Foundations of Artificial Intelligence

PILOT

LICENSING INFORMATION

The work in this document was facilitated by the International Consortium for Agile (ICAgile) and done by the contribution of various Agile Experts and Practitioners. These Learning Outcomes are intended to help the growing Agile community worldwide.

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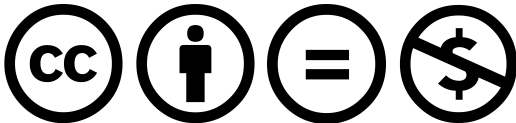
SPECIAL THANKS

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HOW TO READ THIS DOCUMENT

This document outlines the Learning Outcomes that must be addressed by accredited training organizations intending to offer ICAgile's ICP-FAI certification.

Each LO follows a particular pattern, described below.

0.0.0. Learning Outcome Name

Additional Context, describing why this Learning Outcome is important or what it is intended to impart.

The Learning Outcome purpose, further describing what is expected to be imparted on the learner (e.g. a key point, framework, model, approach, technique, or skill).

LEARNING OUTCOMES

1. INTRODUCTION TO ARTIFICIAL INTELLIGENCE

1.1. HISTORY AND EVOLUTION OF AI

1.1.1. Understanding AI

As AI is becoming more integrated into our daily lives it is critical to help people understand what AI is and its potential applications across industries.

Cover the key concepts, potential applications, and limitations of AI in the workplace. Illustrate the practical applications and potential of AI through current and emerging examples. Explain how AI differs from traditional computing.

1.1.2. History of AI

Understanding the history and the explosive growth of AI helps us to understand the impact of AI in the present and potential impacts of AI in the future.

Outline the key drivers behind the growth of AI ensuring that learners develop an understanding of the historical progression of AI, from its conceptual beginnings to its current state and future potential. Relate historical developments in AI to current trends and technologies.

1.1.3. Pieces of the AI Puzzle

AI is made up of a number of evolving components and concepts. This learning outcome is about establishing a shared language of AI of the building blocks for an AI solution in organizations.

Convey the purpose and underlying value of the components and concepts that make up AI. This could include topics such as machine learning, deep learning, algorithms, data processing, etc.

1.1.4. Evolving State of AI

The use of AI is expanding and evolving at an exponential rate. This high rate of change leads to misunderstandings of the abilities of AI and difficulty in assessing machine intelligence.

Discuss the factors that have created the environment for AI to evolve at such a rapid rate. Describe the differences between Artificial Narrow Intelligence (ANI) and Artificial General Intelligence (AGI). Address and clarify common myths and misconceptions surrounding AI. Explore the historical and alternative measures of AI intelligence and discuss the evolving criteria for evaluating AI.

1.2. ETHICS OF AI

1.2.1. Ethics in the Context of AI

Understanding of ethics in the context of AI is critical to ensure that AI technologies respect human rights and dignity, promote fairness and prevent harm. It builds public trust through transparency and accountability, essential for widespread acceptance and integration of AI into society.

Discuss the moral principles and guidelines for the use of AI. Define what ethical considerations should be addressed when working with AI.

1.2.2. The Ethical Use of AI

Issues like bias, misuse, data and privacy concerns stress the need for the responsible use of AI in organizations. It is vital for organizations to blend the use of AI with ethical standards.

Highlight the need for ethics in AI use in businesses. Discuss how to handle AI's moral challenges, focusing on privacy, security, fairness, and harm prevention. Discuss multiple strategies for the ethical use of AI.

1.2.3. The Inherent Bias of AI

AIs are influenced by the information used to train them. The data used can inject human biases or distort historical reality which impacts the results created by AI.

Discuss the impact of bias in the data, algorithms, and AI solutions. Introduce the learners to approaches and strategies to analyze AI models to ensure the use of AI is fair, transparent, and ethical. Introduce the need to apply human critical thinking and strategies to validate and trust the results given by AI solutions.

2. LEVERAGING ARTIFICIAL INTELLIGENCE

2.1. THE AGILE ADVANTAGE

2.1.1. Agile Mindset and AI

An agile mindset acknowledges the need for learning, experimentation, and continuous improvement that enables people and their organizations to be more flexible. This mindset is a significant advantage when working with AI solutions.

