Subsidy Advice Unit Report on the proposed subsidy to BioNTech UK Limited

Referred by the Department for Science, Innovation and Technology

14 November 2024

Subsidy Advice Unit

Part of the Competition and Markets Authority

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1. The Referral

1.1 On 30 September 2024, the Department for Science, Innovation and Technology (DSIT) requested a report from the Subsidy Advice Unit (the SAU)[1] in relation to the proposed subsidy to BioNTech UK Limited (BioNTech) (the Subsidy) under section 52 of the Subsidy Control Act 2022 (the Act).[2]

1.2 This report evaluates DSIT's assessment of compliance (the Assessment) of the Subsidy with the requirements of Chapters 1 and 2 of Part 2 of the Act.[3] It is based on the information and evidence included in the Assessment.

1.3 This report is provided as non-binding advice to DSIT. It does not consider whether the Subsidy should be given, or directly assess whether it complies with the subsidy control requirements.

Summary

1.4 The Assessment uses the four-step structure described in the Statutory Guidance for the United Kingdom Subsidy Control Regime (the Statutory Guidance) and as reflected in the SAU's Guidance on the operation of the subsidy control functions of the Subsidy Advice Unit (the SAU Guidance).

1.5 In our view, DSIT has considered in detail the compliance of the Subsidy with the subsidy control principles. In particular, the Assessment clearly describes and evidences the counterfactual and considers a number of issues relevant to demonstrating how the Subsidy is limited to the minimum necessary and is proportionate to achieving its policy objectives. In addition, the explanation of the impact on competition in Principle F is well reasoned, the Assessment having considered the possible impact on competition in each affected market.

1.6 However, in our view, the Assessment should:

(a) More clearly explain how market failures relating to knowledge spillovers are addressed by the Subsidy, relative to the counterfactual. The Assessment should more clearly link the policy objectives with the market failures in particular in relation to UK localised knowledge spillovers (Principle A).

(b) Provide more detail on alternative options that were considered to achieve the policy objectives (Principle E), as well as more detail and supporting

[1] The SAU is part of the Competition and Markets Authority
[2] Referral of the proposed subsidy to BioNTech UK Limited by the Department for Science, Innovation and Technology - GOV.UK (www.gov.uk)
[3] Chapter 1 of Part 2 of the Act requires a public authority to consider the subsidy control principles and energy and environment principles before deciding to give a subsidy. The public authority must not award the subsidy unless it is of the view that it is consistent with those principles. Chapter 2 of Part 2 of the Act prohibits the giving of certain kinds of subsidies and, in relation to certain other categories of subsidy creates a number of requirements with which public authorities must comply.

evidence on how BioNTech was selected relative to other possible beneficiaries (Principles B and F).

(c) In the balancing exercise, consider further any potential negative effects of the Subsidy on international trade or investment (Principle G).

1.7 We discuss these areas below, along with other issues, for consideration by DSIT in finalising its assessment.

The referred subsidy

1.8 DSIT is proposing to award £129 million to BioNTech to enable an expansion of its activities in the UK, where BioNTech intends to carry out new activities in Research and Development (R&D) and Artificial Intelligence (AI) over the next ten years. DSIT explained that the Subsidy is necessary to secure an inward investment of approximately £1 billion by BioNTech, creating approximately 460 direct highly skilled new jobs in the UK.

1.9 As a result of the Subsidy, BioNTech's activities in the UK will focus on structural biology, regenerative medicine, oncology, and AI-driven drug discovery, spanning three locations (the Project):

(a) In Cambridge, BioNTech plans to set up a new centre of excellence focused on drug development of new treatments for cancer and other serious diseases.

(b) In London, BioNTech intends to establish a major hub including a centre of expertise for AI led by InstaDeep Ltd, a wholly owned subsidiary of BioNTech SE (BioNTech's parent company), focussed on the development of next generation of learning approaches to understanding disease causes, drug targeting and predictive analytics.

(c) At a third site, which is still under discussion, BioNTech would also undertake R&D into vaccines, including for diseases with high pandemic potential.

