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# Role descriptions

## Director Ecosystem Development, Quantum Delta NL

As part of the executive board of the national program Quantum Delta NL (QDNL) you are responsible to position the Netherlands as a leading ecosystem in quantum technologies. This entails the coordination of all quantum technology initiatives in the Netherlands, setting up innovation hubs, fostering the economic growth in the field of quantum technologies and facilitating technology transfer and start-ups. In 2021, QDNL received a subsidy of €615 million until 2027 to achieve these goals. Programmes of QDNL cover the whole spectrum of quantum technologies, including quantum computing, quantum networks and quantum sensors.[[1]](#footnote-2)

With great interest you have followed the societal and political discussions around the investment in specific quantum technology applications, especially in the communication sector. You believe that quantum computing has the potential to revolutionize our current communication system. You have seen many promising start-ups and **want to develop the Netherlands into a quantum-driven economy involving all relevant stakeholders**. **Therefore, the general accessibility of quantum computing capacity for researchers and entrepreneurs is an important goal for you.**

You are at this meeting to think along and ensure connection with the existing efforts in the QDNL program. Your facilities support any research and experimental activity in this field which aligns well with the QDNL goal to develop a collaborative national innovation ecosystem.

*Interests:* Real world applications of quantum computing; multi-stakeholder investments.

*Irritated by:* Delayed investments; lack of ambition; Negative International comparison.

*Habits:* Visionary; easily makes promises about technological futures; tends to boast about the Dutch position in quantum.

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| **Factsheet** |
| You have created a 1st version of Quantum Inspire (QI) - the first European Quantum Computer available in the cloud. The website contains a knowledge base with relevant information on quantum computing and a simulator with enough qubits to solve quantum problems in 5 years.[[2]](#footnote-3) |
| QDNL website: “If you are looking for the best spot to launch or grow your quantum business, rest assured: the Netherlands offers an excellent ecosystem where your company can flourish. For years, the Netherlands has been the largest receiver of European funding in the field of quantum technology, and now the Dutch national government is providing a solid foundation for structural support in the decades to come, by launching Quantum Delta NL.”[[3]](#footnote-4) |
| Boston Consulting Group estimates that quantum computing will create a value of 450 – 850 billion euros in the upcoming 15 to 30 years.[[4]](#footnote-5) |
| Considering the current pace of development and the time needed to educate skilled researchers in this field, you expect to reach a functional quantum computer in the mid 2030’s. Google plans to reach it in 2029, the expectancies of China are unknown. |

## Professor in Quantum optics, University of Twente

As a professor in quantum optics and head of a research group at the University of Twente, you lead a small team of talented and ambitious scientists who are as dedicated and fascinated about the fundamental principles of quantum technology as you are. Together with your team you have made considerable contributions to photonic processors for quantum computing. Your achievements are published in many well-cited journals and are rewarded by numerous prestigious grants. In the field of quantum optics, you are a well-known and respected authority.

Over the last decades, you have applied for grants to finance fundamental research. However, your success of these applications has been decreasing. Currently, the focus lies on application driven research, and **you are searching for opportunities to finance your fundamental research in this application-driven environment - ideally you choose a funding program with a long perspective**. This increases your chances of receiving funding which is crucial to maintain your research group and live up to the expectations of the university. This lack of freedom to pursue fundamental research frustrates you.

You believe that the ongoing developments of photonic processors are a game-changer in quantum communication and computing in the coming 15 years. Together with your international collaborations, especially with research groups in China, you have contributed to this development: parts of the chip used in the Chinese quantum computer featured in the newspaper have been developed in your lab! Although it remains uncertain whether quantum computing will be able to deliver on its potential, you believe that quantum technologies should be pursued for their inherent value to humankind. To use one of your own quotes: “I want to give mankind a tool to realise their imagination. Putting such a tool to good use is a strength of people.”. In this sense, you vouch for the installation of an openly accessible cloud-quantum-computing platform. **Regarding safety of our communication, you see this going hand in hand with fundamental research into quantum encryption.** Fundamental research eventually leads to the development of fully functional and stable quantum computers and to post-quantum encryption methods – the best way to protect our communication infrastructure.

*Interests:* Reputation and recognition; (fundamental) science, a quantum computer.

*Irritated by:* Irrationality; procrastination; lack of scientific insight and ambition.

*Habits:* Enthusiastic speaker; can be derogative when others show ignorance; plays with pen or glasses when irritated.

