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Independent Evaluation Report on an Application for Validation of a Microcredential Programme

1. Provider details

Provider name	Dublin Business School (DBS) (https://www.dbs.ie/)
Date of report	11th August 2021

Section A. Overall recommendations

Programme	**Code**	PG24527
	Title	*Certificate in Data Visualisation*
	Award Class	Special Purpose Award
	Credit	15 ECTS
	NFQ Level	8
	Recommendation *Satisfactory* ***OR*** *Satisfactory subject to proposed conditions* ***OR*** *Not Satisfactory*	Satisfactory

Section B. Expert Panel

Name	Role	Affiliation
Professor Sarah Jane Delany	Panel Member	School of Computer Science, Technological University Dublin.
Dr Brendan Ryder	Panel Member	Head of Academic Planning and Quality Assurance, Dundalk Institute of Technology (DkIT).

Section C. Programme Profile Information (as supplied by provider)

Brief Synopsis of the Programme
The Certificate in Data Visualisation (Level 8, 15 ECTS) programme focuses on developing knowledge and practical skills in web and business applications and advanced data visualisation techniques. It will develop and advance learners' ability to exploit different BI tools and data science platforms for processing and visualising data in order to provide business insights. Learners will benefit from knowledge fundamental to advanced analytics in web and business applications and develop industry-aligned skills in data visualisation in order to generate actionable insights for stakeholders and support strategic decision making. Data analysis tools are increasingly fundamental to industry practice and this programme aims to provide learners with data visualisation knowledge and industry-aligned skills in order to support them in their future career ambitions. This programme also supports learners in developing transversal skills and competences required to research, scope and assess a data analytics real-world problem and propose solutions, in accordance with an approved plan and timeframe. Learners will demonstrate the capacity to present these findings to both technical and non-technical audiences.
Target Learner Groups
The Certificate in Data Visualisation (Level 8, 15 ECTS) micro-credential programme is targeted towards learners who wish to gain essential knowledge and skills in data visualisation. It has been designed for those who are self-employed with limited data visualisation knowledge and skills, unemployed from a related role, or in employment and who require cross-skilling or up-skilling in this area. It is primarily aimed at those who wish to advance their careers by gaining skills and knowledge in data visualisation in order to play an active role in the data visualisation function of their organisation. Upon successful completion of this programme, learners will be able to apply their skills and knowledge effectively, and understand how to integrate data visualisation into decision-making in their company. They will be well positioned to pursue roles within organisations that require a data visualisation function or data visualisation-related tasks.
Rationale for Programme
Due to the emergence of various technologies, data is increasing exponentially, creating new opportunities and challenges. Data analytics and specifically, data visualisation, equips learners with knowledge and skills to extract trends, patterns and useful insights from data allowing them to make better use of resources, operations and bring organisations to the next level. This programme equips learners with these modern analytical skills and the ability to analyse trends in data and generate business intelligence for enhanced business operations and better decision making in day to day business. This micro-programme has been designed for learners with non-cognate backgrounds and no technical knowledge or those with cognate background but lacking data visualisation skills and knowledge in the area of data analytics and business intelligence. Ireland is following global trends, where international markers and emerging enterprise sectors are being shaped by shifting power structures, according to The National Skills Strategy 2025 report. ICT is one of the key drivers behind digital transformation, a profound and long-term challenge for the industry globally, and improved digital skills will be vital for Ireland’s future, both in higher-end When uploading this document to QHub, first set the document type to Self-Evaluation Report dedicated ICT jobs and, more widely, as a basic core competence. While it is impossible to predict today what the Irish and global ICT sectors will look like in five or ten years’ time, we can confidently anticipate an increased rate of transformative change in the coming years. We can expect the emergence of novel and highly innovative digital business models and products, driven by powerful disruptive factors including

technological innovation, data analytics, demographic and geopolitical trends, the impact of emerging markets on the global landscape and the rapid evolution of consumer behaviour and preferences, driven by the 'Millennial Generation'. Deloitte (2018) highlights that currently needed data scientists should be able to manage a variety of tasks, including "enterprise analytics projects such as collecting, cleansing, and organizing large and varied data sets; designing and testing various algorithms; building and deploying machine learning-based solutions; analysing data for patterns; and communicating findings to business stakeholders". 1 Therefore, employers are looking for skilled IT/IS professionals who have the ability to analyse and present diverse types of data in order to provide the insights that businesses need to make effective and efficient decisions. This programme addresses such a need. For example, learners must:

