



**EVALUATING SCIENCE AND SOCIETY
INITIATIVES**

**SETNET Evaluation Framework Pilot
Report**

**Prepared for
Department for Innovation, Universities and Skills (DIUS)
Economic and Social Research Council (ESRC)**

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1. PART I – EVALUATION OVERVIEW AND FINDINGS

1.1. Introduction

This report presents the findings of the evaluation of the Science, Engineering, Technology and Mathematics Network (SETNET) carried out by the Tavistock Institute for the Department for Innovation, Universities and Skills (DIUS) and the Economic and Social Research Council (ESRC). The evaluation provided an opportunity to pilot test an Evaluation Framework for Science and Society initiatives developed previously by the Institute for DIUS and ESRC, and the experience was used to further refine this Framework.¹

The SETNET evaluation had three main objectives, and corresponding evaluation tasks. These were:

- To identify and assess how SETNET relates to current policy and supports innovation in Science and Society type initiatives.
- To establish what impact SETNET has (on ‘beneficiaries’, on policy-makers and on deepening and expanding the knowledge base in science).
- To assess whether the way SETNET is managed is ‘fit for purpose’.

To achieve these objectives, the evaluation employed an integrated set of activities:

- An assessment of SETNET’s mission, objectives and activities, within the broad context of Science and Society policy and practice.
- A review of SETNET’s organisational structure and practices – a ‘process’ review – focusing on how SETNET carries out its mission, objectives and activities.
- A summative assessment of the contribution SETNET is making to policy and practice in the domain, and the outcomes and potential impacts of its work.
- An in-depth case study, based in an urban location encompassing one SETPOINT, focusing on how SETNET’s activities are integrated on the ground and how it engages with other actors within a local context.

This report presents an overview of evaluation findings concentrating on the summative aspects of the evaluation. All aspects of the evaluation have been used to support recommendations for further development of SETNET, which are presented in part II of this report. The experience of the evaluation process has been used to refine the Evaluation Framework.

¹ The Evaluation Framework is presented in Cullen J, Sullivan F, and Junge K *Evaluating Science and Society Initiatives: A Framework for Evaluation* which will shortly be published by the DIUS and ESRC and will be available via <http://www.dti.gov.uk/science/science-tech-and-dti/index.html>.

1.2. How SETNET relates to current policy

SETNET occupies a distinctive position in the Science and Society landscape. It works across the whole of Science, Technology, Engineering and Mathematics. It has an important co-ordinating and integrating function, whereas many of its stakeholders are primarily concerned with particular subject areas. The STEM infrastructure provided by SETNET and the SETPOINTS is regarded by many as the most important, and most obvious, of the organisation's strengths and the key contribution it makes to delivering on STEM policies. These co-ordinating and bridging functions are clearly in line with current policy priorities – particularly the recent *Science, Technology, Engineering and Mathematics (STEM) Report*, which highlights the need to rationalise and integrate the large and fragmented spread of STEM initiatives currently run by DfES, DTI and external agencies. Many non-SETPOINT stakeholders are heavily reliant on this infrastructure to deliver their STEM initiatives. That the infrastructure is a national one is seen as key. SETNET's strong links with industry, and the importance of this in developing and delivering effective STEM initiatives, are frequently cited as evidence of SETNET's value.

Less obvious is the contribution SETNET makes to related policy agendas and the contribution it makes to promoting and supporting innovation in policy. There is a view amongst some stakeholders that SETNET's strengths are centred around its delivery role and brokerage function – particularly in relation to creating and managing local partnerships involving industrial actors – while its contribution to promoting innovation in Science and Society policy is more limited. Indeed, SETNET itself argues that its primary task is delivery, not policy innovation. On the one hand, SETNET's commitment to key policy agendas and initiatives is clear. It seeks to ensure that the UK has an adequate future supply of skilled scientists, engineers, technicians and mathematicians, and of people who are sufficiently scientifically literate to engage in informed debate about the role of science in today's society. Thus it supports the government's commitment to: 'creating a society that is confident about the development, regulation & use of science, and a science workforce that is representative of the society it serves'.² Its mission and tasks are in line with government's commitments to reversing the decline in the national STEM skills base, as set out in the 'Investment Framework' – *Science and Innovation Investment Framework: Next Steps 2004-2014*. It supports broader policy agendas around young people and their development, including "Every Child Matters" – which maintains a focus on enjoying and achieving, citizenship and participation – and the "Youth Matters" agenda, which focuses on the contribution young people can make to creating a more vibrant and inclusive society.

On the other hand, SETNET's direct contribution in these areas is dependent on, and mediated through, the partnerships it supports through SETPOINTS. These partnerships are complex and variable, and their actions, outputs and impacts on direct beneficiaries – teachers and students – also vary significantly. Against this background, one conclusion of the evaluation is that SETNET needs to engage more

² See <http://www.dti.gov.uk/science/science-and-society/index.html>. Here the term 'science' is taken to include all public and private activities of a scientific and technological nature, including mathematics, engineering and the social sciences.

actively and more directly with the school system and to increase its visibility in schools.

1.3. SETNET's impacts on beneficiaries

The impacts of SETNET's work can be assessed with regard to three main beneficiary groups: SETNET stakeholders (SETPOINTS; sponsors; government agencies and 'third sector'); teachers; and school students.

