



EDUCATIONAL ASSESSMENT
LIMITED PROCEDURE
Marketing Analysis

Master of Science in Marketing Analysis of Ghent University

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EDUCATIONAL ASSESSMENT - LIMITED PROCEDURE
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PART 1

General Section

EDUCATIONAL ASSESSMENT LIMITED PROCEDURE

Marketing Analysis

1 Introduction

In 2015 an assessment panel reviewed the Master of Science in Marketing Analysis of Ghent University. The panel's conclusions were published in May 2016 in the report 'De Onderwijsvisitatie Economische en Toegepaste Economische Wetenschappen'.

Based on this report the program applied for accreditation at the Dutch-Flemish Accreditation Organization (NVAO). In accordance with the Decree on the Structure of Higher Education in Flanders, Ghent University submitted a request for accreditation accompanied by an improvement plan. The program received an accreditation with limited validity, until the end of the academic year 2018-2019.

2 Limited procedure

Before the expiration date the program must reapply for accreditation by means of a reassessment. This limited procedure entails a self-evaluation report by the program, a site visit carried out by an independent panel of experts and the publication of the panel's findings and conclusions in an assessment report. With the resulting assessment report, the program can apply for accreditation at NVAO.

The reassessment is limited to the standards that were evaluated as unsatisfactory in the 2016 assessment report:

- Standard 2 - Educational learning environment
- Standard 3 - Outcome level achieved

3 Composition of the panel

The assessment panel Marketing Analysis consisted of four members. The composition of the panel was ratified on August 10, October and 5 November 26 2018 by the VLUHR Quality Assurance Board. The NVAO sanctioned the panel composition on the 14th of January 2019. The VLUHR Quality Assurance Board subsequently installed the panel by its decision of February 19 2019.

The assessment panel was composed as follows:

- Chair of the panel:
 - **Daniel Baier**, professor Marketing & Innovation, University of Bayreuth, Germany
- Panel members:
 - **Leo Paas**, professor Marketing, The University of Auckland, New Zealand
 - **Wouter Verbeke**, assistant professor Data Analytics, VUB, Belgium
 - **Sibren Coulier**, student Master Business Economics, KU Leuven, Belgium

For the curricula vitae of the panel members see Appendix 1.

Dieter Cortvriendt, policy advisor VLUHR QA, was the project manager and secretary of the panel.

4 Task of the assessment panel

VLUHR QA received the self-evaluation report of the program on 19 December 2018 and distributed it among the panel members. Hence, the assessment panel had the opportunity to study the information stated in the self-evaluation report thoroughly and to prepare the site visit accurately.

The assessment panel visited the program on the 13th and 14th of March 2019. During the site visit, the panel had meetings with the program management, students, teaching and supporting staff and alumni and employers representatives. The discussions were held in a very constructive way. The panel also had the opportunity to consult a set of Master Dissertations and to visit the program-specific infrastructure. The time schedule of the site visit is attached (see Appendix 2).

Finally, the panel presented its findings and conclusions regarding the assessed standards in a draft report. This was done in accordance with the 'VLUHR Manual for the external quality assurance in Flemish higher education, August 2015'. The draft report was sent to the program management under embargo for response.

PART 2

Assessment report

GHENT UNIVERSITY

Master of Science in Marketing Analysis

Introduction

The **Master of Science in Marketing Analysis** (henceforth MA) was created in 1999 and is organized by the Faculty of Economics and Business Administration of Ghent University. The MA program is a one year **advanced Master program** (60 ECTS), taught in English and was one the first of its kind. The MA program aims to deliver Data Scientists with a focus on business. Its profile consists of three cornerstones: an analytic mind-set, hands-on experiences, and linking complex conceptual marketing decision models to analytics. Over the last few years, approximately 15 students have annually enrolled the program, most of them with a business engineering or engineering background.

