# Technology of the future

VOCABULARY PRACTICE
ADVANCED | C1

Name: _____ Date: _____

## 1 Match each advanced term with its definition.

| | |
|---|---|
| **1** technological singularity ____ | **a** a hypothesised future point where technological growth becomes uncontrollable and irreversible |
| **2** dual-use technology ____ | **b** a technology with both beneficial civilian and potentially harmful military or malicious applications |
| **3** speculative fiction bias ____ | **c** the tendency for public expectations of future technology to be shaped more by fiction than by realistic trajectories |
| **4** innovation ecosystem ____ | **d** the interconnected network of institutions, investors and researchers supporting technological development |
| **5** path-dependent innovation ____ | **e** innovation whose direction is constrained by earlier technical choices rather than purely optimal design |
| **6** frontier technology ____ | **f** technology at the cutting edge of current scientific and engineering capability |
| **7** anticipatory governance ____ | **g** proactive regulatory and policy planning for a technology's risks before they fully materialise |
| **8** existential risk ____ | **h** a risk that could cause the permanent, drastic curtailment of humanity's potential |
| **9** techno-utopianism ____ | **i** an idealistic belief that technology will resolve fundamental societal or human problems |
| **10** socio-technical system ____ | **j** a technology considered together with the social structures, institutions and practices surrounding its use |

## 2 Choose the most precise term for each context.

1 A hypothesised point where growth becomes uncontrollable is technological singularity / a stable equilibrium.

2 A technology with both civilian and harmful applications is dual-use technology / purely benign technology.

3 Expectations shaped more by fiction than reality is speculative fiction bias / evidence-based forecasting.

4 The network supporting technological development is an innovation ecosystem / a single laboratory.

5 Innovation constrained by earlier technical choices is path-dependent innovation / a fully optimal design.

6 Technology at the cutting edge of capability is frontier technology / obsolete technology.

# Technology of the future

7 Proactive planning for risks before they materialise is anticipatory governance / reactive regulation.

8 A risk that could permanently curtail humanity's potential is existential risk / a minor inconvenience.

## 3 Match the verbs with the noun phrases to form academic collocations.

| | |
|---|---|
| **1** mitigate ____ | **a** existential risk |
| **2** regulate ____ | **b** dual-use technology |
| **3** anticipate ____ | **c** an innovation ecosystem |
| **4** sustain ____ | **d** technological progress |
| **5** constrain ____ | **e** path-dependent design |
| **6** fuel ____ | **f** techno-utopianism |
| **7** interrogate ____ | **g** a frontier technology's trajectory |
| **8** cultivate ____ | **h** anticipatory governance |

# Technology of the future



## 4 Complete the analysis with terms from the box.

**anticipatory governance | dual-use technology | existential risk | frontier technology | innovation ecosystem | path-dependent innovation | socio-technical system | speculative fiction bias | techno-utopianism | technological singularity**

Scholars studying emerging capability increasingly examine 1 _____, dual-use technology whose beneficial civilian applications cannot easily be separated from potentially harmful ones, complicating straightforward regulatory approaches. Public understanding of 2 _____ is often distorted by 3 _____, since expectations shaped by popular fiction rarely match realistic technical trajectories. Some technologists embrace outright 4 _____, the belief that sufficiently advanced technology will resolve fundamental human problems, a view critics consider naive given how thoroughly any technology functions within a broader 5 _____ shaped by institutions, incentives and existing power structures rather than in technical isolation. A thriving 6 _____ of researchers, investors and supporting institutions proves essential for sustained progress, though 7 _____ means early design choices constrain later possibilities in ways not always fully anticipated. Debate continues over whether a hypothesised future 8 _____ represents a genuine possibility warranting serious 9 _____, proactive policy planning before risks fully materialise, or an overstated speculative concern distracting from more immediate 10 _____ requiring urgent regulatory attention.

## 5 Read the text and answer the questions briefly.

**Governing dual-use innovation**

Policymakers increasingly grapple with the regulatory challenge posed by dual-use technology, innovation whose beneficial civilian applications are often inseparable from potentially harmful military or malicious uses. Traditional regulatory frameworks, designed around clearly defined single-purpose technologies, struggle to accommodate innovations where restricting harmful applications risks simultaneously constraining legitimate, beneficial research. Anticipatory governance approaches attempt to address this challenge by engaging researchers, ethicists and policymakers early in a technology's development, before capabilities fully mature, though critics note that meaningfully anticipating risks for genuinely novel frontier technology remains extraordinarily difficult, since the most significant risks often only become apparent once a technology is already deployed at scale.

1 What regulatory challenge do policymakers increasingly grapple with? _____

2 What does dual-use technology mean? _____

# Technology of the future

3 What do traditional regulatory frameworks struggle to accommodate? _____

4 What does restricting harmful applications risk doing? _____

5 How do anticipatory governance approaches attempt to address this challenge? _____

6 What do critics note remains extraordinarily difficult? _____

## 6 Replace the words in bold with a precise term or collocation.

1 The technology had both beneficial civilian and potentially harmful applications. _____

2 Public expectations were shaped more by fiction than realistic trajectories. _____

3 The network of researchers, investors and institutions supported the field's growth. _____

4 Regulators engaged proactively before the technology's risks fully materialised. _____

## OVER TO YOU

Write a 160-190 word critical commentary on how societies might govern dual-use or frontier technologies responsibly, distinguishing observation from policy recommendation.

[ ] Use at least twelve target expressions. [ ] Include four academic collocations. [ ] Maintain a precise, balanced register.

# Technology of the future

VOCABULARY PRACTICE
ADVANCED | C1

## ANSWER KEY

### 1 Advanced terms

1 a 2 b 3 c 4 d 5 e 6 f 7 g 8 h 9 i 10 j

### 2 Precise terms

1 technological singularity 2 dual-use technology 3 speculative fiction bias 4 an innovation ecosystem 5 path-dependent innovation 6 frontier technology 7 anticipatory governance 8 existential risk

### 3 Academic collocations

1 a mitigate existential risk 2 b regulate dual-use technology 3 h anticipate... note adjust 4 c sustain an innovation ecosystem 5 e constrain path-dependent design 6 d fuel technological progress 7 g interrogate a frontier technology's trajectory 8 f cultivate techno-utopianism... note adjust

### 4 Analysis

1 dual-use technology 2 frontier technology 3 speculative fiction bias 4 techno-utopianism
5 socio-technical system 6 innovation ecosystem 7 path-dependent innovation 8 technological singularity
9 anticipatory governance 10 existential risk

### 5 Reading - suggested answers

1 The regulatory challenge posed by dual-use technology.
2 Innovation whose beneficial civilian applications are often inseparable from potentially harmful military or malicious uses.
3 Innovations where restricting harmful applications risks simultaneously constraining legitimate, beneficial research.
4 Constraining legitimate, beneficial research.
5 By engaging researchers, ethicists and policymakers early in a technology's development, before capabilities fully mature.
6 Meaningfully anticipating risks for genuinely novel frontier technology.

### 6 Precise terms and collocations

1 dual-use technology 2 speculative fiction bias 3 an innovation ecosystem 4 anticipatory governance

### Over to you

Answers will vary. Look for conceptual precision, evidence-aware reasoning and balanced evaluation.