- Develop knowledge and practical skills in web and business applications.
- Develop knowledge and practical skills in advanced data visualisation techniques.
- Communicate effectively with stakeholders and leaders, to meet the business goals.
- Research, scope and assess a data analytics real-world problem and propose solutions.
- Work within an approved plan and timeframe.
- Communicate technical information to a nontechnical audience.

This programme fosters a critical awareness of the importance of these competencies through learnings in the core modules. Building these competencies enables the learners evaluate patterns of knowledge, skills and abilities which technical and non-technical employees need, to perform their functions in an effective and efficient manner looking at the how as well as the what. Therefore, the programme was designed to place a focus and emphasis on practical data visualisation skills that will benefit the needs of the learner. The programme also aims to incorporate transversal skills in each module for the professional development of learners to enhance their employability options. This will enable the learner to cross skill or upskill by addressing skills such as awareness of enhanced digital ability, leadership, self-management, that are essential for working in the data visualisation field. The recent July Stimulus package as well as the Springboard Plus initiative also highlight that certain fundamental digital skills and technology areas, such as data skills, are underserved in higher education skills provision. The July Stimulus call also noted the need for ' shorter, more focused courses/modules that can be offered in a flexible manner and allow people to gain important skills without taking a considerable period away from the labour market' (hea.ie/assets/uploads/2020/08/July-Stimulus-HE-Initiatives-Call). DBS has included Certificate in Data Visualisation as one of the programmes submitted in the Springboard Plus tender. DBS has a history of providing degree programmes which produce graduates who match employer needs. Employer feedback and surveys conducted on graduate employment provide evidence to support this claim. The micro-programme proposed here reflects the National Skills Strategy 2025 and the National Skills Bulletin 2018 as well as The Expert Group on Future Skills Needs 2020 which highlighted that '84% of the CEOs of the FT500 companies already have digital transformation at the centre of their corporate strategy' and therefore require employees who are ICT proficient, flexible and innovative. This guiding principle is true of not only FT500 companies but also true of many SMEs, 1 https://www2.deloitte.com/us/en/insights/focus/signals-for-strategists/democratization-of-data-science-talent-gap.htmlWhen uploading this document to QHub, first set the document type to Self-Evaluation Report medium and larger size companies in Ireland. The modules and curriculum on the programmes were carefully chosen in consultation with several stakeholders in order to ensure that the standards and level of the programme would be relevant to both prospective learners and industry employers. DBS currently offers undergraduate degrees in the area of Computing: the BSc (Hons) in Computing, and on the BA (Hons) in Business as well as the Bachelor of Business, there are a number of information technology electives. At Level 8, DBS offers two conversion programmes: a Higher Diploma in Science in Computing and a Higher Diploma in Science in Data Analytics, from which this programme is drawn. These have also proved particularly popular Springboard+ programmes. At Masters Level, the College offers a Master of Science in Data Analytics, a Master of Science in

