



Taught postgraduate air transport management degrees in the UK: A systematic review and analysis

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ABSTRACT

This paper examines the provision, structure and curriculum content of taught postgraduate (Masters' level) Air Transport Management degree programmes in the UK. In the academic year 2022–23, 14 UK Universities offered 19 different programmes. These programmes differed in terms of their duration, the fees that were charged, the delivery models, the content and the assessment regimes. In addition to examining the content and structure of the programmes, the paper conducts a SWOT analysis of the suite of degree programmes. While the inherent advantages of having a diversity of programmes for individuals, academic institutions and the air transport sector are recognised, it is suggested that prospective students and employers are cognisant of the differences between programmes to make informed decisions about their suitability and ability to meet personal career objectives and workplace planning requirements.

1. Introduction

The UK's Higher Education sector operates in a highly competitive global market characterised by high levels of student mobility and increasingly discerning and knowledgeable applicants who demand value for money and a clear return on their investment in terms of enhancing their future employment prospects (Beloucif et al., 2022). Many applicants now choose courses that bridge the gap between academia and industry, provide technical domain knowledge and applied workplace skills development, which span theory and practice. A prime example of such courses can be seen in the provision and delivery of a suite of air transport management courses in the UK which have developed over the last 40 years.

Sustained student demand has resulted in a growing number of UK higher and further education institutions offering specialist air transport management degrees and vocational training programmes. What began as niche courses offered by a small number of institutions in the 1980s have now become more mainstream and range in scope from PhDs and Masters' courses through to Bachelors' degrees, foundation courses and vocational qualifications targeting a wide range of learners. As well as leading to different awards, the courses also vary from full-time 3- or 4-year programmes of study through to year-long Masters' courses and continuing professional development (CPD) programmes of only a few days' or hours' duration.

The market for further and higher education in the UK, together with the academic autonomy of institutions operating within it, means

individual UK Universities and Further Education Colleges are able to develop programmes based on their own strategic priorities, research expertise, business needs and market development opportunities. Some of the air transport courses that are offered are purely 'academic', where students follow a prescribed programme of classroom-based learning activities, while others offer opportunities for in-work placements of up to a year's duration and/or professional (usually private pilot or commercial airline pilot) training. The latter particularly appeal to learners who aspire to a career in the transport sector as the placements provide exposure to real world working environments and valuable work experience. However, the financial cost of courses varies considerably between institutions, with tuition fees being affected by the nature and duration of the programme, the institution at which it is based, and whether applicants are UK or overseas nationals.

The range and diversity of providers and air transport management programmes that are offered reflects both the rapid post-pandemic rebound of the air transport sector and attendant demand for skilled labour but also the fact that a specialist aviation degree or other qualification is considered to offer a clear pathway into employment. Although some air transport management programmes are accredited by the CILT (Chartered Institute of Logistics and Transport) UK or approved by the Royal Aeronautical Society (RAeS), others are not, and there is no national framework which stipulates required content. As there is no national validating or accreditation body for air transport management programmes, each provider has independently developed programmes that reflect their own staff specialisms and/or specific student markets.

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Consequently, each one is different in terms of content and assessment and this has the potential to make it difficult to compare content and curricula across institutions.

Although several third-party websites including UCAS (the UK's Universities and Colleges Admissions Service) and commercial providers consolidate course information from external sources and present potential students with a list of programmes that best match their search parameters, details of course curricula are often limited. Such sites typically provide basic information about the name of the institution or awarding body, the title of the programme(s) offered, the level of qualification that can be achieved, programme start dates and duration. However, information on course aims and intended learning outcomes, the structure and content of the programmes in terms of modules, the range of (and balance between) compulsory and elective modules (if offered), module credits, and assessment regimes, is often partial at best and also potentially outdated and so no longer accurate. To date, no systematic attempt has been made to identify, document and examine air transport management courses in the UK (or elsewhere) in terms of their structure, content and curricula.

Such research is timely given the impact of the COVID-19 pandemic on air transport employment and the fact that the UK Department for Transport (DfT) has identified that *"Preparing for the future skills and labour market needs of the transport sector is essential in supporting the productivity, resilience and long-term future of our [the UK's] transport sector"* (DfT 2022, p10) and that identifying *"actions to ensure skills and employment programs meet those needs"* (ibid, p17) will be crucial.

The UK is keen to attract and retain international talent post-Brexit and over 45% of international students in the UK arrive to complete a postgraduate degree. According to the UK University Admissions' Service, UCAS, the benefits of studying for a taught postgraduate degree in the UK include the opportunity to remain in the UK after graduation to work (subject to certain conditions), the ability to complete a Master's degree in a year (thereby saving money on longer programmes delivered elsewhere in the world), the potential to improve future job prospects or change career and increase graduates' earning potential (UCAS, 2022). However, choosing a programme that is the best fit for an individual's life stage, financial situation, educational aspirations and future employment trajectory is of paramount importance.

As a consequence, this paper aims to examine the provision, structure and curriculum content of postgraduate taught (PGT) Masters' programmes in air transport management in the UK. The objectives of this study are to.

- 1 Identify institutions offering taught Master's programmes in Air Transport Management in the UK as of the academic year 2022–2023;
- 2 Explore the type of qualifications that are offered;
- 3 Investigate the programme structure, content and curriculum of each programme;
- 4 Compare programme structure, content and curriculum between providers; and
- 5 Examine what the programmes seek to achieve in terms of developing students' knowledge and skills and how they help to prepare students for employment.

This paper follows the UK nomenclature, where the terms "course" and "programme" are used interchangeably and refer to *"an approved course of study that provides a coherent learning experience and normally leads to a qualification"* (QAA, n.d.). The term "module" for this research is defined as *"a self-contained, formally structured unit of study, with a coherent and explicit set of learning outcomes and assessment criteria"* (QAA, n.d.). It needs to be noted though, that at some UK universities as well as in other English-speaking countries, such as the United States and Australia, these latter units of study are referred to as "courses".

While this paper focusses on UK courses, the attractiveness of the UK higher education sector with 680,000 international students in the

academic year 2021/2022 (Universities UK, 2023), means that the findings of this research are of benefit to the aviation industry beyond the UK, with graduates from UK courses working in the industry across the globe.

In order to achieve this aim, the paper is structured as follows. Following this introduction, Section 2 reviews the salient literature charting the development of air transport management and related programmes. The data collection method is described in Section 3 before the findings are presented and discussed in Section 4 and conclusions offered in Section 5.

2. The development of specialist air transport management programmes

2.1. Air transport management programmes and the growth of air travel

Despite its social and economic significance to the modern world economy, air travel remains a relatively new mode of transportation that is little over a century old. The academic study of air transport first emerged as a distinct field of academic inquiry over 80 years ago, when professional geographers and economists, in particular, began to document the development of this new mode of rapid international transportation and discuss the spatial characteristics and derived demand nature of the services that were provided (Sealy, 1957; Taylor, 1945).

Progressive deregulation of the global air transport industry from the late-1970s onwards lowered the financial cost of air travel and caused consumer demand for flights to grow dramatically (Gillen, 2018). The growing sector required increasing numbers of both highly-skilled and lower-grade staff. The employment impact of the growth of air transport goes way beyond airlines and airports, with tens of thousands of people employed in supply chains (e.g., aircraft manufacturers, caterers, freight forwarders, regulators, and IT support) as well as in related industries, such as tourism and business travel (Harvey and Turnbull, 2018; ATAG, 2020). Many of these roles require not only specialist technical skills and knowledge of aircraft systems, airport operations and aviation regulation, but also an increasing array of "softer" skills in leadership, line management, customer service, business continuity, conflict resolution, resilience and analytical capabilities. Indeed, the transition towards a more customer-service based air transport offer has placed growing emphasis on flexible and inter-personal skills.