1.3.1. Stakeholders

There is a consensus amongst public and private sector stakeholders that STEM initiatives for young people are useful and that they influence young people's attitudes and decision-making. A major benefit for stakeholders is that SETNET provides resources for STEM development activities that simply would not be otherwise available. The evidence also suggests that SETNET's resource contribution allows leveraging of co-funding to enable STEM support work to continue. Another key impact for stakeholders is the extensive, comprehensive and national coverage of the SETNET infrastructure, which effectively supports and brokers the formulation of partnerships involving diverse actors, including universities, commercial organisations and government agencies. These core functions are seen as essential in promoting delivery of government policies on Science and Society.

The specific actions implemented by SETNET, focusing mainly on the Science and Engineering Ambassador (SEA) programme, and on access projects, are also positively regarded – particularly the SEA programme. Ambassadors clearly make a significant contribution to the STEM infrastructure. They are seen by SETPOINT stakeholders as a valuable resource supporting STEM enrichment activities in schools and, for commercial partners, allowing opportunities for companies to promote corporate social responsibility agendas. SETPOINT stakeholders also commented that they are seeing the average profile of the SEAs changing, with more being drawn from a younger age group and from black and minority ethnic groups. The current review of the SEA programme aims to further increase the share of women and BMEs among the Ambassadors are, therefore, likely to further increase the impact of the scheme as pupils are more likely to be in touch with role models they can identify with. Aspects of the Ambassador contribution that could be improved include: guidelines from SETNET about how to most effectively deploy Ambassadors' time and skills, variability in response and feedback actions regarding the recruitment and deployment of Ambassadors.

1.3.2. Teachers

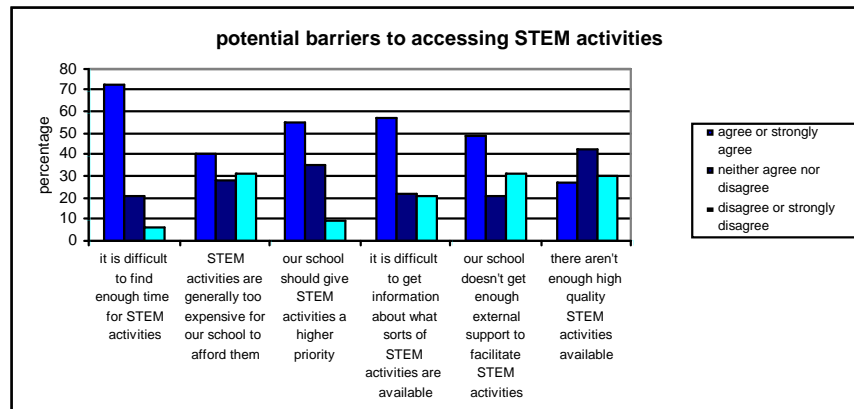
We conducted a survey of STEM teachers in two regions, the North West and London, who varied in terms of the level of contact that their school has had with SETNET. We asked them about their experience of STEM initiatives and activities in general, and also about their awareness of and interactions with SETNET.

The evaluation results suggest that STEM support plays a significant role in supporting and enhancing teaching practices. Some 62% of the teachers surveyed reported that they had used STEM resources, 46% had participated in STEM

professional development (for example, through short courses) and 59% had been involved in a STEM event organised by an external provider.

Set against this, however, less than half (47%) of the teachers surveyed had heard of SETNET, 44% had not heard of SETPOINTS and 58% had not heard of the Science and Engineering Ambassadors Programme – with only 10% having had contact with an Ambassador in the last two years.

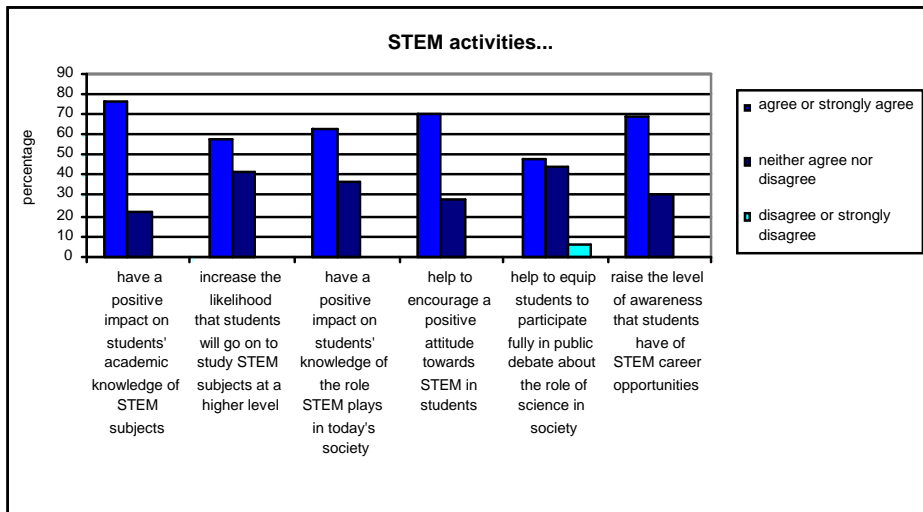
There are two main barriers militating against the effective deployment of STEM support in schools: time constraints (73% of the sample citing this as a problem) and lack of information about the support services available (57% citing this as a problem).



