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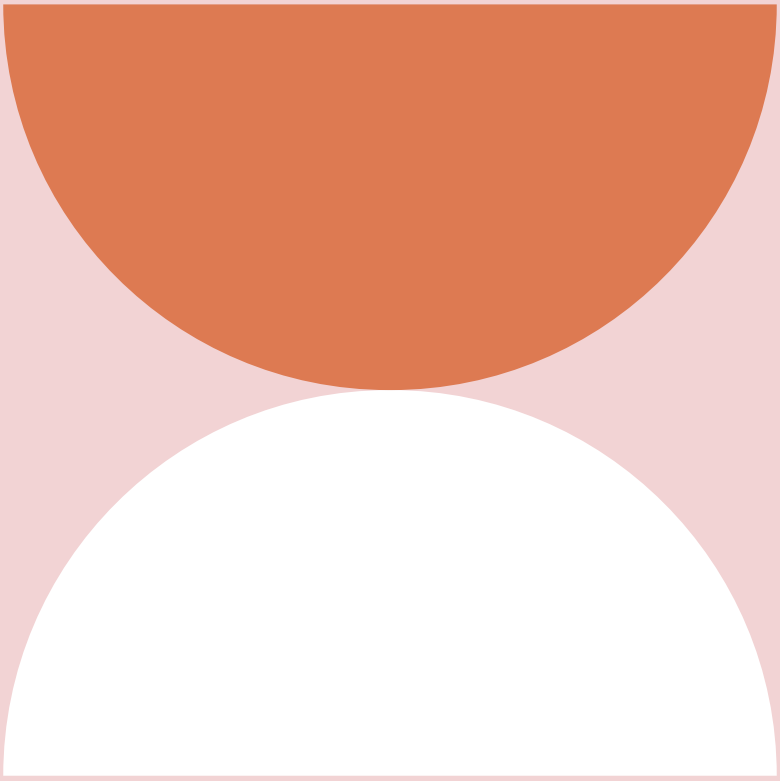

AI, curriculum and labour market.

AI's impact on the labour market as a guiding principle for responsive curriculum development

Exploratory study

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Foreword

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1. Introduction

We are currently in the midst of a period of rapid and uneven change driven by major commercial investments in Artificial Intelligence (AI), a sharp rise in the use of AI and its increasing integration into virtually every aspect of daily life – all of which represent significant opportunities as well as risks for work, education and society.

Major shifts are taking place in the labour market (Greenan et al., 2025). We are seeing a rising use of AI in the workplace, whether intended/desired or not, as well as changes in the type and number of vacancies, the nature and content of work and the way in which work is organised within organisations. In this exploratory study, we examine how developments in AI are affecting the labour market and what implications this has for the design and agility of curricula in educational institutions in the Netherlands.

We cannot yet fully grasp the current and future impact of AI, nor what these developments will mean for work, education and society in the long term. Economic, demographic, geopolitical and other technological developments also have an impact on the labour market. There is, however, a growing awareness and sense of urgency to take a stance, respond to developments in AI and find answers to the questions raised by the uncertain future that lies ahead.

AI-GO!, a framework for AI literacy in education

AI-GO! is a framework for AI literacy in education in the Netherlands that has been designed by Npuls. Work is underway to develop digital, AI and data literacy for learners and students.

This also presents a major challenge for tertiary education in the Netherlands: how to adequately prepare all these current and upcoming professionals for a future in which AI plays a prominent role. And the rapid pace of AI developments is, if anything, only intensifying that challenge. After all, how do you ensure that curricula are future-proof and suitable to prepare students for careers that are subject to rapid change – or may not even exist yet? And what impact does AI have on society (and vice versa)?

In this exploratory study, we seek to find answers to questions relating to the interplay between developments in AI, the changes we are seeing – caused or accelerated by AI – in the labour market, and how tertiary education in the Netherlands can respond to these developments in its curricula. The aim is to inspire educational institutions and provide them with guidance on how to future-proof their curricula and transition towards AI-ready study programmes.

We have sought to answer these questions through a review of the literature, interviews, discussions with experts and extensive input from the community. A key insight from this exploratory study, nonetheless, is that there are more questions than we can answer in a single, concise report. We therefore view this document primarily as a valuable starting point. It draws together different perspectives and highlights just how vast and complex the challenge we face is.

This exploratory study focuses primarily on the impact of AI on the labour market and the related implications for education. At the same time, AI also offers opportunities to improve educational processes. AI can be used to enhance curriculum processes, for example by gaining a better understanding of developments in the labour market, ensuring consistency in language and structure across different documents and providing insight into the accessibility of the curriculum.

It is essential to distinguish between these two perspectives: on the one hand, AI as a development that is transforming the labour market and thus placing new demands on education; and on the other hand, AI as a tool that can help educational institutions improve their curriculum development.

In both cases, this requires decisive action and clear choices, with AI- and data-driven strategies structurally integrated into how educational institutions operate. How successfully we address this issue depends largely on collaboration and connection with all stakeholders. It is only by working in partnership with the professional field and the government – and by pooling knowledge, data and expertise within a community – that we can make progress. This calls for ambition, as well as accepting that we do not yet know all the answers and cannot predict everything.

Reading guide

In **Chapter 2**, we begin by introducing and clarifying the key concepts used in this exploratory study: Artificial Intelligence (AI), curriculum and the labour market.
Pag. 9

In **Chapter 3**, we explore how AI is affecting the labour market and what effects we are seeing as a result. Topics covered in this chapter include changes in work processes, roles and productivity, and how skills and occupational profiles are evolving.
Pag. 15

Chapter 4 subsequently describes how the education sector and the labour market can prepare for the impact of AI. In this chapter, we outline the frameworks we use to shape our education, explain how we can effectively prepare students for the changing labour market and emphasise the importance of systematically monitoring developments.
Pag. 27

Chapter 5 examines how curricula can be designed or redesigned and kept up to date against the backdrop of rapid technological change, including the impact of AI. It describes the process of responsive curriculum development and curriculum management, with a focus on curriculum awareness, stakeholder engagement and the importance of a shared vision.
Pag. 37

Chapter 6 examines the process of change within educational institutions. It explores how they can integrate AI responsibly and future-proof themselves through gradual institutional change, adaptive governance and a focus on the human factor (teaching staff, students and support staff).

For those who want to get started straight away, **Chapter 7** contains a summary and suggestions on how to proceed.
Pag. 53

If you have any additions or good practices to share after reading this exploratory study, please let us know at info@npuls.nl and the Npuls communitysite AI & Data.

Npuls
Education that is ready for the future. Tertiary educational institutions in the Netherlands work together in National Growth Fund programme Npuls so that learners can learn without barriers and receive continuously high-quality education.

Under the Npuls umbrella, we work together to build a wealth of knowledge and insights that we share in our knowledge base. An overview of practical documents relevant to this memorandum is provided below:

- Exploratory study: Assessment, examination and AI
- Exploratory study: AI and equity
- Exploratory study: AI Act in brief: an introduction to and explanation regarding the AI Act
- Exploratory study: Npuls Initial Memorandum (Startnota): State of AI (2023)
- Frameworks: AI-GO Framework: an overview of what AI literacy is and how we can promote it in tertiary education
- Frameworks: Reference Framework 2.0: Responsible use of education data and AI
- Practice: Learning Analytics Magazines (I, II, III): Inspiration and practitioner stories on how to get started with learning analytics in education.
- Practice: Smarter education with AI magazine: information and inspiration for education professionals
- Tool: Guide to collaborating on continuous delivery of AI in EdTech
- Tool: Center for Teaching & Learning (CTL) Starter kit

2. What do we mean by AI, curricula and labour market ?

Before discussing the possible impact of AI on our curricula and labour market, it is important to first explain these concepts. We do so in this chapter.

What is Artificial Intelligence?

Many different terms are used to describe AI, and this can sometimes be confusing. When talking about AI, many people tend to associate it mainly with chatbots, but AI is much broader than that.

> An AI system is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations or decisions that can influence physical or virtual environments. (OECD, 2024)

More broadly speaking, there are different AI systems that work with different types of data (e.g. audio, text, video, signals), use different types of learning architectures and produce different types of output (e.g. predictions, content generation, etc.). We have also seen progress recently in the field of physical AI, where AI systems are combined with hardware to create robots. There are also agentic AI systems that operate within the context of digital worlds.

In this exploratory study, we are essentially discussing AI in the broadest sense of the term, since we are interested in the impact that AI has on the labour market and, consequently, on our education and curriculum. We also talk about technological developments, for although AI is not the only technological driver of these developments, it does have a significant impact on them.

What do we mean by curriculum?

The term curriculum is often defined as *a plan for learning* (Taba, 1962). It is in the simplicity of this definition that we find the challenge, as the learning plan can be designed at different levels and in various manifestations. Thijs and Van den Akker (2009) distinguish between five levels at which curricula are designed:

Level	Explanation	Example
Supra	International level	Dublin Descriptors
Macro	National level	Qualification frameworks or programme profiles
Meso	Institutional/educational level	The institution's educational vision
Micro	Level of learning units	Learning objectives, assessment and learning activities within a learning unit
Nano	Student level	Their own learning pathway or elective modules

The rise of generative AI potentially has an impact at each of these levels. The impact at student level (nano level) is most immediately noticeable; for example, the creation of more personalised learning plans. In this exploratory study, we focus on the national level, the institutional and programme levels, and the level of learning units (i.e. the macro, meso and micro levels).

In addition to curriculum levels, a distinction is often made between the intended, implemented and attained curriculum (Goodlad, Klein & Tye, 1979). This three-pronged structure illustrates how a curriculum "comes to life".

Curriculum	Explanation
Intended curriculum	Ideal curriculum and the guiding principles of the curriculum
Implemented curriculum	How teaching staff interpret the curriculum and its implementation in educational practice
Achieved curriculum	Experienced curriculum and the learned curriculum

This may relate both to learning outcomes and the associated learning effects of the curriculum and to perceived alignment with the labour market or people's experiences of how the study programme is structured.

The quality of the curriculum is determined by its **internal and external consistency** (Kessels, 1993). Internal consistency focuses on the coherence of the curriculum, often illustrated by the curricula spider web (Figure 1), which presents ten components of the curriculum in a coherent manner (Van den Akker, 2003). External consistency refers to the extent to which key stakeholders in education endorse the guiding principles and associated outcomes (Kessels, 1993).

