



2020 Niche Vehicle Competition Briefing

Aim of this Briefing

To help you to understand:

- Competition scope
- Timelines & deadlines
- Funding criteria
- Application process

Niche Vehicle Innovation Pathway

3 sequential stages

Feasibility
Studies

Proof of
Concept

Production
Readiness

Niche Vehicle Innovation Pathway

Planned Launch
September 2020

Feasibility
Studies

Proof of
Concept

Production
Readiness

Niche Vehicle Innovation Pathway

Open from 22nd
April 2020

Feasibility
Studies

Proof of
Concept

Production
Readiness

Overview

- One R&D competition, with 2 streams
- Virtual competition launch only (due to current Covid-19 restrictions)
- Minor adjustments to scope and eligibility from 2019
- Scoring & assessment process as 2019, but likely to feature virtual interviews
- On-line applications only via NVN Gateway:
<https://gateway.nichevehiclenetwork.co.uk>

Competition Technology Scope

Projects need to demonstrate the accelerated development of technologies based around one or more of the following areas:

- Lightweight vehicle body, chassis and powertrain structures
- Electric machines and power electronics
- Energy storage and energy management systems
- Alternative propulsion systems
- Aerodynamics for improved efficiency
- Other disruptive low carbon vehicle technologies

On-road or off-highway, with niche vehicle applicability

Vehicle / Sector Types

In Scope

Powered, wheeled vehicles used on-road or off-highway, with niche vehicle applicability:

- Cars, motorbikes, taxis, last mile
- Buses, commercial, municipal & agricultural
- Electrically assisted bikes & scooters

Out of Scope:

- Dedicated motorsport & race vehicles
- Driverless vehicles & PODs
- Marine, Rail, Aerospace & drones

If you have recently completed a Feasibility Study and the vehicle / sector type appears to be out of scope for a follow-on Proof of Concept project in this competition, please contact the NVN team.

Scope - Internal Combustion Engines

Important changes

In promoting zero emission capability, we have adopted the definition of low emission vehicles from the Government's 'Road to Zero' strategy:

'tailpipe emissions of less than 75g of CO₂ per km'

NVN R&D projects that meet this definition will be eligible for consideration.

Specific requirements:

- Project grants should exclude activities related to any conventional engine R&D work, however minor costs related to integration of a zero emission technology with a conventional engine for demonstration purposes are allowable
- Hybridisation technologies must focus solely on increasing the capability of the electrified (or non-internal combustion engine element) of the powertrain

Scope - Internal Combustion Engines

Exclusions:

In this competition we are NOT funding projects covering:

- Dedicated internal combustion engine development
- Zero carbon fuels

Exceptions:

For Production Readiness projects ONLY, the following exceptions *may* be considered:

- *Significant step changes* to thermal propulsion system emissions
- Range extended systems *designed for optimal performance*

Exceptions are subject to individual approval; requests must be sent to NVN in writing, no later than 15th May 2020

Competition Streams

The competition has 2 streams. Applicants should select the stream appropriate to the stage of development or technology readiness which has already been achieved:

- **Proof of Concept:** Where the consortium has already established the technical feasibility of their concept and now aims to develop and produce a proof of concept or first prototype which it can demonstrate on a UK niche vehicle. Proof of Concept projects can be up to **6 months** in duration and eligible expenditure of up to **£300,000**, with 50% in grant funding.
- **Production Readiness**, where the consortium has already demonstrated the concept at first prototype level and now aims to take this through to a production-ready level and which it can demonstrate on a UK niche vehicle. Production Readiness projects can be up to **9 months** duration and eligible expenditure of up to **£500,000**, with 50% in grant funding.

