SCRUTINY REPORT:

TO PROVIDE A RETROSPECTIVE AND LOOKING FORWARD VIEW OF THE STEM PLAN

PLYMOUTH CITY COUNCIL

Introduction

This report provides Members with a summary of work that the Local Authority and citywide partners and stakeholders have undertaken to deliver the City wide STEM strategy from its launch in 2017.

Background

The need for STEM skills in the City of Plymouth is essential for the city to survive, prosper and be productive. It is estimated that our existing City-wide demand for STEM related skills across many sectors is as high as 55%. Other factors that have created this response to need include the following:

- an ageing workforce thereby creating replacement demand,
- a need to reskill our existing workforce to cope with the changing demands of technology and increased productivity
- a naivety amongst our young people, parents and educators that STEM jobs and careers do not exist in the city and region thereby leaving to go elsewhere to access these
- a landscape of STEM activity that was at best individualistic and uncoordinated, creating duplication and competition, consequently wasting valuable resources

Our strategy is based on three principles; growing, keeping and attracting STEM talent. The strategy was developed following extensive city-wide partnership consultation, referencing regional and national perspectives including the Industrial Strategy and an identified need to increase the number of people taking up STEM related subjects leading to jobs and careers.

There is a fourth principle that emerges from our work in partnership regarding this strategy; the ability to demonstrate to Government that we are working together and can show others how well we can deliver working together.

It is also worth noting that as yet, we have not yet seen any other STEM strategy emerge that can be considered as truly citywide. Others observed are mainly helpful collaborations between Higher Education (HE) and Further Education,(FE) for example with a number of selective employers.

The vision of Plymouth's STEM Strategy is that by 2031 Plymouth is seen as a thriving, innovative, international ocean city with STEM driving the region's growth & productivity. As stated, the key aim of the strategy, launched in 2017, is to grow, keep & attract STEM talent.

Underpinning this, the STEM delivery plan for Plymouth sets out a '5E' STEM Excellence model to achieve its strategic aims to grow & keep STEM talent. Underpinning the model is research from Engineering UK that demonstrates if young people receive 3 quality STEM interventions over the course of their educational lifetime they have a much higher likelihood of going onto pursue STEM qualifications & STEM careers.

Activity to date

We wanted to develop the foundations for greater links to employers and schools, ensuring that our young people, parents and older people understand the amazing opportunities that STEM skills open up for careers and jobs.

In 2017 a STEM Board was established with city wide representation of stakeholder and partners including employers (PMG, Plymouth Employment and Skills Board, Plymouth Science Park, Women in STEM, schools, FE and HE, to oversee the strategy and develop and agree key performance indicators.

Sub groups to support the Board and delivery of the strategy have been developed.

These groups are as follows:

- Operational and delivery:

  Established to gather operational partners together with expertise to support the delivery and develop activity underpinning the STEM strategy.

- Funding:

  This group's intent is to gather citywide expertise and knowledge of funding and to shape potential bids for submission, locally, regionally and from national purposes;

- Inward Investment:

  With a focus on attracting talent to the City, there are clear links to Invest Plymouth and provide an offer from Plymouth to the rest of the UK (and wider) in order to promote the availability of the jobs and careers that we have and will need in the city and sub region to support the attraction of new talent.

The role of a STEM coordinator

The STEM strategy requires resource to deliver and the role of the STEM coordinator is crucial to support the strategy and co-ordinate delivery across the city. Resource was identified to support the role of a STEM co-ordinator to develop and coordinate STEM activity and ensure that the strategy and aforementioned supporting structures have been put in place.

This position was originally appointed to in 2018, initially via a secondment arrangement but subsequently as a commissioned work and is supported by funding from HE, PCC and Section106 funds.

Plymouth's STEM Coordinator has been leading a significant programme of work with schools & employers to engage & enthuse young people through high quality STEM activities & support schools to energise STEM ambitions amongst our pupils.

Throughout the course of the last academic year activity was delivered to schools. On average four STEM activities are taking place per week in schools across the city. An evaluation report is being prepared for January 2020 aligned to the KPIs set out in Plymouth's STEM Strategy aligned to three key areas: economic output; educational outcomes & STEM awareness.

