Attachment Submission B – Project Initiation Document

Instructions:

Bidders are required to complete a Draft Project Initiation Document (PID) for their proposal and upload into Redimo2 as part of their required response. The Authority requests for consistency that all PIDs follow the structure set out below.

The PID will define to the Authority what the project intends to deliver, including the rationale for delivery; the main roles and responsibilities; how it will be achieved; and when it will be delivered.

The PID format allows Bidders to provide more detail than set out in the non-scored Overview Summary section. However the PID document should still be limited to not more than 8 pages, Arial 11 font, excluding any front page required for Version Control details.

The Authority will expect alignment between sections of the PID and other elements of Bidders' proposals. It is not necessary for the PID to duplicate elements of your proposal provided elsewhere, e.g. your Risk Register or Financial and Volumes in the Excel Spreadsheet submission. If there are any inconsistencies in the documentation, the Authority will reflect this in the evaluation scoring.

The Authority is seeking an object statement including appropriate metrics which may be applicable.

In addition, a strong PID will exhibit the following aspects:

- clearly stated scope and outcomes to be delivered – with measures and metrics for success such as critical items being defined
- a clear proposal for an effective and appropriate management structure, including accountability, roles and responsibilities of senior members of the project team (and any partnership/consortium approach)
- effective mechanisms for governance and change management
- clarity of thinking, planning and writing
- precision and specificity of all proposals
- a clear statement on how value for money will be achieved

Section 1: Description and scope

Project summary
Background
Purpose
Objectives and key performance indicators Project scope, setting out clearly what is in and out of the project
Major deliverables (these should also feature on your Plan – Submission attachment #C
Constraints
Major / material assumptions

Section 2: Business case fulfilment

Systems and processes to your contract and to deliver the TLIF Business Case
Cost and Timescale - summary
Cost/Benefit Analysis
Risk Management
Quality management
Options – if any

Section 3: Who will work on the project?

Roles and Responsibilities
Project Organisation Chart/Structure Diagram
Sponsor map
Project Manager
Project Team
Stakeholder map
Governance

Section 4: How and when will the project be delivered?

Cross referencing with the Plan – Attachment # C
Human Resource Project Team Requirements:

- Support Staff
- Additional Staff

Project Control:

- Monitoring Mechanisms
- Communication Channels and Schedules

<u>Section 1: Description and Scope</u>

<u>Project Summary, background and purpose</u>

STEM Learning and its school-led Network shares The Department's commitment to ensuring great teaching everywhere to level-up opportunity and drive social mobility. The need is urgent, we are therefore delighted to bid for this opportunity.

Aspire to STEM (AtS) will support [redacted] clusters of the weakest schools driving social mobility in opportunity areas graded 5&6. AtS target schools do not have the capacity to engage with existing national programmes while teaching practice and leadership capacity add to, rather than overcome, low aspiration amongst its pupils. [redacted] teachers in [redacted] schools will receive over [redacted] days of bespoke CPD, scaffolded ([redacted]) by extensive STEM inspiration and enrichment activities primarily resourced from our Network of 33,000 STEM Ambassador volunteers and our STEM Club infrastructure.

Scope - AtS will provide highly practical and bespoke support addressing the specific issues that affect pupil outcomes and aspirations in each individual school environment. Professional development funded by TLIF will ensure:

- Improved leadership to support STEM teaching
- Great teaching - specifically STEM subject pedagogy to support disadvantaged pupils
- Increased Science capital within disadvantaged communities
- Careers Information and Guidance - particularly strengthening technical pathways

The impact of CPD will be enhanced through the provision of the most appropriate teaching resources, identified to support the local context. Additionally, pupils' and their communities' aspirations will be raised through targeted long term inspiration and enrichment activities.

AtS is a bespoke, intensive two year programme of support. Projects will be single phase incorporating clusters of [redacted] secondary or [redacted] primary schools – local to each other – each with a commitment to support each other. This design has been influenced by two factors:

- Head teachers of struggling schools have told us their day-to-day priorities prevent them from implementing the integrated initiatives of AtS. Due to their specific circumstances they require individually packaged off-the-shelf intensive support
- External evaluation[1] of previous Network support to clusters of schools indicates prolonged engagement provides deeper and more sustained impact. We will utilise our experience of providing impactful CPD through an efficient school-led infrastructure to ensure best practise is embedded, so when funding ceases improvements continue.