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| **Factsheet** |
| Quantum computing is based on Qubits. Often, Qubits are created by using electrons, for example in superconductor-based quantum computers. Photonic processors on the other hand use light particles, or photons, instead of electrons to store information. Photons and electrons allow to store information in more ways than the bit. The advantage of using photons lies in the operability of the system at room temperature, whereas electron-based computations must be kept at extremely low temperatures making the system bulky and expensive. |
| It is important for your career to maintain international collaborations. |
| Neven’s law was coined in 2019 and is overly optimistic. It bases itself on principles of quantum computing, like the exponential increase of information processing when adding a single qubit. However, it overlooks fundamental challenges quantum computing faces. Most importantly the challenge is to establish a multipurpose, programmable quantum computer. |

## Director of Internet Freedom 4 All

As director of *Internet Freedom 4 All* (IF4A) you are responsible for the strategy, daily operations, and public outings of the foundation. The goal of your foundation is to protect internet freedom based on the civil right to privacy and on the freedom of communication.

The recent news of quantum breakthroughs in China have concerned you and your organisation. **You are afraid that the privacy and freedom of communication of Dutch citizens may be attacked.** You are especially concerned that governments, national as well as foreign, would use an unsecure communication infrastructure to their advantage at the costs of citizen's privacy. You are strongly against the utilisation of technological superiority for offensive purposes. The governments and citizens of all countries must be protected from malicious infringement on their privacy and communications. **In your opinion, efforts should be focused on implementation of the encryption methods that are already available.** You demand the government to take actions immediately on this topic before it is too late.

Internet Freedom 4 All also advocates to make quantum technologies available to the public via cloud-based platforms and open source patents**. You believe that transparency and open availability of knowledge will trump secretive development because of its ability to use the knowledge of the crowd and move quickly.** This way the technology can be used to solve societal problems and funding is not wasted in fundamental research which is not benefitting society directly.

*Interests:* A safe and reliable communication system; internet safety and freedom for all citizens; having a say in decision making.

*Irritated by:* Plans that disregard the public interest mainly related to privacy and internet freedom; wasting taxpayers’ money; being marginalized by powerful actors.

*Habits:* Activist attitude; not afraid to speak up; can be constructive but gets agitated when being marginalized.

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| **Factsheet** |
| Post-quantum cryptography standards which are fully secure are still under development and are expected around 2024. Until then, hybrid forms of encryptions can be established, based on currently used methods and the existing post-quantum cryptography methods. |
| Citizen privacy is regularly attacked by secret services. The Dutch Secret service for example collects enormous amounts of data from citizens in order to not miss out on relevant information. However, because the Secret Service does not have the capacity and time to analyse all collected data, the information is stored for a much longer period than regulated by law – at the expense of our privacy![[5]](#footnote-6) |
| The unique digital infrastructure in the Netherlands must be secured – the development of secure encryption is a key to maintain a trustworthy and confidential network.[[6]](#footnote-7) |
| You have prepared a demonstration in front of the Dutch parliament to show your discontent with the outcome of the meeting, in case this is necessary. |

## Director of the Netherlands National Communications Security Agency

As director of the Netherlands National Communications Security Agency (NBV), you are part of the Dutch General Intelligence and Security Service (AIVD) and responsible for the protection and management of crucial government information and state secrets. The expertise of your department lies in the technical measures to ensure the best protection of sensitive government information. Your department also ensures the protection of classified NATO and EU information in the Netherlands.

Personally, you live for this work. You hold a key position in the security of the country. You have been part of the Dutch Commando Troops as an information specialist. You consider yourself a very dutiful, disciplined, and competent individual.

The rise of quantum computing is of high significance for your work in securing information. Your current protection standards are well-equipped to hold off targeted attacks by current state-of-the-art (super)computers. However, the computational power of a quantum computer is set to become so large, that your current encryption methods are in no way up for the challenge. This would compromise classified information of the Dutch government, NATO, and the EU, leading towards a national and international security disaster.

**Therefore, it is crucial to catch up with quantum computing research of countries such as China and the US. Establishing a post-quantum cryptography standard is of the utmost importance to secure sensitive data.** On the short term, this can be achieved by developing encryption methods that are difficult for quantum hardware to compute. On the long-term, you believe expertise in quantum computing and a quantum computer are required to maintain the security of government information.

Preferably, you want to get an edge on other countries by developing the technology first to be able to use it to your advantage. Therefore, the confidentiality of technological advances in developing quantum computers and quantum encryption is of utmost importance. **You do not want other countries or mal-intended citizens to get ahead in the development of quantum computers because the information they needed was handed to them.** In the best case, you want to gain insight into the classified information of other non-friendly governments. This would benefit state safety and the protection of the Dutch citizens.