Information Systems with Computing and a Master of Science in Artificial Intelligence and a Master of Science in Cybersecurity, along with a number of postgraduate diplomas in the same area. Many learners on DBS's current computing and business programmes, have highlighted a growing interest in this area and a number of employers have particularly highlighted the need for data visualisation as an area of particular expertise across many sectors. Additionally, the micro-credential draws from the experience of DBS in a number of areas relating to industry support and market interest for this stand-alone, micro-programme. Namely: o Under the guidance of the Course Director and the independent Chairperson, Tim Bicknell, the DBS Computing Industry Advisory Board (IAB) board feeds into programme development, review and revalidations to ensure that there is an "industry-aligned" focus. The Board is composed of approximately sixteen members including founders, chief executive officers, managers, recruiters from big multinationals as well as SMEs. For example, the IAB board includes Gina Dollard (Head of Security Operations at AIB), Stephen Murphy (Chief Technology Officer, CarsIreland) and Dina Vyapuri (Founder of Techifindr, Recruitment Consultant). At the February meeting of the Board, the micro-credential proposal was discussed and endorsed. Membership of the Board and further information on the profiles of Board are provided in the supporting documents Appendix 1 and Appendix 2. o DBS's current Higher Diplomas in Science in Computing and in Data Analytics, have been running for a number of years and have proved very popular and are in the top ten most popular programmes offered by DBS. As such, DBS recognised a strong market demand for the development of an accredited micro-credential in the area of data visualisation. o Finally, the module descriptors have been taken from the recently revalidated Higher Diplomas in Science in Data Analytics and was developed through industry and stakeholder consultation and review. A supporting document has been provided to demonstrate a number of instances of industry comment that are considered pertinent to the rationale for the development of this micro-credential award. This demonstrates a demand in the subject area at a variety of different levels. As such, the opportunity to study a micro-programme as a distinct programme in its own right and as a 'taster' to the discipline area is a beneficial proposition for any learner and a valuable addition to the wider offering of DBS. Therefore, DBS believes there is a sound and logical rationale for the development of this micro-credential programme in the area of data visualisation.

Evidence of Learner Demand

A search of website indeed.com (February 2021), shows there are 90,000 jobs for data analysts available globally and over 1000 roles in Ireland that require functional skills and expertise in data visualisation. For example web analytics assistant, data analytics officer, data visualisation specialist, data assistant. We identified employment opportunities which require a mix of knowledge and When uploading this document to QHub, first set the document type to Self-Evaluation Report practical skills that learners will acquire through Data Visualisation & Communications as well as Advanced Analytics and Web Application modules. Example of the roles may include: Data Analyst (Visualization) - UnitedHealth Group (information and technology-enabled health services business, Dublin) Responsibilities:

- Collaborate with stakeholders to perform data visualisation tasks that will drive business decisions.
- Develop and maintain documentation that chronicles processes related to previous analytic activities and associated results.
- Assist broader Business Intelligence, Data Science and Data Engineering teams on end-to-end analytic solution development.
- Communicate with various functional areas and translate technical concepts in ways that can be understood by a variety of audiences, both verbally and in writing.

Required Qualifications:

- Experience performing statistical data visualisation on large scale data sets.

- SQL experience, including experience with database technologies (e.g. Oracle, Microsoft SQL Server, DB2)
- Experience with Data Visualization / Dashboard tools (e.g. Tableau or PowerBI).
- Ability to communicate ideas clearly and concisely in writing and orally to individuals and groups, with the ability to tell stories and drive recommendations through data.
- Qualification in this field.

Data Analyst - Irish College of General Practitioners, Dublin Duties will include, but are not limited to the following:

- Develop analytical models and provide predictive modelling at scale and in real time.
- Combine and manage complex data sources to generate metrics and support data analysis.
- Establish processes to measure the value of modelling with clear KPIs and targets.
- Interpret complex information presenting it clearly and concisely to non-analytical audiences
- Provide ad hoc analysis as required to support key decisions
- Troubleshoot data issues
- Produce reports for stakeholders

The ideal candidate will have the following skills and expertise:

- Hold a third level qualification in relevant subject e.g. computer science
- Ability to work with key stakeholders at all levels within collaborating organisations
- Ability to analyse datasets, use appropriate analytical tools and offer software solution advice
- Ability to translate business requirements into non-technical language
- Proven experience in methodologies and processes in managing large databases
- Understanding of metadata standards and security requirements
- Fine-tuned attention to detail and ability to differentiate between noise in the data and trends
- Strong written and verbal communication skills
- Understanding of the confidentiality requirements when handling personal data
- Training others in using reporting and dashboard tools Additionally, McKinsey sees organisations becoming ‘analytics driven’, with these organisations gaining a competitive advantage from their by capturing value and ‘meaningful insights’ from their existing data (https://www.mckinsey.com/business-functions/mckinsey-analytics/how-we-helpclients#).