Major Deliverables & KPI's - expected outcomes within the targeted opportunity areas are:

For Students, overcoming disadvantage, low science capital, resulting in improved:

- STEM literacy, engagement and achievement
- Aspiration, progression into STEM subjects post-16, particularly technical pathways and STEM-related careers – specifically improved progression rates of 20[2]% For Teacher's increased:
- Confidence, motivation and competence to teach STEM subjects in a way that addressed specific drivers of disadvantage or poor performance in their schools – specifically a selfreported increase in the confidence of 85% of the [redacted] teachers reached
- STEM subject knowledge and teaching standards – specifically at least 70% of heads/heads of department reporting that the quality of teaching has improved
- Knowledge of and ability to use real-life and industry context in teaching STEM subjects amongst 85% of the [redacted] teachers reached

For schools, improved:

[1] Bryant B & Parish N. Evaluation of the Impact of National Science Learning Network CPD on Schools. Isos Partnership, 2015

[2] Initially this will be measured by pupil survey

- School achievement – capacity and capability for teaching STEM subjects – specifically an increase in the number of Grade 5 GCSE passes of at least 50% in supported schools in comparison to similar schools nationally (from year 2 onwards)
- Leadership capacity – specifically as identified in Ofsted reports
- Improved teacher retention and recruitment – specifically a reduced teacher vacancy rate in participating schools of 25%
- Collaboration within and between departments, and other schools
- Enhanced stakeholder engagement and community profile - specifically increased employer engagement of 70% For local communities, improved:
- Science capital and community engagement with school STEM based activities. Specifically - 2 community or family events per school per year

Major assumptions and constraints

AtS will focus on schools facing the most challenging circumstances, therefore AtS is constrained by schools' capacity to engage. Our activity based assumptions are grounded on previous successful cluster activities, scaled back due to planned intensity. We estimate there are 5-600 schools in England for which AtS would be appropriate – we will reach [redacted] %.

Section 2: Business case fulfilment

Clusters will receive £[redacted] direct CPD support provided through our school-led Network enhanced through subject and operational expertise from the National STEM Learning Centre and its partners. AtS will commence September 2017 supporting [redacted] clusters, a second cohort supporting [redacted] clusters commence in April 2018 until 31st March 2020. There will be some continuation of work beyond March 2020 for final reporting.

We have modelled a staged cohort approach as in our experience many schools will be set their 17/18 timetables in May 2017 which will impact on schools initial ability to engage.

Table 1: Cost and Timescale Summary – total claim £[redacted] including VAT

Financial year	2017/18 £[redacted]	2018/19 £[redacted]	2019/20 £[redacted]
Q1Milestones (Apr – June)	Activity: Project set up	Total Claim: £[redacted] Activity: Termly Update (TU) Cohort 1 Action Plan review Internal interim evaluation Resources reviewed Cohort 2 payment	Total Claim: £[redacted] TU, Interim review Cohort 2 funding
Q2 Milestone July – Sept	Total Claim: £[redacted] Activity: Design work completed PID and Plan signed off Project Team in place	Total Claim: £[redacted] Activity: TU, Action Plans reviewed	Total Claim: £[redacted] Activity: TU Ongoing project management and delivery to cohort
Q3 Milestone Oct - Dec	Total Claim: £[redacted] Activity: TU, curated resources in place, Action Plans completed. Cohort 1 funding	Total Claim: £[redacted] Activity: TU, Interim Reviews completed Cohort 1 funding	Total Claim: £[redacted] Activity: TU, Ongoing project management and delivery to cohort
Q4 Milestone Jan - March	Total Claim: £[redacted] Activity: CPD Delivery Set up costs for Cohort 2	Total Claim: £[redacted] Activity: Ongoing project management and delivery to cohort. Interim Evaluation	Total Claim: £[redacted] Activity: Final report Legacy Planning Evaluation

Cost benefit analysis (CBA) of Aspire to STEM

When young people were asked what had encouraged them to learn science and what had discouraged them, teacher quality was the most common answer to both questions:

- Encouragement - 58% said having a good teacher
- Discouragement – 43% said having a bad teacher[i]

It is widely recognised that the teaching and learning of STEM subjects is important to the prosperity of the UK – more so post BREXIT. Through improved teaching and leadership AtS will raise aspiration and social mobility and support the development of a scientifically literate population who understand the value of the study of and career in STEM.