The vision (rationale) – and therefore the question "*what are we preparing students for*?" – is important for both internal and external consistency. When developing a vision, decisions are made regarding the functions of education (Biesta, 2012) and how a study programme or educational institution views the relationship between qualifications, socialisation and personal development. Depending on the curriculum level, the other nine components of the curricula spider web (see Figure 1) are then defined, including the learning objectives, learning content, learning activities and assessment. This means that at programme level, the learning environment and collaboration are outlined in broad terms, but that at module level these are fleshed out into detailed teaching formats and the specific spaces where education is provided.

Figure 1 The curricula spider web (Van den Akker, 2003)

In discussing the impact of AI on curricula, the curricula spider web illustrates just how far-reaching that impact is, as everything is interconnected. AI compels us to reflect on virtually all aspects of the curriculum, thus constantly prompting new questions and choices in education. This requires ongoing attention to the whole as well as to the individual components in relation to one another.

What do we mean by labour market?

Generally speaking, the labour market is described as an imaginary market where the supply and demand for labour meet. In this market, employment and unemployment are measured, analysed and forecast – for example by Statistics Netherlands (CBS) and the Research Centre for Education and the Labour Market (ROA) – for both the short and long term. Many analyses also treat the labour market as a collection of occupations or occupational groups, with different job levels within those groups.

There is no such thing as the labour market. When we talk about the impact of AI on the labour market in this exploratory study, we are seeking to identify the influence AI will have on the future employment conditions which our students will be facing. In doing so, we examine both the effects we observe on overall employment and changes in work processes and specific tasks within occupations, as well as the resulting implications for skills, job requirements and study programmes.

What is the correlation between curriculum, AI and labour market?

Over the years, there has been considerable focus on curriculum design. Three key factors play a central role in curriculum development: the stakeholders involved in the process, views on what constitutes a good curriculum and developments in society and the subject area.

We see this dynamic reflected in the correlation between curriculum, AI and the labour market. This is not just about views on the curriculum; opinions about AI are also significant factors. *Reciprocal* influence is often at play, for example as a result of new developments in AI. Developments in AI are affecting not only the labour market but also the expertise required of future professionals. The curriculum is the foundation for preparing these professionals for their future careers. Educational offerings – as well as professional attitudes and opinions – play a part in shaping how future professionals will enter the labour market. From this perspective, the curriculum influences *how*, *when* and *for what purpose* AI is used, and how *ethically* and *critically* future professionals will use the technology. Figure 2 illustrates this reciprocal influence.

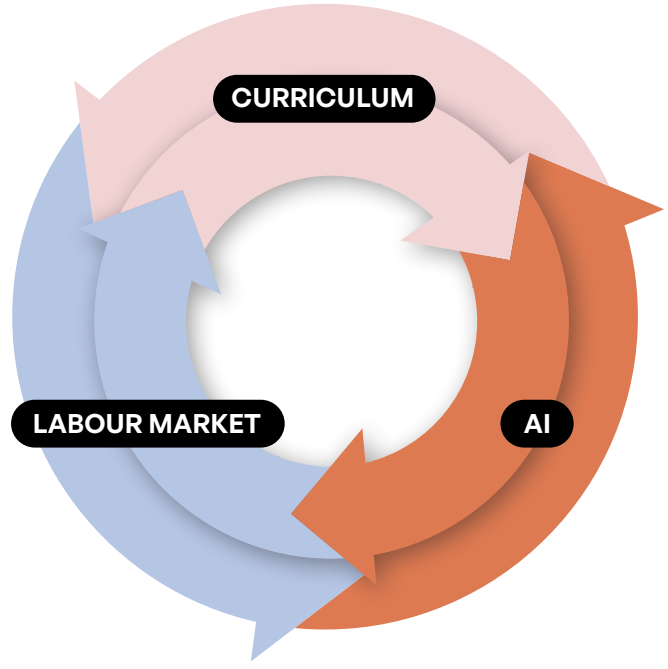

Figure 2 The reciprocal influence between labour market, curriculum and AI.

3. The impact of AI on the labour market

Chapter overview

- There are various ways of approaching AI in relation to the labour market. A macro-critical view warns of a growing divide between capital and labour due to automation, whereas a micro-optimistic perspective highlights opportunities for productivity growth, provided that technology is implemented and applied effectively.
- There is no such thing as the labour market. AI's impact on the labour market is gradual and varies significantly by sector, organisation and profession.
- The main way AI is changing work is through job tasks. Occupations do not usually disappear entirely, but roles shift as AI replaces some tasks, supports others and creates new ones. We see this playing out in a decline in junior roles and internships, among other things.
- AI is changing the demand for skills. Transversal skills like critical thinking, problem-solving and communication are becoming increasingly important, with digital skills and AI literacy becoming core competencies.
- The impact of AI depends to a large extent on organisational, policy and adoption decisions. Investing in training, ethical frameworks and a culture of lifelong learning is critical to making responsible use of the opportunities offered by AI.

AI is shaping our labour market and society. An article in the trade journal *Economisch Statistische Berichten* (Economic Statistical Reports, Groenewegen et al., 2026) from January 2026 notes that employment in occupations prone to automation by generative AI – particularly those centred on language, data and routine tasks, such as business and administrative roles – fell by 13%. In the Future of Jobs Report 2025 by the World Economic Forum (WEF), it is predicted that only one-third of all work will be carried out entirely by humans by 2030, due in part to the use of AI and robotics.

At the same time, recent research shows that the labour market is not collapsing but adapting: the jobs most affected by automation are also those undergoing the most augmentation, with AI playing a supporting role (Sigelman et al., 2026). While the role itself will not disappear, the nature of the work will change as a result of AI assistance. Furthermore, the use of AI may increase demand for some existing occupations and lead to the emergence of new ones, for example in the fields of data analysis, cybersecurity, AI development and AI governance (Verduijn et al., 2025).

Most experts therefore describe this as a gradual process, with certain tasks shifting and new forms of human-AI collaboration emerging. The Insight Report, published in 2026 by the WEF in collaboration with the McKinsey Health Institute, emphasises the importance of investing in human brain capital, as it is precisely the collaboration between humans and machines – and how they reinforce each other's skills – that is becoming increasingly significant (WEF, 2026).

We cannot make any **definitive statements** about the impact of AI on the labour market, simply because we do not know if and to what extent changes can be attributed to AI, or how predictions unfold and play out in the workplace and in society. Furthermore, we see that the changes in the labour market attributed to AI vary significantly by occupational group and nature of the work. Bearing that in mind, we will in this chapter look at a number of implications that are relevant to this theme.

The economic debate: macro-critical versus micro-optimistic

To understand the impact of AI on the labour market, we can consider two influential economic perspectives that are shaping the current debate.

Macro-critical view (Acemoglu, 2024)	Micro-optimistic view (Brynjolfsson, 2023, 2025)
This view cautions against placing too much emphasis on automation and the replacement of human tasks. The author predicts modest macroeconomic growth (a maximum of 0.71% growth in total factor productivity over ten years) and fears that AI will primarily widen the gap between capital and labour (Acemoglu, 2024). For education, the takeaway is that we must avoid preparing students for roles that AI can perform "adequately" but that devalue human worth – hence Acemoglu's call for innovation to be directed in a desirable way (Acemoglu, 2024).	By contrast, this approach emphasises the significant productivity gains achieved in the workplace. Experiments showed that average productivity increased by 14% (15% in the 2025 study), with peaks of up to 35% among less experienced employees (Brynjolfsson et al., 2023; 2025). In this view, AI is seen as an "augmentation technology" that helps to boost the performance of employees, particularly those with lower levels of education. Brynjolfsson's research highlights the potential for inclusive growth in the workplace, as those with lower levels of education benefit disproportionately more from the use of AI, while Acemoglu's perspective serves as a reminder of the need to continue investing in human capital.

Changing work processes and tasks

Developments in AI are changing the way in which work processes and related tasks are carried out. Technology generally automates only part of the work-related tasks, not an entire job (SER, 2025). This picture has not changed significantly since the emergence of generative AI in late 2022. Many studies show that while occupations are not disappearing, there is a redistribution of tasks driven by the use of AI. AI's impact on the level of tasks and subtasks manifests itself through three mechanisms (Acemoglu & Restrepo, 2019):

Substitution (*displacement effect*)	**Complementarity (*productivity effect*)**	**Creation of new jobs (*reinstatement effect*)**
AI takes over tasks entirely. In earlier automation processes, this involved physical routine tasks (e.g. assembly line work). In the context of AI, this refers to *routine cognitive tasks*; activities that are frequently repeated, follow a set of fixed steps and require little creativity or deep thinking (e.g. writing meeting minutes, basic programming work, translation).	AI speeds up the performance of a task or makes it more efficient, which in turn makes people more productive. Humans remain "in the loop", but perform better (e.g. teaching staff using AI to create personalised lesson plans more quickly).	AI creates new and more complex tasks that need to be carried out by humans (e.g. verifying or curating AI output, prompt engineering or providing personal guidance, for which there is more time as administrative tasks are eliminated).

We find the same three-pronged approach in education, according to a 2025 publication by the Dutch Education Lab for AI (*Nationaal Onderwijslab AI*, NOLAI). This refers to replacing, supplementing and enhancing the tasks of teaching staff through the use of AI (NOLAI, 2025; p. 15).

This shift in tasks impacts equity in the workplace. New tasks created by AI could either reduce inequity or, conversely, increase it. Recent studies show, among other things, that the use of AI enables employees to carry out certain tasks that do not directly correlate with their level of education (Brynjolfsson, Li & Raymond, 2023). At the same time, we are seeing that employees who mainly carry out knowledge-based work are at risk of having fewer opportunities, despite their level of education. The impact on job security for those with a theoretical education is particularly evident among younger employees in entry-level roles, as they have relatively more theoretical knowledge and less tacit knowledge (knowledge gained through experience), making them more vulnerable to being replaced by AI (Brynjolfsson, Chandar & Chen, 2025). Take for example an administrative assistant who has had practical training. This employee can perform more complex tasks thanks to AI, whereas a new entrant with a theoretical background has fewer opportunities because AI can replace their "book knowledge".

The impact of AI on the quality of work

According to Pot (2020), the current debate on skills still focuses overly on education and professionals' individual responsibility for their skills and long-term employability. Pot calls for broadening the debate to include the organisation and quality of work. Consider, for example, learning in the workplace, harnessing talent more effectively and developing modern organisations with an innovative structure built around collaboration, trust and engagement. Acemoglu (2024), like Pot (2024), posits that the influence of technology on the organisation of work, and consequently on the quality of work, is a matter of choice for employers.

