

mastermind  EUROPE

Manual & Approach



Erasmus+

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Mastermind Europe Manual

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Introduction

Mastermind Europe is an initiative responding to the increasing diversity of applicants for Master's programmes and the increasing desire to get a diverse international classroom. It is designed to help finding a better way to decide which students are suitable for which Master's programme. With support of the ERASMUS⁺ programme, the Mastermind Europe Consortium between September 2014 and September 2017 developed a Toolkit and Expert pool that can support academic directors of Master's programmes who wish to improve their admission system. Toolkit and Expert pool were tested, first in eight broad Focus Groups and then in seven pilots at individual Master's level. The E+ project ended in September 2017 and the (slightly revised) Consortium decided to continue the work – on a not-for-profit basis.

The Mastermind Europe Toolkit contains Guiding Tools, some Forms and Manuals to help academic Master's coordinators to see if and how they can improve their admission criteria and procedures to enhance the international and diverse nature of their classroom. In addition, it contains a number of reports digging deeper into the underlying trends, the facts and perceptions, and the (perceived) legal obstacles for improving the admission process.

The Guiding Tools are concise brochures with information – from practice and literature – on one specific aspect of the Mastermind Europe approach, like "Subject-Related Knowledge & Skills" or "Language Requirements". The Forms are forms that can be filled in by Master's coordinators as an aid to analyse their present admission practice and to identify things that they may want to change.

In this Mastermind Manual, we go step-by-step through the Forms and Guiding Tools, explaining and giving examples of how they can be used. The Mastermind Europe experts are available to advise academic master's coordinators further and to give feedback on the way they use the Forms and Tools, comparing with numerous other master's programmes on which they have similar data.

The Coherent Admission Matrix Form

Let us start with the key purpose of the admission process: to determine if an applicant student is qualified to be admitted to a master's programme.

We have analysed and dissected the question if a student is qualified into four core questions that distinguish between a) criteria, b) levels/norms, and c) assessment mechanisms & assessment scores and into three categories of criteria (plus language competence).

These categories and key questions appear in the Coherent Admission Matrix Form.

How do you a) know (= assessment mechanisms): b) if students are good enough (= norms/levels), c) in the things that they need to be good at (= criteria). Into a logical order: 1) Criteria, 2) Norms/levels, 3) Assessment mechanisms (with 4) assessment scores)				
	1 Criteria	2 Norms / levels	3 Assessment mechanisms	4 Assessment scores
In plain language:	What you are looking for		What you are looking at	
Substance-Related Knowledge & Skills				
General Academic Competencies				
Personal Competencies & Traits				
Language competence				

The Mastermind Europe Matrix Form helps to establish a precise relation between what you're looking at and what you're looking for in admission. It allows you to identify the most problematic aspects in admission: the things that you want to change most urgently.

The Coherent Admission Matrix is built on an analysis – in the Mastermind Europe Guiding Tools – of current best practice and available scholarly literature on criteria in the respective fields on Substance-related knowledge & skills, General Academic Competencies, Personal Competencies & Traits, and Linguistic competencies. Three of these Guiding Tools can be summarised in a) an

analytical framework or 'language' and b) an overview of existing testing/assessment mechanisms. These summaries are represented visually below.

Analytical framework and existing tests for General Academic Competence

General Academic Competence analytical framework

	Textual data & information	Numerical data & information	Abstract & logical information
Create			
Evaluate			
Analyse			
Apply			
Understand			
Remember			

From: [Revised Bloom Taxonomy](#), which has another second axis:
Factual → Conceptual → Procedural → Metacognitive

General Academic Competence Existing tests

	Textual data & information	Numerical data & information	Abstract & logical information
GRE general	✓	✓	-
GMAT	✓	✓	-
IE	✓	✓	✓
ESonline	✓	✓	"problemsolving"
MAT	✓	-	-

Analytical framework and existing tests for Personal Competencies and Traits

Personal Competencies & Traits

Personal traits: Big Six	Personal competencies: Great Eight
Emotionality	Leading & deciding
Extraversion	Supporting & cooperating
Agreeableness (vs Anger)	Interacting & presenting
Conscientiousness	Analysing & interpreting
Openness	Creating & conceptualising
Honesty	Organising & executing
	Adapting & coping
	Entreprising & preforming

Personal competencies & tests Existing tests

	Self assessment	Observer	Test
Hexaco Personality Inventory	✓		-
ETS Workforce assessment	✓		-
Personal statement	✓		-
Reference letter		✓	-
Interview		✓	-

Analytical framework and existing tests for Language competencies

Language: Common European Framework

C2	Academic or cognitively demanding texts, performance in certain respects above average native speaker.
C1	Communicate with appropriateness, sensitivity and capacity to deal with unfamiliar topics.
B2	Achieve most goals and express oneself on a range of topics.
B1	Express in a limited way in familiar situations and, in a general way, with non-routine information.
A2	Deal with simple, straightforward information and begin to express oneself in familiar contexts.
A1	A basic ability to communicate and exchange information in a simple way.