- In July 2019, we held the first Plymouth STEM Conference on the iconic Plymouth Hoe with over 100 delegates and media coverage and coincided with the Big Splash, an event with employers and networks using the Lido for STEM activity to school children;
- The delivery of a Marine Careers Conference at the NMA.
- Over the last academic term, thousands of local students and teachers from primary, secondary and post-16 have been involved in various STEM activities across the city.

High footfall, high profile events include the following:

- During June and July, over 300 students and teachers took part in various Lego projects (aimed at 4 to 9 year olds – https://vimeo.com/348571822)
- 1,682 primary and secondary students received a STEM workshop, showcasing the amazing STEM career opportunities in the city
- 768 students, teachers and parents attended the South West Marine Careers Conference on 12 July 2019 (aimed at 14 to 24 year olds – https://vimeo.com/350100387)
- Over 1,500 students, teachers and parents took part in the Big Splash event at Tinside Lido on 16 and 17 July (aimed at 9 to 13 year olds – https://vimeo.com/349634893).
- 450 students from Plymouth attended the Big Bang
- The largest entry to cardboard boat challenge – 53 entries

City-wide STEM skills development support

- In addition to work to grow STEM talent working in schools and influencing teachers and parents, the STEM delivery portfolio has been increased by significant key project applications yielding very positive outcomes for Plymouth
- The regional STEM Centre of Excellence at City College was established in 2017 as a key resource to our STEM agenda
- We can now add a Maths Centre of Excellence, one of 20 in the Country, launched early this year (2019) at City College, and be able to share excellence in Maths teaching practice, thereby helping to support increased performance of maths in students (and adults) across the city. This is timely. Latest data from 2018 shows Plymouth schools progress and attainment performance is again behind national benchmarks. In the key measure of Progress 8, Plymouth performance is categorised as below average.
- In attainment of a strong pass in English and maths, Plymouth schools achieved a pass rate of 38.5%, nationally the figure was 43.3%. Furthermore, estimates of the cost maths and English retakes are £2m per year across Schools and the FE sector. To address this schools are taking part in a number of commissioned activities and engaging with the Teaching School Council. PCC are providing STEM related activities designed to build confidence in Maths and careers guidance to support young people's planning for employability.
- The region wide Institute of Technology (IoT) will have considerable presence in Plymouth with both the University of Plymouth and City College looking to deliver marine based skills training to employers and new entrants and aiming to be launched in late 2019
- As part of the offer to business and workforce, the IoT will support the Marine Business Technology Centre (MBTC) facility in Oceansgate and widening our offer to investors and attraction of companies we are seeking to relocate to the city
- The University Technical College has also increased its offer to young people making the opportunities to nurture STEM talent greater and enable entry at a younger age
- The Scott Medical College has also opened providing a dedicated route for young people to pursue their aspiration for the medical sector

Aspirational strand of the Plymouth Challenge

Members will note that work undertaken fits into the Aspirational Strand of the Plymouth Challenge and supports schools with the Careers Education Information Advice and Guidance activity.

STEM going forward in 2020

Our plans for the remainder of the year include the continued delivery of STEM workshops across the City and the implementation of the annual STEM competition

The Plymouth STEM Board will publish the objectives and metrics for each STEM working group via an annual STEM report in January 2020.

Key STEM events for 2020 include:

- Transformation Work Experience Pilot for year 10 students (June 2020);
- Big Splash (July 2020) for 1,000+ students;
- STEM Conference for 200+ delegates (July 2020);
- A large scale Plymouth Careers Conference for 2000+ 14 to 24 year-olds (October 2020);
- Continuation of workshops until November 2020 (target 15,680 students);
- A programme of Augmented Reality, Virtual Reality and Mixed Reality throughout the year across the city
- We will continue to develop the STEM Calendar and highlight the work being delivered for the benefit of all

In addition:

We will look to refresh our STEM strategy as part of the wider Plan for Employment and Skills and Plan for Education

We intend to build on initial discussions with the DfE on how our STEM model can add value to the Industrial Strategy thereby attracting further investment to our city.

We also intend to make representation to the DFE to showcase our ability to make a significant contribution to the UK economy and the considerable distance we have travelled in a relatively short period of time demonstrating partnership in action.

Appendices

Appendix A: STEM Delivery Model