*Interests:* Security of the country; getting an edge on other countries; putting the brightest minds to use for the safety of the country.

*Irritated by:* Lack of discipline; others acting without knowing; neglection of national security; negative stance towards government involvement.

*Habits:* Hard to convince; gets stand-offish when irritated.

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| **Factsheet** |
| Most problematic is the possibility for mal-intended groups or countries to harvest encrypted data now and decode it later using quantum computing. |
| Post-quantum encryption is already offered by certain large companies and standardisation efforts are made by the US-based National Institute of Standards and Technologies. Organising a shift towards these systems is a huge undertaking and requires adaptation of currently existing infrastructure but should have a focus now. Post-quantum encryption standards are expected to be established by 2024. |

## Executive Vice President Strategy, Research and Technology at Thales Group

As the Executive Vice President of Strategy, Research, and Technology at Thales Group you are responsible for the identification and exploitation of strategic opportunities for Thales. As a Dutch company, Thales is a global leader in private technology research with 80.000 employees spread over every continent in the world with great importance in the field of communications security. Thales facilitates complex, secure communication networks and engineering solutions in ground transportation, aviation, and space.

Your company has started to make sizable investments in quantum computing. At the moment you offer one of the first post-quantum cryptography methods. You have the potential to become an established actor in quantum technologies because of your vast experience in the field of engineering and communications security. **Economic growth is a central value to the justification of your research directions and to the existence of your company.**

You hold the strong belief that quantum technologies must be developed with an application in mind, which should be serving economic growth. Post-quantum cryptography is required to ensure the security of critical and sensitive information in various sectors such as governmental and military data, bank details and medical records. **Your department vouches for developing quantum computing technologies for the purpose of advancing post-quantum cryptography to secure current communication, and to maintain digital sovereignty.** Additionally, you see quantum computing as a great opportunity to enable more complex simulations that are central to the development of your engineering solutions, especially in space.

*Interests:* Stronger market position, short-term opportunities, mid- to long-term profits, advanced encryption and complex simulations to increase economic position.

*Irritated by:* Lack of clarity, indecisiveness, having to pay for other people’s hobby horses.

*Habits:* No-nonsense attitude, tough negotiator, visibly annoyed when irritated by others

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| **Factsheet** |
| Post-quantum cryptography is based on the fundamental computational properties of a quantum computer and is therefore expected to be resistant against quantum computers. |
| Implementing post-quantum cryptography requires large efforts from all organisations involved. As a leader in the market, you see the opportunity to establish a coalition of large private companies to make a sizeable investment in this transformation, on the prerequisite that you can establish patents on this technology and market it to other parties. Publicly open research results and freely accessible computing power is a thorn in your side. A governmental standard for secure communication enables you to widely disseminate your technology. |
| Boston Consulting Group estimates that quantum computing will create a value of 450 – 850 billion euros in the upcoming 15 to 30 years.[[7]](#footnote-8) |
| When a person collects encrypted data at this point in time he/she can likely decipher this data 20 to 30 years from now using a quantum computer. This makes implementation of post-quantum cryptography urgent for data which is still sensitive 20 years from now. |

# Doubled roles

## Chairman Science and Technology, Quantum Delta NL

As part of the executive board of the national program Quantum Delta NL (QDNL) you are responsible to position the Netherlands as a leading ecosystem in quantum technologies. This entails the coordination of all quantum technology initiatives in the Netherlands, setting up innovation hubs, fostering the economic growth in the field of quantum technologies and facilitating technology transfer and start-ups. In 2021, QDNL received a subsidy of €615 million until 2027 to achieve these goals. Programmes of QDNL cover the whole spectrum of quantum technologies, including quantum computing, quantum networks and quantum sensors.

With great interest you have followed the societal and political discussions around the investment in specific quantum technology applications, especially in the communication sector. You believe that quantum computing has the potential to revolutionize our current communication system. You have seen many promising start-ups and **want to develop the Netherlands into a quantum-driven economy involving all relevant stakeholders**. **Therefore, the general accessibility of quantum computing capacity for researchers and entrepreneurs is an important goal for you and your network.**

You are at this meeting to think along and ensure connection with the existing efforts in the QDNL program. Your facilities support any research and experimental activity in this field which aligns well with the QDNL goal to develop a collaborative national innovation ecosystem.