During the 1980s, in response to new workforce challenges and demand for skilled aviation professionals, a new area of air transport management emerged as a distinctive field of study in the UK. The emergence of a dedicated academic outlet for academic research in aviation in the form of Elsevier's *Journal of Air Transport Management*, which published its first Volume in March 1994, gave a new platform for aviation research activity and dissemination through its continued mission to *"address through high quality research articles and authoritative commentary, the major economic, management and policy issues facing the air transport industry today"* (Elsevier, 2022). Peksatici and Ergun (2019, p1) argue that air transport management courses *"play a crucial role in the development of the aviation industry"*. This intrinsic relationship between the growth in the air transport industry and the role of universities in supporting the development of professionals has resulted in an increasing provision of air transport management courses at university level in many parts of the world (Peksatici and Ergun, 2019).

At the same time, increased commercialisation and marketisation of higher education in the UK with the introduction of tuition fees in England from 1998 (on which see Hubble and Bolton, 2018) made students increasingly consider the employment potential of the programmes they studied and paid for. Prior to the COVID pandemic, air transport was considered to offer good employment prospects and a clear and obvious route into a future career. Post-pandemic, some see master's degrees in aviation as a tool to improve their employability (Source: potential MSc applicants, personal communication, 2022). In the short term, it also allows them to delay their entry into the industry until such time as

consumer demand stabilises at pre-pandemic levels (Miani et al., 2021). Evidence from airports in the UK indicates that they are currently facing a recruitment challenge and their inability to recruit the “right sort” of staff quickly enough is impacting on their operations (personal communication, senior UK airport manager, 2022).

With these growing employment opportunities in the air transport industry, the need for qualified staff increased (ATAG, 2020) and aviation employers increasingly seek to hire staff who demonstrate a clear understanding of, and commitment to, the sector and can thus add value to the business. Securing a pipeline of capable, qualified and “work ready” personnel is vital to any industry, and air transport is no exception. Although specific aviation job families (including pilots, air traffic controllers and aircraft engineers) require specialist skills and specific professional qualifications to perform, there is also demand for more holistic “management” qualifications which are delivered by a range of education providers worldwide.

2.2. Current enrolments and professional accreditations

According to the UK's Higher Education Statistics Agency (HESA), 384,030 students were registered on taught postgraduate programmes in the UK in the non-COVID affected 2019/20 academic year (from 300,945 in 2010/11). Significant increases in enrolments were recorded in 2016/17 when postgraduate student loans were introduced and between 2018/19 and 2019/20 a 15% increase was recorded across all subjects and disciplines.

450 students were registered on taught programmes classified as ‘Aviation Studies’ (HECoS 100229) in the UK in the academic year 2020/21, down from 460 the year before (HESA, 2022). One of the challenges is that “air transport” is not considered a discipline in its own right for statistical collection purposes and consequently has been grouped with other subjects in different ways over time – from 2014/15 to 2018/19 it was “N8: Hospitality, Leisure, Sport, Tourism and Transport” and from 2019/20 onwards either as “Tourism, Transport and Travel” (CAH Level 3) or “Aviation Studies” (HECoS 100229).

Although there are over 150 undergraduate and postgraduate courses in air transport management offered by universities in United States, Canada, Belgium, the United Kingdom, Australia, New Zealand and Ireland (July 2021), there is no common approach to curriculum development and content of these courses; unlike other subject areas such as Architecture, Quantity Surveying and Medicine which have centralised and stringent curriculum requirements.

In some subject areas there are guidelines from “Professional, Statutory or Regulatory Bodies” (PSRBs) which clearly specify students’ learning outcomes in order for a course to be accredited by these bodies. This accreditation is often relevant for gaining access to the job market in a particular industry (Butcher, 2015). For example, in the engineering disciplines, the United Kingdom Engineering Council has established the “UK Standard for Professional Engineering Competence (UK-SPEC)” which sets out the requirements for engineers and also acts as the foundation for accrediting engineering degrees with Professional Engineering Institutions (PEIs) (Davies, 2015; Engineering Council, 2022). This accreditation has relevance beyond the United Kingdom, as the UK Engineering Council has signed several agreements (Washington, Sydney, Dublin and EUR-ACE accords), which practically gives the accreditation a global recognition (Davies, 2015; Engineering Council, 2022).

Furthermore, in the UK for example, the national body responsible for academic quality and standards, the QAA (Quality Assurance Agency for Higher Education) provides “Subject Benchmark Statements” (SBS) to “describe the nature of study and the academic standards expected of graduates in specific subject areas” (QAA, 2023a). Therefore, for certain subject areas there are prescribed academic standards, both at undergraduate and postgraduate level which can be described as “essential reference points” in curriculum development (Butcher, 2015, p82). Subject areas at Master’s level include for example “Archaeology”,

“Chemistry”, “Engineering” or “Business and Management”. However, there are no subject benchmark statements for “air transport management”. Yet, the SBS for “Master’s Degrees in Business and Management” recognises “Specialist master’s degrees” which “are designed for career preparation in a clearly defined type of job or profession” (QAA, 2023b, p8). Furthermore, the SBS for these master’s degrees differentiates between “career entry” and “career development” (post-experience) degrees (QAA, 2023b). Given the variety of these specialist master’s degrees and their diverse nature, the content of this subject benchmark statement is vague and not specific with regards to the curriculum.

2.3. Epistemological foundations

Traditionally, many subject areas are more tightly or loosely defined and classified in disciplines, dependent on their epistemological and social dimension (Gantogtokh and Quinlan, 2017). For example, Biglan (1973) clusters disciplines based on pure vs applied, hard vs soft and nonlife vs life system, with different disciplines such as economics, history, geology, and civil engineering, being mapped in this framework and therefore providing insights into the underlying paradigms that comprise the subject area. These underlying paradigms often drive curriculum development. There is a strong link between curriculum design and disciplines. Volgger and Pechlaner (2015, p86) suggest that disciplines and curricula are “intertwined”.

Air transport management as a subject of study does not easily fit into this traditional categorisation of being defined by underlying paradigms or disciplines. Neither are there globally recognised PSRBs that provide a framework for curriculum development or in the case of the UK, national subject benchmark statements. To some extent, air transport management has similar properties as degrees in tourism management. Tribe (1997, p638) identifies the attempt by some to “describe tourism studies as a discipline” while others support its multidisciplinary nature. He refers to tourism as being distinct from the disciplines of physics or economics with tourism being more “imprecise” and having a “variety of meanings”. Comparable characteristics can also be identified in the field of air transport management. Although there are similarities between tourism and air transport management, tourism seems to have progressed, as some scholars claim it having developed into a “discipline” while others still see it as “pre-paradigmatic” (Volgger and Pechlaner, 2015).

Unlike tourism, there is no suggestion that air transport management has developed into a discipline. Academic journals, their editors and referees often act as custodians of how the knowledge that is created in a particular area develops (Tribe, 2015). Looking at the epistemology of air transport management, i.e., how knowledge is created in this field, the multidisciplinary nature becomes obvious. The aforementioned Journal of Air Transport Management, for example, features papers on airlines, airports and air traffic management “as well as related areas such as tourism management and logistics ... Policy, regulation and law; Strategy; Operations; Marketing; Economics and finance; and Sustainability” (Journal of Air Transport Management, 2023). This further underlines the multidisciplinary characteristics of air transport management and from a theoretical perspective the “pre-paradigmatic” (Kuhn, 1970) nature of this field of study.