1.10 The Assessment explains that a Grant Funding Agreement will set out the funded activities and eligible expenditure.

1.11 DSIT explained that the proposed Subsidy is a Subsidy of Particular Interest because it exceeds £10 million in value.

2. The SAU's Evaluation

2.1 This section sets out our evaluation of the Assessment, following the four-step structure used by DSIT.

Step 1: Identifying the policy objective, ensuring it addresses a market failure or equity concern, and determining whether a subsidy is the right tool to use

2.2 Under Step 1, public authorities should consider compliance of a subsidy with:

(a) Principle A: Subsidies should pursue a specific policy objective in order to remedy an identified market failure or address an equity rationale (such as local or regional disadvantage, social difficulties or distributional concerns); and

(b) Principle E: Subsidies should be an appropriate policy instrument for achieving their specific policy objective and that objective cannot be achieved through other, less distortive, means.[4]

Policy objectives

2.3 The Assessment states that the objective of the proposed Subsidy is to realise the benefits of BioNTech's project in the UK. Specifically, the policy objectives of the Subsidy are to:

(a) Boost R&D in the UK life sciences sector;

(b) Strengthen health resilience in the UK and prepare for future health crises; and

(c) Grow the economy through the creation of new UK jobs in the life sciences sector.

2.4 The Assessment sets out more detail on each of these objectives, explaining the importance of the UK life sciences sector and how the policy objectives and the Project fit into the wider government objectives including its life sciences plan 'A Prescription for Growth', the 100 Days Mission to respond to future pandemic threats and the Government's Growth Mission.[5]

[4] See Statutory Guidance, paragraphs 3.32 to 3.56 and the SAU Guidance, paragraphs 4.7 to 4.11 for further detail.
[5] 100 Days Mission to Respond to Future Pandemic Threats - GOV.UK.

2.5 In our view, the Assessment clearly describes the policy objectives of the Subsidy, which it supports with appropriate reasoning and evidence.

Market failure

2.6 Market failures arise where market forces alone do not produce an efficient outcome. When this arises, businesses may make investments that are financially rational for themselves, but not socially desirable.[6]

2.7 The Assessment describes the following market failures:

(a) Positive externalities related to spillover effects; and

(b) Uncertainty in research outcomes.

2.8 In relation to spillover effects, it sets out that when firms undertake R&D, knowledge and innovations are created which benefit other firms or society. It explains that these spillover effects arise out of the public good nature of knowledge and provides evidence that knowledge has properties of a public good.[7] The Assessment states that this is because people can use knowledge without reducing the ability of others to use it (it is non rival), and because once an idea is public, it is difficult to prevent it from spreading (it is non excludable), giving others the ability to free ride on it.

2.9 The Assessment explains that while intellectual property rights partially mitigate this market failure by increasing private returns of R&D knowledge, knowledge spillovers still occur after patents expire and some highly localised knowledge spillovers occur because some knowledge cannot be easily bundled into an intellectual property asset. It explains that these spillovers are captured by the local ecosystem and are not easily transmissible to other locations. The Assessment further explains that, as a result, market mechanisms inadequately reward innovation, resulting in firms carrying out less R&D than socially desirable.

2.10 In relation to uncertainty in research outcomes, the Assessment sets out that the inability to adequately price the risk of failure for R&D activities means that R&D funders and providers are unable to fully insure against the risk of failure, resulting in companies investing less than would be socially desirable in research activities.

2.11 The Assessment states that, due to these market failures, BioNTech would not proceed with the Project without the Subsidy as it would not be commercially viable. It further explains that the Subsidy would fill the gap between what is

[6] Statutory Guidance, paragraphs 3.35-3.48.
[7] See concept of Public Good in Statutory Guidance, paragraphs 3.41.

needed to realise the policy objectives in the UK and 'the amount BioNTech are able to invest'.