Research into the impact of AI on the quality of work shows that there are consistently two sides to the coin. On the one hand, the use of AI can automate routine or administrative tasks. This frees up time for other, potentially more meaningful, tasks. On the flip side, this often leads to an increase in workload, as the tasks that require greater cognitive effort still need to be done, while natural periods of rest – such as those experienced when performing routine tasks – disappear. AI can increase employees' autonomy by providing practical support or feedback. But AI can also limit this autonomy by prescribing and monitoring tasks in detail, for example in the context of algorithmic management (Van der Torre et al., 2025; p. 9). According to Acemoglu et al., when there is no balance between job displacement and the creation of new tasks and automation dominates on a structural level, this constitutes "bad technology" – technology that displaces work without creating enough new, valuable activities.

Mathijssen et al. (2025) propose that, in addition to impact assessments on specific applications of AI within sectors, quantitative research should also be carried out into the impact of AI on the quality of work, as this can contribute to the development and adaptation of legislation and regulations.

> "Without AI and automation, we won't cut it in the labour market. There aren't enough people to keep doing work the way we've done in the past. The challenge is figuring out how to use AI in a way that makes work easier, more enjoyable and more human – and ensures that humans and technology can enhance each other's strengths."
>
> Marian Thunnissen,
> Professor of Talent Development and Talent Management

AI adoption and productivity gains

Productivity gains are often cited as one of the potential benefits AI could bring to the labour market. Indeed, we see many examples of AI being used to speed up work and boost productivity. Yet research shows that, despite the rising use of digital technologies over the past twenty years, labour productivity has barely increased (Statistics Netherlands, CBS, 2024a; 2024b). Businesses also indicate that AI has had little impact on employment and

productivity over the past three years – more than 80% have not seen any noticeable effect. However, they do expect changes in the coming years: AI is projected to increase productivity by 1.4% and output by 0.8%, while reducing employment by 0.7% (Yotzov et al., 2026).

Productivity gains from AI still appear to depend largely on the extent and speed of adoption in the workplace and on employees' AI literacy (Verduijn et al., 2025). This means that businesses looking to boost productivity should not only invest in AI, but primarily in rethinking the business and work processes. Investing in AI literacy of employees is an essential condition to bring about this change in processes.

AI adoption is still lagging behind in many companies. Large companies use AI technology more often than smaller companies. There is virtually no sector in the Netherlands where AI is currently used to a considerable extent, with the exception of the education and information sectors, as well as the communication sector – which also includes media companies. Lack of experience is by far the main reason for this in businesses of all sizes and across all sectors (CBS, 2024a; 2024b). Many employers are also reluctant to allow the use of AI, due in part to uncertainty about privacy, security and legal frameworks.

The Netherlands is investing in AI

Advances in AI are progressing rapidly thanks to more powerful and smaller models, making AI more affordable and suitable for a wider range of applications. Many initiatives are underway in the Netherlands to build a strong position on AI that focuses concurrently on innovation, public values and digital autonomy. The **AI Coalition for the Netherlands** (AIC4NL) is calling for significant public and private investment in AI (at least €5 billion over five years) and for a European strategy based on **FairTech**. **Invest NL** emphasises that the Netherlands should not focus on frontier models but on its own strengths, such as **energy-efficient, green AI and new AI services**.

Policy initiatives like the national **AI Delta Plan** and the **Action agenda AI & Data** focus on building a strong AI ecosystem through increased AI adoption, talent development and national projects. Concerns are growing about dependence on large tech companies from the US and China. **Digital sovereignty** is therefore being prioritised, with the aim of bringing more elements of the digital infrastructure under European control. A clear example of this is the development of **AI factories in Europe**, including that of a Dutch AI factory in collaboration with SURF, TNO and AIC4NL, based on public values such as sustainability, transparency and collaboration.

The low adoption rate may indicate that the need to use AI varies significantly by sector and type of work. Although AI is often presented as a so-called general-purpose technology, current adoption patterns show that, in practice, the value of AI lies mainly in specific applications and tasks. As such, it is not necessarily a solution for all sectors or processes.

At the same time, the capabilities of AI are expanding, with costs falling. Models are becoming smaller and more efficient, making them easier to integrate into phones, laptops and business software. Substantial investments and fierce international competition are accelerating the development of autonomous (agentic) AI applications. Physical AI, such as robots and smart systems, is also becoming cheaper and easier to program. Given this technological acceleration, it is likely that AI adoption will continue to grow.

> "We're currently seeing a lot of restructuring in the financial sector under the guise of AI. You could certainly question that, as we're also seeing that rising costs and economic uncertainty are putting pressure on businesses. It would appear that some companies would rather call it 'AI development' than 'cost-cutting'."
>
> Frank Eskes,
> labour market adviser for the UWV (Employee Insurance Agency)

Employment agencies for digital employees

Digital employees – AI agents that perform tasks independently and are available 24/7 – are making inroads into the workplace. In addition to tech companies that develop bespoke AI agents, there are firms that market themselves as "employment agencies" for digital employees, offering a solution to labour shortages and cost reduction. For a fixed monthly fee, they provide digital employees to assist with specific tasks like customer service, appointment scheduling or lead generation. For businesses, this lowers the barrier to adopting AI, but it also introduces cybersecurity risks and transforms the working environment: collaborating with digital colleagues is becoming less of a choice and more of a given. If working with AI continues to become an increasingly common component of day-to-day work, new skills, responsibilities and (social) divisions of labour in the workplace will also become a necessity.

Impact on skills and competencies

AI is not only changing the kinds of skills required, but also changing how existing skills are used: with AI assistance, these skills are developed further – and sometimes undermined – and applied in new work contexts. It is not so much about learning new skills and competencies as it is about combining human skills (such as critical information literacy, communication skills and problem-solving skills) with AI in a smart way. In this context, AI primarily plays a role in complementing and enriching tasks (NOLAI, 2025; OECD, 2025).

Cognitive, social and ethical skills – such as critical thinking, creativity and problem-solving – are becoming increasingly important and provide a secure foundation in a changing world. Ongoing technological developments mean that the ability to learn and adapt has also become essential. There is also a growing need to develop digital skills. With AI tools becoming increasingly common in the workplace, digital skills – including AI literacy – are fast becoming essential (WEF, 2025).

Finally, the importance of *hybrid skills* – which combine subject knowledge with AI skills – is growing. Information technology is becoming ever more important across all sectors of our economy. This means that the need for digital professionals is growing in almost all sectors, while at the same time the demand for digital skills is increasing in virtually all roles.

National labour market policy

The impact of AI on work and the labour market is high on the national policy agenda. Several Dutch government departments, including the Ministries of Social Affairs and Employment (SZW), of Education, Culture and Science (OCW) and of Economic Affairs (EZ), are working together on a coordinated approach as part of the Dutch Digitalisation Strategy (*Nederlandse Digitaliseringsstrategie*, NDS). This policy focuses on future-proofing work and preventing inequity. Particular attention is paid to AI literacy, training and upskilling, monitoring the impact on the labour market and establishing social agreements. Employers and educational institutions play a key role in implementing these policy objectives. Furthermore, the Dutch Social and Economic Council (SER) emphasises that it is not only technology, but above all organisational structure, a culture of learning, employee participation and the quality of work that are decisive in making responsible use of the opportunities afforded by AI.

Difficulties for new entrants

Considerable attention is being paid to the impact of AI on the labour market for new entrants. AI systems are increasingly capable of performing routine and support tasks, which is changing the nature of work and leading to a decline in the number of junior roles and internships in some sectors. These are typically the tasks that new entrants and interns start with. This creates a paradox: new entrants need work experience to get a job, but the opportunities to gain that experience are dwindling (see the pr-eDict dashboard, p. 26 (Dutch Expertise Centre for IT & Digitalisation, n.d.)).

That said, we must be careful not to attribute changes in junior roles and internships directly to AI. During times when the labour market is contracting, entry-level roles are often the first to be affected, as mid-level and senior roles are usually held by employees on permanent contracts. And while AI can exacerbate this trend, it is not the sole cause of changes in the number of junior roles and internships available.

Growing need for Lifelong Learning (LLL)

AI is increasing the need and demand for retraining and upskilling. On top of that, there are still many uncertainties regarding the future development, application and impact of AI. Professional development and adoption of a learning mindset across all sectors of society are therefore crucial, as is development-oriented monitoring to support that development. We must continue to learn, assess and respond to these developments. According to the SER (SER, 2025), it is therefore essential that all groups in society – young people, older people, those in work and those not in work – have access to suitable education and development opportunities.

Continuing education is more urgent than ever to enhance employees' adaptability, better align supply and demand in the labour market and harness underutilised labour potential. In the coming years, there will be a particular need for broad-based upskilling, possibly followed later by retraining in occupations that are disappearing.

Continuing education and development is not something that comes naturally to everyone. There are clear differences in the degree of participation in continuing education between, on the one hand, people who have completed vocational, higher professional or university education and, on the other, people without a basic qualification. We also see that flex workers generally receive less training than those with permanent contracts, and that SMEs offer fewer development opportunities than large companies (Verduijn et al., 2025). Investment in training has fallen (-8%), and confidence in training as the primary route to literacy has declined (-14%). Smaller employers, in particular, lack incentives to invest in their employees' general knowledge and skills (SER, 2025). Sector and business activities are key factors in determining the use of AI. Small businesses are lagging behind due to a lack of capacity, while larger businesses have more possibilities. This lag stems from a combination of unfamiliarity with the possibilities, reluctance due to financial uncertainty and inability due to a lack of knowledge and data. It seems that SMEs currently have a greater need for – and stand to benefit more from – support in developing their vision and strategy regarding AI (Vankan et al., 2025).

Investing in a culture of Lifelong Learning (LLL) is a shared responsibility of the government, the education sector and the business community. This calls for the joint development of flexible and relevant course offerings and ensuring that these are accessible through targeted funding and incentivising policies.

The human factor

Implementing AI in the labour market has both positive and negative aspects, which depend on multiple factors and vary across occupations. Given the pace of change, with all of us guinea pigs for the new reality, we need to routinely check that AI systems are aligned with our values and are doing what they are supposed to do. Timely detection and monitoring are important in this regard (Eriksson et al., 2025).

At the same time, we must not lose sight of the human factor. There are many concerns about how all these developments, ambiguities and uncertainties are affecting staff wellbeing. Consider technostress caused by unclear roles and job insecurity (Kumar et al., 2023), higher levels of loneliness, the risk that AI may diminish specific cognitive skills, a sense of loss of control, and concerns about employee surveillance, privacy breaches and mental overload (Battal, 2025). The same may apply to students.