Despite the growing number of air transport management courses and the multidisciplinary, course and curriculum development in this field is not driven by a commonly accepted standard or approach. This means for the air transport industry as future employers but also prospective students it is unclear what the content and learning outcomes of such courses are.

3. Method

In this paper, taught postgraduate Air Transport Management curricula in the UK are examined. Research on university course curricula tend to either focus exclusively on undergraduate programmes

(e.g., Knight, 1999; Ring et al., 2009; Sharp and Brumberger, 2013) or on postgraduate programmes (e.g., Koinig et al., 2018; Melles, 2019; Stubbs, 2013). Master's degree programmes can be seen as important for the development and recognition of a subject area (Fidgeon, 2010). The focus of this paper is on master's degrees given their more specialised nature (Koinig et al., 2018).

Tribe (2015, p20) defines the curriculum of a course as “a whole programme of educational experiences that is packaged as a degree programme. Its constituent parts are the number of modules or courses, which in turn may be specified as a series of syllabi or course contents.” As such, the focus of this paper is on the modules (number, syllabi and content) that constitute Master's degrees in air transport management.

A course was identified as being “air transport management” if it has a minimum number of credits (minimum of 25% of taught credits) on an aviation topic as well as having “air transport” or “aviation” management or similar in the title and leads to a postgraduate taught qualification, usually MSc or MA. Lower awards of Postgraduate Certificates (PG Cert) and Postgraduate Diploma (PG Dip) are usually only offered as exit awards from a MSc/MA programme and as they are often not marketed as stand-alone qualifications they are not considered here. Information was gathered from official institutional websites (those with the internet domain suffix ‘[name or abbreviation of institution].ac.uk’) and cross referenced against market leading Masters’ degree search portals. A list of the course websites (URLs) that were accessed for this research can be found in the Appendix. The websites of the universities were investigated over the period January and February 2022.

The focus of this exploration is on “management” courses in air transport, therefore courses that predominantly cover engineering, safety or law for example have been excluded. For this search, the terms “air transport” and “aviation” are treated synonymously and include airlines and airports. However, many of the “management” courses might include engineering, safety or law at a modular level.

Initially, only courses where the course title contained the word “management”, in addition to “air transport”, “aviation”, “airline” or “airport”, were included. This resulted in a study population of 16 courses at 12 different universities. Upon further examination two more courses at two additional universities were also selected. Although their course names did not include the word “management” (“Sustainable Air Transport Operations and Planning” and “Tourism and Aviation”), they cover similar topic areas to the 16 courses under investigation. The MSc in “Sustainable Air Transport Operations and Planning” at the University of Salford “explores sustainable air transport operations and planning from a broad perspective of economic and societal challenges and opportunities” (University of Salford, 2022). Operations and economics (markets) are key components of business and management degrees, as outlined by the UK's Quality Assurance Agency for Higher Education's (QAA) Subject Benchmark Statement 2023 (SBS) for Master's degrees in business and management (QAA, 2023b). In the case of the “Tourism and Aviation” MSc at the University of Sunderland, the course-level learning outcomes have a strong focus on management topics, e.g., “Demonstrated creativity in the application of understanding of tourism and aviation management and development” (University of Sunderland, 2021, p6). Additionally, the MSc in “Air Transport Management” at Coventry University offers two separate pathways, “Business Management” and “Leading Change”, which have in the region of 60% commonality (105 of 180 credits). As a result of the distinctive nature of the two pathways, they will be treated as discrete courses for the purpose of analysis.

As a result, the population for this research comprises 19 courses at 14 Universities. Course-level learning outcomes were available for 14 of the courses on the universities’ websites.

3.1. Data and data collection

Using official university websites is a common approach to investigate the curriculum and content of university courses (Karmasin and Voci, 2021; Knight, 1999; Ring et al., 2009; Sharp and Brumberger,

2013). For example, Karmasin and Voci (2021) collected the course descriptions and curriculum/programme specifications that were provided by the universities online for their study of communications courses in Europe. Volgger and Pechlaner (2015) also collected course descriptions of tourism and hospitality courses directly from the websites of universities for their analysis.

While Sharp and Brumberger (2013) note that university websites tend to provide wide-ranging and detailed information on course curricula, Knight (1999) noted that information could also be contradictory or absent. When examining the websites of UK universities for master's courses in air transport management, it becomes evident that the volume and detail of course information tend to vary significantly.

Although publicly available course material is primarily aimed at prospective students, and as such is essentially “publicity material”, the information is still useful for the interpretation of the course characteristics (Airey and Johnson, 1999). Furthermore, it needs to be noted, that information provided on the universities’ websites captures the formal curriculum but not the actually delivered or experienced curriculum by students (Koinig et al., 2018).

As previously indicated, for this research, information was collected from the official university websites and the corresponding webpages of each course. The following information was collected for each course.

- University name;
- Course title (also referred to as “programme” title by some institutions);
- Award (MSc or MA);
- Full-time and/or part-time;
- Module titles (and whether they are compulsory or elective – where there was information on the compulsory/elective nature of the modules listed).

For 15 courses a synopsis for each module was also available on the website and in some cases the complete module descriptors. These module synopses varied in detail with most providing a paragraph (few sentences) that summarises the module content and delivery. Some course websites were more detailed and structured with regards to the modules, additionally covering aspects such as module aims, learning outcomes, syllabi, learning credits and assessments. The list of modules and module synopses are predominantly used to examine the curriculum of the 19 master's degrees. 14 courses also listed the course aims and course-level learning outcomes.

3.2. Content and thematic analysis

To analyse the information collected from the websites, content and thematic analysis was used. Content analysis and thematic analysis are common approaches in qualitative research (Braun and Clarke, 2006; Joffe and Yardley, 2003). Content analysis has been widely used in research on university courses and their curricula (Airey and Middleton, 1984; Karmasin and Voci, 2021; Koinig et al., 2018; Ring et al., 2009; Volgger and Pechlaner, 2015).

Although content and thematic analysis are similar in their approach, they have their distinct characteristics. Content analysis most commonly focusses on quantifying qualitative data (e.g., counting the number of times a word is used in a document), while thematic analysis focuses on “more than a word or phrase” (Braun and Clarke, 2006, p98). Braun and Clarke (2006, p79) define thematic analysis as “a method for identifying, analysing and reporting patterns (themes) within data.” Thematic analysis therefore also looks at the meaning and often at the latent level of the content, rather than purely at the word itself (Joffe and Yardley, 2003). This is particularly relevant for this research, as for example modules in the area of “sustainability” use a range of different titles such as “Environmental Impact Assessment”, “Responsible Tourism and Aviation” or “Air Transport Policy and Planning”. In this respect, the module synopsis is of benefit to ascertain more insight into

module content. For example, from the module title “Air Transport Policy and Planning” it is not evident that the module also covers aspects of sustainability. As such, the researcher has to make inferences and interpretations in a systematic and objective way when coding the data (Airey and Johnson, 1999; Joffe and Yardley, 2003).

To analyse the curricula, each module of a course was allocated to a theme to identify common themes in the postgraduate air transport management provision in the UK. This allows a better understanding of the curricula to be obtained but also to identify specialisations and differences between courses.