*Interests:* Finding real world applications for quantum computing; multi-stakeholder investments.

*Irritated by:* Delayed investments; lack of ambition; Negative International comparison.

*Habits:* Creative thinker; proud on innovative potential within QDNL; tends to boast about the Dutch position in quantum.

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| **Factsheet** |
| You have created a 1st version of Quantum Inspire (QI) - the first European Quantum Computer available in the cloud. The website contains a knowledge base with relevant information on quantum computing and a simulator with ample qubits to solve quantum problems in 5 years.[[8]](#footnote-9) |
| QDNL website: “If you are looking for the best spot to launch or grow your quantum business, rest assured: the Netherlands offers an excellent ecosystem where your company can flourish. For years, the Netherlands has been the largest receiver of European funding in the field of quantum technology, and now the Dutch national government is providing a solid foundation for structural support in the decades to come, by launching Quantum Delta NL.”[[9]](#footnote-10) |
| Boston Consulting Group estimates that quantum computing will create a value of 450 – 850 billion euros in the upcoming 15 to 30 years.[[10]](#footnote-11) |
| Considering the current pace of development and the time needed to educate skilled researchers in this field, you expect to reach a functional quantum computer in the mid 2030’s. Google plans to reach it in 2029, the expectancies of China are unknown. |

## Associate Professor in Quantum Information, University of Twente

As an associate professor in quantum optics and part of a research group at the University of Twente, you lead a small team of talented and ambitious scientists who are as dedicated and fascinated about the fundamental principles of quantum technology as you are. Together with your team you have made considerable contributions to photonic processors for quantum computing. Your achievements are published in various well-cited journals and are rewarded by prestigious grants. You have a large international network in the quantum optics community.

Over the last decades, you have applied for grants to finance fundamental research. However, your success of these applications has been decreasing. Currently, the focus lies on application driven research, and **you are searching for opportunities to finance your fundamental research in this application-driven environment - ideally you choose a funding program with a long perspective**. This increases your chances of receiving funding which is crucial to maintain your reputation and increase your chances towards a full professorship position at the university. This lack of freedom to pursue fundamental research frustrates you.

You believe that the ongoing developments of photonic processors are a game-changer in quantum communication and computing in the coming 15 years. Together with your international collaborations, especially with research groups in China, you have contributed to this development: parts of the chip used in the Chinese quantum computer featured in the newspaper have been developed in your lab! Although it remains uncertain whether quantum computing will be able to deliver on its potential, you believe that quantum technologies should be pursued for their inherent value to humankind. In this sense, you vouch for the installation of an openly accessible cloud-quantum-computing platform. **Regarding safety of our communication, you see this going hand in hand with fundamental research into quantum encryption.** Fundamental research eventually leads to the development of fully functional and stable quantum computers and to post-quantum encryption methods – the best way to protect our communication infrastructure.

*Interests:* Reputation and recognition; (fundamental) science, a quantum computer.

*Irritated by:* Irrationality; procrastination; lack of scientific insight and ambition.

*Habits:* Gets excited when talking about science; annoyed by other’s ignorance; plays with pen when irritated.

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| **Factsheet** |
| Quantum computing is based on Qubits. Often, Qubits are created by using electrons, for example in superconductor-based quantum computers. Photonic processors on the other hand use light particles, or photons, instead of electrons to store information. Photons and electrons allow to store information in more ways than the bit. The advantage of using photons lies in the operability of the system at room temperature, whereas electron-based computations must be kept at extremely low temperatures making the system bulky and expensive. |
| It is important for your career to maintain international collaborations. |
| Neven’s law was coined in 2019 and is overly optimistic. It bases itself on principles of quantum computing, like the exponential increase of information processing when adding a single qubit. However, it overlooks fundamental challenges quantum computing faces. Most importantly the challenge is to establish a multipurpose, programmable quantum computer. |

## Policy advisor of Internet Freedom 4 All

As policy advisor of *Internet Freedom 4 All* (IF4A) you are mainly concerned about the power relationship between the state and the citizens. The goal of your foundation is to protect internet freedom based on the civil right to privacy and on the freedom of communication.

The recent news of quantum breakthroughs in China have concerned you and your organisation. **You are afraid that the privacy and freedom of communication of Dutch citizens may be attacked.** You are especially concerned that governments, national as well as foreign, would use an unsecure communication infrastructure to their advantage at the costs of citizen's privacy. You are strongly against the utilisation of technological superiority for offensive purposes. The governments and citizens of all countries must be protected from malicious infringement on their privacy and communications. **In your opinion, efforts should be focused on implementation of the encryption methods that are already available.** You demand the government to take actions immediately on this topic before it is too late.