In terms of impact on teaching, the majority of teachers – 64% of the sample – said STEM support had made a considerable impact on their teaching, in terms of: supporting their professional development and improving skills, providing resources to support classroom practices and adding pedagogic value. The main benefits associated with using STEM support for teachers are:

- It provides access to state of the art knowledge (for example, in astronomy) that lies beyond teachers' skills base.
- It promotes cross-disciplinary integration.
- It provides a cost-effective solution where resources are not available for expensive equipment and other resources.
- It supports the development of 'soft skills' for students, through team-working, for example.
- It supports teaching for 'hard to reach' students by making STEM subjects more interesting and engaging.

Respondents to the survey are generally very positive about the impact that STEM activities have on teachers' ability to deliver the National Curriculum and to teach STEM in a way which engages their students. Respondents are also positive about the ways in which they feel these activities impact upon their students. Levels of agreement with the questionnaire impact statements ranged from 49% to 77%. No respondents disagreed with any of the statements, except for the statement *STEM activities help to equip students to participate fully in public debate about the role of science in society* where 6% of respondents either disagreed or strongly disagreed.



1.3.3. School students

We looked at SETNET's impacts on this group of beneficiaries from five perspectives:

- The quality, relevance and effectiveness of STEM curriculum enrichment activities.
- Their impact on student engagement in STEM subjects.
- Their impact on student subject choice.
- Their impact on prospective career decision-making.
- Their impact on students' awareness of issues around Science and Society.

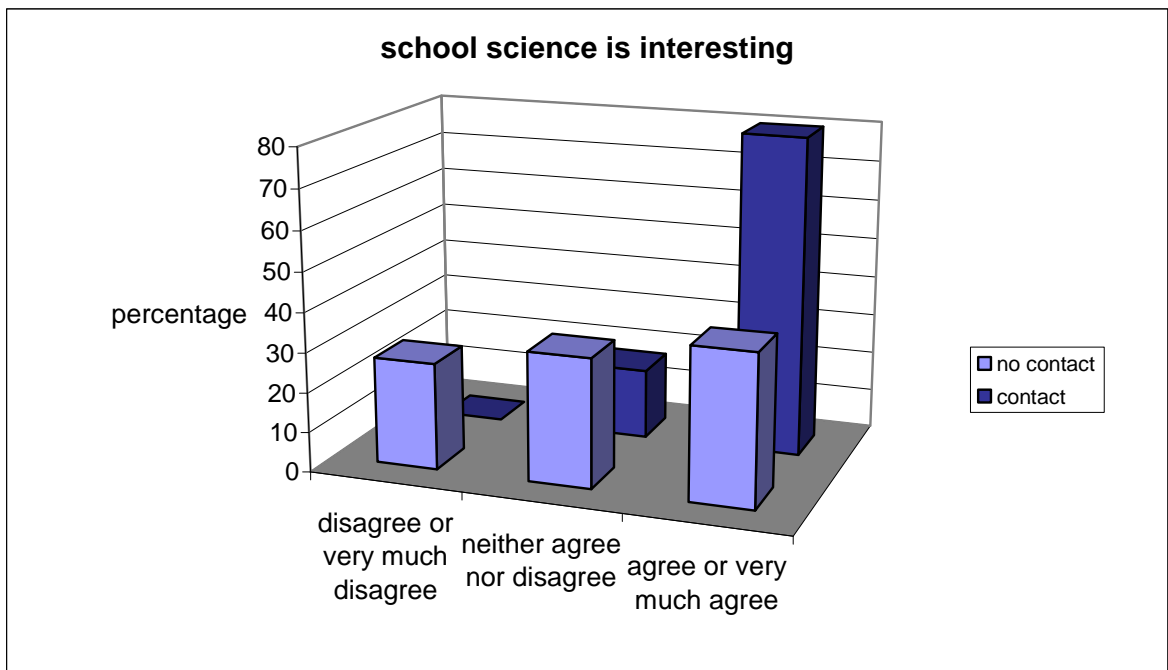
In terms of the support activities provided to schools, our analysis of the frequency of activities carried out in six SETPOINT areas, together with the results of the school students surveys,³ suggests a relatively low level of engagement overall, running at an average of 1.6 visits per school in the SETPOINT areas considered, and an average of 2.1 activities in the 'high contact' school surveyed. This compares with an average of 0.8 activities in the 'no contact' school – suggesting that, despite the relatively low level of engagement, SETNET does increase students' exposure to STEM experiences.⁴ In terms of outcomes and impacts, the contact group were overwhelmingly positive about the activities which they recalled, both in terms of enjoyment and enhancing scientific understanding: 83% of pupils felt that the activities were interesting; 83% felt that they were enjoyable; 83% felt that they had understood the science well; and 100% thought the science had been explained well. When asked about whether or not the activities had increased pupils' interest in

³ We adopted a quasi-experimental approach, and two schools were closely matched on key characteristics such as: GCSE results; size of school; Ofsted classification; gender, BME, and free school meal entitlement of pupils. One school had had no previous contact with SETNET or their local SETPOINT (the senior management team was not even aware of the existence of these organisations), and the other benefited from a pDIUStive relationship with their local SETPOINT and had received a number of SETPOINT delivered STEM enrichment activities. In total, 88 Year 10 and Year 11 pupils took part in the survey.