2.12 In our view, the Assessment should more clearly explain how market failures related to knowledge spillovers are addressed by the Subsidy, relative to the counterfactual. The Assessment should clearly link the policy objectives with the market failures, in particular in relation to UK localised knowledge spillovers.

Appropriateness

2.13 Public authorities must determine whether a subsidy is the most appropriate instrument for achieving the policy objective. As part of this, they should consider other ways of addressing the market failure or equity issue.[8]

2.14 The Assessment sets out why the Subsidy is the most appropriate and least distortive available instrument to enable BioNTech to carry out its project in the UK, and thereby achieve the policy objective. It adds that the Subsidy is a necessary instrument to overcome the market failures and make the project viable.

2.15 The Assessments considers several alternative policy interventions that were considered to address the policy objectives and market failure. These include:

(a) regional support via Investment Zones;

(b) tax measures, such as tax relief and tax credits;

(c) loans, repayable grants or equity investment; and

(d) direct provision by the Government itself of a similar R&D project.

2.16 The Assessment explains why these alternative policy interventions are either not possible, or not an effective means of achieving the policy objective. It sets out that these options would not allow BioNTech to carry out the Project in the UK because of location, complexity or funding requirements.

2.17 In our view, the Assessment demonstrates that DSIT has considered other ways to incentivise BioNTech to carry out the Project in the UK, and why a subsidy is the most appropriate option to fulfil that objective. However, while the Assessment considers the alternative option of direct provision, it should provide further detail of any other alternative options that were considered to achieve the policy objectives (such as through other life sciences or pharmaceutical stakeholders).

[8] Statutory Guidance, paragraphs 3.54-3.56.

Step 2: Ensuring that the subsidy is designed to create the right incentives for the beneficiary and bring about a change

2.18 Under Step 2, public authorities should consider compliance of a subsidy with:

(a) Principle C: Subsidies should be designed to bring about a change of economic behaviour of the beneficiary. That change should be something that would not happen without the subsidy and be conducive to achieving its specific policy objective; and

(b) Principle D: Subsidies should not normally compensate for the costs the beneficiary would have funded in the absence of any subsidy.[9]

Counterfactual

2.19 In assessing the counterfactual, public authorities should consider what would likely happen in the future – over both the long and short term – if no subsidy were awarded (the 'no subsidy' scenario).[10]

2.20 The Assessment explains that the counterfactual, without the Subsidy, is that BioNTech would not deliver the Project in the UK. This is based on the determination of the BioNTech Group's Board that it would not be commercially viable to proceed without the Subsidy, as well as an independent report reviewing BioNTech's financial modelling for the UK and an alternative location. Consequently, it sets out a counterfactual scenario where the beneficiary would choose an alternative location for the Project, outside the UK. The Assessment notes the independent report's conclusion that the counterfactual scenario is credible.

2.21 The Assessment states that absent the Subsidy 'the UK life sciences sector would continue to grow and develop albeit at a slower pace and less significant scale than if the Project went ahead in the UK.' It explains that the UK would miss out on cutting edge advances for use in vaccines and therapeutics in the counterfactual scenario.

2.22 In our view, the Assessment clearly explains and evidences the counterfactual that BioNTech would, absent the Subsidy, locate the Project in an alternative location. It also explains what would happen to the R&D life sciences sector in the absence of the Subsidy.

[9] See Statutory Guidance, paragraphs 3.57 to 3.71 and the SAU Guidance, paragraphs 4.12 to 4.14 for further detail.
[10] Statutory Guidance, paragraphs 3.60-3.62.

Changes in economic behaviour of the beneficiary and additionality

2.23 Subsidies must bring about something that would not have occurred without the subsidy.[11] They should not be used to finance a project or activity that the beneficiary would have undertaken in a similar form, manner, and timeframe without the subsidy ('additionality').[12]

2.24 The Assessment explains that the intended change in economic behaviour is the beneficiary investing in the Project in the UK.