This, along with the rationale for programme development noted above, demonstrates a demand in When uploading this document to QHub, first set the document type to Self-Evaluation Report the subject area at a variety of different levels. As such, the opportunity to study a single module as a distinct programme in its own right and as a 'taster' to the discipline area is a beneficial proposition for any learner and a valuable addition to the wider offering of DBS.

Duration and Enrolment

	First Intake Date	Duration (months)	Cohorts / Intakes per Annum	Enrolment i.e. learners per Intake	
			Maximum	Minimum	Maximum
Full-Time		12 – 24 weeks	3	5	100
Part-Time		12 – 24 weeks	3	5	100

(As per pg. 4 of the programme submission)

Proposed new learner numbers over three years – all intakes	Year 1		Year 2		Year 3	
	FT	PT	FT	PT	FT	PT
Minimum total enrolment of 5 per intake across all intakes:	5	5	5	5	5	5
Maximum total enrolment for 3 intakes:	300[1]		300[1]		300[1]	

1. The max of 300 will be across both FT and PT. This will not be an even distribution and will depend on the learner demand for each

Panel Commentary on Section C: Programme Profile Information

This should set out the panel's views on the adequacy of the case made by the provider for the approval of this programme as a viable, stand alone offering for the target learner group. The panel should take into account the proposed rationale, evidence of market demand, learner numbers, entry criteria, and marketing information. The information on objectives, MIPLO's and marketing information, rationale, should also be checked.

Where the proposed award is at a different NFQ level to that of its parent programme e.g. where the programme is taken from Stage 1 of a validated Level 8 programme, the panel should check the MIPLO to Level Indicator mapping for consistency.

The following Validation Criteria as they apply to this programme should be borne in mind, while also recognising that the programme of which this microcredential is a module, has already been deemed to have met these criteria.

Criterion 3*.The programme concept, implementation strategy, and its interpretation of QQI awards standards are well informed and soundly based (considering social, cultural, educational, professional and employment objectives)*

Criterion 2: *The programme objectives and outcomes are clear and consistent with the QQI awards sought*

Criterion 11: *Learners enrolled on the programme are well informed, guided and cared for.*

Criterion 12*: The programme is well managed*

Rationale, Learner Demand, Viability:

- The Panel were satisfied with the rationale presented for the development of this programme. The panel commends DBS's engagement with industry for this programme and their ongoing engagment particularly through the DBS Industry Advisory Boards.
- This was evidenced in Appendix 1: Industry Research (ProgID-41907_DBS_Appendix 1_Industry Research.pdf) and Appendix 2: Industry Advisory Boards (ProgID-41907_DBS_Appendix 2_ ICT Industry Advisory Board.pdf).

Entry Critieria

- The programme modules are semester 2 modules in the parent programme (*Higher Diploma in Science in Data Analytics*). Semester 1 of the parent programme provides the foundation concepts required for conversion students as stated in the Programme Synopsis: "*Semester one (FT) lays the groundwork for the programme and encompasses mostly foundational modules that focus on providing a solid and comprehensive understanding of the relevant concepts, a proficiency in the use of programming for data analytics and Statistics for Data Analytics and Databases and Business Application. Learners initially develop advanced practical skills in essential areas such as programming, and Platforms for Data Analytics while also offering theoretical knowledge of statistics".* As with any programme potential students must have the capacity to succeed on the programme and must have the prerequiste knowledge, skills and competencies to undertake the programme modules as presented either through certified or specific experential learning, irrespective of the addditional supports provided when students are

admitted to the programme. The panel acknowledge the provision of the additional supports provided to students (Computing Academic Technical Supports (CATS)).