Competition Funding Metrics 2020

	Proof of Concept	Production Readiness
Maximum total project cost	£300,000	£500,000
Maximum total project grant	£150,000	£250,000
Minimum total project cost	£200,000	£300,000
Maximum grant intervention rate (overall)	50%	50%
Maximum grant intervention rate (partner)	50%	50%
Max. SME partner share of project	50%	50%
Max. Large company share of project	30%	30%
Total number of partners (including Lead)	3 or 4	3 or 4

Competition Timings 2020

	Proof of Concept	Production Readiness
Competition Opens	22/04/2020	22/04/2020
Bid Submission Deadline	08/06/2020	08/06/2020
Assessment Period	12/06/2020 – 29/06/2020	12/06/2020 – 29/06/2020
Assessment Panel Presentations	w/c 13/07/2020	w/c 20/07/2020
Winners Informed	04/08/2020	04/08/2020
Project Contracting Starts	10/08/2020	10/08/2020
Project Contracting Ends	28/08/2020	28/08/2020
Project Starts	01/10/2020	01/10/2020
Project Completes	31/03/2021	30/06/2021
Final Report Submission	30/04/2021	30/07/2021

Eligibility Criteria

- Collaborations must be business-led and address the specific requirements of the competition
- All funded activities must be undertaken in the UK by UK registered companies
- A clear route to market for the end-product must be identified, with a focus on niche vehicle technologies
- The lead partner must be a UK-registered company active in the UK niche sector
- Micro companies are eligible to lead projects
- Organisations cannot lead more than one submitted bid
- Organisations cannot participate as a funded partner in more than two submitted bids
- Large companies, Universities, RTOs or University Group Companies can participate as a project partner only
- Only 1 large organisation can be included as a project partner in each bid

The Lead Partner role

- The lead partner must be a UK SME or Micro company active in the UK niche sector
- The lead partner is responsible for preparing and submitting the bid
- The lead partner chooses the other project partners and forms the consortium
- The lead partner is responsible for delivering the Collaboration Agreement
- The lead partner is responsible for managing the project
- The lead partner is responsible for communication with NVN throughout the project
- Organisations cannot lead more than one submitted bid (across both streams)
- The lead partner can participate only as a partner in 1 further bid (across both streams)

Large companies, Universities, RTOs or University Group Companies cannot be the lead

Your Collaboration Agreement

- The Lead Partner is responsible for ensuring that the collaboration is subject to a legal agreement between all the project partners. This is primarily to ensure that the intellectual property rights (IPR) of each partner resulting from the project are clearly defined before the project is assessed. It is anticipated that any developed IPR would normally be accessible to all project partners on a shared royalty-free basis. Subcontractors must be legally excluded from sharing the project IPR.
- A standard Collaboration Agreement template is supplied as part of the Application Pack, which can be amended as the consortium determines. Please note that this must be submitted in final (unsigned) form with the bid. The lead partner must ensure that, subject to the bid being successful, all partners will sign the Collaboration Agreement without further amendment. Please note that NVN is not a party to the consortium's Collaboration Agreement.

R&D Competition Collaboration & Networking

- In the absence this year of a formal competition launch and networking event due to current COVID-19 restrictions, we are recommending use of our Niche Vehicle LinkedIn Group page (<https://www.linkedin.com/groups/2516460/>) to enable discussion between companies looking to participate in the competition, helping support your bid and facilitate potential partnership and consortia formation.
- You can post an 'elevator pitch' limited to a maximum of 2 slides to provide information about your company and what you are looking for and/or can offer to help form a bid consortium.
- All posts are subject to moderation and/or deletion if necessary by the Administrator.

Contacts / Links

- Competition Queries / Bid Support: nvn@cenex.co.uk
- NVN LinkedIn Group Page Queries: nvn@cenex.co.uk

- Funding Gateway Registration / Passwords / General IT Support: technical@mg.nichevehiclenetwork.co.uk

- Funding Gateway:
<https://gateway.nichevehiclenetwork.co.uk>

Completing the Application Form

Application Form Sections

- Project Snapshot
- Project Abstract
- Q1 – Eligibility
- Q2 – Added Value
- Q3 – Market Opportunities
- Q4 – Innovation
- Q5 – Technical Approach
- Q6 – Project Management
- Q7 – Consortium
- Q8 – Risk Management
- Q9 – Physical Output
- Q10 – Dissemination

10 questions, 10 points each; some sections require you to submit appendices or annexes

Snapshot & Abstract

Snapshot

- A short public facing description of the project (100 words max)

Abstract

- A summary of the objectives, content and output of the proposed project (200 words max)

These sections are not scored – but they are important for media and assessor information

Q1) Eligibility

Does the Project Align with the Competition Technology Themes?