2.25 The Assessment explains that the Subsidy accounts for a proportion of the differential in the net present value between operating the Project in the UK and in the counterfactual location. Despite not covering the whole differential, supporting evidence confirms that BioNTech still views this level of grant as sufficient incentive to proceed with the Project given the UK's competitive life-sciences sector, potential for partnerships with renowned academic institutions and plans to develop London into a global AI hub.

2.26 The Assessment outlines monitoring, governance, ringfencing and clawback conditions set out in the grant funding agreement (see paragraph 2.32 below). It states that payments will be made in arrears against agreed costs and milestones and that the Subsidy cannot be used for BioNTech's pre-existing activities in the UK. It further explains that the Subsidy is capped at £129 million with no increase as a result of overspend. The Assessment concludes that the Subsidy is additional because, absent the Subsidy, no aspect of the Project would be carried out in the UK.

2.27 In our view, the Assessment clearly describes and evidences the change in behaviour of the beneficiary and how the Subsidy will not be used to finance a project which the beneficiary would have undertaken in a similar form, manner and timeframe without the Subsidy.

Step 3: Considering the distortive impacts that the subsidy may have and keeping them as low as possible

2.28 Under Step 3, public authorities should consider compliance of a subsidy with:

(a) Principle B: Subsidies should be proportionate to their specific policy objective and limited to what is necessary to achieve it; and

[11] Statutory Guidance, paragraph 3.64.
[12] Statutory Guidance, paragraphs 3.63-3.67.

(b) Principle F: Subsidies should be designed to achieve their specific policy objective while minimising any negative effects on competition or investment within the United Kingdom.[13]

Proportionality

2.29 The Assessment states that the size of the Subsidy is the minimum necessary to address the market failure and ensure BioNTech's project is located in the UK. The Assessment sets out that the amount of £129 million was ascertained through analysis by government accountants and economists, as well as scrutiny from the Industrial Advisory Board and an external due diligence provider, and is supported by documentation of BioNTech SE's Board.

2.30 The Assessment also states that BioNTech have not received any other grants or funding from the UK government (other than R&D tax credits), and that this has been confirmed by due diligence. Similarly, BioNTech will be required to inform DSIT Secretary of State before receiving any UK public sector funding for future funding before accepting and is prevented from applying for duplicate funding during the 10-year period of the Subsidy.

2.31 The Assessment stated that the size of the Subsidy is no more than 13% of the overall costs of the BioNTech project in the UK and that the proposed funding would be 0.1% of total UK expenditure on R&D in pharmaceuticals.

2.32 The Assessment outlines several subsidy design features that contribute to ensuring that the Subsidy is proportionate and limited to the minimum necessary. These include ringfencing, capping the Subsidy at an absolute value (including overspend); grant recovery provisions for whole or part, review of the type of costs has been considered, payments in arrears, performance monitoring against agreed key deliverables by the DESNZ's Central Grant's & Loans Team on behalf of DSIT for 10 years.

2.33 In our view, the Assessment considers a number of issues relevant to demonstrating how the Subsidy is limited to the minimum necessary and proportionate to achieving its policy objectives. The Assessment also explains how it will ensure that no other subsidies will be given to the same recipient for similar purposes. However, the Assessment should provide more detail and supporting evidence on how BioNTech was selected relative to other possible beneficiaries (see also paragraph 2.36 regarding a related point).[14]

[13] See Statutory Guidance paragraphs 3.72 to 3.108 and the SAU Guidance, paragraphs 4.15 to 4.19 for further detail.
[14] The selection process is relevant to Principles B and F. For example, in relation to Principle B, the Statutory Guidance explains that the best-placed enterprises may be identified by selecting the recipient(s) that requires the smallest subsidy to achieve the policy objective (Statutory Guidance, paragraph 3.84).

Design of subsidy to minimise negative effects on competition and investment

2.34 The Assessment describes several elements of the Subsidy design (in addition to those related to proportionality set out above at paragraph 2.32) which are relevant to minimising distortive impacts, including that the Subsidy:

(a) is a lump-sum which is less distortive than ad valorem subsidies, and this means that the Subsidy would not affect relative prices;

(b) is designed to be 'a one-off' limited to a ten-year duration; and

(c) will cover not more than 13% of overall costs of the Project.