Language requirements Existing tests

Most used: TOEFL, IELTS

Some alternatives: TOEIC, TSE, ITEP, UBELT, Cambridge, Trinity College London ESOL, STEP Eiken, ECPE, MUET, TELC, STEP, PTE

How test relate to Common European Framework:

A2	Cambridge English Key (KET); PTE General Level 1; PTE Academic 30-42
B1	Cambridge English Preliminary (PET); IELTS 4-4.5; TOEFL iBT 57-86; TOEIC 550; PTE General Level 2; PTE Academic 43-58
B2	Cambridge English First (FCE); IELTS 5-6.5; TOEFL iBT 87-109; PTE General Level 3; PTE Academic 59-75
C1	Cambridge English Advanced (CAE); IELTS 7-8; TOEFL iBT 110-120; TOEIC 880; PTE General Level 4; PTE Academic 76-84
C2	Cambridge English Proficiency (CPE); IELTS 8.5-9; PTE General Level 5; PTE Academic 85+



E

1

U

NB The analytical framework of Personal competencies and traits in practice is much more applicable for specific Master's programmes at the level of the subcategories for each of the Big Six and Great Eight. More information is given in the relevant Guiding Tool. The same applies to the Common European Framework of Languages when it comes to differentiation between reading, writing, speaking and listening proficiency.

In addition, for both the General Academic Competencies and the Personal Competencies & Traits, we have found that the VALUE Rubrics developed by AAC&U may enrich your ability to express exactly what students need to be good at and where the fine line between 'good enough' and 'not good enough' lies for your programme.

Below is a concise overview of the 16 VALUE Rubrics; the ordering in 'general academic' and 'personal' is added by Mastermind Europe.

General academic		Personal
Creative thinking	Lifelong learning	Ethical reasoning
Critical thinking	Problem solving	Civic engagement
Information literacy	Quantitative literacy	Global learning
Inquiry & analysis	Reading	Intercultural knowledge & competence
Integrative learning	Written communication	Oral communication
		Teamwork

In this Manual, we give two examples from two distinct VALUE Rubrics to give an impression how you can use them to define the fine line.

Table 1 Critical thinking

	Capstone 4	Milestones 3 2		Benchmark 1
Explanation of issues	Issue/problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.	Issue/problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.	Issue/problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/or backgrounds unknown.	Issue/problem to be considered critically is stated without clarification or description.

Table 2 Teamwork

	Capstone 4	Milestones 3 2		Benchmark 1
Contributes to Team Meetings	Helps the team move forward by articulating the merits of alternative ideas or proposals.	Offers alternative solutions or courses of action that build on the ideas of others.	Offers new suggestions to advance the work of the group.	Shares ideas but does not advance the work of the group.

We recommend that you read the Guiding Tools to get a fuller understanding of the issue and be able to apply it to your own Master's programme when filling in the Matrix.

Back to the Matrix

☞ Look at all current elements of admission for your own Master's programme and place each of these in the Matrix. You may have several admission requirements in one category, e.g. in Subject Related Knowledge & Skills. That is why we have included three empty rows for each category. If you use the digital version of the Matrix, you can add rows if you need more rows. It will require some critical reflection – and sometimes discussion – to put pieces of information in the right cell of the Matrix. For deciding of the right column (key question), remember:

- 'Criteria' relate to what the applicants need to be good at (like math or text analysis or group work).
- 'Levels' relate to how good applicants need to be in a specific field (like 'can perform specific (defined) statistics operations', or 'can discover logical errors in a complex text', or 'can mediate successfully in discussions between scientists and social scientists'; to give just a few examples).
- 'Assessment mechanisms' can relate to a wide variety of methods: standardised tests, your exams, interviews, rating of prior HE institution. Anything that is used in your case.

After you have filled in the Mastermind Europe Matrix Form, do feel free to ask our opinion on how you have placed your admission information in the Form. We have collected a broad set of these Forms and could help you clarify – as an advice only.

☞ The third step in the Mastermind Europe Matrix Form – after filling it in and critically examining it – is to identify the elements that you find most in need of improvement. Maybe you have none, because the Matrix has confirmed to you that your admission process is quite alright in terms of the criteria and core questions. But if the Matrix Form has helped you to realize that you want to improve some of the elements, the next step is to highlight the relevant cells or rows. The highlighted elements constitute your change agenda – if you decide that these issues are important and urgent enough to warrant further action.

Originally, the design of the Mastermind Europe Toolkit was to enable Master's programmes to enhance their admission with support by a Mastermind Europe expert. Thus far, the use of the Mastermind Europe Toolkit has – as far as we know – been with support of a Mastermind Expert. In these cases, the Mastermind Europe expert fills in a Coherent Admission Matrix for that Master's programme based on the information available to the expert. The expert then adds a row of comments, which fulfil the same function as the Two-Column Table.