We expect that the technologies being developed through this competition will already have reached an appropriate level for entry. For Proof of Concept projects, explain how you have established that the concept is feasible. For Production Readiness, please explain how you have achieved proof of concept status.

The Guidance document also clearly states the 6 technology themes for this Competition; these are deliberately broad to ensure that innovation is encouraged. Applicants should demonstrate how their project aligns to the competition objectives and associated technology themes, providing up to date evidence where possible.

This is a Gateway question - If your application does not meet the specific requirements of this question, it will be rejected.

Response maximum words: 300

Q2) Added Value

Will Programme Funding Add Value?

Applicants must provide evidence that the funding will increase the total amount that the consortium partners spend on R&D. Applicants should identify the impact of programme funding and participation, compared to how the concept might proceed if funding was not forthcoming. This might include accelerated development, the benefits from involvement of the partners, and wider benefits to the UK sector.

Where applicable, please describe and attempt to estimate any potential economic and environmental benefits such as jobs created or safeguarded, projected growth in sales and profitability, and any fuel and CO₂ savings for consumers.

If your application does not meet the specific requirements of this question, it will be rejected.

Response maximum words: 300

Q3) Market Opportunities

What market opportunities have been identified and how would these be exploited?

Please describe the market dynamics and competitive conditions which the project seeks to change or take advantage of and the scale of the potential opportunity. You should explain, quantify and provide evidence of the exploitable outputs, the potential market size, the route to market and the commercial benefits. This could include, for example, estimated sales volumes.

A robust route to market must be identified via a niche vehicle manufacturer or Tier 1 supplier. Please state the nature of customer involvement, for example as a project partner or as a 'Steering Group' member. If applicable, please specify any letters of support you have received.

You should provide evidence that the project is integral to the business strategy of all project partners, and outline the arrangements relating to exploiting the project IPR. If the developed technology has potential applications in other markets/ sectors, these should also be identified.

Response maximum words: 500

Q4) Innovation

What Is Innovative About the Project?

Please clearly identify the extent to which the project (or the end product) is innovative both commercially and technically, within the context of the niche vehicle manufacturing sector.

Please describe any new technology the project is seeking to create or develop, comparing this to current state of the art. Please explain how the know-how or intellectual property of the consortium members is likely to develop as a result of the project.

In terms of commercial innovation, please explain how existing technology is being applied in a new way and how this will deliver business benefit to the partners. If applicable, any areas of technology transfer should have been specified, for example where technology is migrating across sector boundaries.

Response maximum words: 500

Q5) Technical Approach

What Technical Approach Will Be Adopted?

Please provide an overview of the technical approach the project will take, including the main objectives of the work. A description of the current design and development status should have also been given. The current technology and manufacturing readiness should reflect the competition stream they have chosen (Proof of Concept or Production Readiness).

Describe the structure and content of the technical work packages together with the main technical, design and engineering challenges to be addressed.

Use Appendix Q5 to include any drawings, CAD, photographs, schematics or technical data which help to explain illustrate what you are developing and how it will be configured.

Response maximum words: 300

Q6) Project Management

How will you ensure effective control & timely delivery of the project?

Please provide an overview of the project timing plan, including significant milestones and/or gateways. Describe the management structure and approach the project will take, including the frequency and nature of project reviews.

Describe how project governance will be implemented, including the mechanisms for corrective action and any elements of external consultation where applicable.

Explain what project management resources will be deployed, including details of key roles and individuals where these have been identified in advance.

Use Appendix Q6 for inclusion of the project timing plan (Gantt chart).

Response maximum words: 300

Q7) Consortium

Does the consortium have the skills and experience to deliver the project objectives?

Please explain the complementary capabilities of its consortium members in the context of delivering the project, and the specific know-how, expertise or IPR they will contribute. Include the relevant capabilities and capacity of the partners in terms of design, test and development, prototyping and manufacturing activities. Explain how any gaps in the consortium's capability are likely to be addressed, including the use of identified subcontractors where applicable.

Explain how the partners may fit into a manufacturing supply chain for the end product and identify any significant gaps.

Please detail your consortium's track record in undertaking and exploiting the results of research and development projects, individually and collectively.

Use Appendix Q7 to provide the required partner details.

Response maximum words: 500

Q8) Risk Management

What are the risks affecting the project and how will the consortium manage them?