There are also concerns that AI will lead to greater inequity and gender disparity. With digital skills becoming increasingly important, this can lead to problems for some people.

At the same time, there is also talk of AI's potential to create more inclusive workplaces, for example by using it to reduce barriers for people with disabilities. Pilot studies and research conducted by TNO and UWV show that the use of Cognitive Support Technology (CST) – a form of inclusive technology in which AI plays a key role – can have a positive impact on labour market participation among people with disabilities (Lagerveld et al., 2024).

AI and Equity

Npuls has carried out an exploratory study into the impact of AI on equity in education. It highlights how AI can promote equity and sets out the guidelines required for its responsible use in educational institutions.

Major differences across sectors

AI's impact on the labour market varies significantly depending on sector, profession, company size and position in the value chain. According to the AI monitor published by Statistics Netherlands (CBS, 2024c), the impact of AI is greatest in the information and communications sector – which includes tech companies as well as media companies and the graphic design industry – and in specialist business services. Examples include interpreters/translators, writers and authors (Tomlinson et al., 2025).

But at the same time, these figures are also causing confusion. If we take a closer look at the IT sector, we see a decline in the number of vacancies for digital occupations on the one hand, while new or other data- and AI-related occupations and job titles also top the lists of the occupations expected to grow the fastest (Dutch Centre of Expertise for Digitalisation and IT, n.d.).

Connection between education & labour market

Student intake and graduation figures and demand for entry-level roles in 2024

Digital professionals			Data & AI		
				Data	AI
Student intake	28.160	-3% i.c.w. 2023	Student intake	10.780	2.340
Education graduates	19.050	+5% i.c.w. 2023	Education graduates	7.320	1.030
Demand for entry-level roles	25.539	-26% i.c.w. 2023	Demand for entry-level roles	11.190	2.727

(pr-eDict Dashboard, Dutch Centre of Expertise for Digitalisation and IT, n.d.)

Other occupations where the impact is particularly noticeable are in sectors facing staff shortages, such as healthcare and education. The use of AI in the Dutch healthcare sector has increased significantly. In 2024, 43% of healthcare organisations were using AI but by 2025, this figure had risen to 70% (SOTI Inc., 2023). The percentage of healthcare professionals who used AI for triage in 2024 was 18.9% of all medical practitioners (VZinfo, n.d.). We are seeing a big surge in the use of AI across various disciplines in hospital and specialist medical care – with radiology, cardiology and oncology leading the way.

In the education sector, there is considerable interest in and experimentation with the use of AI to support the educational process and teaching staff. Teaching staff generally opt for technical solutions that simplify their work and reduce the workload, for example in lesson planning, differentiation and personalisation (NOLAI, 2025; Van Kessel & De Vries, 2025).

However, this does not happen by itself. The process requires conscious decisions about responsible use of AI-assisted tools in educational practice, clear policy frameworks, robust integration within the organisation and continuous, development-oriented monitoring.

4. A labour market in flux: implications for education

Chapter overview

- Given the rapid pace of AI developments, programme departments must find a way to keep their curricula, objectives and assessment methods up to date without this leading to a perceived pressure to change or change fatigue.
- There is scope within existing educational frameworks to accommodate AI. Programme departments can incorporate current AI topics through optional course components, minors, projects, modules and collaboration with the professional field, even if national curriculum frameworks have not yet been fully updated.
- An evidence-based approach and monitoring are crucial in this process. To distinguish between hype and sustainable change, systematic monitoring of labour market trends, skills and course offerings will be required – for example through a national AI skills observatory.
- In addition to having a solid knowledge base, students also need adaptive expertise: the ability to adapt flexibly to change by applying domain-specific, metacognitive and innovative skills. Integrating these transversal skills into study programmes is essential to prepare students for a changing labour market and for lifelong learning.
- Preparing current and prospective students for a changing labour market requires not only focusing on the content of study programmes, but also on helping them choose courses and providing authentic learning environments.

In the previous chapter, we outlined various ways in which the labour market is being affected by developments in AI. To ensure that new and upcoming professionals are well prepared for the labour market, it is essential that they learn to use AI in a meaningful, ethical and transparent way. Current professionals need to build on their existing skills and acquire new ones. Developing transversal skills is a crucial prerequisite for this.

We need, in the education sector, to closely examine the content, objectives and assessment of our curricula. It is essential to adopt a form of curriculum development that ensures the curriculum remains relevant and up to date (Liang et al., 2025; Van Bemmel et al., 2024). But at the same time, constant changes to the curriculum and educational innovation can lead to a reduced willingness to adapt and to change fatigue, particularly when support is inadequate (Coppoolse, 2018).

In this chapter, we explore how curricula are currently developed, what scope there is for further development and how we can keep track of what current and prospective students need in their future careers.

Frameworks for the development of study programmes

Education and curriculum development takes place at several levels (see Chapter 2). When developing study programmes within the Dutch context, both national and international frameworks serve as an important starting point. Furthermore, every (or almost every) institution has its own frameworks and guiding principles for the development of education – tailored to the target group and region.

National guiding principles for study programmes

When designing study programmes, programme departments are required to adhere to nationally established guiding principles. These guiding principles – which are addressed during macro-level reviews, programme evaluations and accreditation processes – are based on the intended final qualification level of the programme and the translation of national qualification frameworks and programme profiles into the study programme.

Based on the national guiding principles, programme departments develop a coherent curriculum and assessment plan for their study programmes. In this plan, programme departments substantiate how the study programme contributes to the final qualification level, what options students have and how graduates are prepared for the future labour market.

Under the AI Act, educational institutions are – in their capacity as controllers – required to take measures to ensure that staff who use or manage AI systems are sufficiently AI-literate. This incentivises institutions to review existing professional development programmes (and curricula where relevant) and to supplement them with knowledge about how AI works – along with the risks and ethical aspects involved – with a focus on the role and context of the individual concerned.

Updating qualification frameworks and programme profiles

Vocational education and higher professional education programmes in the Netherlands (mbo and hbo) often rely on national documents that set out the knowledge base for these programmes. In vocational education, these are qualification frameworks and in higher professional education, they are the programme profiles. Updates are carried out in accordance with established procedures. When it comes to major social, technological and labour-market developments, updating the national framework is a key principle.

Standardised procedures have been established for vocational education. Every year, the qualification frameworks are updated – with the labour market (or business community) playing a key role (SBB, n.d.). The processes for updating programme profiles for higher professional education have also been described (Netherlands Association of Universities of Applied Sciences Applied Sciences, VH 2018). Unlike in vocational education, there is no strict processing time, which means that the update usually takes one to two years. There are no national programme profiles for research-oriented education. Instead, the institutions themselves establish the guiding principles for the programmes – in consultation with the professional field – and align them with the Dublin Descriptors. Research universities therefore have relatively more scope to make changes to their study programmes rapidly, provided these are in line with the principles of accreditation.

Because of national processes, however, it could take potentially longer for programme departments to be able to make the desired changes to the curriculum.

Scope for programme departments based on qualification frameworks and programme profiles

The qualification frameworks and programme profiles describe in detail what is expected of graduates. Within these national frameworks, programme departments are given the opportunity to adapt to technological and social developments, enabling programme departments to keep their educational offerings up to date and relevant. Based on the qualification frameworks, programme departments can make use of the following options, i.e. educational institutions can:

- incorporate up-to-date content into the curriculum, for example through elective modules, projects or regional adaptations;
- gather feedback from students and employers and use it to tailor the content of their study programmes to the needs of the labour market;
- employ flexible curriculum development (such as modules or learning pathways). This allows them to respond rapidly to new developments without having to wait until the qualification framework has been officially updated;
- collaborate with businesses and regional partners to incorporate up-to-date knowledge and skills into the curriculum.

Universities of applied sciences and research universities (hbo and wo) also have the flexibility to incorporate up-to-date learning content, provided such content is aligned with the established core competencies and final qualifications, as described in the programme profiles. In its accreditation framework, the Accreditation Organisation of the Netherlands and Flanders (NVAO) states that programme departments must allow sufficient scope to incorporate current and relevant subjects – provided that the basic structure and statutory final attainment levels are not compromised. Programme departments can:

- incorporate current subjects through elective modules, minors, projects or collaboration with businesses – provided the core curriculum and final qualifications are maintained;
- move away from a fixed sequence of subjects – provided the core curriculum and final attainment levels are maintained;
- use experiments such as the "Learning Outcomes Experiment" to make education more flexible and to respond quickly to current developments.

Despite the available options for integrating current subjects into the curriculum, teaching staff perceive curriculum development as a complex and challenging process that is constrained by the existing national frameworks (Vreuls et al., 2022).

Keeping national guiding principles up to date: the importance of continuous monitoring

To properly equip current and future professionals with the necessary knowledge, skills and professional attitude, programme departments must align their content and objectives with developments in the labour market. As described above, updating national frameworks in the Netherlands is a key principle in this regard. When updating these frameworks, distinguishing between hype, trends and lasting changes is paramount. Based on current national guiding principles, programme departments can make informed decisions about the content of their own curricula. Those involved in the design process need a clear understanding of the realistic impact of AI on the labour market, how this impact manifests itself and what this means for learners. Developments in society also play a key role, since education also prepares future professionals for their role in society.

Existing monitoring mechanisms

Identifying trends and developments is crucial to understanding how work is changing and how lasting these changes are. In tertiary education, we use various methods to provide insight into labour market needs (including our own), and various mechanisms are in place to monitor developments – both at national and programme level and at the level of learning units.

Sector councils and their *advisory committees* are actively involved in the process of establishing national guiding principles for study programmes. They contribute new insights during processes such as updating programme profiles.

These programme profiles are established for a specific period. Programme teams then translate these profiles into the curriculum that students will follow. Many programme departments work with advisory committees composed of representatives from the regional professional field and alumni. These committees provide advice on specific regional labour market needs and future developments.

In addition to these advisory committees, programme departments also employ *hybrid lecturers*: lecturers who also work in the professional field for which students are being prepared. Drawing on their practical experience, hybrid lecturers contribute to more meaningful education and provide insight into the knowledge and skills required by the professional field.

The same guiding principles apply to the role of *research groups* in education. They can share evidence-informed insights – based on research and practical experience – that need to be incorporated into the education sector. Moreover, research groups often focus on both regional and national developments.

Many of these built-in mechanisms rely on human input; the expertise and networks of the people involved *may* therefore influence the perspectives that are brought to bear and, consequently, the outcomes.

