Microsoft

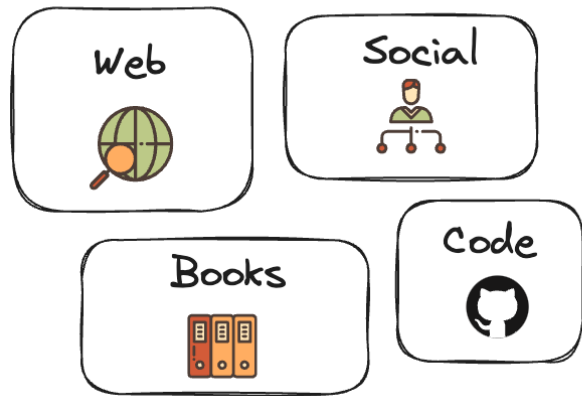**Generative AI** with JavaScript

What you need to know about LLMs

LLM
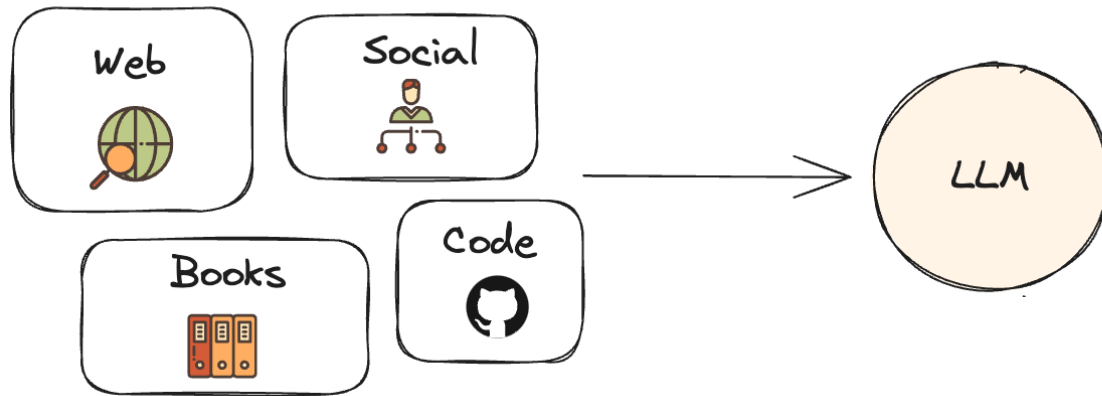
Large Language Model

Training

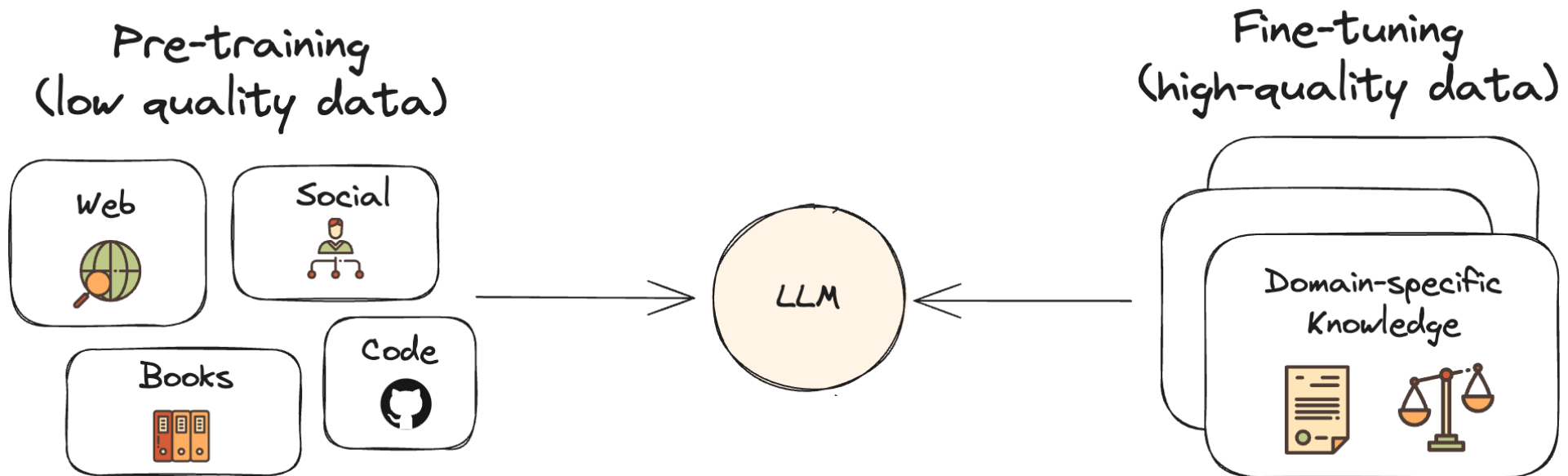Pre-training
(low quality data)