The allocation (coding) to a theme can be inductive, stemming from the data collected, or deductive (i.e., themes derived from existing theory) (Braun and Clarke, 2006; Joffe and Yardley, 2003). It needs to be noted though, that these two approaches are not mutually exclusive. Firstly, Braun and Clarke (2006) argue that even when following an inductive approach, coding cannot be in an “epistemological vacuum”. Also, the researcher’s background will influence the development of the themes (Joffe and Yardley, 2003). Secondly, Joffe and Yardley (2003) make the case that a main rationale of doing research is to discover new perspectives from the data and as such should be open to new insights from the data beyond the existing theory (i.e., there might be a need for some inductive coding).

Unlike other subject areas and disciplines, in air transport management there is (not yet) an agreed body of course knowledge which could be used to act as a coding frame. For example, in tourism, Airey and Johnson (1999) used the National Liaison Group for Higher Education in Tourism’s “core body of knowledge” to examine how tourism courses in the UK cover the areas.

As a result, the initial approach in this research is primarily inductive. However, the QAA SBS 2023 for Master’s degrees in Business and Management provides some guidance and source for deductive coding. Master’s in Air Transport Management are clearly “specialist master’s degrees” for which the SBS provides no detailed guidance on what subject knowledge, understanding and skills graduates will possess. However, the QAA SBS provides a list of areas that “generalist master’s” will cover and that specialist master’s will cover “some of the areas outlined” for generalist master’s degrees. This includes areas such as marketing, finance, operations, and strategic management (QAA, 2023b). The list of areas has been used as a loose coding frame for the initial thematic analysis with some inductive coding supporting the analysis.

3.3. SWOT analysis

A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis is a common tool in strategic management to summarise key issues affecting an organisation. Whittington et al. (2020, p112) define the purpose of a SWOT analysis as follows: “SWOT provides a general summary of the Strengths and Weaknesses explored in an analysis of resources and capabilities and the Opportunities and Threats explored in an analysis of the environment.” Although SWOT analyses are frequently associated with the assessment of organisations, this tool has been used for over 25 years in education research, such as online business courses, and environmental and medical education (Gendreau, 1999; Romero-Gutierrez et al., 2016; Longhurst et al., 2020).

In this research, SWOT is used to assess the internal strengths and weaknesses of the UK provision of master’s courses in air transport management. Internal in this respect refers to the factors that stem from the resources and capabilities that are provided by the universities as a whole (i.e. “the sector”), rather than individual courses or universities. These internal factors are factors that the sector has a direct influence on.

External opportunities and threats are those factors that affect the UK provision of master’s courses in air transport management, but where the universities have no or limited influence over. Again, in this research, the focus is on the sector as a whole, rather than individual

courses or universities.

4. Analysis

4.1. Course title and award

With regards to the general naming convention, in the UK, the term “air transport” is more commonly used in course titles (10 times) than the word “aviation” (6 times). This seems to be a characteristic of UK programmes, unlike in the United States where many university courses in the field use the more general and wider-ranging term “aviation” (which includes not only commercial air transport but also, potentially, general and military activities).

As such, it is not unexpected that the most common course title is “Air Transport Management”, with seven of the 19 courses using this exact title (some with an addition, e.g., “Executive” or in the case of Coventry University with two pathways). Other words that commonly feature in course titles include “operations” and “planning”. This is not surprising as for example the QAA SBS 2023 specifically identify “operations” (“the management of resources”) as a key area where graduates from business and management degrees gain knowledge and understanding.

Of the 19 courses, four courses are not solely focused on air transport, but combine these with other applied subjects and/or disciplines. The three courses, two with the identical title “International Tourism and Aviation Management”, combine tourism content and air transport management. Given the nature of tourism (“... movement of people away from the normal home environments ...” QAA, 2019, p9) there is an inherent link between the two subject areas. The role of passenger transport in tourism is highlighted in the QAA SBS for Events, Hospitality, Leisure, Sport and Tourism and by Burkart and Medlik (1974, as cited in Airey and Johnson (1999) as part of the “core body of knowledge” in tourism. Another course combines air transport with general business (“International Business with Aviation Management”). Unlike the other 15 courses that focus solely on air transport, three of the courses that link air transport with another subject area include the term “international”, underlining that the “international” nature of air transport, a qualifier which is arguably superfluous given that air transport is, by its very nature, international. Indeed, pre-COVID-19, in 2018, 64% of global scheduled Revenue Passenger Kilometres were generated on international flights (IATA, 2019).

Three of the 19 courses focus on specific aspects of the air transport industry. Two courses focus predominantly on airports (“Airport Management” and “Airport Planning and Management”) while all other courses refer to the industry as a whole (“air transport” and “aviation”) or specifically name “airlines” and “airports” in the title. Besides the two courses that focus on airports, one course singles out its focus on “sustainable air transport”, hence particularly covering the role of sustainability in air transport, rather than air transport management in general.

By reviewing the course titles of UK postgraduate degrees in air transport management, three types of courses can be categorised. Firstly, courses that cover air transport management in its entirety, without a specialisation. The vast majority of courses fall into this category. With these courses, it can be noticed that many follow a similar nomenclature. However, some courses try to differentiate themselves from others by using a slightly different terminology (e.g., “planning” or “operations”) which in essence still fall under the scope of “management”. The second type of UK postgraduate degrees combine air transport management with another, related discipline (general business or tourism). The third type specialises on a particular area of the air transport industry (in the case of UK postgraduate courses either airports or sustainability). While a more specific focus will lead to differentiation from more generic air transport management courses, this might also result in a narrower student segment that will be attracted to these courses.

With regards to the awards that UK universities offer in Air Transport

Management, all but one of the 19 courses offer “Master of Science” (MSc) awards, while one course (“International Tourism and Aviation Management”) results in a “Master of Arts” (MA) degree. In the UK, there is no nationally agreed definition as to whether a particular master’s award should be titled MA or MSc. However, the QAA (2020, p11) identifies that MA’s are “most commonly associate with the arts, humanities and some social sciences”, while MSc’s are “most commonly associated with science, technology, engineering, mathematics and some social sciences.” While the underlying choice between MSc and MA will vary between universities, generally UK universities prefer to align their air transport master’s courses with science disciplines as many of the programmes are located in Science/Engineering Schools/Faculties.

With regards to the course offerings, the majority of universities only offer one course in the subject area. These are often universities that introduced air transport management at postgraduate level more recently. Some universities, particularly those that have been running postgraduate courses in air transport management for a longer period (such as City, University of London and Cranfield University) offer a portfolio of courses, some of which are more specific (e.g. focussing predominantly on airports).

4.2. Course delivery

About half of the courses (9) are offered both on a full-time and part-time basis, where students can choose either of the two forms of delivery. In these cases, the course structure (modules) is the same between the full-time and part-time version of the course where part-time students would take fewer modules per year. While the full-time courses usually take 12–15 months, part-time students would take these modules over a longer period of 2–3 years. The most common part-time study length is 2 years for these courses (7 courses).

Six courses are purely offered on a full-time basis, all taking a year, with one lasting between 12 and 15 months. Contrarily, four courses are only offered part-time. These run for between 18 months and up to 5 years, however, three of the courses indicate an expected course duration of 3 years. At two universities, separate full-time and part-time courses are offered, with different nomenclature of the courses and (partly) different course structure and modules. However, the majority of universities that offer both full- and part-time courses do this by offering the same course for both a September or October and January intake.