Evidence-informed approach

To ensure that certain subjects in the curriculum are neither overrepresented nor underrepresented, it is essential to monitor developments systematically and on an ongoing basis. By making timely use of the latest insights, informed decisions can be made during the process of designing and updating curricula.

An evidence-informed approach requires a combination of national and regional labour market data as well as practical knowledge gained through collaboration with businesses and civil society organisations. By systematically collecting data and identifying, for each subject area, which tasks and associated skills are changing or remaining constant, we can establish a solid foundation for decision-making on educational content.

Development of a digital skills indicator for each profession

An initial pilot study by Statistics Netherlands (CBS, 2025) on the development of a digital skills indicator for each profession shows that this is not yet possible using existing skills and job databases, such as the Dutch CompetentNL UWV database (under development) and the already published European ESCO database. The study concluded that: “In both the ESCO and CNL-UWV (draft) approaches, the results for 12 BRC professional groups provide hardly any useful insights.” (CBS, 2025) In other words, in addition to international cooperation, we also see a pressing need for a short cycle through which international standards can be updated. Without such ongoing updating of standards, it is not possible to organise and draw on international research, and Member States are left to rely on national efforts.

Observatories play a key role in this. The purpose of observatories is to monitor and interpret emerging trends such as AI, and to foster knowledge sharing. One example is the European Commission’s AI observatory, AI Watch. This observatory reports on the industrial, technological and research capacity of AI within the European Union. In addition, AI Watch monitors policy initiatives in Member States, the adoption of AI, technological developments and the wider societal impact. AI Watch also features recent and relevant research on curriculum development in the field of AI. And while this observatory does pay attention to education, it is not at the level of detail required for an in-depth analysis of supply and demand, and of the trends relevant to designing and redesigning curricula.

National AI-skills observatory

To support an evidence-based approach underpinned by systematic monitoring, suggestions are being made in various quarters to establish a national AI skills observatory in the Netherlands. This will provide insight into how skills requirements are changing, enabling the education system to adapt in a timely and purposeful manner. A national AI skills observatory will monitor, analyse and forecast changes in skills requirements using AI-driven methods and datasets specific to the Netherlands. This can help to update the range of courses flexibly, develop interdisciplinary modules and design lifelong learning pathways – all in line with national priorities and developments in the labour market. A further advantage is that, as more experience is gained, visualisations, models and data can be continuously improved and used more effectively.

Observatories produce scorecards that can provide valuable insights. For a scorecard to be effective, it is necessary to measure what the demand is and what is important. Providing insight into trends and developments involves both the demand side of the labour market and the supply side from the education sector. On the demand side, it is important to identify the specific skills that are required – for instance by analysing large sets of vacancies. On the supply side, we can calculate the volume and type of courses on offer – for example by compiling descriptions from the syllabuses of MOOCs and microcredentials.

An observatory can also measure the impact of curriculum changes, for example through a sector scorecard that shows the extent to which new components are being adopted by programme departments.

When making these decisions, consideration is given not only to the demands and needs of the labour market, but also to the role of education in society: preparing students for future-oriented sectors and ensuring they are equipped for a healthy and sustainable working culture. This calls for the right balance between the current demands of the labour market and what is needed to build an even healthier labour market for all professionals. A key principle is for AI to be adopted and integrated into education in a responsible manner, in line with relevant trends and developments and guided by public values, ethics and proven best practices.

Working with roadmaps

An approach that is driven by community and data involves working with roadmaps for skills or roles. One example of this is Roadmap.sh, a curriculum content generator. This service allows users to develop their own learning pathways, depending on a role-based or skills-based perspective. Official roadmaps are compiled by experts with the help of AI and contributions by the community.

Preparing current and prospective students for a changing labour market

Preparing current and prospective students for a changing labour market requires not only focusing on the content of study programmes, but also on course selection, learning experiences in practice and the development of transversal skills.

Course selection processes

In a labour market where developments follow each other in rapid succession, choosing a course of study is becoming increasingly challenging. Students are also faced with various choices once they have embarked on a study programme. It is difficult for students to anticipate how their choices will affect their careers and to get a clear picture of how professions will evolve and develop in the future.

To support students in this process, realistic information about their study programme and career is essential. This requires programme departments to outline the career prospects for which they are educating students, how students are being prepared for changes in the workplace and how they are supported when making key decisions. Helping students gain insight into their interests, qualities and talents is an important step in this process (Mittendorff, 2007; Woudt-Mittendorff, 2019). Taking small steps (or making small decisions) also helps to reduce choice overload. Educational institutions can support students by providing information on the labour market and incorporating developments in AI into their career guidance. Based on the career competencies outlined by Meijers (2005), one could consider bolstering the use of networks, such as those within the professional field or among alumni.

A solid knowledge base combined with transversal skills

To remain relevant in the long term in a rapidly evolving labour market, current and future professionals need a solid foundation in transversal and future-oriented skills – such as critical thinking, collaboration and problem-solving. Walma van der Molen and Kirschner (2017) acknowledge the importance of **transversal skills**, but point out that this is not possible without a solid knowledge base.

It is the student's knowledge base that provides the scaffolding for reasoning and learning, but also the crucial framework for accurately assessing the quality and veracity of the information presented. Fluit en Nieuwenhuis (2021) argue that professionals need to be prepared for changes in the labour market by learning to adapt flexibly to these changes. This **adaptive expertise** consists of domain-specific skills, metacognitive skills and innovative skills (Bohle Carbonell et al. 2014; Fluit & Nieuwenhuis, 2021).

Integrating these types of transversal skills into study programmes appears to be an important starting point when it comes to preparing students for the future labour market and fostering effective lifelong learning, as such programmes often focus on co-regulatory learning, collaboration and adaptability.

A lack of transversal skills can lead to overreliance on AI, compromised academic integrity – through plagiarism, for example – reduced creativity and adaptability, poor digital security practices and less collaboration. And, ultimately, to lower employability.

Key transversal skills

The 4EU+ alliance, which consists of eight European universities, provides the following overview of key transversal skills:

- Good communication skills (verbal and written)
- Interpersonal skills (teamwork, empathy, conflict resolution)
- Critical thinking and problem-solving
- Organisational skills (time management, project management)
- Adaptability and flexibility
- Leadership skills
- Ethical and cultural awareness
- Emotional intelligence (EQ)
- Numeracy and digital literacy
- Innovation and creativity
- Lifelong learning

"The greatest risk associated with the apparent ease with which AI allows you to acquire knowledge is that you no longer build up your own knowledge. AI makes information accessible, but it also makes mistakes. Profound understanding of your own thinking process and area of expertise is essential if you want to use AI effectively. A deep command of the subject matter is becoming increasingly important."

Geert Wissink,
programme manager at Centre of Expertise Applied AI

Importance of the learning environment

We saw in the previous chapter that new entrants are being affected by the shifts taking place in the labour market. It is reasonable to assume that AI is amplifying this effect. Routine tasks being taken over by AI systems will have an impact on the number of junior roles and internships available, making it more difficult for students to gain work experience through the usual entry-level roles. This increases the importance of realistic learning environments in study programmes and begs the question as to what extent students should already be developing towards a more senior level during their studies.

When a machine can write an essay in thirty seconds, the end product loses its value as proof of competence. This is forcing education to shift from a focus on performance to a learning environment focused on exploration, dialogue and learning-by-doing.

Providing realistic learning environments is considered an approach that enables students to develop new knowledge and skills within a rich context (Bouw et al., 2020). Realistic learning environments are often set up to engage with authentic or realistic problems (Huizinga, 2021). In addition to working on the inherent aspects of a problem, it is also approached from multiple disciplines and, increasingly, in collaboration with professionals in the labour market, such as in transdisciplinary education (Visscher-Voerman & Vischer, 2025).

Using other forms of education – such as living labs, virtual internships, extended reality and workplace learning – are also ways of applying knowledge and skills in a realistic context. Learning in these types of learning environments helps students develop their adaptability, professional skills and problem-solving capacity, thus preparing them better to get started in redefined entry-level roles.

Educational institutions can also help students prepare better for a labour market that is being transformed by AI through enrichment of the curriculum with assignments that involve the use or development of AI. This also calls for a different role of AI in the learning process. Where students currently use AI mainly to produce output more quickly (AI creators), the emphasis is shifting to critically evaluating and steering AI systems. Students thus increasingly take on the role of AI evaluators or managers – assessing whether AI agents are producing useful output, adjusting these processes and optimising the use of AI within a given task. And while these systems open up new possibilities for learning, guidance and assessment, they also raise new questions regarding quality, transparency and accountability. As these go beyond the scope of this exploratory study, we will not discuss them here.

Role of AI in assessment and examination

In a previous exploratory study, we studied the impact of AI on assessment and examination. The insights from this study are directly relevant to the curriculum.

5. Redesigning curricula: an approach geared towards the labour market

Chapter overview

- Curriculum awareness is key to good curriculum design and requires everyone involved – from the level of the institution to the level of the student – to make informed decisions based on curriculum structure and coherence. Effective coordination around the integration and application of AI is essential in this regard.
- Curriculum committees monitor horizontal and vertical coherence of the curriculum, identify new developments and ensure that these are properly integrated into the curriculum. AI adds to the complexity of this process, as it affects not only the labour market but also the specific professional field for which students are being prepared, along with learning from and with AI within the education system.
- Responsive curriculum development calls for a shared vision of the profession, the learning process and the programme, as well as an iterative process involving stakeholders, a supportive development environment and continuous refinement.
- By structuring curricula in a modular way, programme departments can respond more rapidly to changes in the labour market and technology, for example by adapting individual modules without having to revise the entire curriculum.
- AI can assist with curriculum development, for example in formulating guidelines, learning objectives, assessment criteria and teaching formats. It must, however, be used with care to avoid risks such as bias, loss of context and excessive standardisation.

To get a better picture of what is needed to develop flexible and future-proof curricula at the institutional level, we are now focusing on the processes that take place within educational institutions. We are interested in who is involved in the curriculum development process and what they need to successfully complete this process.

Describing curriculum development is challenging, as every institution and, in some cases, every programme department has its own approach. This is underpinned by differing views on what constitutes a good curriculum and what the institution or programme department considers to be a logical approach to curriculum development. Backwards design (Wiggins & McTighe, 2005) is an essential starting point in the design of a study programme as well as its associated modules. In this design model, the focus is on working on the basis of programme-specific final attainment levels. Subsequently, these final attainment levels are divided across the modules, with the content of assessments determined at the same time. These principles contribute to the design of learning and teaching activities within modules (cf. constructive alignment, Biggs & Tang, 2011).