2016 assessment

The panel, which visited the MA program in March 2015 and published its report in 2016, was **very critical** about the learning environment (Standard 2) and the outcome level (Standard 3). Main points of critique were that for some students the program was more a marketing than an analytics program (the so-called 'marketing track'), that research competences were sometimes lacking and rather traditional analytical techniques were taught. Additionally, the panel recommended to dedicate more attention to the visualisation of the results, to provide students with more detailed information regarding the courses and to reduce the group size of the master project. The program management subsequently distilled nine issues from the recommendations that were made by the panel for the purpose of improving the MA program.

2019 reassessment

Standard 2 - Educational learning environment

The educational learning environment makes it possible for the students to achieve the targeted learning outcomes.

The assessment panel evaluates Standard 2 as satisfactory

Based on the three cornerstones, the MA program positions itself at the intersection of the following domains: Marketing, IT (and databases) as well as Statistics and Data Mining. This vision is clearly translated in the **structure and content** of the curriculum, consisting of six mandatory courses. The elective courses have been removed from the program. In addition, the students must conduct a Master Dissertation Project (master project) during the last three months of the academic year.

The program management has repositioned the MA program away **from marketing and towards data analytics/data science** with a focus on **business**. The so-called 'marketing track' is no longer available and a course Deep Learning has been integrated, which makes the curriculum more relevant and coherent. The panel witnessed that the content of the curriculum is continuously evaluated and updated. Furthermore, new analytical techniques are swiftly incorporated. Although the MA program has reduced the amount of programming languages, there is still a lot programming which is needed for becoming a fully equipped Data Scientist.

The panel applauds the **repositioning of the program** and believes that it would be an opportunity for the MA program to change its name, more in tune with the prevailing vision, to Master of Science in Data Science for Business. This **renaming** would also make the program more visible and attractive. On the one hand it would lead to students associating the program with many other available Data Science programs. Next to this, the emphasis on Business in this revised branding would also distinguish the Master of Science in Data Science for Business from other Master of Science in Data Science programs at the interplay between computer science and statistics that additionally integrates the business and consulting perspective. There is much need for Data Scientists with such a combination of competences in the labour market.

The **format** of the MA program is **interactive and diverse**. All six courses entail hands-on experiences, based on peer learning and case studies, often in relation with real life business contexts. There is a good mix of individual and group work. Students receive tangible feedback which speeds up the learning process and enables them to monitor their own progress. The format of the MA program is in tune with the structure and content of the curriculum. The students and alumni, the panel witnessed, were pleased with the current design of the program.

During the site visit the panel observed that all actors involved in the MA program are very **committed to quality improvement** and that most recommendations of the previous panel are well addressed, such as eliminating the 'marketing track', introducing a Deep Learning course and increased training of analytical, methodological and research competences. Also, visualisation is emphasized more strongly in the revised program and the MA program has reduced the number of programming languages, with a clear focus now on Python and R. Given the prominence of these two programming languages this is a clearly defensible choice.

Regarding the **facilities**, the MA program has access to the PC facilities, library and work spaces of the Faculty of Economics and Business Administration. There is one room reserved solely for the MA students and a back office with 200+ servers supports the specific computational needs of the program. Although the facilities are rather limited for the number of students given the mix

of Business Engineering and MA students, the panel is more **worried about the Bring Your Own Device policy** that the university wants to implement. The panel insists that the university must reconsider this and keep on investing in PC facilities for the MA students. This advice is based on the dialogue that the panel conducted with the students and the staff of the MA program and the difficulties that stem from managing different implementations of parallel computing with for example R, Python, Tensorflow and Keras on students' own devices with varying operating systems and hardware.

Students and alumni, observed by the panel, were very positive about the **staff's expertise and commitment** to the program. The MA program relies on two full-time professors, two visiting professors, supported by one teaching assistant and several doctoral students. Although these numbers seem adequate, the panel considers them rather limited and a risk to the continuity of the MA program. The panel recommends that **more staff members** are involved in the MA program. The faculty, the panel insists, must guarantee an increase of staff members to make the program more future proof and even more multidisciplinary. Additionally, the panel recommends that guest speakers are more frequently invited, for example in evening sessions, to stimulate the entrepreneurial attitude of the students.