Condition(s)

- The programme entry requirements should be amended as follows:

  "The minimum entry requirements are an NFQ Level 8 degree in a cognate discipline (include list of cognate disciplines) with demonstrated experience of mathematics and programming.

  OR

  an NFQ Level 8 degree in a non-cognate discipline with a minimum of two years professional experience in a related IT industry. Due to the mathematical nature of the content candidates will be required to demonstrate competency in mathematics and programming.

  OR

  Applicants who do not have a Level 8 qualification and who have at least 3 years' work experience may also be considered through the college's normal RPL procedures. Relevant professional experience may be taken into account and individuals will be assessed on a case-by-case basis through DBS RPL procedures. Candidates will be required to demonstrate experience of mathematics and programming.

- The programme development team should provide specific examples of related IT industries that will be considered for programme admission. This will remove any ambiguity for potential students.

Transfer Arrangements

- The panel are satisfied with the transfer arrangements.

Proposed Award - consistency with NFQ

- The panel are satisfied that the proposed programme is consistent with the NFQ level being proposed, which in this case is NFQ Level 8 (same as parent programme).
- The panel are satified with the mapping to the relevant QQI Award standards and the mapping of the Module Learining Outcomes (MLOs) to Programme Learning Outcomes (PLOs).

Learner Interests: - (Information, QA, Supports, Benefits / Skills accruing from programme):

- The Panel is satisfied that learner interests are incorporated in the programme.
- Students will be well-informed, guided and cared for. Learners are inducted into the online learning environment (and any associated technologies) via a mix of live sessions and asynchronous content.

Quality Assurance

- The panel are satisfied that the programme is well managed.
- The panel note that specific consideration that the programme development team has given to the quality assurance of the programme content (Section "2.12 Identify any other systems to be

used for learner supports and quality assurance of online learning and assessment" in the programme documentation).

Panel Commentary on Section D: Programme Content, Delivery and Assessment

This should set out the panel's views on the programme content, mode(s) of delivery and assessment, human and ICT resources. If the parent programme is more than a year old, the currency of module content and supporting technology should be checked.

The following Validation Criteria as they apply to this programme should be borne in mind, while also recognising that the programme of which this microcredential is a module, has already been deemed to have met these criteria.

***Criterion 5**: The programme's written curriculum is well structured and fit-for-purpose.*

***Criterion 6**: There are sufficient qualified and capable programme staff available to implement the programme as planned*

***Criterion 7**: There are sufficient physical resources to implement the programme as planned*

***Criterion 8**: The learning environment is consistent with the needs of the programme's learners*

***Criterion 10:** There are sound assessment strategies*

Programme Content/Curriculum

The panel are satisfied that the programme curriculum is appropriate and fit for purpose.

Delivery

DBS are seeking validation for four modes of delivery:

1. Fully synchronous online.
2. Fully synchronous in the classroom.
3. Fully asynchronous on demand.
4. Blended / Multi-Modal (a blend of synchronous online, synchronous in the classroom and asynchronous on demand).

The panel reviewed the Approved Programme Schedules (APSs) (listed as Summary Programme Schedules in the programme documentation) for the different delivery modes and are satisfied with them. However, approval of online delivery modes is subject to QQI's quality assurance and enhancement in this area. The Panel note that QQI does not currently validate fully online programmes and that DBS wish to future proof the programme by including online delivery modes. The panel note that DBS is participating in the QQI pilot of online programmes.

Resources

- The Panel are satisfied DBS have the appropriate resources, both human and technological, in place to deliver this programme.
- See "Summary of specifications for programme staff" section.

Teaching and Learning Strategies

The panel are satisfied with the teaching and learning strategies proposed for the programme, which include the following (as appropriate for the delivery mode):

- Directed Learning.

- E-learning (directed).
- E-learning (self-directed).
- Group Discussions.
- Group Discussions/Interactions.
- Laboratory / Studio.
- Lectures / Classes.
- Practical Sessions.
- Practical/workshop/Laboratories/studio sessions.
- Self Directed Learning.
- Webinars.
- Tutorials.

