consideration of counterevidence.

Technology is only one influence

Trade, location decisions, construction cycles, migration, education policy and public funding also matter. Job declines must not be attributed to AI without further examination. Conversely, headcounts can stay stable while work intensifies or entry prospects worsen.

The key recommendation

An education pathway gains quality when it combines a recognised foundation, real practice, good feedback and several progression options. This remains true even if individual future assumptions turn out to be wrong. The best answer about children's future occupations is therefore a reasoned selection with tested fit and sufficient room for development.

Editorial date: 4 October 2026 · Version 3.3. Literature-based FSI synthesis with qualitative scenarios. Career choice and salary negotiations additionally require individual and regional assessment.

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