This CBA will highlight some of the financial benefits of AtS. The analysis is conservative in its assumptions and concentrates on three key areas where financial data is available:

- Benefits to the UK economy and employers
- Benefits to young people
- Benefits to teachers and schools

Conservatively - the financial benefits highlighted within this analysis total £[redacted] providing a return of £[redacted] for every £[redacted] invested.

1. Benefits to the UK economy and employers

Productivity is key to wage and economic growth, but in the UK we produce less per hour than our main economic rivals, 30% less per hour than workers in Germany, the US and France, and 10% less than the average Italian[ii].

The reasons for the UK productivity gap are predominately lower investment leading to poor infrastructure and skills – particularly STEM, hence the Industrial Strategy highlighted that to rebalance its economy the UK must invest in skills. Consistent evidence highlights the difficulties firms have with recruiting people with STEM skills, for example the CBI reports that 20% of firms struggle at entry level and 32% struggle to find employees at advanced level.[iii] EngineeringUK estimate of the future forecast for skilled entrants required annually to meet demand for engineering employers through to 2024 is 265,000 employees per year[iv].

Employers place a premium on STEM skills. The mean salary, in 2015, for STEM employees was £33,689[v] the mean UK salary was £27,600[vi], a premium of £6,089[3] pa. Assuming a conservative 30 year working life gives a life premium of £182,670.

In attempting to put a minimum value on this impact of AtS a modest assumption is made that 2% of teachers (18) who engage encourage at least two students to progress into a STEM based career who were otherwise unlikely to do so. Applying the lifetime STEM premium this leads to minimum gains in terms of a benefit to the economy of £6,576,120.

2. Benefits to young people

Sutton Trust research highlights the significant difference that the quality teaching makes, stating that this effect is most pronounced for disadvantaged pupils – those in most danger of becoming NEET. We also know that the second most significant source of careers advice for young people – after their parents – at 57% is their teachers[vii].

Despite an improving economy the ONS reported in December 2016 that there were still 826,000 young people who are NEET.[viii] The Department for Culture Media and Sport concluded a young person who experiences a period of NEET will loose on average £50,000 lifetime earnings, with over £65,000 direct lifetime costs to public finances and a further £120,000 costs from issues of crime and health.[ix]

AtS will specifically help teachers to engage and inspire young people at risk of becoming

[3] The Sutton Trust in its report "Economy by Degrees" concluded that the STEM premium is £8,800 pa

NEET. If [redacted] % of teachers that engage with AtS [redacted] use this experience to engage two young people otherwise at risk of becoming NEET, then the minimum financial benefit – applying only the direct lifetime costs - is £[redacted].

3. Benefits to teachers and schools

Research undertaken by ISOS[x] found that for 60% of subject leaders STEM Learning CPD had made a strong or very strong contribution to better career progression and retention for staff in their school. Similarly, earlier work undertaken by the Centre for Education and Inclusion Research[xi] found 19% of participants reported that they were "much more likely" to stay in teaching and a further 32% saying they were "more likely" to remain.

To quantify this in financial terms the following assumptions have been made:

- [redacted] % of teachers engaging with AtS, who were previously minded to exit teaching, remain, each saving a minimum of £12k[4] of public finance in training costs
- [redacted] % of teachers engaging with AtS remain with their current school rather than look for alternative opportunities, each saving the school a minimum of £4k[5] in recruitment cost

Therefore the financial benefits are, Savings in ITT costs: [redacted] teachers, [redacted] and savings in school recruitment costs: [redacted] teachers, [redacted].

Systems and processes

We recognise that flexible, tailored support will be required to ensure AtS schools and teachers can focus on their long term development.

Our existing support functions and infrastructure is already successfully delivering CPD via a regional school-led model and can be easily and can be quickly adapted to support AtS.

We will:

- Introduce a light touch, administrative process, supported by our existing experienced central administrative resource
- Adapt STEM Learning's proven and successful management and reporting protocols
- Utilise a five-stage process of programme initiation, planning and design, execution and implementation, monitoring and control, completion and continuous improvement, to specifically meet the needs of AtS
- Utilise our well-established system for developing CPD, with inbuilt trialling, monitoring and evaluation processes, to ensure high-quality Professional Development Experiences (PDEs) are produced for AtS teachers
- Jointly develop PDEs with education experts including HEI's, scientists, representatives from Teaching Schools, UTCs, Outstanding schools, Academy chains and employers supported by STEM subject experts from the National STEM Learning Centre
- Establish specific communication channels to perform important functions including motivating AtS participants and encouraging school and teachers' participation
- Manage and quality assure AtS delivery using STEM Learning's Impact Toolkit to capture and evaluate impact on participants
- Provide Initial Needs Analysis and Action Planning templates, to support schools to easily recognise and report progress and impact against their SMART objectives. Providers will receive support to use the tools effectively, ensuring a high quality, impactful experience