Internet Freedom 4 All also advocates to make quantum technologies available to the public via cloud-based platforms and open source patents**. You believe that transparency and open availability of knowledge will trump secretive development because of its ability to use the knowledge of the crowd and move quickly.** This way the technology can be used to solve societal problems and funding is not wasted in fundamental research which is not benefitting society directly.

*Interests:* A safe and reliable communication system; internet safety and freedom for all citizens; having a say in decision making.

*Irritated by:* Plans that disregard the public interest mainly related to privacy and internet freedom; wasting taxpayers’ money; being marginalized by powerful actors.

*Habits:* Activist attitude; engaged when it comes to citizen rights; can be constructive but gets agitated when being marginalized.

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| **Factsheet** |
| Post-quantum cryptography standards which are fully secure are still under development and are expected around 2024. Until then, hybrid forms of encryptions can be established, based on currently used methods and the existing post-quantum cryptography methods. |
| Citizen privacy is regularly attacked by secret services. The Dutch Secret service for example collects enormous amounts of data from citizens in order to not miss out on relevant information. However, because the Secret Service does not have the capacity and time to analyse all collected data, the information is stored for a much longer period than regulated by law – at the expense of our privacy![[11]](#footnote-12) |
| The unique digital infrastructure in the Netherlands must be secured – the development of secure encryption is a key to maintain a trustworthy and confidential network.[[12]](#footnote-13) |
| You have prepared a demonstration in front of the Dutch parliament to show your discontent with the outcome of the meeting, in case this is necessary. |

## Executive director of the Netherlands National Communications Security Agency

As executive director of the Netherlands National Communications Security Agency (NBV), you are part of the Dutch General Intelligence and Security Service (AIVD) and responsible for the protection and management of crucial government information and state secrets. The expertise of your department lies in the technical measures to ensure the best protection of sensitive government information. Your department also ensures the protection of classified NATO and EU information in the Netherlands.

Personally, you live for this work. You hold a key position in the security of the country. You have been part of the Dutch Commando Troops as an information specialist. You consider yourself a very dutiful, disciplined, and competent individual.

The rise of quantum computing is of high significance for your work in securing information. Your current protection standards are well-equipped to hold off targeted attacks by current state-of-the-art (super)computers. However, the computational power of a quantum computer is set to become so large, that your current encryption methods are in no way up for the challenge. This would compromise classified information of the Dutch government, NATO, and the EU, leading towards a national and international security disaster.

**Therefore, it is crucial to catch up with quantum computing research of countries such as China and the US. Establishing a post-quantum cryptography standard is of the utmost importance to secure sensitive data.** On the short term, this can be achieved by developing encryption methods that are difficult for quantum hardware to compute. On the long-term, you believe expertise in quantum computing and a quantum computer are required to maintain the security of government information.

Preferably, you want to get an edge on other countries by developing the technology first to be able to use it to your advantage. Therefore, the confidentiality of technological advances in developing quantum computers and quantum encryption is of utmost importance. **You do not want other countries or mal-intended citizens to get ahead in the development of quantum computers because the information they needed was handed to them.** In the best case, you want to gain insight into the classified information of other non-friendly governments. This would benefit state safety and the protection of the Dutch citizens.

*Interests:* Security of the country; getting an edge on other countries; putting the brightest minds to use for the safety of the country.

*Irritated by:* Lack of discipline; others acting without knowing; neglection of national security; negative stance towards government involvement.

*Habits:* Stubborn; gets unfriendly when irritated.

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| **Factsheet** |
| Most problematic is the possibility for mal-intended groups or countries to harvest encrypted data now and decode it later using quantum computing. This is something we have to anticipate and prepare for. |
| Post-quantum encryption is already offered by certain large companies and standardisation efforts are made by the US-based National Institute of Standards and Technologies. Organising a shift towards these systems is a huge undertaking and requires adaptation of currently existing infrastructure but should have a focus now. Post-quantum encryption standards are expected to be established by 2024. |

## Executive Vice President Secure Communications & Information Systems at Thales Group

As the Executive Vice President of Secure Communications & Information Systems at Thales Group you are responsible for the identification and exploitation of strategic opportunities for Thales. As a Dutch company, Thales is a global leader in private technology research with 80.000 employees spread over every continent in the world with great importance in the field of communications security. Thales facilitates complex, secure communication networks and engineering solutions in ground transportation, aviation, and space.