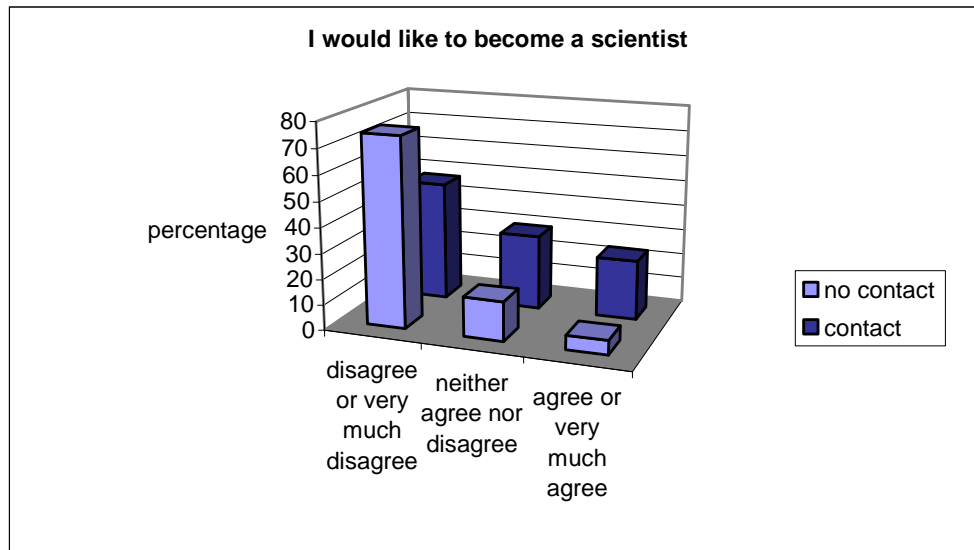
⁴ A point which is consistent with findings from the teacher survey.

studying STEM subjects, 67% of the contact group stated that they had. This reinforces the conclusions drawn from our observation of STEM support activities that such activities are seen as interesting, enjoyable, challenging and increase interest.

This finding is supported by the results of the analysis of the impacts of SETNET supported activities on students' awareness of, and interest in, STEM subjects. The evidence suggests that curriculum enrichment activities influence students' perceptions of the intrinsic interest and efficacy of STEM subjects. For example, when asked how far they agreed with the statement *school science is interesting*, 82% of the contact group either agreed or very much agreed compared with 38% of the non-contact group. Similarly, 63% of the non-contact group disagreed or strongly disagreed with the statement that *I like school science better than most other subjects*, compared with only 12% of respondents belonging to the contact group.



In turn, SETNET supported STEM activities appear to have a positive effect on students' subject choice and their propensity to consider STEM-related careers. For example, when presented with statements to do with scientific careers, only 6% of the non-contact group displayed an enthusiasm for becoming scientists, compared with 24% of the contact group. 47% of the contact group agreed that *school science has opened my eyes to new and exciting jobs*, while less than half of this proportion, 23%, of the non-contact group agreed with this statement.



The only area where the results did not suggest a SETNET-influenced impact was in relation to students' awareness of issues around the influence of Science and Society and the societal problems associated with scientific developments. Similar levels of trust of scientists were displayed in both SETNET-contact and no-contact groups, with larger numbers in each group opting to disagree with the statement *we should always trust what scientists have to say*. 50% of all pupils surveyed either disagreed or strongly disagreed with this statement; only 7% were in agreement or strong agreement; and the remaining 38% chose to sit on the fence responding that they neither agreed nor disagreed with it. Again, the two groups of pupils had similar reactions to the statement *science and technology are important for society*, but this time the response was overwhelmingly positive, with 71% of pupils expressing agreement as opposed to 5% who disagreed with it. However, it should be noted that the focus groups carried out in the schools generated lively and relatively critical debate across both contact and no-contact groups about the credibility of scientific knowledge and evidence, with a significant number of students expressing opinions that scientific knowledge and 'evidence' is frequently used to support political, ideological and commercial interests.

SETNET is involved in a number of schemes aimed at improving access and inclusion, and some SETPOINTS, by virtue of their geographical location, routinely engage with 'hard to reach' schools. Nevertheless, SETNET's contribution to access and inclusion issues could be improved to support the network in achieving its objective of working with more 'hard to reach' groups. Our developmental note to SETNET and DIUS in Part II below offers some suggestions on how this could be achieved, recommending in particular it work towards developing a model for the engagement of these target groups in STEM subjects. If the network's work becomes thus underpinned by a 'theory of change' embedded in such a model, we would expect its impact on 'hard to reach' groups to further increase.

1.4. SETNET's 'fitness for purpose'

On the whole, the management and administrative structures and processes implemented by SETNET are seen as supportive, efficient and effective. The majority of stakeholders felt that SETNET operated in a collaborative way, providing, on the one hand leadership and strategic direction but, on the other providing sufficient flexibility and openness to be able to listen to and adapt to the needs of stakeholders. This 'collaborative' style is attributed to the calibre and expertise of SETNET's central organisation.