Create the connection between the agile mindset, values, and principles in the space of AI solutions. The culture of learning, including reflecting and adapting, is key to the successful use of AI.

2.1.2. Agile Behaviors and AI

Agile behaviors provide an advantage to organizations that must quickly adjust to AI's possibilities and limitations.

Cover how agile behaviors such as iterative development, continuous feedback, and collaboration can be applied to the unique demands of AI solutions.

2.1.3. Cross-Functional Teams and AI

The cross-functional team working on AI brings together the mix of skills to tackle AI's challenges, making solutions smart, fair, and value-driven.

Introduce the concept of a cross-functional team and cover the skills needed in a team focused on AI. Skills needed can include the following: prompt engineering, data literacy, data science, software engineering, ethics, and domain-specific knowledge. Discuss how the cross-functional team evolves to incorporate these new skills and responsibilities.

2.2. PROMPT ENGINEERING

2.2.1. Introduction to Prompt Engineering

As conversational AI grows, understanding AI Prompt Engineering is key. This skill is crucial for creating precise prompts that ensure AI delivers relevant and accurate responses.

Introduce the concept and basics of AI Prompt Engineering, highlighting its role in making AI interactions effective. The goal is for learners to recognize that a well-crafted prompt leads the AI to provide useful, specific answers.

2.2.2. Prompt Engineering

Effective prompts lead to reliable AI outcomes. The ability to prompt the AI and revise the prompt based on the results is key.

Cover techniques for crafting prompts that produce accurate, reliable, and unbiased results. Learners should be able to recognize when to revise their prompts based on the AI's results.

2.2.3. Context is Key

A key part of effective prompt engineering is providing accurate and relevant context.

Explain the importance and impact of context in prompt engineering. Learners should be able to identify their goal in using AI and use that to create the prompt.

2.2.4. All Prompts are not Created Equal

Many AI solutions have their own unique syntax or methods of analyzing prompts. An effective prompt in one solution may return poor results in another.

Introduce multiple AI solutions, such as LLMs and Generative AIs, and show how the same prompt returns different results. Describe how to find examples of the syntax of different AI solutions. Introduce patterns and strategies for crafting effective prompts.

3. ARTIFICIAL INTELLIGENCE IN THE ENTERPRISE

3.1. BRINGING AI TO THE ORGANIZATION

3.1.1. Business Value of AI

AI is changing the way organizations work, from enhancing decision making, analyzing data, and creating efficiencies. Organizations can effectively use AI to enhance and support the skills and creativity of their workforce.

Highlight how AI can be used to to create competitive advantages, optimize operations, and enhance customer engagement. Understanding AI's business value helps to make strategic decisions about investing in, developing, or implementing AI solutions. Discuss how AI supports and complements the skills and creativity of humans.

3.1.2. Align AI with Strategy

To get the most out of AI, there is a need to align AI initiatives with strategic business objectives, manage the organizational change, and ensure that AI solutions are scalable, sustainable, and deliver measurable value.

Introduce the importance of aligning AI initiatives with strategic objectives and the challenges when AI is not aligned with the strategy. Cover the necessary infrastructure for AI initiatives, the cultural shift towards data-driven decision-making, and the oversight required for responsible AI governance.

3.1.3. AI Maturity

Similar to agility, organizations are adopting AI at varying rates and levels of maturity.

Introduce learners to the qualities and levels of AI maturity and the complexities of adapting company culture, processes, and technology for AI initiatives.

3.1.4. Traditional and AI Initiatives

Organizations' approaches to business initiatives are changing because of AI. AI initiatives evolve over time, even after they are launched.

Explain the differences between traditional business initiatives, such as software development or project management, and AI initiatives. Learners understand how planning, designing, testing, and keeping AI systems up-to-date is different, often needing more trial and error than traditional methods. Prepare the learners to navigate the complexities of AI initiatives.

3.1.5. AI Initiatives in the Real World

Real-world examples play a crucial role in understanding AI's impact.

Introduce a number of real-world AI initiatives that bridge the gap between theory and business outcomes. Outline the types of AI solutions available and discuss how those solutions can impact organizations.