The MA program developed a strict **admission procedure** by means of a statistical techniques and R programming test as well as an interview with the MA program management. This procedure ensures that the inflow is qualitatively of a high level and that the students are highly motivated. Although the number of students is rather small, almost all enrolled students graduate within the foreseen time and drop outs are very limited.

The panel concludes that the structure, content and format of the curriculum reflects the three cornerstones and vision of the MA program and enables the students to realize the learning outcomes. The MA program has enough resources and has addressed the recommendations of the previous panel thoroughly, resulting in a **coherent and relevant curriculum**. Subsequently, the panel scores Standard 2 '**Educational learning environment**' as **satisfactory**.

Standard 3 - Outcome level achieved

The program has an appropriate system of assessment, testing and examination and demonstrates that the targeted learning outcomes are achieved.

The assessment panel evaluates Standard 3 as satisfactory

The MA program **evaluation policy** consists of a number of components, tailored to the three cornerstones of the MA program. This includes real-life challenges, a feedback culture that stimulates self-reflection and lifelong learning, standardized answer keys, evaluation forms to guarantee reliable assessments, a focus on presentations competences, and the participation of external evaluators to enhance the business context of the evaluations.

The quality of the evaluations is monitored by the MA Study Program Committee. Detailed ECTS sheets, comprising the evaluation method, are in place, providing students with the necessary information regarding the evaluations. A variety of evaluation methods is used, such as assignments, written and oral exams, peer assessments and presentations. The different stakeholders the panel spoke to during the site visit, are very satisfied with the set-up of evaluations. The panel finds that the MA program has done well in making the evaluations more valid, reliable, objective and transparent and bringing them in accordance with the design of the curriculum.

The **master project** consists of a written document (dissertation) and two oral presentations (one technical for the university and one more managerial for the company) of a real-life project in close collaboration with a company (profit or non-profit). The majority of students can participate in their project of choice, which they carry out in teams of two. Each project has a kick-off meeting with the company involved. Next to this, intermediate meetings are organized, which serve as feedback moments allowing the company and the students to attune their expectations. The **assistants** (including the doctoral students) are highly involved in the master projects and showed great willingness and capability to support the students. Some attention to support the assistants in supervising the master projects is however recommendable. Further educational training for all assistants seems appropriate, according to the panel.

The MA program has developed clear **assessment categories** to grade the master projects; while the assessment of the dissertation focuses on problem definition, the consulted literature, methodology, conclusions and writing skills, the assessment of the presentations focuses more on aspects like managerial relevance, creativity, discussions held with the company and presentation skills. Some of the projects have been published in peer reviewed journals or led to deliverables that have been implemented by the company at which the project was conducted.

The panel notices that - and in line with the elimination of the 'marketing track' - the content of the master projects has become less descriptive and more predictive. The reduction of the team size has decreased the risk of free-riding. The **dissertations** show some variety in terms of quality, but nonetheless exhibit the analytical, methodological and scientific competences of the graduates. In order to improve the quality of the master project, the panel believes that the different master project exercises (dissertation and presentations) should focus more on the learning outcomes to be realized; that is that the dissertation should be technical and more academic, whereas the presentation should be shorter and more managerial. As such the different finalities of the master project will be better articulated throughout the different assessment moments. The panel also insists that the MA program must pay more attention to the business

problem definition, which is now mostly done by the staff. The panel thus recommends spending more time on discussing the first step of the CRISP-DM model explicitly with the students.

In terms of **employability**, the graduates have many job opportunities, mostly in consultancy, for larger companies, and in a Data Science context. The alumni clearly expressed the **additional value of the MA degree**. They also believe that a name change, aimed at further emphasising Data Science for Business, could increase their value on the labour market. Competences regarded as paramount by the alumni are the ability to define business problems in data analytics/data science terms as well as to understand how statistics and machine learning models and packages can be used to solve them efficiently.

In general, the panel is impressed by the graduates' level of achieved outcomes and their career paths. For further enhancing these perspectives of the graduates, the panel recommends that the MA program should more formally organize its **alumni network** and bring the more than 300 graduates - many working abroad - together. The alumni clearly stated that they would like to be active in such a network and would be very pleased to act as guest speakers in the program. The faculty must support the MA program management's ambition regarding the development of an alumni network.