However, a number of issues and areas for improvement were highlighted by the evaluation. The most noticeable of these relates to control over the SETPOINTS with regard to the quality of their outputs. While some SETPOINTS are delivering services of an excellent standard, there is currently a considerable disparity between the performance of the best and average SETPOINTS. The SETNET change programme and the recommendations in this report are aimed at raising the performance of all SETPOINTS to the level attained by the best performers, and this objective should underpin the next period of funding. The architecture of the SETNET programme has, inherent within it, a number of tensions. The organisation, whether considered singly as SETNET or holistically as SETNET and its network of SETPOINT partners, displays diverse and extensive interaction patterns with other stakeholders. This multiplicity of stakeholders brings with it a multiplicity of perspectives, cultures, values and expectations. In order to operate successfully in this environment, SETNET is required to step into many shoes and work across many paradigms, attempting to forge and rationalise links between them in order to deliver on its mission. This in turn reflects a tension inherent in the organisational structure between the national and the local. SETNET is charged with delivering on national government agendas, yet it must allow its delivery organisations the flexibility to work with the specific circumstances, traditions and cultures of their individual localities. This has implications for quality assurance mechanisms which tend to be designed to function within more simplistic structures and enforce a universal standard.

As stated above, the change programme currently being implemented by SETNET management is designed to address these issues. The introduction of a regional component in the SETNET infrastructure will in principle tackle some of the dynamics that engender variability in relationships, quality and outputs.

1.5. Conclusions

- SETNET plays an important role in developing, promoting and maintaining the infrastructure needed to facilitate the conversion of Science and Society policies into practical 'on the ground' actions designed to increase young people's engagement in STEM subjects, improve numbers studying STEM subjects and ultimately support the expansion of the national skills and knowledge base.
- In general, SETNET is well respected and is considered to carry out its role efficiently, effectively and with commitment to its over-arching mission and purpose. There are issues around the variability and quality of outputs and achievements across the range of SETPOINTS supported by SETNET, and

around its capacity to fully engage with the spectrum of actors in the system – notably the schools sector. However, it is implementing a change programme to address these issues.

- It is clear that SETNET supported STEM activities are welcomed and valued. They appear to have a positive impact on:
 - Supporting teachers in developing and enhancing pedagogic strategies.
 - Promoting continuing professional development and widening teachers' skills base.
 - Providing access to knowledge and resources that would otherwise not be available.
 - Increasing students' interest in STEM subjects and their propensity to learn.
 - Increasing the likelihood of more students studying STEM subjects.
 - Increasing the likelihood of more young people considering STEM-related careers.
- There is no evidence that SETNET has an influence on increasing students' engagement in STEM activities outside school or that it increases young people's awareness of societal issues related to the role and impacts of science on society. There is insufficient evidence to make a judgement on the extent to which SETNET has a positive impact on 'access' agendas – such as increasing the participation of 'hard to reach' groups in STEM subjects.
- It should be recognised that there are issues around demonstrating causal relationships between SETNET's activities and the perceptions and decision-making behaviours of teachers and students. There are many 'intervening factors' that may have an effect on the kinds of impacts referred to above, and it should be noted that the data collection and analysis carried out in the evaluation included relatively small numbers of teachers and students.

1.6. Learning to support the refinement of the Evaluation Framework

The issues raised, and the lessons learned, by the SETNET evaluation have been deployed to further develop the Evaluation Framework in the final stage of the project. To summarise, this further development work focused on the following:

- Reviewing existing state of the art on statistical modelling to identify more effective ways of establishing causal relationships and on handling 'intervening variables' when measuring the outcomes and impacts of Science and Society programmes.
- Developing models and methods for large-scale longitudinal surveys, supported by qualitative 'context-based' evaluation methods.
- Expanding in more detail the role of culture and context in shaping how science is viewed and engaged with in society and how evaluation can capture and understand the effects of culture and context.

- Developing a 'delivery chain' model – to enable identification of where an initiative is positioned between Science and Society policy and 'on the ground' activities.
- Developing an improved typology of Science and Society programmes and initiatives, one that can suggest the most effective evaluation strategies associated with a particular type of initiative profiling.
- Incorporating methods to monitor how programmes evolve, how this affects the 'object of evaluation' and how the evaluation approach can adapt to change.
- Incorporating 'ex-ante' evaluation methods within the Framework, focusing on 'theory of change' approaches. Explore incorporating prospective evaluation approaches within these methodologies.

2. PART II – DEVELOPMENTAL RECOMMENDATIONS

2.1. Introduction

This part of the report is written for SETNET and the DIUS, and draws together some of the key conclusions from the pilot evaluation in order to make some recommendations that SETNET may wish to consider as it continues to implement its change programme and develop as an organisation. Any recommendations made are written against the background and in full acknowledgement of the significant achievements that SETNET, under the leadership of Yvonne Baker as Chief Executive, has made over the last few years. They are intended to lend additional support to the efforts currently being undertaken in order to help SETNET further improve its impact on beneficiaries and the wider Science and Society system. Throughout our evaluation working papers we have highlighted SETNET's awareness of the key issues which the evaluation has highlighted and that it has set / is setting in motion actions to address them. The recommendations presented here are written very much in this spirit. They are meant as supportive tools as SETNET continues to develop and deliver on its organisational objectives.