An example of a Coherent Admission Matrix Form with expert comments

How do you a) know (assessment mechanisms): b) if students are good enough (norms/levels), c) in the things that they need to be good at (criteria). Turned around in logical order: 1) Criteria, 2) Norms/levels, 3) Assessment mechanisms (with 4) assessment scores)				
	1 Criteria	2 Norms / levels	3 Assessment mechanisms	4 Assessment scores
In plain language:	What you are looking for		What you are looking at	Comments Kees Kouwenaar
Subject-related Knowledge and Skills	Knowledge of and insight into the broad field of organization studies and (organizational) culture		<ul style="list-style-type: none"> - Bachelor's degree in Public Administration and Organization Science, Cultural Anthropology at VU - Pre-Master's programme Cultural, Organization and Management VUA - Bachelor's degree in Sociology and Political Science at VUA 	Sometimes admitted candidates receive a recommended reading list of titles in organisational theory and culture.
	Knowledge and insight as taught in VUA Pre-Master's COM courses: <ul style="list-style-type: none"> • Core themes organization science • Organizational Culture and Change 		Non-VUA undergraduate and graduate degree in one of the Social Sciences; a successfully completed specialisation or minor in may be required.	
How do you a) know (assessment mechanisms): b) if students are good enough (norms/levels), c) in the things that they need to be good at (criteria). Turned around in logical order: 1) Criteria, 2) Norms/levels, 3) Assessment mechanisms (with 4) assessment scores)				
	1 Criteria	2 Norms / levels	3 Assessment mechanisms	4 Assessment scores
In plain language:	What you are looking for		What you are looking at	Comments Kees Kouwenaar
General academic competencies	Knowledge and skills in the field of qualitative research methods		Qualitative methods of social (organisational) research: coursework, preferably including a practical	Depending on the size, general Social Science research methodologies can be acceptable; a recommended reading list is sometimes suggested.
			The thesis in the pre-Master's in Culture, Organization and Management is the reference document (APA style, 10.000 words, written paper on an Organisational/Social Scientific topic)	Papers written in other alpha or gamma Bachelor's programmes are also acceptable. Generally candidates failing to deliver a solid text are rejected.
			Writing academic English: building a solid argument, logical paragraphing, academic vocabulary, correct/consequent spelling)	
How do you a) know (assessment mechanisms): b) if students are good enough (norms/levels), c) in the things that they need to be good at (criteria). Turned around in logical order: 1) Criteria, 2) Norms/levels, 3) Assessment mechanisms (with 4) assessment scores)				
	1 Criteria	2 Norms / levels	3 Assessment mechanisms	4 Assessment scores
In plain language:	What you are looking for		What you are looking at	Comments Kees Kouwenaar
Language competencies	English language proficiency	English language proficiency	Language test IELTS TOEFL paper based TOEFL internet based Cambridge Advanced English VU test in English language proficiency TOEFL IP	6,5 580 92-93 A, B and C At least the scores specified in par. 1
			Previous secondary or tertiary education in an English-speaking country as listed on the VU website	This is just to ensure that candidates have sufficient reading, listening and speaking competencies. Academic writing is listed under academic competencies
			An English-language 'international baccalaureate' diploma	
How do you a) know (assessment mechanisms): b) if students are good enough (norms/levels), c) in the things that they need to be good at (criteria). Turned around in logical order: 1) Criteria, 2) Norms/levels, 3) Assessment mechanisms (with 4) assessment scores)				
	1 Criteria	2 Norms / levels	3 Assessment mechanisms	4 Assessment scores
In plain language:	What you are looking for		What you are looking at	Comments Kees Kouwenaar
Personal Competencies & traits	Intercultural competencies		<ul style="list-style-type: none"> • (Voluntary) work experience in international/intercultural setting • International classroom experience 	This criterion is not (yet) well communicated on the website (documents)

The Mastermind Europe Two-Column-Table

But to accommodate also the independent use of the Mastermind Toolkit, we have developed the **Mastermind Europe Two-Column-Table** which may be useful to achieve a similar result without expert support.

The Two-Column-Table helps to look more precisely at the most problematic aspects: what the nature of the problem is and how it can be addressed in the context of your master's programme.

Admission element	What can you say about it?
Requirement is ...	<i>What 'key question' columns are involved?</i>
What criterion is involved	
What level is applied	
How satisfactory is this practice	
Possible conclusions in terms of articulation of criteria/levels	<i>You want to use the info in the Quick Reference Guide: conceptual framework and existing tests / assessment mechanisms</i>
Possible conclusions in terms of choice of testing mechanisms	
Possible conclusions in terms of transparency	
Possible conclusions in terms of monitoring and counselling	

An example

Suppose you require 'basic science' (a subject related knowledge & skill), but without really identifying what specific knowledge or skill the applicants really must possess. 'Basic science' is a very broad term, after all. Suppose you see this as a problem.

☞ You can then take an empty TCT and label it with 'basic science'. The TCT helps you to analyse what you mean by 'basic science', what lack of specific 'science' knowledge or 'science' skills would really prevent students from success. It helps you to identify good yardsticks by which you can measure if they have that specific science knowledge or skill.

