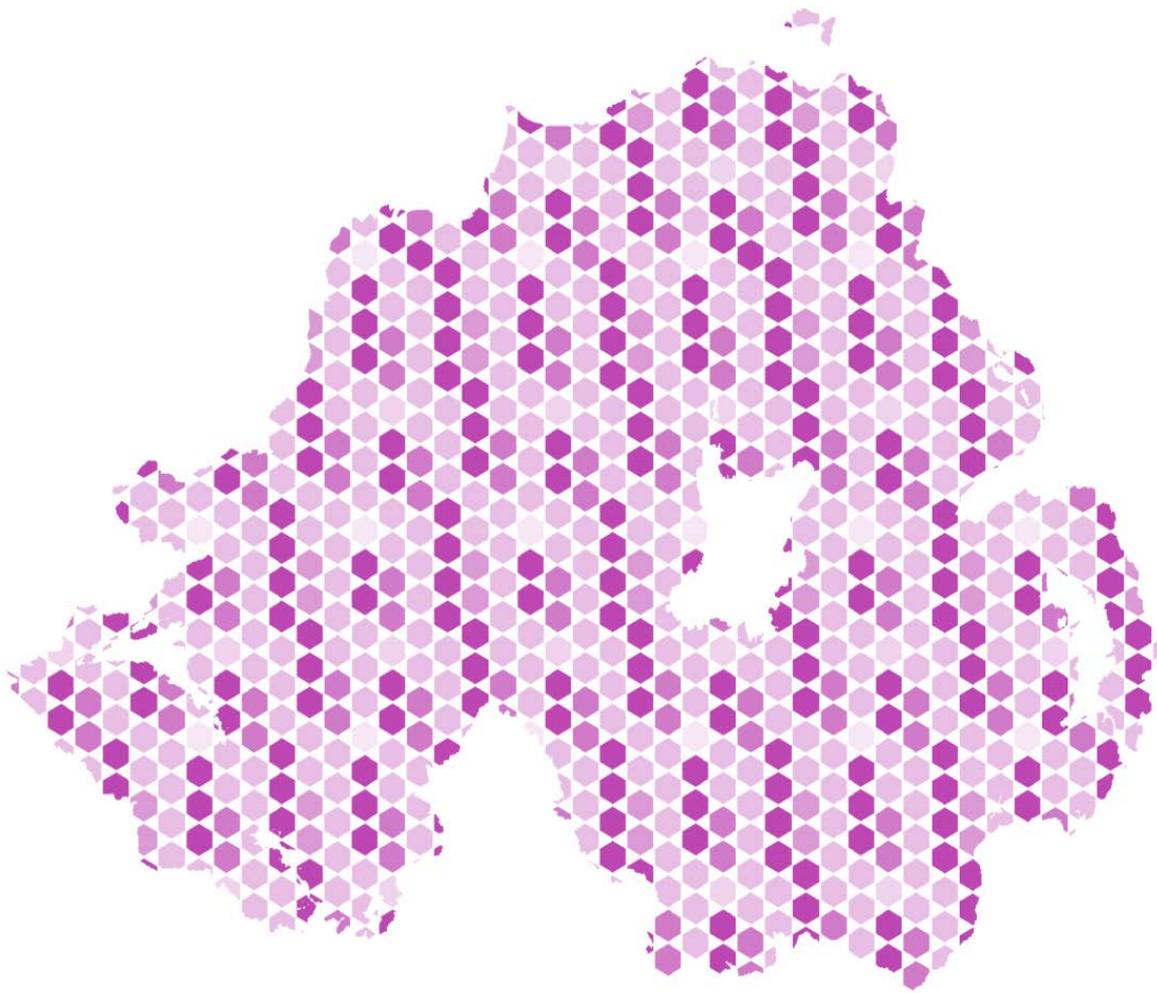# CULTURE, ARTS AND LEISURE INSPECTION

Education and Training Inspectorate

An Evaluation of the future STEAM agenda and its strategic link to the DCAL Learning Strategy

May 2015

Contents

1. Context

The Department of Culture Arts and Leisure (DCAL) commissioned the Education and Training Inspectorate (ETI) to evaluate the current learning offer by the department and its Arms Length Bodies (ALBs) to assess what changes are necessary to ensure it can be ready to contribute effectively to the anticipated STEAM[1] agenda, which aims to place the arts at the centre of STEM[2].