2.2. SETNET's change programme

SETNET is currently in the midst of a process of significant change. Since the arrival of Yvonne Baker as Chief Executive, a number of changes have been set in motion focusing on structural issues as well as introducing performance management and quality assurance measures. In particular, SETNET's change programme is concerned with the following issues:⁵

- Introduction of **regional directors**. The regional structure introduced by the change programme aims to put in place a layer of management with the responsibility and capacity to oversee the SETNET-SETPOINT relationships on a day-to-day basis. The role of the regional directors is also to establish the regional STEM Support Centres.
- Establishment of **STEM Support Centres**. The regional STEM Support Centres (hubs) are intended to provide a 'single route to market' for STEM initiatives.
- Introduction of **SETPOINT contracts** which are far more prescriptive with regard to the scope and nature of activities they should provide and establish a relationship more akin to that of a customer-supplier between SETNET and the SETPOINTS.
- Expansion of the **SEAs programme** to 18,000 registered SEAs as well as a review of the progress of the programme to date and a development of a new strategy to ensure that maximum benefit is achieved from it.
- Increased emphasis on **partnership working** with stakeholders and a vision of a 'joined up' STEM system.
- Expansion of **internal capacity** through training and development of SETNET and SETPOINT staff.

⁵ This understanding of the change process is based on relevant internal SETNET documents and conversations with SETNET's management and key stakeholders.

SETNET's change programme, therefore, combines structural changes (regional directors, STEM Support Centres, new contracts) with measures focusing on the substance of the work delivered by the network (capacity building, partnership working, performance and quality assessment). These changes are widely welcomed by the network's stakeholders, and, by addressing the fundamental criticism of variable quality of the activities offered by the network through the SETPOINTS, are likely to increase the organisation's impact on its beneficiaries once implemented in their entirety.⁶

The core questions for the further development of SETNET are, therefore, firstly, how its change programme is implemented efficiently and effectively and, secondly, how it is able to address any emerging issues that may affect its performance. For instance, our summative evaluation has highlighted a number of issues that will become important to address if SETNET's impact on its beneficiaries (pupils, teachers and the wider stakeholder community) is to increase further. In the following sections we will look at these findings more closely, discuss how far the change programme, as it currently stands, is able to address them and make some suggestions for issues to consider further.

2.3. SETNET's profile in schools

One of the conclusions of our summative evaluation has been that SETNET needs to engage more actively and more directly with the school system in order to increase its visibility in schools.

To achieve its objective (to "make an impact on the educational added-value and career choices of all young people, by demonstrating to them, their teachers and other appropriate professionals, the relevance of STEM in today's world and the superb opportunities it offers"), SETNET relies on a complex set of partnerships often mediated through SETPOINTS. Their actions and outputs vary significantly in quality and quantity. This also means that their impact on direct beneficiaries (teachers and students) varies. For instance, the quality of activities delivered by some SETPOINTS does not always match schools' and stakeholders' expectations. The necessary focus of activities (dictated by financial constraints and strategic priorities) also means that average contacts with schools tend to be relatively low.

The change programme, as it is currently implemented, combining structural changes with quality assurance measures, will clearly go a long way towards levelling up the general quality of actions and outputs delivered by the SETPOINTS and their partners. Measures such as the selection of SETPOINTS for the academic year 2007/08 based on their ability to "uphold [...] high standards of delivery and presentation"⁷ and the tighter control over them through the new contracts and the system of regional directors are likely to contribute to this. We can, therefore, expect that as SETNET continues to implement its change programme, the overall impact of its activities on direct beneficiaries will increase.

Nevertheless, SETNET may wish to consider supporting this process further by increasing its own visibility in schools by engaging more actively and more directly with the school system itself, perhaps focusing on those 'hard to reach' schools that it

⁶ It should be noted that there is a consensus amongst stakeholders that some SETPOINTS are providers of truly excellent initiatives and activities.

⁷ SETNET "What is a SETPOINT 07/08", p. 1

is being asked to target. Our evaluation has indicated that there is still significant ignorance (and confusion) amongst teachers with regard to SETNET, SETPOINTS and what they have to offer. This may be the result of 'information overload' stemming from the multiplicity of organisations active in the STEM field or scarcity of funds which can encourage SETPOINTS to work selectively with schools. By becoming more active in the school system itself, SETNET could contribute to increasing awareness of what it has to offer in particular amongst teachers in the hardest to reach schools. While it remains important for local SETPOINTS to be adaptable to their local circumstances, there is support for the network as a whole (SETNET and the SETPOINTS) to be more consistently branded and recognisable as a single entity. This would complement its work on quality issues, undertaken as part of the change programme, and reinforce it. In supporting the SETPOINTS with their task of a focused engagement with priority schools, SETNET would stand to make a contribution to their heightened impact.

We would, therefore, encourage SETNET to consider including a more active engagement with schools as a goal in the strategic priorities for the next academic year and drawing on its network of regional directors to implement it.

2.4. Widening access

Promoting access is a further area that would benefit from a stronger involvement by SETNET. This refers in particular to a more active support of initiatives aimed at 'hard to reach' groups such as girls, black and ethnic minority groups and white working class boys.

Targeting 'hard to reach groups' is a priority for SETNET and the SETPOINTS for the financial year 2006/07, and is also one of the quantitative measures of success for SETPOINTS in the academic year 2007/08.⁸ However, our evaluation has pointed towards some of the complexities associated with achieving this.

On the one hand, SETPOINTS feel that targeting specific groups may not always be appropriate, for example, where a SETPOINT is located in an area where 'hard to reach groups' are in fact the mainstream or where sections of the 'hard to reach groups' outperform majority groups. This shows that the issue of access is clearly context related and may not lend itself easily to a purely indicator-based reporting approach. Nevertheless, SETPOINTS are aware of the importance of the access issue. Those we spoke to often run projects or programmes for specific target groups where they see a need for it or, at the very least, ensure they are not discriminating against particular groups. SETNET's own review of the SEAs programme with a view to widening the range of SEAs to include more women and people from BME groups is also likely to make a contribution to raising the awareness of STEM subjects among key 'hard to reach' groups.