[4] Costs of ITT vary widely from £9k to £38K. There are also generous bursaries available up to £30k for STEM subjects

[5] The NAHT have reported that schools are regularly paying fees of £10k for a single appointment

- Use existing established systems for collecting data and managing and reporting progress eliminating the need for resources to be spent creating bespoke reports and processes
- Regularly update the Department on AtS' progress against agreed KPIs, reporting key highlights, challenges and impact
- Support AtS delivery by providing regular progress reports via local and regional network meetings, forums and providing access to regular webinar "surgeries" to address general issues and specific training needs
- Provide a centrally maintained "wiki" area for AtS providers to access updates, guidance, templates, reporting data and examples of best practice. A model which is supporting other STEM Learning programmes to ensure consistency across a network of providers.

Risk Management

Risk management is driven from Board level, with strategic and proximal risk registers specifically reviewed termly by the Audit Committee. STEM Learning's close monitoring of its programmes and Network and the implementation of carefully considered counter measures has proved successful in reducing and managing risk. This is evidenced by the consistently reported high quality of delivery undertaken and continued financial and operational stability of the organisation and its school-led Network.

Regular assessments identify potential threats, vulnerabilities and appropriate controls to reduce risk to programme delivery, people, information and infrastructure to an acceptable level. This process takes full account of relevant statutory obligations and protections.

We will utilise the input of the Management Team and working groups throughout the Network to review the AtS risk register and address identified issues using the following processes:

- Undertake collaborative risk identification as early as possible and repeat frequently
- Analyse and prioritise risks to facilitate a considered commitment of resources to manage the most important risks
- Planning and scheduling to formulate strategies, plans, change requests, and actions to be incorporated into the standard day-to-day processes information requirements and infrastructure
- Tracking and reporting to monitor the status of specific risks and the progress in their respective action plans – ensuing stakeholders are aware of risk status and mitigations
- Clear communication and specific review of lessons learned

Details of risks identified to AtS are set out in Attachment D. Priority risks are:

- Low engagement - target schools have limited capacity to engage due to challenges of time and workload. The integrated off-the-shelf nature of AtS will negate this risk
- Attrition - mitigated through direct close relationships established through a high level and quality of allocated resource enabling issues that may cause attrition to be overcome

Quality management

AtS will be delivered utilising our sector-leading quality management infrastructure and procedures. Robust assurance systems incorporate both programme management (cycle of planning, action, review and improvement) and the delivery of professional development.

- All face-to face and online CPD materials are documented as Professional Development Experiences. As such they undergo a cycle of rigorous peer review to ensure content is accurate, cutting-edge, in line with best practice pedagogy, relevant to the curriculum, evidence led and incorporates STEM employers contextualisation
- All CPD deliverers undertake quality assured 'train the trainer' sessions. This will incorporate training on the specific requirements of AtS target schools such as; understanding the context of bespoke support in challenging circumstances, coaching, mentoring, facilitating networks of

excellence, and the review and implementation of action plans for participating schools to assess progress and prioritise areas of further support. Feedback sought from targeted schools on the effectiveness of the support received will be utilised to continually improve the programme

- A CPD delivery quality mark will ensure that all those providing support through AtS are doing so to the standard required
- The highly resourced project team will provide educational leadership, drive the direction of the programme utilising best practice to ensure outcomes are as expected
- All CPD deliverers are required to use the innovative STEM Learning Impact Toolkit based on Guskey's model of five levels of impact, including teachers' immediate reaction and learning, longer-term changes to practice of self and colleagues and improved outcomes for pupils. The Toolkit uses the principle of embedded evaluation, so that the Toolkit functions as a learning tool for participants as well as providing evaluation and impact feedback. Our evaluation shows that using the Impact Toolkit increases the likelihood of successful and sustainable changes in classrooms and schools

The final and very important element of the quality assurance process will be provided by internal and external evaluation. The formative and summative feedback will be used in conjunction with the above procedures to monitor and, when necessary, to modify the existing delivery structure and processes.

STEM Learning will work closely with stakeholders to ensure coherence and consistence of quality across the AtS project, enabling teachers at all career stages to access the CPD they require both for their immediate needs and further career progression.