Given that the majority (14) of UK postgraduate courses in air transport management are also offered on a part-time basis, it suggests that the anticipated market for such courses often includes students who are in employment and hence require part-time study options to fit their lifestyle (see Table 1).

4.3. Course structure

Due to the nature of the UK Higher Education provision, which gives individual universities a significant amount of freedom in course structure and content, the course structure (e.g., number of modules and credit value of modules) varies significantly between the 19 courses (Table 2). Although not all UK higher education providers use a credit system, the majority of UK master’s degrees comprise 180 credits (equivalent to 90 EC TS), with a minimum of 150 credits at master’s level (QAA, 2020). In the case of the 19 air transport management courses, 16 follow this approach, with three courses consisting of 200 credits.

Table 2 illustrates that the course structures vary with regards to the number of core modules (that are mandatory for students to take), elective modules (dependent on the course, students can choose from a range of options) and the total number of modules. As a result, the credit value of modules varies significantly between courses from 5 to 30 credits for taught modules and between 45 and 80 credits for the master’s dissertation. Although not all institutions make their delivery mode

Table 1

List of courses forming this study (Source: University websites).

No.	University	Course title
1	Buckinghamshire New University	Aviation Operations and Management ^a
2	City, University of London	Air Transport Management ^a
3	City, University of London	Airport Management ^a
4	Coventry University	Air Transport Management (Business Management Pathway) ^a
5	Coventry University	Air Transport Management (Leading Change Pathway) ^a
6	Cranfield University	Air Transport Management ^a
7	Cranfield University	Airport Planning and Management ^a
8	Cranfield University	Air Transport Management (Executive) ^a
9	De Montfort University	Air Transport Management ^a
10	London Metropolitan University	Airline and Airport Corporate Management
11	Sheffield Hallam University	International Tourism and Aviation Management
12	University College Birmingham	Aviation Management
13	University of Bedfordshire	International Business with Aviation Management ^a
14	University of Salford	Sustainable Air Transport Operations and Planning ^a
15	University of Sunderland	Tourism and Aviation ^a
16	University of Surrey	Air Transport Management ^a
17	University of West London	International Tourism and Aviation Management
18	University of West London	Air Transport Operations and Management (Executive)
19	University of Westminster	Air Transport Planning and Management ^a

^a Courses where course-level learning outcomes were available.

explicit, some, including Cranfield, deliver their modules as intensive blocks of study over a couple of weeks rather than the traditional “long and lean” 12–15 week semester schedule.

4.4. Course learning outcomes

4.4.1. Overview

Learning outcomes (LOs) provide guidelines and understanding of what students are required to achieve. Butcher (2015, p89) defines learning outcomes as “what a student is expected to be able to do at points during and at the end of study, and include subject-specific content, concepts, skills, attributes and abilities.” Learning outcomes are usually developed at a module level (i.e., “... during the study ...”) and at course level (“... at the end of study ...”). Looking at air transport management courses as a whole, the course-level learning outcomes are analysed to establish what “subject-specific content, concepts, skills attributes and abilities” graduates from UK Master’s in air transport are expected to possess.

As previously discussed, for 14 of the 19 courses the course-level learning outcomes were available. The number and detail of the learning outcomes varies significantly between the different courses. The course with the least number of learning outcomes had three published on the website, while the course with the most had 24 course-level learning outcomes (mean: 12.6 LOs; median: 12.5 LOs). This means that there is granularity and detail with respect to learning outcomes of the 14 courses, which also gives a different level of insight into what graduates from a particular course are expected to possess. Further research could usefully explore whether employers are aware of the Learning Outcomes and, if they are, whether they influence their recruitment policies.

Generally, the course-level learning outcomes of UK Master’s degrees in air transport management can be classified into two categories: air transport-specific learning outcomes (e.g., airline operations) and learning outcomes that are general postgraduate competencies (e.g., time management).

Table 2
Course structure.

Course No.	Credits	No. Core Modules (excluding dissertation/final research project)	No. Elective Modules (excluding dissertation/final research project)	Dissertation/final research project module	Total modules (including dissertation/final research project)
1	180	4	0	1	5
2	180	4	4	1	9
3	180	4	4	1	9
4	180	9	0	1	10
5	180	9	0	1	10
6	200	9	1	1	11
7	200	10	0	1	11
8	200	7	4	1	12
9	180	7	0	1	8
10	180	N/A	N/A	N/A	N/A
11	180	6	1	1	8
12	180	4	2	1	7
13	180	5	0	1	6
14	180	5	1	1	7
15	180	4	0	1	5
16	180	8	0	1	9
17	180	5	1	0	6
18	180	3	3	1	7
19	180	3	3	1	7

NB: For course 10, no information was available on the university's website at the time of data collection (N/A: not available).

4.4.2. Air transport-specific learning outcomes

The air transport-specific learning outcomes vary from a general focus of air transport management, e.g., “*demonstrated creativity in the application of understanding of tourism and aviation management and development*” (University of Sunderland) to specific applications, e.g., “*appreciate the competitive pressures and interactions within the airline and airport industries and formulate strategies to optimise commercial performance*” (University of Westminster). As a result of the varying nature of course-level learning outcomes, some learning outcomes are linked to several course themes.

The most common (3 or more courses) air transport-specific learning outcomes are shown in Table 3. The majority of the courses (13 of 14) cover regulation, policy and/or law content in their learning outcomes, followed by operational aspects (12) and air transport strategies (10). Despite their specific nature, these themes are common among many courses and therefore appear to be key characteristics of UK Master's in air transport management (see Table 4).

Besides subject-specific learning outcomes, some courses (9) also formulate their learning outcomes in a more generic way, covering the air transport industry as a whole, e.g., “*Student will be able to apply fundamental theoretical and practical knowledge of air transport in a real world context.*” (De Montfort University).

Sustainability and environmental aspects have played an important role in air transport research for a long time, and have become even more urgent recently (Merkert, 2022). Also, in policy and practice, there is an increasing focus on sustainability in the air transport industry (Perryman et al., 2022). Unsurprisingly, as a result many courses have aspects of sustainability (9), predominantly environmental sustainability, as a learning outcome. As this topic is a key challenge for the industry in future, elevating sustainability learning outcomes to course-level (rather than at module level) illustrates the recognition by many universities that this topic area requires specific attention and the market is demanding graduates who have knowledge of this area. Given the focus on “management”, as expected, many UK courses cover general business management content, including economics (8), business and commerce (6), finance (5), and/or marketing (4). These themes are also referred to in the QAA SBS 2023.

Although the master's courses in this research focus on management aspects, five courses also have technical course-level learning outcomes and four have learning outcomes related to safety and security. The number of courses that cover these aspects are clearly the minority, yet highlight that some air transport management Master's are related to the engineering discipline.

While certain topics are found across most courses, there are air transport-specific learning outcomes that can only be found in a small minority of courses. These include course level learning outcomes referring to digitalisation (1), business continuity (2), and globalisation (3). Although these are often referred to as core topics in the management of airlines and airports (Mason, 2021), these are not reflected in the learning outcomes.

Excluding the two courses that specifically focus on airports (City University and Cranfield University), the words “airline” and “airport” appear equally in all the course-level learning outcomes (airline: 14; airport: 11). This supports the initial assumption in the course selection process, that air transport management courses cover predominantly airlines and airports. With regards to learning outcomes, three courses specifically single out airport “planning and/or design” in their learning outcomes. One of these courses specifically focusses on airports (Airport Planning and Management), while the other two courses are more generic air transport management courses. In most other cases, airport-related learning outcomes refer to previously identified themes such as operations and economics and, in many cases reflect the subject specific knowledge and research interests of the academic staff who teach on the programme.