Innovative and collaboration are inherently risky, so it is important to demonstrate that the key risks to successful delivery have been identified, analysed and mitigated as appropriate, prior to project inception.

Please explain in detail the mitigation measures for managing the most prevalent risks identified in your risk register. Applicants should consider technical, commercial and managerial risks.

Please identify the key tools and mechanisms that will be utilised, to provide confidence that effective control will be in place and hence promote successful project delivery.

Applicants are encouraged to avoid understating risk levels, as this may be interpreted as failure to recognise the importance of risk management to the success of the project.

Use Appendix Q8 to provide the required Risk Register.

Response maximum words: 300

Q9) Physical Output

What physical output will be created?

For Proof of Concept projects, the expectation is that a mule vehicle, first prototype or demonstrator will be produced. Please describe the new content generated from the project and the nature of carry-over content. Please explain the level of functionality that is predicted and the applicability of the vehicle for demonstrating the technology and for subsequent R&D.

For Production Readiness, it is anticipated that the maturity of the physical output will be higher, such as a validation prototype, pre-production vehicle or final demonstrator.

Where the physical output is not a vehicle, please explain what will be produced, and in what quantity. For example, this could be a batch of parts for validation of a new production process.

Maximum words: 200

Q10) Dissemination

How will the results of the project be disseminated?

Please describe how the consortium plans to disseminate the results following successful completion. This might include new web content, customer presentations, industry exhibitions, conferences and seminars, magazine articles, trade publications and technical journals.

All projects are expected to commit to (a) presenting their project outcomes at the Niche Vehicle Symposium and (b) exhibiting (with NVN support) at the Cenex LCV, as a minimum. Please confirm that this is acceptable, or provide an explanation as to why it may not be possible. Please specify whether the exhibit at LCV would be a static display vehicle or a 'ride and drive' demonstrator.

Please note that all projects are required to provide the appropriate content for a 'project poster', for use at the NVN Symposium and for inclusion in NVN brochure material.

Maximum words: 200

Financial Data - completing Annex A

Financial data (1)

Labour Costs

The costs of personnel working directly on the project is calculated based on the total man-days effort and associated cost required for staff to manage and work on the project. The labour cost is based on gross salary, which can include employers' contributions to pension, National Insurance and other package costs.

The cost is calculated on number of man days allocated to the project and the number of working days in a year (excluding sickness, weekends and holidays).

Travel and Subsistence

You should only include reasonable costs that are justified and will be incurred exclusively for progressing the project. If any general travel and subsistence is included in your overhead calculations, this proportion should be subtracted from the T&S expenditure during the claims process.

Software

The provision of software licenses by members of the project consortium must only reflect the true costs of supplying that software to the project and not the commercial rate, the inclusion of any profit element of amortisation or previous development costs.

The preparation of disks, manuals, installation, customisation and training may also be eligible.

Financial data (2)

Capital Equipment

You should provide relevant details of any capital equipment/ tools to be bought/ consumed on the project. This should include the purchase cost (or value at project start if you already own the equipment), its expected residual value at the end of the project and utilisation percentage within the project (if it is also to be used on other activities or projects).

NOTE: Eligible capital costs must not exceed 10% of TOTAL project costs.

Materials

These will be the materials to be consumed on the project, purchased from third parties. Material supplied by subsidiaries or associated companies should exclude the profit element of the value placed on that material. Waste/ scrap material with a residual/ resale value should be reflected in the figures where applicable. Foreseen cost increases, such as on specific materials, may be considered.

Subcontracts (Including Consultancy and External Test Costs)

You should provide the costs of all work that is essential to the success of the project where the expertise does not exist within the collaborative group. Such costs may include protecting foreground IPR, up to a total of **£5,000** per project.

Subcontracted services to subsidiaries or associated companies should exclude the profit element of the value placed on that service. ***Subcontracting between project partners is specifically excluded.***

NOTE: Eligible subcontracts costs must not exceed 20% of TOTAL project costs.

Financial data (3)

Overhead Costs

Reasonable overheads, e.g. utility costs, can be included within your project costs, up to a maximum recovery rate of **50%**. This figure is self-calculated in the 'Project Budget' worksheet. If a lower recovery rate than 50% is applicable, the formula will need to be changed within the worksheet. If specifically requested, as part of our 'due diligence' process, a suitable overhead calculation sheet must also be provided to justify the percentage selected.