Section 3: Who will work on the AtS project

This project will be highly resourced in recognition of the intensive bespoke support required to ensure the stated outcomes are met. Aside from the allocated staff identified below the project will also be supported through expertise from throughout the STEM Learning organisation.

Fully dedicated to building deep relationships with AtS engaged schools will be:	
STEM Subject Specialist	• Experienced educationalist who has succeeded within in challenging schools – expertise in school leadership, embedding careers contextualisation, STEM curriculum development and progression planning and subject support • Design of bespoke packages of support (CPD scaffolded by inspiration and enhancement events) to address the challenges and context of AtS • Act as improvement partner to the school Head and senior STEM team • Responsibility to achieve The Department agreed KPIs, outcomes and impact • Design of processes to achieve high quality STEM support • Identify and implement support from the wider Network, STEM education partners, employers and the significant resources within STEM Learning
Programme Manager	• Ensuring project controls are in place including monitoring progress against plan, managing risks and issues, budgetary control and quality assurance • Design and deliver AtS with support from STEM subject specialist and team • Working with external evaluators and ensuring that emerging issues and lessons are acted upon promptly and appropriately
Project officer	□ Provision of intensive day to day operational support to AtS and participating schools. Expertise in effective business support services including resource allocation, compliance, monitoring, quality assurance and reporting

We will promote – and back fill - the most appropriate individuals from our existing team into these three roles ensuring AtS quickly and with low risk delivers impact.

High level management oversight will be provided through the following roles:

Chief Executive	Expertise in leading complex programmes and developing strategy to
[redacted]	ensure maximum educational impact. Overall accountability for the programme. Reports to the Board
Operations Director [redacted]	Expertise in achieving cross-programme synergies and enhancing impact through the maximisation of available resources
Head of Network [redacted]	Expertise in providing an educational vision and programme of support and successfully working within challenging schools. Strategic lead and overall operational responsibility for the Network
Subject Expert [redacted]	Expertise in developing educational vision utilising an extensive team of experts and designing the bespoke elements of AtS CPD
Head of Centre [redacted]	Brings a valuable link to employers providing contextualisation to CPD. Mobilising & utilising the strength of the STEM Ambassadors Network
Research and Evaluation Lead [redacted]	Expertise in STEM education research, impact evaluation, quality assurance, impact dissemination and training for CPD providers and participants. Ensuring CPD is delivered and evaluated effectively