With regards to the air transport-specific learning outcomes, nine themes can be linked to the existing QAA SBS. This highlights the strong link of air transport management courses to the wider business and management subject area. Nevertheless, four “new” areas emerged from the analysis (inductive), which underlines that existing SBS are not subject-specific enough to cover the distinct nature of air transport management.

4.4.3. General postgraduate learning outcomes

Although the master's degrees in air transport management are in essence subject specific per se, many course-level learning outcomes also cover general, subject-independent, learning outcomes that are expected from postgraduate students. All 14 courses feature some “professional and personal development” learning outcomes. The most prominent in this respect are learning outcomes and skills that relate to teamworking, which are a feature of all 14 courses. Other learning outcomes in this theme cover time-management and self-reflection. Another general postgraduate feature that is covered in the learning outcomes of all 14 courses are communication skills. Often the learning outcomes in this theme specifically refer to oral (e.g. presentations) and written (e.g. reports) communication skills, including presenting research outcomes.

“*The ability to conduct research*” (QAA, 2023b) is a skill that the QAA

Table 3
Air transport-specific learning outcomes.

Theme	No. of Courses	I vs D ^a	Example Learning Outcomes
Regulation, Policy and/or Law	13	D	Assess the regulatory framework and political context that underpin the air transport industry (Cranfield).
Operations	12	D	Analyse and debate theoretical and applied knowledge in the management, operation, organisation and provision of airlines and airports (Surrey).
Strategies	10	D	Appreciate the competitive pressures and interactions within the airline and airport industries and formulate strategies to optimise commercial performance (Westminster).
General Air Transport Management	9	I	... a systematic understanding of the key air transport management issues facing airports and airlines worldwide (De Montfort).
Sustainability	9	D	Learn to identify challenges and find solutions to facilitate sustainable growth of air transport using environmental, economic and social frameworks (Salford).
Economics	8	D	Critically appraise regulatory, economic, professional and political information from various sources throughout the air transport industry (City).
Business and Commercial Aspects	6	D	Demonstrate a critical awareness of the key issues that affect users of airport facilities (e.g., airlines and retailers) and explain how their commercial pressures, strategic decisions and priorities impact on airport business, planning, design, operations and safety management decisions (Cranfield).
Finance	5	D	Critically interpret airlines/airport financial reports and apply benchmarking and performance management techniques (Westminster).
Safety/Security	5	I	Make and justify decisions for selecting, developing and optimising appropriate systems and processes to ensure aviation safety and security; efficient operational management and the establishment of effective business continuity planning (Coventry).
Technical	5	I	To evaluate critically the complex interrelationships of regulatory, commercial, technical aspects of the air transport industry (Surrey).
Marketing	4	D	... a comprehensive knowledge of business, operational and marketing issues pertinent to the air transport industry (De Montfort).
Airport Planning and Design	3	I	Interpret policy documents for airport expansion and argue the case for or against particular development options (Westminster).
Globalisation	3	D	Evaluate the implications of the globalisation of tourism and aviation development and management (Sunderland).

^a D = deductive coding based on QAA SBS 2023; I = inductive coding.

state all master's students should possess. The majority of courses (13) specifically have course-level learning outcomes that relate to this ability. These often refer to the collection and analysis of data. Interestingly though, five courses specifically refer to quantitative techniques in their learning outcomes, while only one course also mentions qualitative research skills. There is an indication that master's in air transport management are more often aligned to quantitative research methods than qualitative. This could also be a reason why the majority of

Table 4
General postgraduate learning outcomes.

Theme	No. of Courses	I vs D ^a	Example Learning Outcomes
Professional and Personal Development	14	D	Develop the capability to work independently and in a self-directed fashion across a range of organisational resilience and general projects (Bucks New).
Communication Skills	14	D	In the absence of complete data, analyse a range of complex and pervasive issues in a systematic and creative manner to generate sound judgements and recommendations that are communicated effectively to both a specialist and non-specialist audience (Bedfordshire).
Research Practices	13	D	Select and apply appropriate systematic methods of analysis to critically evaluate and solve complex air transport management problems (Coventry).
Cognitive Skills	12	D	Demonstrate creativity in the application of understanding of tourism and aviation management and development (Sunderland).
Ethics	5	D	Critically analyse and demonstrate the need to take account of ethical issues when conducting research within a multi-cultural industry where the performance must transcend national barriers (Surrey).
Leadership	4	D	Critically assess how to confidently lead and manage a team and to reflect on feedback (Bucks New).
Multicultural Awareness	3	D	Formulate solutions to problems within a multidisciplinary and multicultural society (City).

^a D = deductive coding based on QAA SBS 2023; I = inductive coding.

master's in this study are "Master of Science" rather than "Master of Arts" degrees.

Furthermore, most courses (12) also mention cognitive skills (such as problem-solving, critical or creative thinking). These are again key features of postgraduate courses as outlined by the QAA (2023b). However, there are some general postgraduate skills, that few courses refer to in their course-level learning outcomes, namely, aspects of ethics (5), leadership (4) and multi-cultural awareness (3). Knowledge of these three areas should be possessed by graduates from business and management courses (QAA, 2023b). Although few course-level learning outcomes refer to these skills, this does not necessarily mean that they are not covered on the courses or indeed addressed in the syllabus and/or module-level learning outcomes.

Given the nature of the "general" (non-subject specific) learning outcomes, it is not surprising that all of the themes can be traced back to the QAA SBS. All seven themes in this area can be directly linked to subject areas covered in the business and management SBS.

4.5. Modules

As illustrated above, course-level learning outcomes on the university websites vary significantly with regards to detail and volume and as such only give a partial insight into course content. To overcome this, the modules offered on each course will be analysed. This will be done by allocating module titles to themes and examining the most common themes in UK air transport management master's courses (Table 5). Due to the breadth of some modules, it is possible that a module is allocated to several themes (e.g., the module titled "Air Transport Economics and Finance" is allocated to the "Economics" and the "Finance" themes). Also, some module titles are quite generic and with little additional information provided, as a result it might be that some courses do not

Table 5
Module themes and examples.

Theme	No. of Courses	I vs D ^a	Example module titles
Master's Dissertation/ Thesis	19	D	Aviation Research Project Business Dissertation Tourism and Aviation Major Project
Operations	18	D	Aircraft and Fleet Analysis Airport Operations Global Aviation Business and Operations Management Airport Management
Introductory and General Air Transport Management	16	I	Aviation Management Principles and Practice Air Transport Fundamentals
Marketing	14	D	Airline Marketing Air Transport Marketing and Consumer Behaviour Air Transport Market Analysis and Forecasting
Strategic Management	14	D	Airport Finance and Strategy Strategic Aviation Management and Operations Business and Management Strategy
Finance	13	D	Airline Finance Airport Finance and Business Management Aviation Finance, Economics and Business Decision Analysis
Sustainability	13	D	Environmental Impact Assessment Responsible Tourism and Aviation Sustainability in Aviation
Research Methods	12	D	Research Methods and Statistics Research Methods Research Methods for Air Transport Management
Economics	10	D	Air Transport Economics and Finance Airline Revenue Management and Finance Revenue and Performance Management
Safety/Security	10	I	Aviation Safety Management Risk and Crisis Management Topics on Aviation Cybersecurity
Project Management	9	D	Group Project Principles of Project Management Project Management for the Aviation Industry
Regulation, Policy and/or Law	7	D	Air Transport Policy and Planning Air Transport Policy, Regulation and Global Issues Aviation Law
Airport Planning and Design	7	I	Air Transport Planning and Design Airport Design Airport Planning and Operations
Leadership and Management	6	D	Leadership in Decision-making Leadership in Organisations Entrepreneurship
Related Subject Areas	6	I	Current Practices in the Visitor Economy International Cultural Events International Logistics
Digitalisation	4	D	Digital Airline Management Digital Aviation Marketing and Digital Media
Technical	3	I	Air Transport Engineering – Maintenance Operations Airworthiness Future Aviation Challenges – from Unmanned to Spaceflight Vehicles

^a D = deductive coding based on QAA SBS 2023; I = inductive coding.

appear to cover a particular theme, although it is covered in a more generically-titled module. It needs to be noted though, as identified earlier, that the credit values per module vary significantly between courses and that some modules are elective, i.e., not all students taking a course will be exposed to each module offered on that particular course.