Curriculum awareness in curriculum development

Various stakeholders play a role in the curriculum development process, including teaching staff, programme managers, curriculum committees, representatives from the professional field, educational experts (from a CTL) and student representative bodies. Each role involves specific responsibilities, such as safeguarding the guiding principles and content of the study programme, the feasibility of the curriculum and its alignment with the labour market. Depending on the specific task or role in the curriculum process, specific expertise will be required (Huizinga, 2014; Nieveen & Van der Hoeven, 2011; Folmer-Annevelink et al., 2025; Mulpeter et al., 2026). For all stakeholders to play their specific roles effectively, they are expected to act with full awareness of the curriculum. Curriculum awareness helps ensure that informed decisions are made on how to approach technological and societal developments, both in terms of curriculum and assessment. According to Nieveen et al. (2017), curriculum awareness involves horizontal and vertical alignment of content and the development of a coherent curriculum based on a shared vision and frameworks.

Curriculum awareness in curriculum committees

Curriculum committees are the “guardians” of the curriculum (Van der Klink & Huizinga, 2026). The curriculum committee sets the framework for the curriculum, and within this framework they establish the horizontal and vertical coherence of the curriculum. Curriculum committees often also determine how the curriculum content is divided into modules. This curriculum content covers both subject-specific knowledge and transversal skills.

A bird’s-eye view is essential for curriculum committee members to achieve coherence in developing the curriculum (Marsh & Willis, 2006; Posner & Rudnitsky, 2005). All decisions they make regarding curriculum development are taken from this bird’s-eye view, enabling them to make curriculum-conscious choices. Curriculum committees are also expected to factor in the frameworks, preconditions and guiding principles established by the programme or institution (Van der Klink & Huizinga, 2026).

In the process of developing the educational content, the curriculum “comes to life”. It is through various interpretations of the intended curriculum that the learning materials and teaching offered to students ultimately take shape (Goodlad, Klein & Tye, 1979; Van den Akker, 2003). The curriculum committee monitors and adjusts these developments, partly to ensure that the educational content continues to align with the established guiding principles and vision.

With the emergence of new skills, the curriculum committee also plays an important role in identifying trends. Based on the identified trends, the committee can make specific adjustments to the development of educational content. In the case of AI, this role is twofold, i.e. adapting to changes in the labour market on the one hand and on the other, learning from and with AI in the education sector.

Such developments require curriculum committee members to design a continuous and responsive learning pathway that integrates this content coherently with other transversal skills and subject-specific content.

Curriculum awareness for teaching staff in the role of module developers

Ultimately, it is the structure of the curriculum and the underlying vision that form the starting point for developing the education provided to students. The development process often involves several teaching staff members or a teaching team, as they are usually the ones responsible for a learning pathway or specific modules. Based on the curriculum committee’s instructions, teaching staff may be asked to further develop the educational content. Regular curriculum maintenance can subsequently provide an opportunity to further develop the educational content.

When it comes to developing modules, in particular, teaching staff should be mindful of curriculum structure and coherence (Nieveen et al., 2017). This means, for example, that teaching staff need to be aware of the other modules being offered and of the associated learning and teaching activities. It also requires close coordination in terms of the integration and application of AI. In what ways can students use AI, and what are the advantages and disadvantages of its use for the learning process?

Promoting curriculum-conscious practice

To achieve high-quality education, it is essential for teaching staff to receive professional development aimed at promoting curriculum-conscious practice. Most teaching staff possess substantial subject-specific and pedagogical expertise, but there is still room for improvement in the area of curriculum development (Huizinga, 2014; Nieveen et al., 2024). If teaching staff have greater curriculum awareness, they will also be able to better contextualise social and technological developments within their own curriculum. This enables them to make better-in-

formed decisions about *whether*, and if so, *how* and *where* adjustments are needed. This also requires specific training for curriculum committees so that they can make decisions and carry out monitoring based on the curriculum. For example, teaching staff who develop modules need to understand the relationship between their own educational content and other educational content, as well as how educational targets can be achieved and assessed.

Employers often play a role in setting national frameworks. Yet it is employees who have a clearer understanding of how work is changing in the workplace. They are better able to understand, at the level of tasks, the impact of (for example) generative AI. This calls for curriculum developers to involve not only employers but also employees in order to better understand the content of the curriculum (Thunnissen et al., 2025).

Role for Centers for Teaching & Learning (CTLs)

An increasing number of educational institutions have established Centers for Teaching & Learning (CTL). Teaching staff, teaching teams and education professionals can seek support, training and advice from a CTL when looking to modernise their teaching practice. CTLs therefore play a pivotal role in building and sharing knowledge about education and in researching and implementing new developments.

"Curriculum development does not work without the input of students. Educational institutions must therefore also engage in ongoing dialogue with students. What do they want from their study programme, what do they want to achieve and what do they need to successfully enter the labour market and take part in society?"

Sam de Jong,
board member of the Inter-University Student Council

Responsive curriculum development

Every educational institution, and therefore every study programme, regularly updates the curriculum. The update may focus on optimising the current educational content or on a more comprehensive revision of the curriculum. Both forms relate to curriculum development.

Curriculum management

Optimisation of education can focus on optimising the learning process and strengthening constructive alignment (Biggs & Tang, 2011), or on continuing to respond to new and evolving demands from the labour market (Walma van der Molen & Kirschner, 2017; Zweeris et al., 2025). In the latter case, there are a number of important steps to take, the starting point being to build on the existing curriculum. These steps are:

1. Identifying which types of knowledge, skills and professional attitudes are not (or not significantly) subject to change: *"What is your core foundation?"*
2. Gaining a better understanding of current trends in the labour market: *"What should we be preparing our learners for?"*
3. Gaining insights into technological developments that could potentially impact professions: *"What role does digital technology like AI play in the professional field now and what will this look like in the next five years?"*
4. Preparing learners for lifelong learning: *"How can we make learning appealing to learners and the business community?"*
5. Encouraging learners to develop adaptive expertise (Fluit & Nieuwenhuis, 2021) *"How do we prepare learners for rapid changes in the labour market?"*

These developments may result in minor or major updates to the curriculum.

Minor updates to the curriculum involve revising a module to better align with the target audience, new content or changing needs in the region. During these updates, the overall curriculum structure tends to remain the same. Programme departments mainly focus on enhancing specific modules and set specific assignments. This may be based on recommendations made by programme committees and professional advisory committees or in student evaluations. Sometimes there may be practical reasons for an update, such as the introduction of a new digital learning environment or a change in teaching staff.

In the case of major curriculum updates, the structure and organisation of the entire curriculum are often reviewed. Sometimes this involves introducing new learning pathways and phasing out existing ones. During these types of processes, difficult decisions sometimes have to be made to strike the right balance between the comprehensiveness and depth of the curriculum on the one hand, and the feasibility of studying and teaching the programme on the other (Visscher-Voerman, 2018; Van der Klink & Huizinga, 2026).

Enhancing responsive curriculum development

Given the importance of keeping pace with changes in the labour market, vocational training programmes often adopt a responsive approach to curriculum development. This is not a new approach to curriculum development in tertiary education, but a tried-and-tested method for keeping apace with social, societal and technological developments (De Weert, 1996; Hofer et al., 2020; Vreuls et al., 2023). The complexity of this approach is reflected in how the curriculum content is determined and which stakeholders are involved in this process (Vreuls et al., 2025), and in the need for an iterative approach to curriculum development (Vreuls et al., 2022).

According to Vreuls et al. (2022; 2023), responsive curriculum development involves six interrelated factors: (1) a shared vision, (2) a continuous and iterative process, (3) the involvement of relevant stakeholders, (4) teamwork, (5) a motivating development environment, and (6) agency. Factors (2) through (6) should always be aligned with and arise from the shared vision (1).

This shared vision must encompass the profession, the study programme and the learning method. A responsive approach based on the shared vision makes it possible to align every decision with the vision. Visions are often formulated by a small group (Van der Loo et al., 2015), but it is when putting them into practice and making them a reality that a wider range of stakeholders play a decisive role (cf. Cents-Boonstra et al., 2024; Visscher-Voerman et al., 2024).

By translating the guiding principles in the vision into more concrete terms ("what does this actually mean for my education?"), it also becomes clearer *where* differences in vision arise. Articulating differences of opinion (Visscher-Voerman et al., 2024) and continuing to develop the vision ultimately leads to greater support for it. Developing a vision also provides greater clarity regarding views on what constitutes good education and the objectives of that education.

However, enhancing responsive curriculum development is only possible if the process is facilitated by an educational leader (Leithwood & Jantzi, 2006). The educational leader (often a team leader or programme manager) is responsible for embedding and implementing the six factors identified by Vreuls et al. (2022; 2023). Not only does this lead to a more responsive approach in education, it also ensures that programme teams feel greater responsibility for updating the curriculum.

The potential of modular education

A modular curriculum appears to be the most appropriate choice for programmes that need to respond quickly to societal developments (NVAO, 2024). Using a modular curriculum is often seen as a way of ensuring that educational content can be properly updated (French, 2015; Van Meel, 1993). With a modular curriculum, adjustments can be made relatively easily at educational unit level. This ensures that a module can be replaced with new or updated content as developments in the field advance. Updating a curriculum sometimes requires difficult choices during the development of study programme curricula (Visscher-Voerman, 2018).

When it comes to designing modular education, Lightfoot (2006) advocates a design process comprising five core activities:

	Core activities designing modular education
1.	Translating the final qualifications (programme profiles, qualification frameworks) for a specific programme (of the institution).
2.	Classification of final qualifications into sub-areas (themes, work processes, etc.).
3.	Dividing sub-areas into units (subjects/modules).
4.	Defining and identifying concepts (or sub-concepts) based on the sub-areas.
5.	Developing knowledge packages for each concept.

This modular structure of curricula enables programme departments to update curricula relatively quickly without having to overhaul the entire curriculum. Building blocks can be replaced relatively easily, for instance when the content of curricula becomes outdated as a result of new developments in AI. Curriculum updates can be carried out more quickly from step (3) of Lightfoot's core activities.

We can draw a parallel here with the construction of a house – once the foundations and walls are in place, there is plenty of scope for alterations inside the house. Changing a module is like renovating a specific room, whereas minor updates are more like changing the colours, fittings or furniture. Minor changes to curricula can be seen as adapting specific software or tools in response to new developments in AI. If AI has a significant impact on work processes, the curriculum can be revised by taking a critical look at the learning pathways and associated modules.