Project Budget

The 'Project Budget' worksheet pulls together all the above calculated costs to allow you to assess the overall costs associated with your project.

The worksheet will self-calculate individual partner grant intervention rates and split across the consortium. These figures should be reviewed against the competition guidelines to ensure that they remain eligible. The worksheet will self-calculate and highlight whether any costs exceed the stipulated guidance figures. Any 'Over Budget' figures will need to be corrected prior to submission.

Project Cost Phasing

You should enter the expected quarterly spend associated with your project in the 'Project Cost Phasing' worksheet. This will self-calculate the quarterly grant allocation per partner.

Annex A – Ineligible Project Costs

- Input VAT
- Interest charges & servicing debt
- Advertising and marketing
- Profit from internal subcontracting
- The value of existing intangible assets
- Project audit/legal fees

Assessment Process

Bid Assessment

- 2 stage process
- Stage 1: Independent assessment of written bids
 - Up to 5 Assessors will assess each submission
 - Each of the 10 sections scores equally
 - Projects are scored and then ranked according to quality & merit
 - Projects are flagged as Green / Amber / Red
- Stage 2: Assessment Panel (Green & Amber bids)
 - Selected submissions are invited to virtual panel interview
 - Short project presentation & Q&A session

Live Projects

Live Projects

- Projects start: 1st October 2020
- Projects end:
 - Proof of Concept: 31st March 2021
 - Production Readiness: 30th June 2021
- Monthly progress reporting (self-assessment)
- Quarterly monitoring meetings (face to face)
- Final project summary report required
- Quarterly grant claims paid in arrears

What Makes a Project Fundable?

Eligibility - Project scope alignment

- Increasing governmental emphasis on electrification and light-weighting; decreasing emphasis on internal combustion as the ‘prime mover’, but range extenders can support electrification
- CO2 and other emissions reductions – if the benefits are less than obvious, explain your logic. Adoption of the technology and/or product beyond your own vehicle application is valuable
- Track-day and race cars don’t necessarily deliver direct carbon reductions – but is wider system applicability likely?
- Is your technology at the right readiness level for the competition? For Proof of Concept, have you already completed a feasibility study, or some equivalent preliminary activities? For Production Readiness, have you already achieved proof of concept?

Added Value – the difference grant funding will make

- Explain why you need grant funding; avoid ‘business as usual’ bids (routine product development or your core business)
- Funding can add value if you can do a project faster, do it differently, build a better UK supply chain, create employment through business growth, diversify your business, make lower-emitting products, or increase your R&D investment beyond ‘business as usual’
- Remember to show how the project ‘adds value’ to all the partner businesses, not just your own (as lead applicant)
- Be as objective as possible – are your metrics credible? Is the return on investment so good that you should be self-funding?

Market Opportunities – your commercial exploitation route

- Describe the market in terms relevant to your intended product; what evidence is there that the market will want it? Will the timing be right for maximising its exploitation potential?
- What is your route to market? Are you selling directly, through a higher tier, and is the supply chain going to be in place?
- Can you make the product at a price the market is prepared to pay? What evidence can you present and how objective is it?
- How will it compare to competitor products? Do you know what they have under development? Will they affect your sales?
- Is there an understanding across the consortium as to who will supply in production, and at what price? State your assumptions.

Innovation – what's new?

- What novelty is there in your idea? Describe the areas of technical innovation; try to be specific and be clear what differentiates your product from a technical standpoint
- Is there innovation in the manufacturing processes that you will be developing? If so, are these processes applicable to the intended production volumes?
- Is there commercial innovation? Is the technology being applied to a new type of vehicle? Have you identified a new market niche?
- Have the novel steps already been taken and proven? The answer to this should help you decide which of our competitions you should enter..