2.35 The Assessment also describes the assessment process for selecting the beneficiary and states that BioNTech is in a unique position to deliver the policy objective in a timely and extensive manner that DSIT requires due to BioNTech's technology in developing a marketed messenger ribonucleic acid (mRNA) product[15] and AI capabilities through its InstaDeep Ltd acquisition.

2.36 Overall, in our view, the Assessment engages with most of the subsidy design aspects set out in the Statutory Guidance. However, whilst the Assessment states that BioNTech is in a unique position to meet the policy objectives, it should provide more detail and supporting evidence on how BioNTech's selection, relative to other possible beneficiaries, minimises negative effects on competition, for example by setting out the objective criteria that were used to make this selection.[16]

Assessment of effects on competition or investment

2.37 The Assessment describes the potential impact on competition and investment brought about by the Subsidy in relation to (i) products which BioNTech currently supplies to the UK, (ii) the UK life sciences/ biopharmaceutical market, (iii) potential future products which BioNTech may produce, and (iv) the labour market, each described below.

Products which BioNTech currently supplies to the UK

2.38 The Assessment describes that BioNTech supplies a COVID-19 mRNA vaccine to the UK, with three other active competitors. The Assessment states that the Subsidy does not have any implications for these competitive dynamics because the grant will only support activities focused on developing new products with the activities focused entirely on very early-stage R&D.

[15] The Assessment explains that this technology is likely to become a major therapeutic modality in the future for vaccines and other medicines.
[16] See Statutory Guidance paragraph 3.85.

The UK life sciences/ biopharmaceutical market

2.39 The Assessment describes the potential impact on the UK life sciences / biopharmaceutical market, stating that the UK has a large presence of pharmaceutical companies. While noting the limitations of considering the whole biopharmaceutical sector as a product market, the Assessment provides measurements of how many firms are operating in this market and their respective sizes and concludes that the sector is not overly concentrated in the UK. It explains that BioNTech lacks a significant commercial presence in the UK but acknowledges that the Subsidy could potentially alter this. In this context, DSIT noted that it is unlikely that the Subsidy would materially impact overall market concentration, and could, to the contrary, enable BioNTech to compete with more established companies.

2.40 Similarly, the Assessment sets out the scale of the overall Project relative to UK R&D in pharmaceuticals, which demonstrates the small size of the Subsidy relative to overall investment at just over 0.1% of total UK expenditure of R&D by pharmaceutical manufacturing businesses for the next 10 years.

2.41 The Assessment also explains that the market for pharmaceuticals is global, and that the UK is relatively small with a total share of just over 2% which indicates that interventions in the UK for the development of drugs sold in that global market are unlikely to have meaningful aggregate implications or distortive impacts on incentives.

Potential future products

2.42 The Assessment describes the potential impact of the Subsidy on new products which BioNTech may produce. It notes that new pharmaceutical products are segmented into branded and generic medicines, with the former having an active patent and the latter being much more competitive due to the absence these legal barriers and brand recognition. The Assessment states that the projects supported by the Subsidy may have a material impact on the development of future products which could compete with products which are currently being developed by other companies.

2.43 The Assessment sets out that BioNTech's research expertise broadly applies to new therapeutics in oncology, which is a broad and highly stratified area of research. The Assessment explains that BioNTech could potentially become a direct competitor with companies that currently have a meaningful UK presence in this space.

2.44 However, the Assessment states that the Subsidy itself is unlikely to directly impact competition with those companies for any existing product market because it is possible for companies to focus on the development of products that might not

overlap, lead times to develop new drugs are long, there is a very high cost per new drug on average and products have a low success rate of less than 8%.

2.45 The Assessment further explains that there are minimal formal barriers to entry in drug development and that there are low barriers in early-stage drug developments, and this is why small and med-sized biotech companies account for 75-80% of all drugs currently in development.