Your company has started to make sizable investments in quantum computing. At the moment you offer one of the first post-quantum cryptography methods. You have the potential to become an established actor in quantum technologies because of your vast experience in the field of engineering and communications security. **Economic growth is a central value to the justification of your research directions and to the existence of your company.**

You hold the strong belief that quantum technologies must be developed with an application in mind, which should be serving economic growth. Post-quantum cryptography is required to ensure the security of critical and sensitive information in various sectors such as governmental and military data, bank details and medical records. **Your department vouches for developing quantum computing technologies for the purpose of advancing post-quantum cryptography to secure current communication, and to maintain digital sovereignty.** Additionally, you see quantum computing as a great opportunity to enable more complex simulations that are central to the development of your engineering solutions, especially in space.

*Interests:* Stronger market position, short-term opportunities, mid- to long-term profits, advanced encryption and complex simulations to increase economic position.

*Irritated by:* Lack of clarity, indecisiveness, having to pay for other people’s hobby horses.

*Habits:* business-like appearance, tough negotiator, tips his nose when irritated by others

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| **Factsheet** |
| Post-quantum cryptography is based on the fundamental computational properties of a quantum computer and is therefore expected to be resistant against quantum computers. |
| Implementing post-quantum cryptography requires large efforts from all organisations involved. As a leader in the market, you see the opportunity to establish a coalition of large private companies to make a sizeable investment in this transformation, on the prerequisite that you can establish patents on this technology and market it to other parties. Publicly open research results and freely accessible computing power is a thorn in your side. A governmental standard for secure communication enables you to widely disseminate your technology. |
| Boston Consulting Group estimates that quantum computing will create a value of 450 – 850 billion euros in the upcoming 15 to 30 years.[[13]](#footnote-14) |
| When a person collects encrypted data at this point in time he/she can likely decipher this data 20 to 30 years from now using a quantum computer. This makes implementation of post-quantum cryptography urgent for data which is still sensitive 20 years from now. |

1. The Dutch Quantum Ecosystem – Birch / University of Utrecht ([Download PDF](https://quantumdelta.nl/TUQ/wp-content/uploads/2020/03/Het-Nederlandse-Quantum-Ecosysteem-.pdf)) [↑](#footnote-ref-2)
2. [www.quantuminspire.com](http://www.quantuminspire.com) [↑](#footnote-ref-3)
3. [Quantum Delta NL - Quantum Delta NL](https://quantumdelta.nl/) [↑](#footnote-ref-4)
4. <https://www.bcg.com/publications/2021/building-quantum-advantage> [↑](#footnote-ref-5)
5. [Unfriendly reminder: De geheime diensten stelen nog steeds onze gegevens – Bits of Freedom](https://www.bitsoffreedom.nl/2022/02/03/unfriendly-reminder-de-geheime-diensten-stelen-nog-steeds-onze-gegevens/) [↑](#footnote-ref-6)
6. [Stimuleer encryptie en koester tegenspraak: ons advies aan de commissie voor Digitale Zaken – Bits of Freedom](https://www.bitsoffreedom.nl/2021/12/17/stimuleer-encryptie-en-koester-tegenspraak-ons-advies-aan-de-commissie-voor-digitale-zaken/) [↑](#footnote-ref-7)
7. <https://www.bcg.com/publications/2021/building-quantum-advantage> [↑](#footnote-ref-8)
8. [www.quantuminspire.com](http://www.quantuminspire.com) [↑](#footnote-ref-9)
9. [Quantum Delta NL - Quantum Delta NL](https://quantumdelta.nl/) [↑](#footnote-ref-10)
10. <https://www.bcg.com/publications/2021/building-quantum-advantage> [↑](#footnote-ref-11)
11. [Unfriendly reminder: De geheime diensten stelen nog steeds onze gegevens – Bits of Freedom](https://www.bitsoffreedom.nl/2022/02/03/unfriendly-reminder-de-geheime-diensten-stelen-nog-steeds-onze-gegevens/) [↑](#footnote-ref-12)
12. [Stimuleer encryptie en koester tegenspraak: ons advies aan de commissie voor Digitale Zaken – Bits of Freedom](https://www.bitsoffreedom.nl/2021/12/17/stimuleer-encryptie-en-koester-tegenspraak-ons-advies-aan-de-commissie-voor-digitale-zaken/) [↑](#footnote-ref-13)
13. <https://www.bcg.com/publications/2021/building-quantum-advantage> [↑](#footnote-ref-14)