Subject requirement: Basic science	What can you say about it?
Requirement is: a Bachelor's degree covering basic sciences with good grades in key courses	It is a statement about subject related knowledge & skills, but of a fairly general nature
What criterion is involved	It is unclear what is understood by 'basic sciences': math, physics, other natural sciences. What subject areas are most important.
What level is applied	It is unclear what 'good grades' means.
How satisfactory is this practice	Possible answers: <ul style="list-style-type: none"> - We are satisfied, no change - We want to change in some ways, see next rows.
Possible conclusions in terms of articulation of criteria/levels	<ul style="list-style-type: none"> - We need to define and/or give examples of key courses. We need to explain 'good grades'. We need to identify the core body of knowledge we want, and which Handbook chapters or MOOCs cover that. or <ul style="list-style-type: none"> - We feel unable to articulate precisely what we are looking at; it has to stay (inter)subjective.
Possible conclusions in terms of choice of testing mechanisms	We will add a MOOC or a pre-entry Summer Course as a means to fulfil this criterion in addition to 'having had a course during the Bachelor's'.
Possible conclusions in terms of transparency	We will put the info on the MOOC or Handbook chapters on our website.
Possible conclusions in terms of monitoring and counselling	We will keep track which is the better predictor: Bachelor's courses, MOOC, or pre-entry Summer Course.

It also helps you to articulate what an improved row for 'basic science' would look like, with better articulated 'levels' and appropriate assessment mechanisms.

The same applies in the other groups of categories: suppose that you regularly require a 'Motivation statement' and use that in the assessment of applicants – but can't articulate for which

criterion (at what level) you use the Motivation statement: you look at the Motivation statement, but can't say what you are looking **for**.

☞ You can then take an empty TCT and label it with 'Motivation statement'. The TCT helps you state more precisely what you want the Motivation statement for:

- Making implicit convictions more explicit, you may find the Motivation statement suitable to assess more and different criteria.
- Or you may start to question if it really makes sense to use Motivation statements.

Personal requirement: Motivation statement	What can you say about it?
One professor reads all motivation statements	This is a subjective and qualitative testing mechanism
What criterion is involved	That may be unclear: to the university, to the applicants, and even to the professor.
What level/norm is applied	That may be equally unclear.
How satisfactory is this practice	Possible answers: <ul style="list-style-type: none"> - We are satisfied, no change - We want to change in some ways, see next rows.
Possible conclusions in terms of articulation of criteria/levels	<ul style="list-style-type: none"> - We need to explain what PCTs we look for in the Motivation statement, using the PCT framework (see Guiding Tool PCT) or <ul style="list-style-type: none"> - We feel unable to articulate precisely what we are looking for
Possible conclusions in terms of choice of testing mechanisms	We will articulate more precisely <u>what</u> criteria we are looking for in the Motivation statement, or We will have more than one professor involved in the assessment and/or have a protocol for the assessment, or We will stop using Motivation statements because we are unable to state what we are looking for, or We will stop using Motivation statements, because we think Motivation statements are not reliable enough.
Possible conclusions in terms of transparency	We need to explain better to students what we are looking for
Possible conclusions in terms of monitoring and counselling	We need to include Motivation statements in our Student success monitoring system, to see if it predicts success (better than other indicators).


Again, this may help you to describe the 'improved admission reality' that you see as desirable after using this form – unless you decide that the possible improvements are not important enough or too difficult to realise.

Taken together, these tools help master's coordinators to articulate precisely what the entrance competencies of the programme are in terms of subject-related knowledge & skills,

general academic competencies, and personal competencies and traits. We jokingly call these entrance competencies learning incomes because they are the counterpart to the learning outcomes. Defining these learning outcomes helps with admission, but it helps also to tune the curriculum to the intended learning outcomes.

Some key choices

Once you have identified – using the Two Column Tables – all the elements in your admission process that you want to change, you can enter most of them in new copy of the Mastermind Europe Matrix Form. Before you do that, it is useful to be clear about a number of choices regarding Master's admission.

 You can use the Form underneath to articulate these choices, adding new rows for choices which we didn't identify for you:

Do you see Master's admission rather as a mechanical process, in which the elements are measured and counted; or rather as a holistic process, in which the elements are weighed and then the whole is weighed?		
<input type="checkbox"/> Rather as a mechanical process	<input type="checkbox"/> Rather as a holistic process	
Is your programme non-selective (all qualified applicants are admitted) or selective (of those qualified, only the best are admitted)?		
<input type="checkbox"/> Yes:	<input type="checkbox"/> No	<input type="checkbox"/> Yes, but not specified
Do you have one or more 'admission deadlines' and how are the admission quota (number of places) divided over these deadlines? Or do you have ongoing admission on a first-come-first-serve basis?		
<input type="checkbox"/> One:	<input type="checkbox"/> More: - .. - ..	<input type="checkbox"/> Ongoing admission
Do you have quota for applicants per country or applicants per subject background?		
<input type="checkbox"/> Yes, countries: - Max ... % per country - Other:	<input type="checkbox"/> Yes, disciplines: - Max ... % per discipline - Other:	<input type="checkbox"/> No
Do you want to create a balanced group in specific general academic and/or personal competencies?		
<input type="checkbox"/> Yes, general academic competencies: -	<input type="checkbox"/> Yes, personal competencies or traits: -	<input type="checkbox"/> No
Do financial considerations play a role? Is there pressure to be lenient if there are insufficient applications?		
<input type="checkbox"/> Yes	<input type="checkbox"/> No	
For qualitative (subjective) assessment mechanisms, do you have more than one assessor to organise intersubjectivity?		
<input type="checkbox"/> Yes; indicate below for each relevant assessment mechanism, how many administrative staff and/or academics take part in the assessment: - Item, no of adm. no of academics		<input type="checkbox"/> No
What is the overriding purpose of the admission process?		
<input type="checkbox"/> To establish likelihood of successful graduation	<input type="checkbox"/> Other considerations, such as likelihood of success in work after graduation or legal provisions.	