In total, 17 themes have been identified. The most common “theme”, i.e., a type of module that all courses have, relates to the master's dissertation (also called a thesis). Although it is common across all courses, the module title itself varies between the different courses, it is most frequently termed a “Dissertation”. Related to this, twelve courses also offer a separate module covering research methods. It is not surprising that this features in all courses, as previously identified, this is a key skill that master's students should possess (QAA, 2023b).

When it comes to subject specific modules, nearly all courses have modules on air transport operations (18 courses). This is also in line with many courses having learning outcomes that relate directly to operations. General or introductory air transport management modules are also a key feature of many courses (16 courses). These general modules often include a variety of subject areas and as such are likely to provide less depth than more specific modules covering a theme, bearing in mind though, that their credit value varies too. As with the course-learning outcomes, many contain “traditional” business and management modules applied to the air transport industry, such as marketing (14 courses), strategic management (14 courses), finance (13) and economics (10 courses). The latter also includes modules related to revenue management. This is an important point and shows that even though air transport is not a discipline in its own right it is informed by disciplinary rigour from other academic domains. Given the increasing importance of sustainability in air transport, it is not surprising that many courses (13) include modules on sustainability. Most modules in that theme focus on environmental aspects of aviation, however some address this topic from several angles (economic, social, environmental). About half of the courses offer modules relating to safety and security. These modules themselves are quite varied, from safety management, to risk management and cyber security. Although project management is a theme in nine courses, this theme is covered predominantly in two different ways: some courses have dedicated modules on project management, while other courses feature some form of project work (e.g., group project).

Other themes covered by several courses are air transport regulation, policy or law (7 courses), airport planning and design (7 courses) and modules on leadership and management topics (6 courses). It is interesting to note, that while regulation, policy and/or law features in the course-level learning outcomes of most of the courses, only 7 courses have specifically named and dedicated modules that cover this theme. The themes of digitalisation and technology are only covered by a minority of courses. Some courses offer further modules in related subject areas, such as logistics, tourism and events management.

Of the 17 themes identified in the thematic analysis of the modules, 12 can be directly linked to the QAA SBS. However, five themes show the distinct nature of these courses. Modules that fall into these themes are not covered by the QAA SBS for business and management. These are modules that are subject-specific and often link to other disciplines such as engineering (e.g. technical or safety/security modules). This highlights again, that existing SBS are not sufficient to cover the nature or air transport management master's degrees.

4.6. SWOT of the UK postgraduate provision in air transport management

Based on the review of the UK postgraduate provision in air transport management, a SWOT analysis will be performed.

4.6.1. Strengths

The number of postgraduate courses and their growth is an indication that this is a vibrant and expanding subject area. At the same time, master's programmes in air transport management are well established, with certain courses having run for several decades.

Although, in this study only UK courses have been examined, these courses are highly attractive to international students. One reason is that these are courses that are taught in English. English is not only the global language of civil aviation (ICAO, n.d.), but is also taught within schools and universities globally which makes the UK an attractive destination for international students. As such, the courses have a global dimension, which is manifested in the number of international students and faculty at many of those universities. In the academic year 2021/2022, 84% of taught postgraduate students in the subject areas related to aviation, tourism and transport at UK universities were students from outside the UK (HESA, 2022).

Many of the universities have close links with industry which allows for industrial visits and the incorporation of guest speaker lectures into the programme. Yet at the same time, the courses are independent of industry.

Another key strength of the postgraduate provision of air transport programmes is that, although the courses cover similar themes, they differ in their approach and underpinning. For example, some courses are based in "Business Schools" while others are provided by more engineering-focussed Faculties. Related to this is that although air transport is not a discipline in itself, the courses are based on a range of different underpinning disciplines, such as economics, law, geography and engineering which is also manifested in the organisational units they are embedded in.

4.6.2. Weaknesses

While there are many strengths in the postgraduate provision in air transport management, there are also some inherent weaknesses. Unlike in other study areas and disciplines, there are no agreed professional standards. While there is some attempt (e.g. by the Royal Aeronautical Society, Aviation Accreditation Board International) to approve or accredit air transport management courses, these standards are not universally-agreed on, nor do they hold the same recognition and global reach as for example UK Engineering Council accreditations, which are globally recognised through treaties such as the EUR-ACE®, Dublin, Sydney and Washington Accords.

From an epistemological perspective, air transport management is not a recognised discipline and therefore does not necessarily hold the same theoretical and/or scientific status that study areas for example in the natural sciences hold. As such, there might be a weakness in communicating the scientific rigour of such courses to a wide audience, within and outside the aviation industry.

4.6.3. Opportunities

The immediate aftermath of the COVID-19 pandemic highlighted the aviation industry's need for qualified staff. The projected growth of the industry puts further pressure on companies to find suitable employees (IATA, 2023). These staff shortages create employment opportunities for university graduates and as a result also create demand for university courses in air transport management.

The growth of the industry particularly in developing countries creates further opportunity to attract students from these countries to study in the UK. Furthermore, many UK universities offer franchised ("validated") courses in other parts of the world, with some universities even setting up subsidiary programmes in other countries.

The constant developments in the air transport industry also generate new opportunities and foci for the postgraduate provision in air transport management. As shown in the content analysis above, while some courses have started to address the topic of sustainability, future challenges around climate change and net zero remain and generate new opportunities for the postgraduate syllabus of air transport management

courses. Other emerging areas such as advanced air mobility, digitalisation and accessibility are opportunities for research but also teaching in air transport management.

4.6.4. Threats

Increasing awareness for the environmental impact of aviation, and the challenging position of air transport towards net zero, means that the industry might be seen as a problem area (e.g. Peattie (1995) refers to transport as "dark grey"). This might create a negative perception of courses in air transport management, particularly among younger, environmentally-conscious generations that are an important target group for postgraduate courses. A study published by the UK Department for Transport (2021) among 16–24 year olds found that over half of the respondents stated that a concern for climate change would negatively affect their decision to pursue a career in aviation.

The air transport industry is characterised by fluctuations in demand due to external shocks and economic downturns. The higher education sector, and air transport postgraduate courses, are not immune to these shocks. As university recruitment is sometimes cyclical, fluctuations in applications and student numbers create issues for universities (e.g. when investing in new courses which have high setup costs) and therefore some universities might examine courses that have a more stable student profile. This has also been highlighted by the study published by the UK Department for Transport (2021, p50) about careers in aviation, where a respondent was quoted: "*In the context of Covid, I'd say there's a lack of job security.*"

Student demand, and particularly that of international students is highly affected by geopolitical developments as well as governmental policies. While this is not unique to air transport management courses, more niche courses (such as air transport management) might be more affected due to their narrower appeal and applicant base.