Involving employees in responsive curriculum development

Employers are often involved in setting national frameworks and guiding principles, even though it is the employees who have first-hand experience of how work is changing in the workplace. They are better able to understand, at the level of tasks, the impact of (for example) generative AI. This calls for curriculum developers to involve not only employers but also employees in order to better understand the content of the curriculum (Thunnissen et al., 2025).

Involving employees – in conjunction with the aforementioned AI observatory and regional cooperation – serves to highlight the changing nature of tasks and processes. Employees can also provide illustrative examples or case studies relating to their profession and how AI is impacting it. Analysing the implications of this type of development enables the curriculum committee to determine what changes are required to the educational content and where these fit into the existing or proposed curriculum.

> "Some educational institutions are keenly attuned to market trends, but as with other public sectors, it can be difficult to get the sector moving. The impetus for change often comes from individuals attempting to organise things differently in the workplace through bottom-up initiatives. While that's certainly a good thing, curriculum updates would benefit from being initiated and supported top-down more often."
>
> Frank Verduijn,
> labour market adviser for the UWV

Using AI for curriculum development

So far, we have mainly discussed how to address the impact of AI on curricula, but AI can also add value to curriculum development processes (Faraji et al. 2025). Experimenting systematically with the integration of AI and data science into processes for curriculum design and redesign helps to improve efficiency, agility and relevance. This added value can manifest itself at various levels. For the purposes of this study, we have focused on programme and module levels.

AI can be used to translate the vision and guiding principles into a set of curriculum guidelines. These guidelines can help curriculum committees translate the different frameworks into practical guidelines for teaching staff. In addition, AI can assist in formulating clear and unambiguous learning objectives and assessment criteria. In current elaborations, we still see significant differences in how learning objectives are formulated within study programmes. Making use of AI can realign this process and avoid having to rely solely on the educationalist or quality assurance officer for all the rewriting. This realignment can be achieved through proper training of AI, allowing curriculum committees and teaching staff to focus more on the consistency and elaboration of learning objectives. AI can also be used to provide insight into the correlations between learning objectives and to gain clarity on the diversity of assessment methods.

In the curriculum development process, AI can also serve as a co-creator. This might involve generating new ideas for teaching formats in a subject or reformulating instructions for a specific language level. When developing modules, consideration could also be given to supporting students in building the knowledge base they will be working with as well as helping them determine how best – in collaboration with teaching staff and AI – to acquire this knowledge themselves.

Using AI in curriculum development obviously requires a well-considered approach, and while technology can support this process, it should not replace the professional judgement and input of teaching staff, curriculum committees. It is therefore important, when using AI, to always takes into account public values, the human factor and potential risks – such as bias, lack of context or excessive standardisation of education. AI can indeed be a valuable tool, provided it is used thoughtfully and critically within the broader educational and societal frameworks of education.

6. Moving towards an agile education system

Chapter overview

In this time of rapidly unfolding changes, educational institutions need to become more agile. It is not just AI, but also curriculum revisions, digitalisation, staff shortages and pressure to maintain quality that call for a more flexible and adaptable education system. This also requires a learning mindset from everyone who works in education.

Change is not a one-off project, but an ongoing institutional process. Institutions change gradually through mechanisms of layering, conversion, displacement and drift. This means that gradual adaptation is more realistic than radical innovation.

Humans are at the heart of the AI transition. Healthy change adoption requires psychological adaptability, room for manoeuvre and support for teaching staff, support staff and students so that AI enhances their work rather than leading to uncontrolled “shadow AI”.

Adaptive governance is essential for the responsible use of AI. Educational institutions require ongoing evaluation cycles, transparency regarding the use of AI and feedback loops to enable them to make swift adjustments in the event of errors, bias or unintended consequences.

Changing role of teaching staff. AI supports teaching staff with administrative tasks, differentiated teaching and learning design, but the teacher remains in charge and actually takes on a more prominent role as a supervisor, assessor and guardian of values.

Future-proof education calls for vision, monitoring and professional development. AI policy decisions should not be based on assumptions, but must be grounded in systematic monitoring, consultation with the professional field, clear guidelines and ongoing professional development for teaching staff.

In public administration, educational institutions are often compared to oil tankers: they have enormous mass and impressive momentum but a small turning radius. In an era of rapid technological advances, particularly in the field of AI, this limited agility poses a strategic risk.

The challenge we face goes far beyond AI – it is about managing "stacked" changes. Curriculum revisions, the shift towards formative assessment, digitalisation, lack of teaching staff, demographic decline, potential budget cuts and the pressure of quality frameworks are all playing out in parallel with developments in AI. Changes are taking place concurrently and influencing one another. This puts educational organisations under considerable pressure, which influences their decisions regarding the use of AI, to name an example.

In this chapter, we explore how education can evolve from a rigid system into a more flexible and adaptive one. We look at how educational institutions can adapt without losing their core foundation and stability, and how the curriculum can evolve in line with technological developments while keeping humans – the teacher and the student – at the heart of the process.

The ultimate goal is to achieve institutional flexibility: an organisation that can adapt when necessary while remaining firmly rooted in its values. This flexibility underpins what really matters: a robust, meaningful and personalised learning experience for every student.

Institutional change: an ongoing process

To understand how an educational institution can change without becoming unstable, we have to move away from the idea that change is a one-off project or a sudden rupture. Change is not a huge leap, but an ongoing process – a continuous process of sedimentation.

According to political scientist Kathleen Thelen (Mahoney & Thelen, 2010), institutions rarely change as a result of a sudden revolution, but rather through processes of gradual transformation. She identifies four mechanisms that are essential to our vision of AI in education:

1. **Layering**: adding new AI layers to the existing curriculum without replacing its foundations. This enables institutions to embrace innovation while retaining their proven foundations.
2. **Conversion**: existing structures formally remain the same but are assigned a new purpose or given a new interpretation due to the changed context.
3. **Displacement**: old structures gradually give way to new systems that are better suited to the needs of the digital society.
4. **Drift**: while the formal rules remain unchanged, a shift in the external context alters the actual meaning and impact of those rules.

Adaptive governance in practice

What is in essence an "oil tanker" must be equipped with an adaptive governance mechanism. This means moving away from the "one-off innovation project" towards a system of constant alertness and adjustment. According to "What do you need for that"? (*Wat heb je daarvoor nodig?* Reuel & Undheim, 2024):

- **Permanent governance fora**: establishing regular (e.g. monthly) review cycles to discuss AI trends, technological incidents and ethical dilemmas.
- **Disclosure and logging**: providing maximum transparency about where and how AI support is used in decision-making processes, both at the administrative level and the educational level.
- **Feedback loops for near misses**: systematically reporting and analysing instances where AI provided incorrect advice (hallucinations) or where bias occurred. This enables the organisation to immediately adjust its policies.

Humans are at the heart of the transition

Institutional changes can only succeed if people – teaching staff, students and support staff – are willing to change and adapt their mindset. The psychological underpinnings of adopting new technology are often underestimated. Furthermore, how and to what extent AI is adopted, room for manoeuvre and available support are decisive in determining whether it works or not.

To ensure that education remains future-proof, we must stay focused on the human factor, embrace the implications of AI integration, optimise our efforts to incorporate AI into our context and develop agile, data-driven governance models. In an age of rapid technological advancements, a slow pace of action is risky, but sometimes it is also necessary for proper reflection. The race between education and digital technology must not lead to "shadow AI": the informal, unregulated use of tools by students, teaching staff and colleagues. The first signs of unchecked experimentation are already visible – including in education – and the consequences are unforeseeable. The transition to adaptive governance is therefore crucial.

> "AI is not the first development to which the education sector must respond, and it will certainly not be the last. If each innovation comes along faster than the last, we cannot keep improvising. We need to learn from how we have handled previous transitions and make that process explicit. The real challenge lies not in keeping up with this specific development, but in developing a way of working that will enable us to adapt to the next, even faster change."
>
> Erwin de Beer,
> education innovator

Psychological underpinnings: change reflexes

A survey by Gartner conducted in April 2025 among more than 2,500 employees demonstrated that applying the right "change reflexes" increases the likelihood of successful adoption by a factor of 3.5 (Gartner, 2025). Moreover, the mental wellbeing of those who consciously applied these reflexes was 2.2 times better. Gartner (2025) has identified six reflexes that we apply to the educational context:

1. **Openness to new experiences**: Actively encouraging and supporting pilot projects involving AI tools and hybrid learning, even if the outcome is still uncertain.
2. **Effective time management**: Explicitly creating space in the task policy for learning and experimentation. Innovation should not be something that is simply "tacked on" at the margins of an overloaded annual plan.
3. **Understanding context**: Educational leaders need to understand how national policies, regional labour market needs and internal team dynamics interact. The mechanisms of Drift and Conversion require this deep understanding to be able to reinterpret the rules.
4. **Using technology effectively**: Using AI and digital systems to support monitoring, timetable scheduling and quality assurance so that workload is reduced rather than increased.
5. **Working well with others**: Ongoing liaison between the board, representative bodies, internship companies and students to build a shared consensus for change.
6. **Regulating emotions**: Recognising and addressing the stress, uncertainty and ethical tensions raised by AI, for example regarding equity and the value of qualifications.

The role of teaching staff and the transformation of education

Research into the impact of AI on education focuses, among other things, on the role of teaching staff. Studies by, among others, NOLAI (2025) shows that the role of teaching staff is changing and find that:

- AI is a supportive partner, not a replacement; the teaching staff remain in charge.
- Automation reduces their administrative workload, leaving more time for coaching and differentiated teaching.
- Teaching staff need to develop new skills, such as data literacy, AI ethics and critical evaluation of AI output.

support the learning process. Rather than primarily acting as a source of information, teaching staff help to shape learning environments, uphold key values and support students in using AI responsibly. The future of education lies in proper alignment of human judgement and discernment with the possibilities of digital technology, with a focus on students' academic and personal development.

But it does not stop there, as much more is also required at the system level. Recent studies have explored a diversity of perspectives and issues, ranging from assessment and governance to the value of knowledge and qualifications, the positioning of tertiary education and the question of what intelligence means when it is artificial. This shows that AI, as a systems technology, is indeed transforming the entire landscape.