Assessment

- The panel are satisfied with the module assessment strategies (acknowledging that the assessments were validated on the parent programme).

Condition(s)

- The programme development team should provide a programme assessment strategy (in accordance with QQI guidelines).

Summary of specifications for programme staff *e.g. Lecturer, instructional designer, learning technologist, and others involved in design / delivery / assessment of programme*.		
Role	**Profile**	**WTE**
Lecturer	Lecturing staff will have a minimum of a Level 8 Honours Bachelor's degree in Computing or equivalent qualification in the following areas: Data Analytics; Data Visualisation; Web Applications. Other relevant Computing disciplines. Where industry experience is desirable, holders of Level 6 qualification in Computing who are exceptionally qualified by virtue of significant business experience at senior level may also be considered.	0.2
Course Director	The Course Director for this programme will have a minimum of a NFQ Level 9 Postgraduate Diploma or Masters qualification in Computing or related data analytics areas along with programme management/ academic leadership experience	0.02
Administration and Support Staff	Such as Library, Admissions, Student Experience, Finance etc. Experience and qualifications relevant to the role	0.64

Overall recommendation to QQI

1.1 Programme:

Select one	
	Satisfactory (meaning that it recommends that QQI can be satisfied in the context of unit 2.3) of Core policies and criteria for the validation by QQI of programmes of education and training;
X	**Satisfactory subject to proposed special conditions** (specified with timescale for compliance for each condition; these may include proposed pre-validation conditions i.e. proposed (**minor**) things to be done to a programme that almost fully meets the validation criteria before QQI makes a determination);
	Not satisfactory.

Reasons for the overall recommendation:

1. The Panel are satisfied that the programme (micro-credential) presented sufficiently addressed the core policies and criteria for the validation by QQI of programmes of education and training, subject to the satisfactory completion of the identified condition(s).

Any other observations:

1. None.

Special Conditions of Validation (directive and with timescale for compliance):

1. The programme entry requirements should be amended as follows:

   "The minimum entry requirements are an NFQ Level 8 degree in a cognate discipline (include list of cognate disciplines) with demonstrated experience of mathematics and programming.

   OR

   an NFQ Level 8 degree in a non-cognate discipline with a minimum of two years professional experience in a related IT industry. Due to the mathematical nature of the content candidates will be required to demonstrate competency in mathematics and programming.

   OR

   Applicants who do not have a Level 8 qualification and who have at least 3 years' work experience may also be considered through the college's normal RPL procedures. Relevant professional experience may be taken into account and individuals will be assessed on a case-by-case basis through DBS RPL procedures. Candidates will be required to demonstrate experience of mathematics and programming.

   The programme development team should provide specific examples of related IT industries that will be considered for programme admission. This will remove any ambiguity for potential students.

This special condition has been addressed by the Provider subject to one amendment (confirmed in the response received by the Panel from the Provider through QQI on 16th August 2021). The text "*include list of cognate disciplines*" (see full text of condition above) should be replaced with a list of cognate disciplines determined by the Provider.

2. The programme development team should provide a programme assessment strategy (in accordance with QQI guidelines).

   This special condition has been addressed by the Provider Provider (confirmed in the response received by the Panel from the Provider through QQI on 16th August 2021).

The conditions are pre-validation conditions and should be completed by the Provider as soon as possible.

Note(s):

- A Request for Further Information (RFI) was made by the evaluation panel following the initial review of the programme documentation and a response was provided by Dublin Business School (DBS). DBS's response is included in a separate document.

Declarations of Evaluators' Interests

This report has been agreed by the evaluation panel (following the Provider response).

Panel Member #1:

Signed:  **Date:** 18th August 2021

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Dr Brendan Ryder.

Panel Member #2:

Signed:  **Date:** 18th August 2021

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Professor Sarah Jane Delany.

1.2 Disclaimer

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