The Mastermind Europe Matrix 2.0

☞ In the new copy of the Matrix form, you can enter the data on your admission process **after** you have made the changes deemed necessary.

In the column 1 “Criteria”, you can add flag (sign) if you don’t want to use this criterion a part of your admission decision, but as a signal for the student or the programme itself.
In the column “3 Assessment mechanism”, you can add a flag (sign) for the number of academics and/or administrative staff involved in making assessments which are subjective by nature.

	1 Criteria	2 Norms / levels	3 Assessment mechanisms	4 Assessment scores
In plain language:	What you are looking for		What you are looking at	
Substance-Related Knowledge & Skills				
General Academic Competencies				
Personal Competencies & Traits				
Language competence				

Not all aspects of the admission process that you may want to change, can find a proper place in this Matrix 2.0. For one thing, admission does not stand on itself; it is embedded in the whole chain of relations between the students and your university: from branch marketing & recruitment through admission & enrolment, financial, social educational support to graduate, transition to employment and alumni services. And it is embedded in the life cycle of the master’s programme: from external need for its graduates, degree profile, learning outcomes, curriculum back to admission requirements.

¹ For instance, that the student should/must take certain electives, or should pay extra attention to certain academic or personal skills, or may find some post-graduate lines of work less suited to his/her competencies.

You will find more information on these aspects in Guiding Tool 1b Contextually Coherent Admission Framework.

In conclusion

This Mastermind Europe Manual is still “work in progress”. We don’t pretend to have the definitive solution or step/by/step guide that solves all issues in all situations.

We are aware that some issues are not treated here, e.g. how to plan and implement the changes on a Master’s website. Or, also very important, how to add elements in the admission process that will motivate suitable students to continue their admission process with you – or delete elements in your process that demotivate applicant students and make them turn away.

But we hope that this Manual does contain useful elements for readers who see the need to adapt the admission process for the Master’s to enhance admission for a diverse international classroom.

Kees Kouwenaar, April 2018

May 2017

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Introduction

This document is a written representation of the Powerpoint presentation used in the Mastermind Europe Focus Group meeting in Vilnius, May 12-13, 2016.

The Focus Group meeting brought together a group of academics and administrators from universities in the Northern region of Europe in the context of the Mastermind Europe project.

The Mastermind Europe project is a Strategic Partnership project, supported by the European Commission in Key Action 2 of the ERASMUS+ project. The project aims to develop and test a toolkit for a new approach to admission to master's programmes in Europe, which helps to admit a larger variety of suitable students and thus create a diverse international classroom.



The project is implemented by a Consortium on 11 members from 8 EU countries. Six members are universities: the *Vrije Universiteit* Amsterdam (coordinator), the University of Helsinki, Vilnius University, the University of Graz, the University of Ljubljana, and the Politécnico di Milano. Two members are associations of universities: the German Association of Universities (HRK) and the Association of Catalan Public Universities (ACUP). Three members are private organisations active in the field of international higher education: the Academic Cooperation Association, StudyPortals, and Ziggurat.

The Mastermind Europe project develops a toolkit for admission to master's programmes based on competency-assessment, and tests these tools in a series of Focus Group meetings. In addition, the sustainable impact of the project is enhanced through surveys on facts and perceptions in master's admission among academic coordinators and applicant students, as well as through the creation of a service with experts for master's programmes that wish to apply the Mastermind Europe approach.

Increasing diversity

In Post Bologna higher education in Europe, we witness an increasing diversity concerning master's programmes in many different ways. Initially, the conversion into a three-tier degree structure with Bachelor's, Master's and PhD-programmes was formal in nature only. The old 'long' one-degree programmes were split in a Bachelor's and a Master's phase without much change in the substance. Students were expected to stay in the same subject and at the same university to complete the full programme of a Bachelor's + Master's cycle. Each Bachelor's programme had a logical follow-up master's programme attached to it and vice versa: each master's 'belonged' to a Bachelor's.

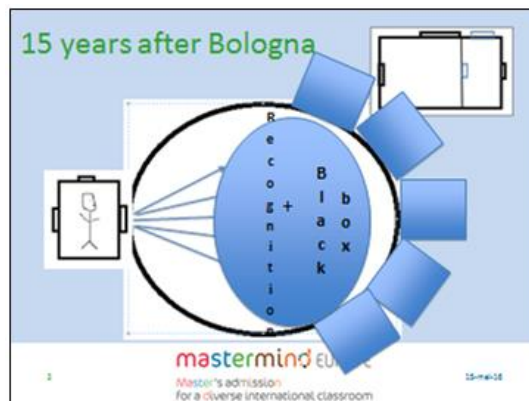
Admission of 'outside' students was an exception and was treated as such. The key admission question was: "Is the outside student's Bachelor's similar enough to the 'normal' bachelor's degree for this master's programme?"