Web

Social

Books

Code

Training

Pre-training
(low quality data)

Web

Social

Books

Code

LLM

Training

Pre-training
(low quality data)

Web

Social

Books

Code

LLM

Fine-tuning
(high-quality data)

Domain-specific
Knowledge

Training

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Domain-specific
Knowledge

Humans

Prompts

Results

Feedbacks

Fine-tuned
LLM

Reinforced Learning from
Human Feedback (RLHF)

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(low quality data)

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Fine-tuned
LLM

Final
LLM

Reinforced Learning from
Human Feedback (RLHF)

Model types

- Text completion

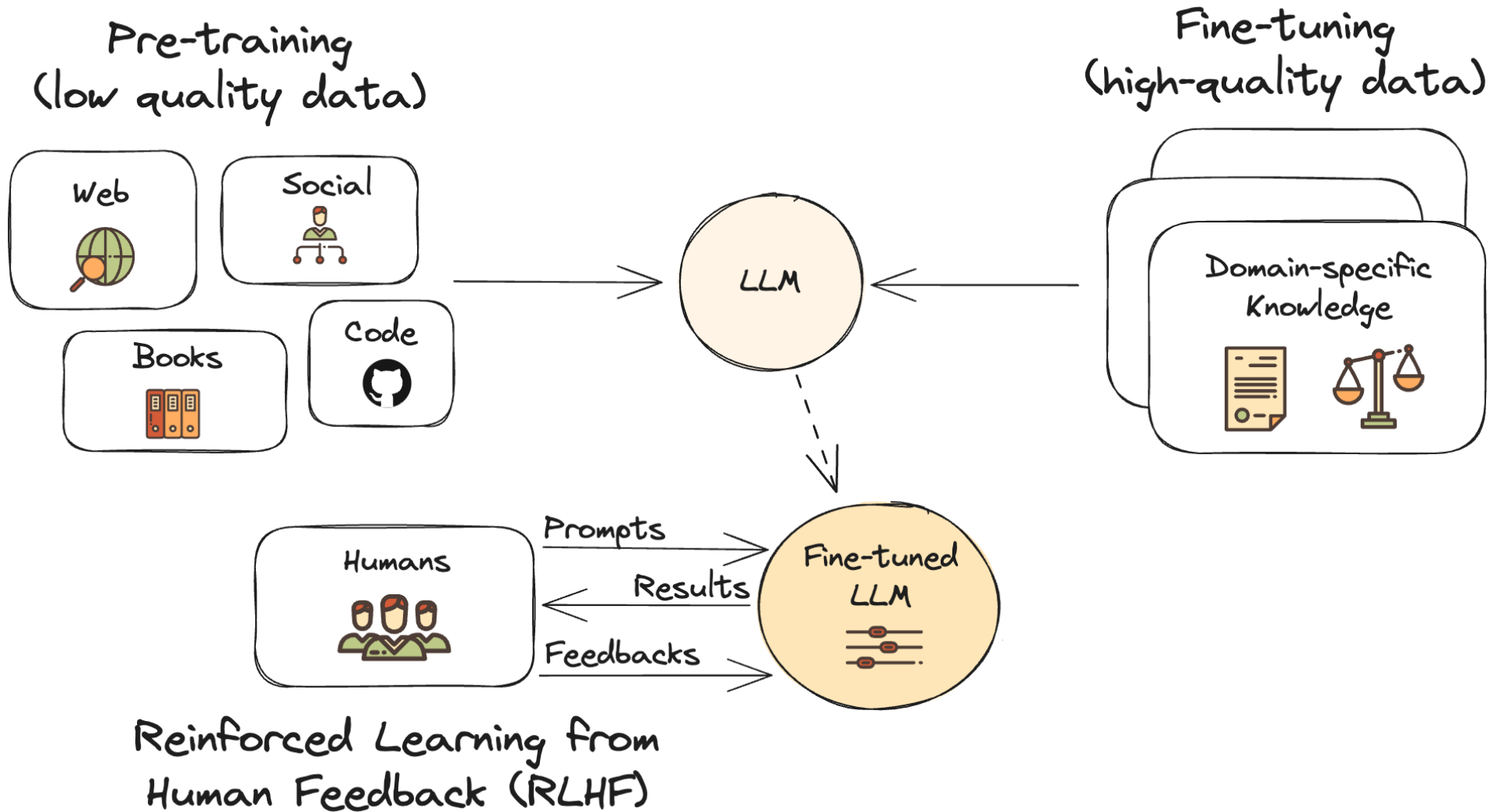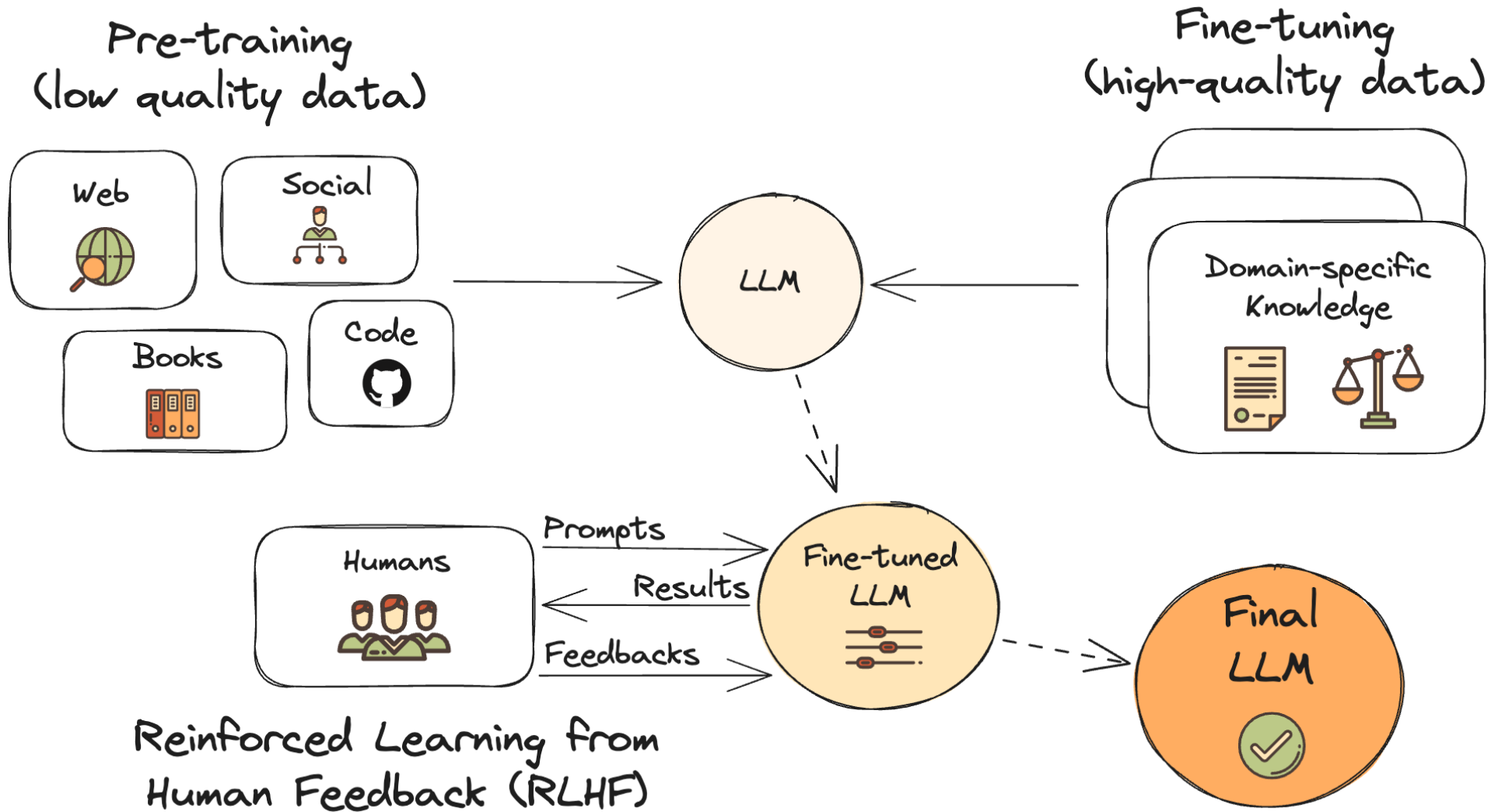These models specialize in text completion tasks such as question answering, machine translation and summarization.