Overarching themes include:

1. **Support & administrative relief** – automation of administrative and assessment processes (OECD, 2026; NOLAI, 2025, Chatfield, 2025, Boasman et al. 2025).
2. **Personalisation & adaptive learning** – AI as a driver of personalised learning pathways (Bryant, 2025; Chatfield, 2025; NOLAI, 2025).
3. **Pedagogical partnership** – AI as a co-coach, content generator and reflective mentor (Chatfield, 2025; NOLAI, 2025).
4. **Strategy & governance tool** – AI is driving the need for new policy frameworks, ethical guidelines and AI literacy (OECD, 2026; Zachariah et al., 2025; Ruiz & Noakes, 2025).
5. **Ontological impact** – AI is redefining fundamental concepts of childhood, citizenship and knowledge production, as well as the purpose of education (Gardner-McTaggart & Blyth, 2025, Wegerif & Casebourne, 2025).
6. **Iterative adoption framework** – AI integration must be reviewed and adjusted cyclically (Ruiz & Noakes, 2025).
7. **Practical experiments** – AI as a hands-on partner for teaching staff who are trialling new teaching methods (Fitzgerard (ed.), 2025).

All in all, the sources present a wide range of relevant findings: from macro-policy agendas and theoretical critiques to real-life institutional experiments. In these studies and sources, the consensus is that AI integration can only be successful if (1) clear governance and ethical frameworks are in place, (2) teaching staff undergo systematic professional development, (3) the ontological implications for learners are recognised, (4) adoption is approached as a cyclical, reflective process, and (5) stakeholders develop a common language and use it systematically.

7. In closing – from understanding to action

AI is a tool that allows us to communicate and collaborate in our own language. It has an impact on many levels, is becoming an increasingly integral part of our work and is continuing to evolve. This means that we, too, must continue to develop apace. It is up to us to remain ambitious and keep humans and social values at the heart of future-proof education and curriculum development. We aim to combine data-driven insights with a human-centred approach, ensuring that curricula are aligned with the social and economic realities of today and tomorrow.

In this exploratory study, we have demonstrated how AI affects the labour market and education, alongside other developments such as demographic decline, global tensions and changing student characteristics. We have drawn on Van den Akker's (2003) curricula spider web and responsive curriculum development to demonstrate that AI affects almost all parts of the curriculum and that a shared vision is an essential starting point: what are we preparing students for, and what does that mean for learning objectives, educational content, the learning environment, assessment and roles?

Specific elaboration of different curriculum components is an activity that can support teaching teams in implementing and embodying the vision. By continuing to ask questions – and thus acting with curriculum awareness – about how AI impacts every component of the curricula spider web, we can develop coherent curricula.

At the same time, it is clear that experience with AI in education and professional practice is still limited. Therefore, policy decisions cannot be based solely on assumptions or individual practical experience, but require systematic monitoring of labour market developments, trends and educational experiences. This does not mean that curricula have to be adapted with every passing trend. Instead, what we must do is make it possible for programme departments to monitor developments, interpret them and make appropriate adjustments where necessary – with shorter processing times where necessary and without a curriculum that is overly sensitive to trends.

To ensure labour market relevance, it is imperative to actively involve employees and students in curriculum development, and to make use of modular education and clear frameworks for AI governance. Employees contribute insights into daily practice and the impact of AI on

tasks, while students offer their perspectives on learning, career and values. In combination with a modular structure, parts of the curriculum can be updated in a targeted way based on monitoring, without having to constantly revise the entire curriculum. This ensures that adaptability in education remains feasible, affordable, practical and manageable for educational institutions.

In this exploratory study, we have highlighted various perspectives on the impact of AI on both the labour market and curricula. We are aware that this does not answer all questions and that new questions may arise. By discussing the reciprocal influence of AI on the labour market and curricula within your institution and your study programmes, you can create a framework from which to develop responsive education. This exploratory study is therefore not an end point but a starting point and a call to action: by having discussions about the interaction between AI, the labour market and the curriculum within in your institution and taking targeted small steps, you lay the foundation for responsive education. In the following section, we summarise a few practical initial steps.

What next?

This exploratory study offers many avenues for thought and starting points for taking a different approach to curriculum development and implementation. To put this into practicable terms, we have summarised a few initial steps.

Step 1

Organise an initial, focused conversation session

- Invite a small core team (e.g. the head of the department, a teacher/lecturer, an educationalist, an IT/AI advisor, someone from the professional field) to the session.
- IUse four key questions from this exploratory study as a framework for the discussion:
  - Where will AI have the greatest impact on our labour market (occupations, tasks, skills)?
  - How is this reflected – or not – in our curriculum?
  - How responsive is our curriculum at present?
  - What can we do in the short and medium term?
- Briefly summarise the findings as a starting point for further decisions and as input for the teams.

Step 2

Integrate AI and data literacy

Incorporate AI literacy and data literacy as an overarching theme, rather than treating them as separate subjects.

- Clearly define the minimum digital, AI and data skills that students need, and specify where these are covered in the foundational, core and elective modules.
- Explicitly link AI literacy and data literacy to transversal skills such as critical thinking, teamwork and problem-solving.

Links: AI-GO! Framework, AI-GO in Action, AI Data Community

Step 3

Invest strategically in professional development

The transition calls for education professionals and teams to develop collaboratively.

- Start with a small group of teaching staff and education developers who will experiment with new forms of curriculum development and share their teaching experiences with colleagues, both within and outside the institution.
- Combine professional development in specific subject areas (AI, data, ethics) with opportunities to discuss concerns, opportunities and the changing role of educators.
- Link professional development to specific educational and curriculum issues, not just to individual tools.

Links: Professional development for teaching staff, CTL's, Course: AI in educational practice

Step 4

Reflect, experiment and keep learning

Responsive curriculum development is not a new model, but a way of working that requires a shared vision, an iterative process and the involvement of relevant stakeholders. It also calls for a constant willingness to learn on the part of all parties involved.

- Use the curricula spider web and the factors for responsive curriculum development to explore the following together: what does our vision mean in practical terms for content, learning environment, assessment and roles?
- Start small: implement a specific change in a single course or learning pathway (for example, a module, project or elective) and evaluate it systematically using data as well as experiences.
- Scale up successful working methods and monitor them continuously: roll out successful pilot schemes, establish a regular review cycle (e.g. every 2–3 years) and use dashboards or

other forms of monitoring to highlight the impact on students and labour market relevance.

Links: Learning and transforming together

Step 5

Knowledge sharing and collaboration

We are aware that there are already many initiatives and examples of best practice across the education sector. We therefore view this exploratory study very much as a starting point and an invitation to continue sharing knowledge and forging new partnerships in the area of AI, Curriculum & Labour Market

If you'd like to contribute, share best practices or stay informed about future activities, you can join one of the existing communities and sector initiatives focused on AI & Curriculum, or get in touch at : aiendata@npuls.nl

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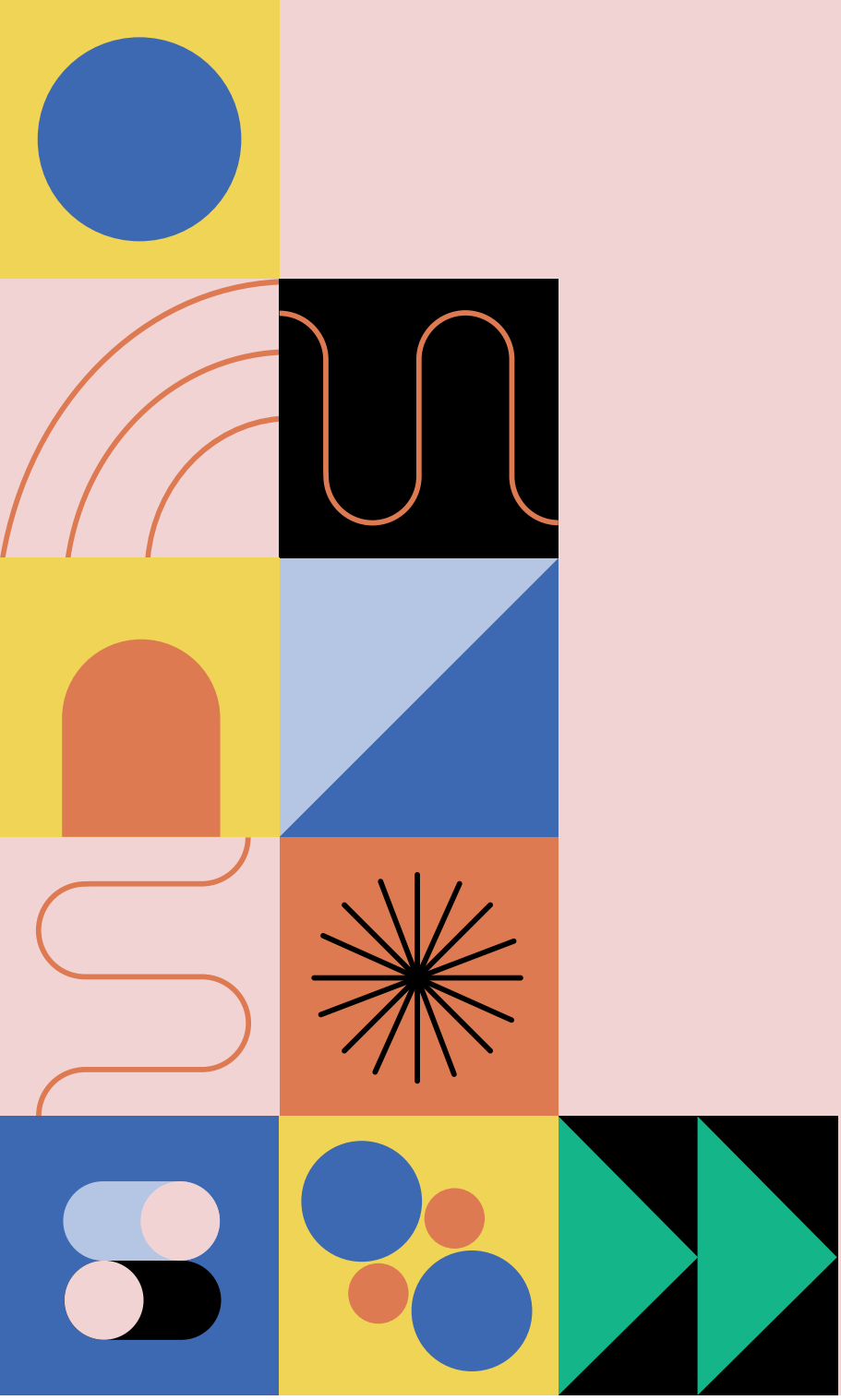

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