The Bologna reform – but also globalisation and internationalisation trends as well as the development of our societies and economies – have caused this situation to change significantly. Master's programmes have evolved away from their original 'root' bachelor's programme, new master's programmes have been invented, independent from any preceding bachelor's programme. There has been a wide spread of multidisciplinary master's programmes, aiming to bring students from various subject backgrounds together.

There has been a functional diversification of master's programmes: with research orientation, professional orientation, preparing for teacher professions. Our societies and economies increasingly ask for university graduates who – in addition to subject expertise – have the general academic skills and personal skills to function in complex and volatile surroundings: 21st century skills are needed. In summary: an increasingly diverse pool of students seeks admission to an increasingly diverse array of master's programmes for increasingly different reasons.

The slide shows this diversity from the double perspective of students (having to choose from among a multitude of master's programmes) and the master's programmes (facing a wide diversity of applicants).

The Paradigm Shift Report on the [Mastermind Europe website](#) offers a much more extensive analysis of the relevant developments in higher education in Europe and a more elaborate argument why a competency-assessment approach to master's admission is required. An extended and updated version of the report has been published in the [Tuning Journal](#).



In this context, the old paradigm of diploma-recognition is no longer sufficient. The key question "Can this student be admitted" can no longer be translated into "Is his/her diploma sufficiently similar to the 'normal' bachelor's diploma".

Open ↔ selective admission

In addition, the changes to master's education have created another set of questions:

"What is the ideal number of (suitable) applicant students?"

"What is the ideal number of admitted and enrolled students?"

These questions were much less

Key priorities admissions process

- To increase the number of (qualified) applicants who actually enrol
- To lower the number of (less desirable) applicants

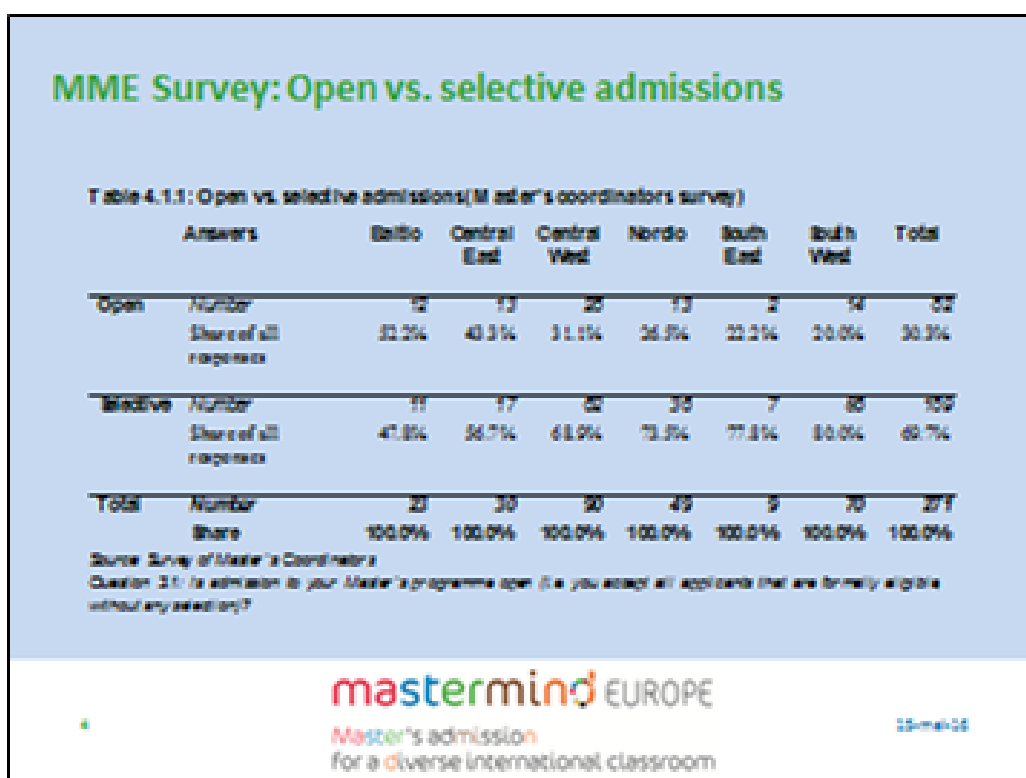
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In selective systems, universities – even at programme level – are free to set their own admission criteria. In “open systems”, the laws stipulate that every student with the ‘right’ qualification has a right of admission and that no additional admission requirements may be imposed. The ‘right’ qualification is stipulated in terms of specific domestic bachelor’s degrees. But with broad and multidisciplinary master’s programmes, the range of ‘right’ qualifications gets broader and less adequate.

More importantly, our Surveys have shown that even in “open admission” systems, selective admission is allowed when there is a lack of study places. Even in traditionally “open system” parts of Europe, the number of capacity-driven selective programmes ranges to and well over 50%.

relevant in a system where (almost) all of our own bachelor’s graduates continue into our own master’s programmes – with exceptionally students from elsewhere.

But they are increasingly relevant, as more students swap university after the Bachelor’s and this is independent if admission to master’s programmes is selective or has a legally open nature.



Reformulation the key question

The key question: “Can this student be admitted?”, needs to be reformulated, making it independent from the ‘preceding’ bachelor’s degree.