2.46 The Assessment sets out that BioNTech could also impact future competition for future therapeutics or in the geographical locations of the projects. The Assessment names various potential competitors active in each of the potential future therapeutic markets. The Assessment explains that BioNTech's research activities are unique which means they do not often compete directly with other companies.

Potential labour market effects

2.47 The Assessment also considers the labour market stating that the Project supported by the Subsidy expects to create approximately 460 highly specialised roles at its peak. The Assessment sets out that this equates to a small proportion of total employment in the core biopharmaceutical subsector and so is unlikely that BioNTech's recruitment plans will distort the relevant job market.

2.48 The Assessment also notes potential positive impacts from the Subsidy. While BioNTech will be the only direct beneficiary, the Assessment states that other entities, including some of the supply chain will benefit indirectly. Similarly, that firms in the sector should benefit from the knowledge spillovers that the Subsidy will generate, with positive effect on the productivity of other firms operating in a similar technology space. In particular, the Assessment states that spillover benefits are highly localised which means the Project needs to happen in the UK for these benefits to the UK's science ecosystem to materialise.

2.49 In our view, the Assessment clearly considers and evidences the effect of the Subsidy on competition and investment in the UK, in line with Annex 3 of the Statutory Guidance. In particular, the Assessment identifies current and future potential product markets which may be impacted and provides qualitative context about the potentially impacted market participants. Additionally, the Assessment clearly explains and evidences the scale of the Subsidy and its potential impacts.

Step 4: Carrying out the balancing exercise

2.50 Public authorities should establish that the benefits of the subsidy (in relation to the specific policy objective) outweigh its negative effects, in particular negative effects on competition or investment within the United Kingdom and on international trade or investment.

2.51 The Assessment provides a value for money analysis showing a positive benefit to cost ratio. It sets out the value of the benefits of the Project, noting also that the Project will generate approximately 460 direct employment opportunities and additional indirect roles within the associated supply chain.

2.52 It notes that the potential effects on the oncology and infectious disease markets are minimal due to the size of the Subsidy compared to these markets and the long timelines for drug development. It also states that there may be some impact on the R&D labour market but that this is likely to be limited.

2.53 The Assessment explains that the proposed funding will not seek to move existing investments from other locations and will promote new capabilities and therefore build health resilience and flexibility. It concludes that the substantial positive effects of the Subsidy outweigh any negative effects on global trade and investment.

2.54 It sets out that while DSIT considers the impact on competition to be low, it accepts there may still be 'some distortive future effects for competitors undertaking research in some of the key areas BioNTech will potentially be conducting research in' and gives examples of product developments by competitors that focus on similar diseases to those targeted by the Project.

2.55 It explains that the value of the benefits used within the value for money's analysis conducted by DSIT have been adjusted down to reflect the possible negative impact on competition, additionality, investment substitution, risk and optimism bias.

2.56 The Assessment states that the Subsidy is likely to have minimal impact on international trade, because the Project focuses on early stage research that is not tied to specific products, and because any final product would be sold globally regardless of where it is produced. It concludes that the substantial positive effects of the Subsidy outweigh any negative effects on global trade and investment.

2.57 The Assessment sets out that it has conducted a balancing exercise and concludes that the negative effects are outweighed by the benefits of the proposed funding. In doing so, the Assessment notes that the Subsidy will serve to make the UK an attractive location for R&D investment, counterbalancing significant levels of investment happening outside the UK.

2.58 In our view, the Assessment clearly sets out the positive effects of the Subsidy in relation to the policy objectives, as well as potential negative impacts in specific areas, and conducts a balancing exercise between them in line with the Statutory Guidance.

2.59 However, the Assessment should consider further any potential negative effects of the Subsidy on international trade or investment. In addition, the Assessment

could provide additional evidence to support its calculations, for example explaining the methodology that was used to make downward adjustments (see paragraph 2.55) to the value of the benefits.

Other Requirements of the Act

2.60 DSIT confirmed that no other requirements or prohibitions set out in Chapter 2 of Part 2 of the Act apply to the Subsidy.

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