5. Conclusion

This paper has, for the first time, identified and examined the course content and curriculum structure of taught Masters' Air Transport Management degrees in the UK, a subject area that has grown significantly with more universities offering postgraduate programmes in recent years. This growth is continuing, with Teesside University in northeast England introducing a "Senior Leader Apprenticeship in Aviation Management" at Master's level in early 2023 (Teesside University, 2023). This paper has identified the diversity of institutions and a dynamic subject area which, although niche, has significant appeal to potential students.

The research has revealed that although most courses contain common elements or themes, each institution offers its own specific understanding of air transport management and there is no single or universal national curriculum. In saying this, and despite the autonomy of UK universities with regards to their course portfolio, the air transport management courses reveal commonality in terms of their composition. Many of the common elements can be found in the QAA SBS, yet these only account for some of the similarities. This means some of the course syllabus of these courses is deducted from the wider "business and management" subject area. However, this research has shown that extant SBS are not sufficient to explain and develop postgraduate courses in air transport management, as they neglect some of the unique characteristics of these courses. The lack of guidelines is not only noticeable at a national level, but there are also no internationally-accepted standards that are applied to a wide variety of courses. As such, there is the potential, should this become desirable in the future, to develop a common set of standards pertaining to air transport courses as has occurred in the area of tourism management. This would give potential applicants and employers a clearer perspective of the learning objectives that graduates achieve and the skills they should possess.

The review of the curricula and syllabi of air transport management courses has underlined the multidisciplinary nature of these courses,

similar to Tribe's (1997) discussion on courses in tourism. This further supports the point that air transport management is "pre-paradigmatic" as defined by Volgger and Pechlaner (2015) and Kuhn (1970). However, what can be recognised is, that the content of the courses strongly links to the research agenda in the area of air transport management, given the research focus outlined by the Journal of Air Transport Management (2023).

The SWOT analysis has highlighted the strength and relevance of the UK postgraduate provision in air transport management beyond its national boundaries. The growth of these courses over time and their international appeal are a testament to the strength of the provision. Nevertheless, the lack of agreed standards and the perception that this results in a lack of academic rigour have been identified as a weakness. With regards to external factors, postgraduate courses in air transport management (both in the UK and globally) can benefit from the growth and challenges that the industry faces. New development around advanced air mobility, the net zero challenge and digitalisation result in the need for highly skilled labour such as graduates from these courses. The negative perception of the aviation industry with regards to its environmental impacts, however, can also affect the attractiveness of air transport management courses. As such, universities need to focus on how they can position these courses as a way of addressing the key challenges that the industry faces.

The research has shown there are differences and distinct foci with respect to individual courses that allow students to select a course that best accords with their career aspirations, learning styles and interests. This is of benefit to students and also allows universities to position themselves with their USP (Unique Selling Proposition) among the growing number of courses. While many courses have incorporated key challenges around sustainability in their curriculum, with one course having the whole course centred around this topic, other emerging topics seem absent from air transport management syllabus at the current time, most notably digitalisation, blockchain and AI, and there is scope for further development in these areas. This highlights the changing nature of the aviation industry and the need for courses to not only follow these changes but also to anticipate future trends and lead on

the future developments in air transport.

The findings of the study showed some commonality, differences in focus were evident. Consequently, potential students and employers may benefit from familiarising themselves with the exact content of individual courses in order to make informed choices about study options and the employability of graduates respectively.

Although this paper focusses on UK taught postgraduate courses, given the international nature of the student body in the UK and the air transport sector as a whole, the findings of this paper are of relevance beyond the UK. As a result of a lack of standards, the findings of this research will be of interest to institutions overseas who are considering initiating or expanding their higher education aviation offer as well as employers who value having staff who have obtained a postgraduate degree from a UK University. It enables university leaders to benchmark their air transport management course provision against a range of courses offered in the UK. This benchmarking can happen against modules, learning outcomes and the overall syllabus. Given the international nature of these programmes, the findings are relevant for course developers in many parts of the world.

Declaration of interests

Each of the authors is employed by a university that is included in the research population.

Data Availability Statement

Data supporting this study are included within the article.

CRediT authorship contribution statement

Robert Mayer: Conceptualization, Investigation, Methodology, Writing – original draft. **Lucy Budd:** Conceptualization, Writing – original draft, Writing – review & editing. **Stephen Ison:** Conceptualization, Writing – original draft, Writing – review & editing.

Appendix

University	Course title	Course URL (accessed January and February 2022)
Buckinghamshire New University	Aviation Operations and Management	https://www.bucks.ac.uk/courses/postgraduate/msc-aviation-operations-and-management
City, University of London	Air Transport Management	https://www.city.ac.uk/prospective-students/courses/postgraduate/air-transport-management
City, University of London	Airport Management	https://www.city.ac.uk/prospective-students/courses/postgraduate/airport-management
Coventry University	Air Transport Management (Business Management Pathway)	https://www.coventry.ac.uk/course-structure/pg/eec/air-transport-management-msc/
Coventry University	Air Transport Management (Leading Change Pathway)	https://www.coventry.ac.uk/course-structure/pg/eec/air-transport-management-msc/
Cranfield University	Air Transport Management	https://www.cranfield.ac.uk/courses/taught/air-transport-management
Cranfield University	Airport Planning and Management	https://www.cranfield.ac.uk/courses/taught/airport-planning-and-management
Cranfield University	Air Transport Management (Executive)	https://www.cranfield.ac.uk/courses/taught/air-transport-management-executive
De Montfort University	Air Transport Management	https://www.dmu.ac.uk/study/courses/postgraduate-courses/air-transport-management/air-transport-management-msc.aspx
London Metropolitan University	Airline and Airport Corporate Management	https://www.londonmet.ac.uk/courses/postgraduate/airline-and-airport-corporate-management---msc/
Sheffield Hallam University	International Tourism and Aviation Management	https://www.shu.ac.uk/courses/tourism-and-hospitality/msc-international-tourism-and-aviation-management/full-time
University College Birmingham	Aviation Management	https://www.ucb.ac.uk/study/courses/postgraduate/aviation-management-msc-pgdip/
University of Bedfordshire	International Business with Aviation Management	https://www.beds.ac.uk/howtoapply/courses/postgraduate/next-year/international-business-with-aviation-management/
University of Salford	Sustainable Air Transport Operations and Planning	https://www.salford.ac.uk/courses/postgraduate/sustainable-air-transport-operations-and-planning
University of Sunderland	Tourism and Aviation	https://www.sunderland.ac.uk/study/tourism-hospitality-and-events/postgraduate-tourism-aviation/
University of Surrey	Air Transport Management	https://www.surrey.ac.uk/postgraduate/air-transport-management-msc

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University	Course title	Course URL (accessed January and February 2022)
University of West London	International Tourism and Aviation Management	https://www.uwl.ac.uk/course/postgraduate/international-tourism-and-aviation-management
University of West London	Air Transport Operations and Management (Executive)	https://www.uwl.ac.uk/course/postgraduate/air-transport-operations-and-management
University of Westminster	Air Transport Planning and Management*	https://www.westminster.ac.uk/transport-and-logistics-courses/2022-23/september/full-time/air-transport-planning-and-management-msc

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