A much better way to formulate the key question is: “How do we know that a student is good enough in the things that s/he needs to be good at?”

This key question consists of several parts:

Key question

Does what you are looking at adequately and transparently reflect what you are looking for?

- What do students have to be good at? How good do they have to be? How do you know they are?
- Quality – transparency – validity

- Related to criteria: “What do they have to be good at?”
- Related to levels: “How good do they have to be at it?”
- Related to assessment mechanisms and
- Related to assessment benchmarks: “How do we know?”

Formulating clear and sound answers to these key questions, helps Master’s programmes in three significant ways:

1. It helps to improve the quality of the admission process itself
2. It helps to be more transparent to (prospective) students, and
3. It helps to look back to see if selection correlates with student success.

The [Guiding Tool 1a on an Internally Coherent Admission Framework](#) offers a more elaborate description and analysis of these key questions and categories of criteria and how they have been distilled from the practice of universities and testing agencies as well as from scholarly literature.

Three categories of criteria

When we analyse the practice among master’s programmes, as well as the literature in organisational psychology, we can distinguish three broad categories of relevant admission criteria: things that students may need to be good at.

Rather than using the common categorisation in Knowledge, Skills, and Values (or Attitudes), the Mastermind Europe approach identifies these three categories of criteria:

- Subject-related knowledge and skills
- General Academic Competencies
- Personal Competencies and traits.

In addition, we identify “Language competencies” as a slightly different category.

NB These three categories are almost identical to the three categories of Adult Skills which were concurrently identified in the PIAAC survey by OECD:

- Professional & technical skills
- Generic cognitive skills
- Socio-emotional skills.

The Mastermind Matrix

Based on the analysis of the key questions and core categories of criteria that are relevant for Master's admission, we have developed the Mastermind Matrix.

How do you test/ demonstrate	1: if students are good enough	2: in the things they need to be good at	3: and by what testing mechanism	4: and with what passing score
Substance- Related Knowledge & Skills (Professional & Technical Skills)				
General Academic Competencies (Generic cognitive skills)				
Personal Competencies & Traits (Socio- emotional skills)				
Language competence				
	What you are looking for		What you are looking at	

The Matrix was the first tool that was presented to the Focus Group participants for testing. The participants were invited to fill in the matrix with the components of the admission processes of their respective master's programmes. Depending on the context of their master's programme, they were invited to split one category – e.g. General Academic Competencies – into sub-rows because they use more than one relevant criterion in this domain. They could use one assessment mechanisms for more than one criterion – even in different categories – there is nothing wrong with that.

Or they could leave an entire category empty as not relevant for their programme. Many master's programmes - for good reasons - want to steer clear from the use of criteria in the domain of Personal Competencies & Traits.

In filling in the matrix, participants could find that they had criteria to fill in, but without connected assessment mechanism – or without measurable level. Or they could find that the assessment mechanisms used, were seriously lacking in validity or reliability. Or that they used assessment mechanisms, but hadn't really identified the criteria involved: they were looking at documents, without being able to tell what they were looking for in those documents.

The idea of the of the Matrix was that it helps to identify elements in the admission process that are in most urgent need for improvement.

Learning incomes

Most academics and administrators in HE institutions are familiar with the concept of Learning Outcomes: statements of what a student is expected to know, understand and be able to do or demonstrate after completion of a process of learning. One can argue that the structural reform of Bologna has allowed HE programmes to give the more attention to Learning Outcomes, as today's society and economy demands.

Part of the potential of the Mastermind Matrix is that it enables master's programmes to identify and articulate the counterpart of the Learning Outcomes. It allows to formulate the statements of what a student is expected to know, understand and be able to do/demonstrate **before/at the start** of the process of learning. Jestingly, these statements may be called "learning Incomes".

In the introduction of this paper, it was argued that 'recognition' as basis for admission is problematic because of the increasing diversity. It can be added that the assessment of an applicants' documents without prior definition of the "Learning Incomes" is equally problematic: it leads to a comparison (often the applicants documents) without a benchmark (of explicit "Learning Incomes").

Learning outcomes & 'incomes'

- Learning outcomes are statements of what a student is expected to know, understand and be able to demonstrate **after completion** of a process of learning.
- Learning 'incomes' are statements of what a student is expected to know, understand and be able to demonstrate **before/at the start** of a process of learning.

The Mastermind Europe Matrix - of key questions and core categories - of criteria offers Master's programmes to articulate their Learning Incomes for other purposes than improved admission. Well-articulated "Learning Incomes" also help to improve the link between "Learning Outcomes" and the curriculum. (see also the paragraph below on external coherence of the admission framework).

The Guiding Tools

In filling in the Matrix, participants are advised to use the Guiding Tools of the three core categories of admission criteria and the Guiding Tool on Language requirements to find more information:

- on Subject-related knowledge & skills,
- on General academic competencies,
- on Personal competencies & traits, and
- on Language requirements.

The Guiding Tools 2 [Subject-related knowledge & skills](#), 3 [General academic competencies](#), 4 [Personal competencies & traits](#), and 5 [Language requirements](#), offer participants the background information on the three categories.