Your Technical Approach

- Explain how the technology or concept works from an engineering standpoint
- The technical approach needs to give confidence that you have a realistic understanding of the technical challenges you are likely to face and have planned the development route in a suitable manner to tackle them
- Be clear about your starting point – does this build on the learning from a previous Feasibility Study or Proof of Concept Project, how has that influenced the proposed approach?
- Please give sufficient detail for the assessors to clearly understand what work will actually be undertaken, assuming they have no prior knowledge.
- Use the appendix to include photographs, diagrams, designs, illustrations, graphs and other data which will help the assessors to understand the concept

Project Management

- This section is asking you to give the assessors confidence that you have a robust plan and will deliver accordingly; there are two inter-related aspects:
 - The technical approach needs to give confidence that you will address the technical challenges in a logical, efficient and realistic way – including project phasing, gateways/milestones, work packages, responsibilities, outcomes.
 - The project management approach needs to be complementary; is there a good management structure, is it collaborative, are partner roles clear?
- The Gantt chart is crucial and needs to bear close scrutiny; include important dependencies and avoid unrealistic compression of key tasks in the later stages.

Consortium

- Don't get the marketing team to write this part – be factual and objective, and remember the context; be straightforward about company status, especially if you're pre-trading or a start-up.
- Everyone believes theirs is a great company and has the best partners – but this is about showing why the consortium's 'whole' will be greater than 'the sum of its individual parts'
- Have the partners any experience of working with one another? If so, in what context? Show you worked as a team in planning the project, rather than just drafting in partners to comply
- Are the partners' skills complementary? Are there gaps, and are these covered by subcontractors? Have you agreed on the terms of collaboration?

Managing Risk

- Risk tends to go hand-in-hand with innovation; we are not generally looking for low-risk projects
- The key is in understanding what could go wrong on a project and the extent that these risks can be mitigated or managed
- Read your submission so far; what are the risks someone might perceive? Most risks will flow from the other sections of your bid
- Include the risks relating to developing the technology; to maintaining the project timing and delivery; to financing; to commercialisation? Remember to consider external factors
- Good risk identification, realistic ratings, appropriate mitigation and a strong risk management ethos are what is required
- An initial Risk register is expected to be supplied with your application

Physical Output

- Be very clear about what you are committing to produce; Is it a bench display, a prototype system, a full vehicle prototype or a system installed in a mule vehicle?
- How will it be used in the course of the project, and is there sufficient time allowed for it to be useful? Is it a fully working system or vehicle? Will it be safe to demonstrate and what type of demonstration are you planning?
- What will happen to the vehicle after the project is completed? If it has been used to prove the concept, will it be used for further development activity? Will it be dismantled or repurposed? How long will it be available for dissemination purposes?
- In the case of demonstration on a niche vehicle product not directly owned or manufactured by the lead applicant, is the manufacturer / owner of that vehicle part of the consortium, and / or what firm commitment has been given to provide the vehicle for project use?

Dissemination

- This section should be completed in conjunction with the previous one (physical output)
- Please indicate your team's willingness to participate in dissemination activities, including those central to NVN; specifically the NVN Symposium (July 2021) and LCV (September 2021)
- Specify the nature of your dissemination, including seminar presentations, press features, poster and desk-top displays, simulations, vehicle static displays and drive demonstrations
- Dissemination with the NVN is discretionary, but we will try to support you appropriately; equally, you should state any known constraints you will have (technical, operational, commercial)

Finance

- Check that the split of funding between partners relates directly to who is paying for what – including parts procurement, supply of free issue parts, vehicles, subcontracting and testing
- Make sure no partner requires more than 50% in grant – this includes Universities and Research Organisations
- The overall sharing of the grant is subject to limitations, depending on the size of each organisation (see guidance)
- Be clear who owns which assets after the project completion – both tangible and intangible; especially vehicles & IPR
- Vehicles can be contributed by a partner, or hired under a subcontract, or charged as a bill of materials (net costs)

What could possibly go wrong?

- The most common cause of project failure is disputes arising between partners:
 - Partners falling out because there was not enough clarity on roles, responsibilities and expectations up front
 - The collaboration agreement didn't get signed because the IP arrangements weren't nailed down before the project commenced
 - Lack of regular communication leading to misunderstandings
 - The OEM changed its mind about providing a vehicle
 - Partner withdraws and wants to take their hardware with it
- Providing evidence that early preventative steps have been taken to avoid these issues occurring will improve confidence in the ability of your project consortium to deliver a successful project.

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