Vraag 1
First read the article: Stunt technology really won't save the world.

Stunt technology really won't save the world

Quick fixes such as CO2 filters and mirrors in the desert mean that polluters never learn, warns Huub Dijstelbloem.

'We're going to build the biggest air purification installation in the world', claimed artist and inventor Daan Roosegaarde in NRC Handelsblad on 31 July 2015. Sounds exciting, but unfortunately megalomaniac projects that promise to be a shortcut to success are nothing new. We are all too familiar with them when it comes to infrastructure. The euphoria often culminates in overrun budgets, delays and parliamentary investigations. Witness the Betuwelijn and Noord-Zuidlijn train routes, even if in the best-case scenario they do at least work (with the exception of the HSL high-speed line) on completion and have involved pioneering work (the underground drilling in Amsterdam is truly impressive).

In recent years a new category has emerged, which I will call 'stunt technology'. These are innovations that are launched with great fanfare in the media not by the authorities but by young entrepreneurs, artists and idealists. Examples include Boyan Slat's project to rid the oceans of plastic or the glow-in-the-dark bike paths and smog vacuuming installations of Daan Roosegaarde himself.

What sets this stunt technology apart is the combination of art, idealism, entrepreneurial spirit and design. The inventors are good at grandiose and compelling plans, and the media and investors love them.

I don't want to claim that this kind of technology won't work, but what I can conclude is that something is missing. What these ideas have in common with other even grander plans, such as using geo-engineering to combat climate change (covering the deserts with reflective material to reflect sunlight or fertilizing oceans to increase the uptake of CO2), is that they seek technological quick fixes that circumvent human behaviour and social structures.

You also see this in the global discussion on smart cities. This is primarily a discussion between mayors, banks and technology firms. Urban sociologists and urban planners or experts on human-machine interaction do not get a look in. As if the end users do not matter and the technology is ready to go when it leaves the lab.

The pretence of being removed from the human inability to change our behaviour and to blithely declare that any change to our current lifestyle is unnecessary is what makes these projects attractive. It makes them autonomous, so the inventor can convert his idea into practice without having to dip his toes in the human swamp. But this is also their weakness.

Instead of running an extremely delicate technology to remove plastic from the ocean, wouldn't the obvious thing be to start at the root of the problem: that we produce and use so much disposable plastic? And instead of vacuuming up smog in cities that are becoming inhabitable, the real challenge is to do something about congestion, exhaust fumes and mobility. Viewed like this, the promised innovations are no more than highly inventive broom wagons that sweep up the detritus of the technological culture but leave the causes of pollution untouched. The desire to solve the world's problems that radiates from these

projects is contagious. But why not use this inspiration to seek solutions that can work in real environments, whether these be distant oceans or densely populated urban zones? There are plenty of opportunities in today's technological culture. Innovation will be vital because climate change is now too widespread and far-reaching to be viewed as an external problem that is approaching. It is part of the world.

Technological innovations will also be needed in the long term to tackle problems at the root and change behaviour. It is essential that governments make significant investments here. More reason to take the adoption of technology in ecological systems and the interaction with human traffic seriously.

_____End of the article

Read the article *Stunt technology really won't save the world*. The author argues for other solutions to complex problems than what he terms 'stunt technology'. How would you define his argument?

		The application of the precautionary principle.
		An example of mode 2 research.
		A politicized position.
		An example of macro-responsibility.

Vraag 2

Read the article *Stunt technology really won't save the world*. Against which form of technological change does the article argue?

		Boundary work.
		Technology push.
		Technocratic position of science.
		Market demand.

Vraag 3

Read the article *Stunt technology really won't save the world*. Despite the fact that according to the author, this so called 'stunt technology' does not really resolves the problem, what can be considered as another problem regarding 'stunt technology' in the context of the relation between technology and society?

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		The increasing influence of companies and industry in the academic world.
		The risk of the Collingridge dilemma.
		The fact that 'stunt technology' might proof not to be profitable.
		The risk of not having a proper Code of Conduct

Vraag 4

When do we speak of contextualized science?

		If society actively intervenes in the pursuit and interpretation of science.
		If scientists sit in an 'ivory tower'.
		If science researches the societal context.
		If a societal discussion takes place about the final applications of science.

Vraag 5

The rise of cyberethics also brings many associated issues. In which of the four phases which we use to describe the rise of cyberethics arose concerns about intellectual property and software piracy?

		Phase I.
		Phase II.
		Phase III.
		Phase IV.

Vraag 6
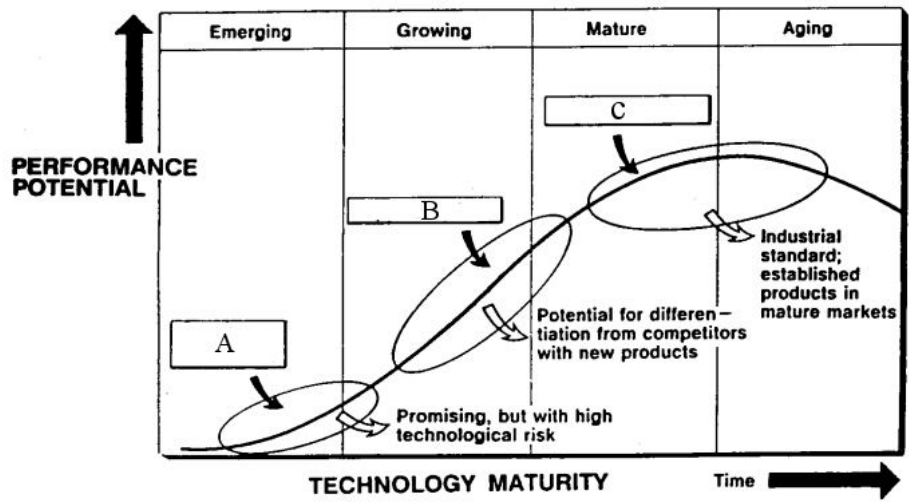
What should be placed at A and B?

		A: Embryonic technology; B: Key technology.
		A: Pioneering technology; B: Base technology.
		A: Technology; B: Application.
		A: Development; B: Application.

Vraag 7
For which ethical theory do conflicts of duty form a problem?

		Deontology.
		Scientism.
		Utilitarianism.
		Virtue ethics.

Vraag 8

Here at the University of Groningen, researches of the ALICE department are developing a robot that will be able to assist elderly people in their daily lives. The research is highly dependent on external funding and a high-profile technology company is interested in providing conditional financial aid. Because of this, the research of ALICE limits the capabilities of their robots because their focus is now the cleaning of assembly lines for the company. If we look at the norms of Merton, which of the four is missing?

		Scepticism.
		Communalism.
		Disinterestedness.
		Universalism.

Vraag 9

Science cafés, science shops and the National Science Agenda are examples of:

		Policy research.
		Public research.
		Public Engagement.
		Citizen Science.

Vraag 10
What is a problem for utilitarism?

		In some cases, policies and practices might be very unwanted, although they do produce the greatest good for the greatest number of people.
		In some cases, it is impossible for the biggest group of people to keep their moral obligations.
		In some cases, it is impossible to find an objective policy or practice that produces the greatest good for the greatest number of people.
		In some cases, it is impossible for the biggest group of people to follow the so-called self-evident duties.