Model types

- Text completion

These models specialize in text completion tasks such as question answering, machine translation and summarization.

- Instruction-following (a.k.a. chat models)

```
<|im_start|>system
You are a professional translator<|im_end|>
<|im_start|>user
How do I translate "hello" in French?<|im_end|>
<|im_start|>assistant
Bonjour<|im_end|>
```

Tokens

LLM don't work with words, but with tokens.

```
function createDate(dateStr: string) {
  return new Date(dateStr);
}
```

Clear   Show example

Tokens

16

Characters

68

```
function createDate(dateStr: string) {
  return new Date(dateStr);
}
```

Text   Token IDs

Tokens

LLM don't work with words, but with tokens.

GPT-4o & GPT-4o mini (coming soon)   **GPT-3.5 & GPT-4**

```
function createDate(dateStr: string) {
  return new Date(dateStr);
}
```

Clear   Show example

Tokens   **Characters**

16   68

[1723, 87585, 12237, 2645, 25, 925, 8, 341, 220, 471, 502, 2696, 12237, 2645, 317, 92]

Text   **Token IDs**

Tokens   Characters
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Text   **Token IDs**

Limits

Context window

- 4K tokens for common models
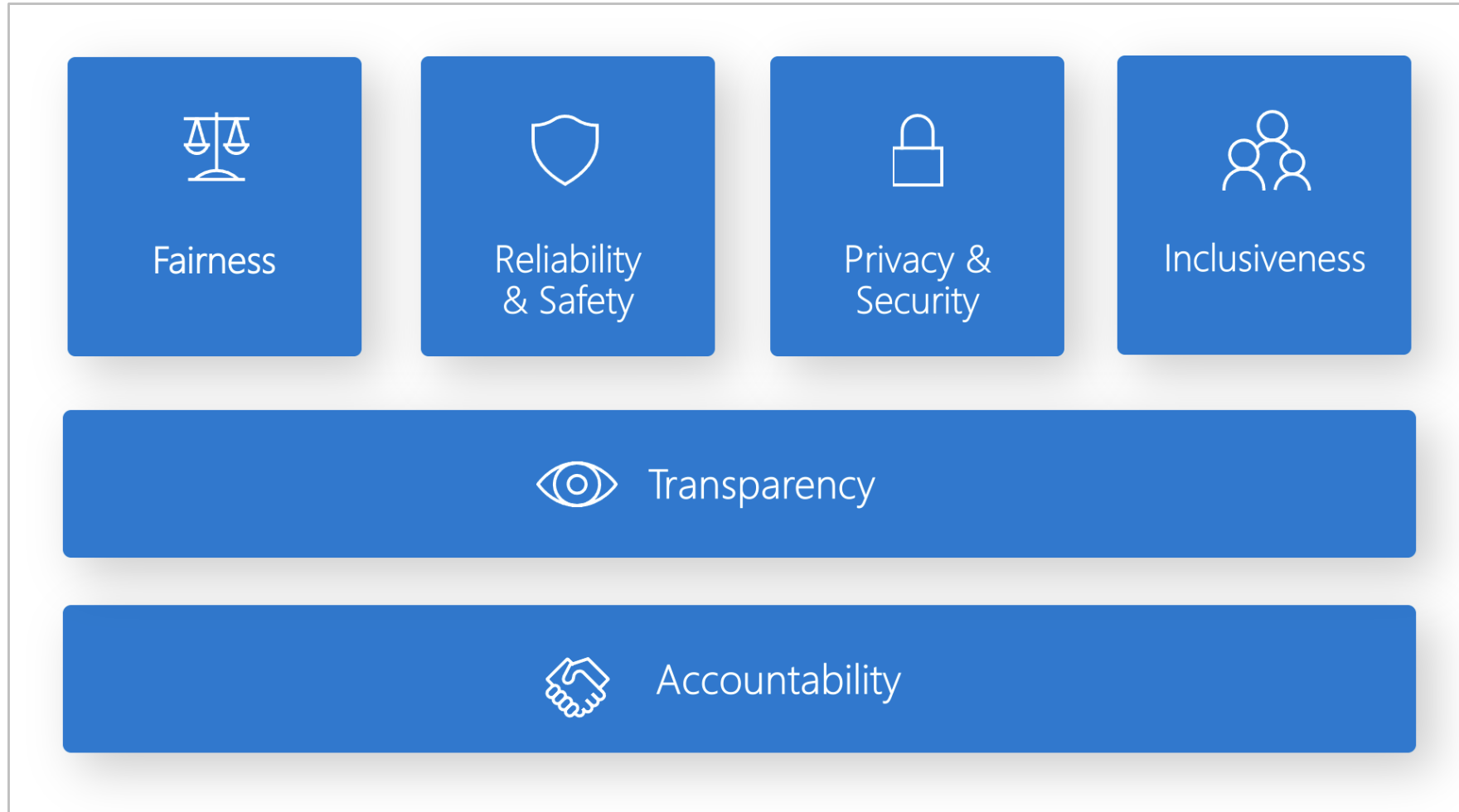- 128K+ tokens for newer models

Limits

Context window

- 4K tokens for common models
- 128K+ tokens for newer models

= How much text you can use as input

Responsible AI

Responsible AI

Fairness

Reliability & Safety

Privacy & Security

Inclusiveness

Transparency

Accountability

Learn more at aka.ms/RAI

Microsoft

Resources

- Intro to LLMs training   aka.ms/genai/llms

- Responsible AI training   aka.ms/genai/rai

- Azure OpenAI quickstart   aka.ms/ai/js/azure-quickstart