To conclude, the panel is of the opinion that the evaluation policy is solid and consistent with the cornerstones of the MA program and geared towards the learning outcomes the students must realize, that the master projects are of adequate levels of quality and that the employability of the graduates is excellent. Subsequently the panel scores Standard 3 '**Outcome level achieved**' as **satisfactory**.

Final judgement of the panel

Standard 1 – Targeted Outcome level (2016)	S
Standard 2 – Educational learning environment (2019)	S
Standard 3 – Outcome level achieved (2019)	S

Given the satisfactory scores on standard 2 and 3 (reassessment 2019) and the positive judgement regarding standard 1 in 2016, the final judgement of the panel is satisfactory for the Master of Science in Marketing Analysis of Ghent University.

APPENDICES

APPENDIX 1

Curriculum vitae of the members of the assessment panel

Daniel Baier

Daniel Baier is Professor of Marketing & Innovation at the University of Bayreuth in Germany. Since 2000 he is board member of the Gesellschaft für Klassifikation Data Science Society e.V. Since 2007 he is editorial board member of the Springer journal *Advances in Data Analysis and Classification*. His scientific activity is mainly focused on the development of machine learning and hierarchical Bayes models, as well as test instruments for product, service and website engineering.

Leo Paas

After graduating from the University of Amsterdam (The Netherlands) in 1994, Leo Paas worked at ING bank as a database marketer on customer segmentation, data mining, assessing customer lifetime value, predictive modelling, churn prediction and credit scoring. In 1999 Leo started working as a consultant in Amsterdam, applying the knowledge gained at Postbank to assist various financial services providers in their marketing activities and credit scoring. In 2002 Leo joined the Marketing Department of Tilburg University. In 2005 he became Associate Professor at the Marketing Department of VU University in Amsterdam. He moved to New Zealand in 2014 and was Head of the Analytics Programme at Massey University until 2019. Since February 2019 Leo is Professor in Marketing Analytics at The University of Auckland. Leo's main research interest has been on the development and application of segmentation models and on business analytics. His work has been published in internationally leading academic journals such as *International Journal of Research in Marketing*, *Marketing Letters*, and *Journal of the Royal Statistical Society (A-Series)* and in applied business magazines. Leo has taught various courses at the undergraduate and postgraduate levels on Big Data, marketing communications, services marketing, analytics and customer insights.

Wouter Verbeke

Wouter Verbeke is Associate Professor of Data Analytics at Vrije Universiteit Brussel (Belgium). His research is situated in the field of prescriptive and profit-driven analytics and is driven by real-life business applications in fraud, customer relationship, credit risk, supply chain, and human resources management. In 2014, he won the distinguished EURO award for best article published in the *European Journal of Operational Research* in the category 'Innovative Applications of O.R.'. His work has been published in established international scientific journals such as *IEEE Transactions on Knowledge and Data Engineering* and *European Journal of*

Operational Research. He has authored two books, entitled 'Fraud Analytics Using Descriptive, Predictive & Social Network Techniques' and 'Profit-driven Business Analytics', published by Wiley.

Sibren Coulier

Sibren Coulier is a Master student Business Economics at the KU Leuven, Belgium. He majors in Accountancy and Financial Management and chose Strategy and Innovation as minor. He has always been interested in finance and has for example been the general director of an experimental start-up in cooperation with Vlajo. He has also participated in multiple extracurricular activities such as the AFC Pitch Bootcamp, the AFC Business Skills track and the Capitant Career track.

APPENDIX 2

Time schedule of the site visit

March 13 2019

10:00–12:30	internal meeting
12:30–13:30	meeting program management
13:30–14:00	internal meeting
14:00–15:00	meeting students
15:00–15:30	internal meeting
15:30–16:45	meeting teaching and supporting staff
16:45–17:30	internal meeting
17:30–18:30	program-specific infrastructure visit
18:30–19:30	meeting alumni

March 14 2019

09:00–10:00	open consultation
10:00–11:00	internal meeting
11:00–11:30	meeting program management
11:30–13:00	Internal meeting
13:00–13:15	oral report