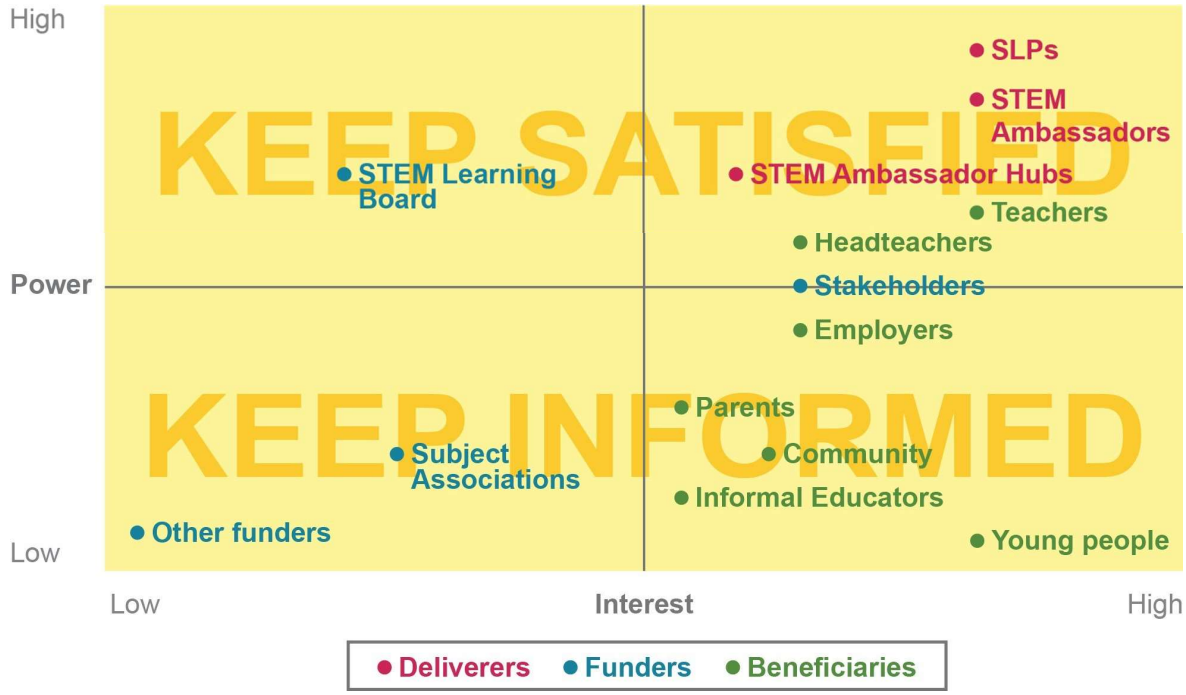
Governance

STEM Learning's governance process offers clear escalation paths from management level project review meetings, through accountability for delivery by the Chief Executive to the STEM Learning Board and its Chair, [redacted] – a former VC of Aston University with an impressive career within STEM Industry and Research and Development.

To steer AtS to achieve maximum impact the Board is further supplemented through a significant level of educational expertise. This includes a Head of a school in very challenging circumstances, Head of the Wellcome Trust Education Department, BP and representatives of 4 shareholding HEI education departments.

An Audit Committee meets three times a year, assisting the Board to maintain oversight of the internal controls and financial performance. In addition to the regular internal and external audit activities, independent external consultants are used as appropriate to address specific risk areas, including Tax, Insurance, IT, Health and safety, Quality and HR.

Sponsor and Stakeholder Map



Section 4: How and when will the project be delivered

Human resource project team requirements

AtS will be led by staff experienced in complex programme delivery for educational improvement. Section 3 outlines dedicated staff – who are supplemented from the wider organisation plus its school-led Network and STEM education partners. Significant value will be added through internal expertise that understands the context of AtS support, this includes; financial analysis, HR, administration, resource curation, contract management, data and IT teams. For example, our data team will facilitate in depth data analysis, the accurate monitoring of trends and provide national, regional and local reporting data to drive quality, capture impact evidence and monitor progress against AtS objectives.

Project Control – Monitoring Mechanisms

The dedicated AtS project manager supported by the subject specialist will work closely with stakeholders, schools and STEM Learning experts to achieve all requirements and dependencies. This will foster accountability, establish clear lmethods of communication and allow robust timescales and review points to be mapped to create a definite, clear and structured framework to monitor progress against objectives and communicate key messages.

In order to generate informed commitment to the project and an understanding of the wider objectives of AtS, participants will:

- Receive clear guidance at the start of the project on the importance of their role within the monitoring framework, and in particular our expectations are around data gathering and impact reporting in particular
- Receive intensive support throughout the Initial Needs Analysis and action planning stages. This will ensure expectations are widely understood, along with the monitoring framework, agreed bespoke objectives, measures of impact, milestones and activities. Individual schools and teachers will be supported to recognise and evidence success in achieving their own and ultimately AtS' objectives
- Be expected to maintain regular contact with their local providers to discuss progress and undergo more detailed action plan reviews every 6 months to maintain momentum and focus, highlighting any areas of concern regarding progress

Overall monitoring will take place at scheduled times throughout the lifespan of the project, across all levels, including internal project and financial management, review of CPD and enrichment and cohort

participation. This will ensure the project remains within acceptable limits and issues are addressed quickly.

Monitoring activity will be completed every term as part of our evaluation and reporting. We will use standardised processes, tools, templates, and measurement values to ensure consistent analysis, communication to stakeholders at all levels and timely actions where required.

The centrally hosted AtS project wiki space will ensure document oversight and version control is maintained throughout the life of the project.

The milestone plan (Attachment C) sets out in further detail the headline tasks required to ensure the AtS vision is realised.

[i] Wellcome Trust Monitor,2013
[ii]Office of National Statistics, September 2016 [iii] CBI/Pearson education and skills survey 2015: Inspiring growth [iv] Engineering UK 2017 – Synopsis and recommendations [v] Engineering UK 2017 – Synopsis and recommendations, pg. 11 [vi] ONS – Annual survey of hours and earnings 2015 – 18/11/2015 [vii] AoC – Career guidance; Guaranteed, January 2014
[viii] ONS – Young people not in education employment or training, February 2017 [ix] Department for Culture Media & Sport – Young people, 21/12/2016 [x] ISOS – Evaluation of the impact of National Science Learning Network CPD on schools, October 2015 [xi] Sheffield Hallam University, Centre for Education and Inclusion Research, 2012