The organisations involved in the evaluation, listed below, demonstrate the diversity of the DCAL funded ALBs in terms of their: expertise; size; geographical distribution; governance; educational partnerships and community links.

- Armagh Observatory[3];

- Armagh Planetarium[4];

- Arts Council of Northern Ireland[5];

- Creative Learning Centres-Nerve Centre[6];

- Libraries NI[7];

- Museums NI[8];

- Sport NI[9]; and

- W5[10].

2. Evaluation methodology

Inspectors met with each ALB to review their work in contributing to the STEAM agenda, and in preparation for this they completed a short proforma to outline:

- the context of their organisation;

- the work they have done in STEAM;

- the plans they are developing for future STEAM work; and

- the strengths of their provision and the areas they have identified, through their own processes of self-evaluation, to take forward their work in STEAM.

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[1] Science, Technology, Engineering, Arts and Mathematics (STEAM)
[2] Science, Technology, Engineering and Mathematics (STEM)
[3] http://www.arm.ac.uk
[4] http://www.armaghplanet.com
[5] http://www.artscouncil-ni.org
[6] http://nervecentre.org
[7] http://www.librariesni.org.uk
[8] http://www.nmni.com
[9] http://www.sportni.net
[10] http://www.w5online.co.uk

3.   Going well

- There is a strong commitment from DCAL to promote the STEAM agenda.

- The ALBs are well placed to implement the STEAM agenda through their existing infrastructure, expertise, specialist accommodation and resources.

- There are effective partnerships between the ALBs and with external agencies to develop and deliver in-house and outreach programmes which include a diverse and innovative range of collections, exhibitions, public lectures, programmes and teacher training courses to foster an understanding of, and enthusiasm for, aspects of STEAM.

- There are effective links and partnerships with STEMNET[11] and the STEM ambassador programme to facilitate the transition from STEM to STEAM.

- There are effective working arrangements with the Rhode Island School of Design[12] and the Massachusetts Institute of Technology (MIT)[13] Fabrication Laboratory (FabLab) [14].

- The developments in the STEM to STEAM transition[15] taken forward by the Creative Learning Centres (CLCs) has been recognised as best practice by the Rhode Island School of Design.

> ### Effective practice – STEM to STEAM
>
> In 2012, the Nerve Centre and CLCs opened the first FabLab in Northern Ireland as a project with MIT to develop high end STEM skills in Digital Fabrication into a creative digital environment. Fablab is a global digital fabrication project developed by the Centre for Bits and Atoms at MIT that brings 3D printing, laser cutting, electronic engineering and manufacture direct from MIT into Northern Ireland

- The development of a Creative Apprenticeship Pilot in Northern Ireland by the Arts Council of Northern Ireland[16] to enhance career progression pathways within the creative industries.

- The good work of the learning forum which is well placed to take forward the STEAM agenda.

- The ALBs have started to review and evaluate aspects of their learning offer in view of STEAM.

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[11]   The Science, Technology, Engineering and Mathematics Network, http://www.stemnet.org.uk
[12]   http://www.risd.edu
[13]   http://web.mit.edu/
[14]   http://www.fabfoundation.org/
[15]   http://futureclassrooms.org
[16]   http://www.artscouncil-ni.org/images/uploads/funding-documents/creative_apprentice_guide_may2014(2).pdf

4.   Going forward

In order to contribute effectively to the anticipated STEAM agenda, DCAL should review the learning strategy[17], and the department and the ALBs should review and evaluate fully their associated action planning to include:

- a clear STEAM definition and rationale with aims, actions, targets and costing, to include the identification of the target audience;

- how the provision for STEAM will link with the DCAL learning strategy priorities and those of other governmental departments;

- how the transition from STEM to STEAM will be taken forward;

- the provision for STEAM learning activities and how art and creative subjects will be blended with STEM subjects;

- clearly identifying viable STEAM career progression pathways;

- developing appropriate links with the Northern Ireland curriculum, and with further and higher education provision; and

- to consider how the most effective practice in STEAM will be disseminated.

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[17]   http://www.dcalni.gov.uk/quick_links-dcal_learning_strategy