On the other hand, SETPOINTS are clearly struggling to conceptualise how increasing the interest of 'hard to reach' groups in STEM subjects can and should be achieved. For example, there needs to be clarification of whether an appropriate strategy is to introduce very targeted initiatives or to mainstream access issues or both. Indeed, what the STEM system – at the level of SETNET, the SETPOINTS and beyond – seems to lack is a model underpinning its interaction with 'hard to reach' groups which could be used to inform relevant programmes and projects. As limited

⁸ SETNET "What is a SETPOINT 07/08", p. 3

resources dictate a 'smart' use of available finances both by SETNET and the SETPOINTS, we would encourage SETNET to expand its intellectual leadership role in the STEM system by working towards developing such a model, wherever possible drawing on the knowledge and experience of the SETPOINTS. Integrating such development activities in the change programme and the strategic goals for the organisation would put it on a firm footing for achieving its access and inclusion remit.

We recommend that SETNET, in collaboration with the SETPOINTS, work to develop a shared and full understanding of what appropriate targeting of 'hard to reach' groups looks like and how this priority fits with their remit of impacting upon all young people.

2.5. Leveraging funds

The leveraging of funds by SETPOINTS at a rate of three times the core funding provided by SETNET is an important feature of the SETNET system. Indeed, the "What is a SETPOINT 07/08?" document formulates this as a requirement if a SETPOINT is to fulfil its key functions. Currently, both core funding and leverage ratio are set somewhat 'context-blind'; that is, they are roughly the same for every SETPOINT.⁹

Against the background of scarce resources for STEM activities in general, reinforced by strong competition due to the large number of suppliers, it is not surprising that the need to lever in resources of three times the core funding is the source of some anxiety among SETPOINTS. This may be further reinforced by the fact that there is a sentiment amongst some SETPOINTS that their ability to achieve this target is also a measure of how well they are doing (though this is not one of the 'official' measures of success).

Our research has indicated that the leveraging of funds has a somewhat paradoxical effect on the SETNET system. On the one hand, it is clearly necessary for the SETPOINTS to lever in funds as SETNET resources are insufficient to cover all their costs. Arguably, the leveraging of funds also ensures SETPOINT activities match local demand and make the SETNET system very cost-effective to the public purse, thereby helping the organisation to achieve its overall objectives. On the other hand, there are some voices which suggest that the levering in of funds may have a disruptive impact on the organisation and its objectives. For instance, some SETPOINTS, given the need to lever in funds, may work with schools that can pay for activities rather than those that have a greater need for their support. Further, the relatively low share of core funding may put SETNET in a weaker position to set the remit of, and standards for, the SETPOINTS than were it in a position to offer full cost coverage. A counterweight to this, however, is that it is the SETNET / SETPOINT brand that facilitates the levering-in of additional funds: something which could be further developed in line with the recommendations in section 2.3 above.

The change programme, as it is expressed in key documents (in particular 'What is a SETPOINT 2007/08?'; 'SETNET Strategic Priorities 2006/07'), offers significant scope to address some of these issues, and we would encourage SETNET to make full use of the possibilities these offer. To address some of the issues surrounding fundraising, SETNET may, for instance, wish to consider:

⁹ There is some variation in funding to take into account the varying number of schools that SETPOINTS have in their local area.

- Encouraging all Regional Directors to take a pro-active role in fundraising at the regional level, thus supporting and complementing the efforts made by the SETPOINTS themselves, perhaps even combining this with leveraging targets for the regional level.
- As part of its 'Developing People' strategic priority, developing the fundraising capacities within the SETPOINTS themselves.

Beyond these points, however, the diversity of SETPOINTS raises a broader issue concerning the way they are funded. Whilst core funding and leverage expectations are similar for all SETPOINTS, their local circumstances (both in geographic and socio-economic terms) and set-up (i.e. how they are hosted) vary greatly. This has two effects. It means that structurally it is easier for some SETPOINTS to lever in resources than for others. It also means that some SETPOINTS may be able to operate on less core funding or a lower leveraging rate than others whilst still achieving the objectives set for them.

We recommend that SETNET consider whether a different funding system for SETPOINTS, together with more central support for the important task of levering-in funds, may lead to more effective use of financial resources. This might mean not standardising core funding and not setting blanket targets for leveraging in funds, but rather introducing variability and responsiveness to the local context when agreeing SETPOINT contracts.

2.6. Monitoring and Evaluation

The Science and Society system, including SETNET as a network providing relevant activities, displays a lack of an established evaluation culture that regards evaluation as a positive opportunity to learn and improve.

The SETNET change programme is currently making significant efforts towards strengthening monitoring and evaluation requirements. For instance, as part of the new contracts, SETPOINTS will be required to report progress against a number of quantitative and qualitative indicators. This is likely to provide the system with some benchmarks to measure progress against.

At the same time, we would encourage SETNET to take this priority in the change programme (capturing evidence of impact (quantitative and qualitative) to support the case for further funding and additional support) one step further: to work with SETPOINTS on standardising reporting formats for key performance indicators and carrying out systematic evaluations of their activities themselves, drawing on and using the same criteria, wherever possible and helpful. These could overlap with indicators required by key funding bodies to minimise additional work. A starting point from which to develop evaluation criteria and baseline indicators against which subsequent progress could be assessed, and through which a 'benchmarking' system could be developed for SETPOINTS, might be the recommendations elaborated in the 'STEM Review'. SETNET has itself already defined possible ways of operationalising these recommendations, in terms of:

- Working in close and effective partnerships with other agencies in the field.
- Broadening the scope of school activities to as wide a spectrum of schools as possible.

- Bringing greater coherence and clarity to STEM curriculum enrichment activities, particularly:
- Helping schools to design GCSE Science curricula that are tailored to their needs.
- Developing Young People's aspirations and achievements at Key Stage 3.
- Supporting Primary Science.
- Supporting government targets in recruiting more physics, chemistry and maths teachers.
- Contributing to developing and enhancing the skills of STEM teachers, for example, through working with Science Learning Centres.
- Supporting accessibility and inclusion policies, particularly addressing the under-representation of girls in STEM disciplines.

Whilst a more systematic 'audit evaluation' along the lines proposed above would provide valuable insight, we feel that above all the complexity of the SETNET system would benefit from developing an evaluation culture which is focused on learning. As the impact of SETNET's activities depends to a significant degree on the productive interaction between the different parts of the system (SETNET, the SETPOINTS, stakeholders at all levels, direct beneficiaries), a learning focused evaluation culture which acknowledges these complexities would offer the opportunity for genuine improvement, which in turn is likely to increase the impact of the organisation as a whole. We would, therefore, encourage SETNET to consider building regular process and summative evaluations of the network as a whole into its change programme in order to spotlight issues that are going well and those that need further attention. This would necessitate, firstly, developing a monitoring and evaluation system that incorporates benchmarking and, subsequently, developing and implementing a 'benchlearning' culture and system. A case for additional funding from core sponsors should be made to ensure these studies are properly funded and are able to achieve meaningful results conducive to learning.

We recommend that SETNET introduce universal, yet flexible, monitoring processes and foster an evaluation culture which supports organisational learning and improvement.

2.7. The SEA Programme

The SEA programme clearly makes a significant contribution to the STEM infrastructure and is highly valued by SETNET's stakeholders. Efforts to increase the diversity of the SEAs are valued, and the positive impact of SEAs from BME groups was mentioned by stakeholders. The aim to increase further the share of BMEs and women in the SEA programme, one objective of the current review of the SEA programme, must, therefore, be welcomed as likely to further increase the programme's impact on the 'hard to reach' groups that SETNET aims to reach with its activities.

At the same time, our research has flagged up that the SEA programme may have a limited visibility in schools. 58% of our respondents had not heard of the SEA

programme and only 10% had contact with a SEA in the last two years.¹⁰ As part of its review of the SEA programme, SETNET may, therefore, wish to investigate how teachers' awareness of the programme and the benefits it offers to them could be raised. This could, for instance, be done as part of one of the core elements of the review, namely, utilising the work of DfES to identify schools which have no tradition of pupils studying science A levels.

We endorse the enhancement of the SEA programme currently under way, which focuses on increasing the number, representativeness and preparedness of SEAs and on improving the management of the programme.

2.8. The potentially disruptive nature of the change programme

Any change is difficult as it causes resistance and anxieties among those affected by it. SETNET is no exception to this. As SETNET is fully aware, the change programme, which is necessary and will help improve the way SETNET works and the impact it has, creates a 'turbulent environment' in a system that is already characterised by a multiplicity of sensitive relationships. Nothing in our interactions with SETNET has suggested that the organisation's leadership is not aware of this. By contrast, it is evident that the sensitivities surrounding the change programme are known and recognised. However, for the development of SETNET as an organisation it will be important to go one step further: to acknowledge these anxieties and, above all, to *manage* them proactively. This means monitoring the crucial relationship it has with its delivery network and dealing with any issues uncovered in a constructive way.

This will require SETNET to embark on a process of organisational development in conjunction with its strategic change process taking a whole systems approach, i.e. looking at SETNET "as a set of interrelated parts [where] change comes from building awareness of the ways in which the parts relate to each other and finding ways of changing the system all at once."¹¹ *One proven tool for achieving this, which we would recommend SETNET to adopt, is collaborative action learning sets.¹² Carried out in regular intervals, and involving key actors (SETPOINT managers, regional directors and SETNET itself), they would encourage an open dialogue between all parts of the system to generate practical learning by reflecting on experiences in a structured way.* We highly recommend drawing on the skills of an experienced facilitator to manage this process effectively to help create the supportive environment needed for the success of this tool.

2.9. Conclusion

On the basis of the evaluation findings, the evaluation team is happy to endorse the continued financial support of SETNET. We believe that the recommendations made in this developmental note are consistent with the current SETNET change programme, and that, if the programme continues on track, SETNET will continue to

¹⁰ Whilst the survey as a whole did not achieve a high response rate, it is worth noting that there was no significant difference in the responses offered by teachers from schools who had no, low to medium or high contact with their local SETPOINT.

¹¹ ODPM (2005) "An organisational development resource document for local government", http://www.communities.gov.uk/pub/293/AnOrganisationalDevelopmentResourceDocumentforLocalGovernmentPDF1580Kb_id1161293.pdf

¹² We have attached a description of this method in the Appendix to this note.

improve both its efficiency and effectiveness in terms of meeting its aims and objectives.