The Subject-related tool is slightly different from the others: it analyses how a master's programme can reduce the required subject-related knowledge & skills from the point of departure of a full 3 or 4 years Bachelor's programme in that subject to what is really necessary to enter the Master's with hope of success.

Each of the other Guiding Tools (3,4,5) gives the participants a 'common language'; that helps to articulate the specific requirements in that area more precisely. It also helps to bring the programme more in line with both international best practice and scholarly literature.

General Academic Competence analytical framework			
	Textual data & information	Numerical data & information	Abstract & logical information
Create			
Evaluate			
Analyse			
Apply			
Understand			
Remember			

From: [Revised Bloom Taxonomy](#), which has another second axis:
Factual → Conceptual → Procedural → Metacognitive

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For academic competencies, Mastermind Europe builds on existing tests and on the 'revised Bloom taxonomy'.

For personal elements, it relies more heavily on organisational psychology. The overview of personal competencies & traits itself is still rather broad and less useful for singular Master's programmes. The more detailed version of the Mastermind Europe Matrix in the Guiding Tool for Personal Competencies & Traits gives more detailed subcategories for each of the Big Six personal traits and the

General Academic Competence Existing tests			
	Textual data & information	Numerical data & information	Abstract & logical information
GRE general	✓	✓	-
GMAT	✓	✓	-
IE	✓	✓	✓
Esonline	✓	✓	"problem solving"
MAT	✓	-	-

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Personal Competencies & Traits

Personal traits: Big Six	Personal competencies: Great Eight
Emotionality	Leading & deciding
Extraversion	Supporting & cooperating
Agreeableness (vs Anger)	Interacting & presenting
Conscientiousness	Analysing & interpreting
Openness	Creating & conceptualising
Honesty	Organising & executing
	Adapting & coping
	Entreprising & preforming

and used also in Europe

The Guiding tool on Personal competencies & traits also offers an extensive analysis of the pitfalls surrounding these personal elements in admission.

The Personal competencies and traits as elements in master's admission

Great Eight personal competencies. These may be more recognisable for academic master's coordinators and more useful for their own programme.

Each of these Guiding tools also gives insight into existing tests and other, more qualitative, assessment mechanisms in use. In General academic competencies, the US-based GMAT test (for MBA-programmes) and GRE test (more generally used) are widely known

Personal competencies & traits A wicked problem

Unavoidable	Can of worms
Already in use: reference letters etc.	Debated validity & reliability
Demanded: 21st century skills	Legal issues; appeals
Evident for e.g. doctors, counselors	Bias against specific groups
Often the key "fail" factor	Conflict with core vision & mission

may well be described as a wicked problem: it seems unavoidable to let these aspects play some role in the admission process. But on the other hand, they are surrounded by methodological as well as ethical problems.

The Two Column Table

After these paragraphs on “Learning Incomes” and the “Guiding Tools” that

give more information on the various categories of the Matrix, we return to where we left:

The idea of the Matrix that it helps to identify elements in the admission process that are in most urgent need for improvement.

The next Mastermind Europe Tool tested in the Focus Group meeting in Vilnius – and one month earlier in Barcelona – was what we call the Two Column Table, for want of a better name. It was designed to analyse in detail – for those elements in most urgent need of improvement – what is precisely the nature of the problems and what are possible remedies.

We invited the participants to fill in one or more of these forms for their own Master's programme and

discussed the results with them.

We gave them examples of forms that we had filled in ourselves for elements like the Grade Point Average, the Subject Knowledge requirement, and Motivation Statement.

The substantive requirement stated:	What can you say about it?
A Bachelor's degree in a subject closely related to the MSc with good grades in key courses	It is a statement about subject matter, but of a fairly general nature.
What criterion is involved	It is unclear what are “key courses” and how broad or narrow “closely related” is interpreted. There is no reference to a specific body of knowledge, e.g. in terms of chapters of handbooks.
What norm is applied	It is unclear what “good grades” means.
How satisfactory is this practice	Possible answers: - We are satisfied, no change. - We want to change in some ways; see next rows.
Possible conclusions in terms of articulation of criteria/norms	- We need to define or give examples of key courses. We need to explain “good grades”. We need to identify core body of knowledge, and which Handbook chapters (or MOOCs) cover it. or - We feel unable to articulate precisely what we are looking for; it has to stay (inter)subjective.
Possible conclusions in terms of choice of testing mechanisms	- We add a MOOC or a pre-entry Summer Course to “having had the course in the Bachelor's”.
Possible conclusions in terms of transparency	We'll put the info on Handbook chapters (or MOOCs) on our website.
Possible conclusions in terms of monitoring	We decide to keep track which is the better predictor: bachelor's courses, MOOC, or pre-entry Summer Course.

In practice	
Constructed example for one general academic competency	
The GPA	What can you say about it?
We look for a GPA > 3.5	This is a mixture of a testing mechanism (GPA) and a norm > 3.5
What criterion is involved	General Academic Competence.
What norm is applied	No differentiation within the GAC Framework (see GT GAC).
How satisfactory is this practice	A norm within the GPA: > 3.5, but not related to GAC Framework.
Possible conclusions in terms of articulation of criteria/norms	Possible answers: We are satisfied, no change. We want to change in some ways; see next rows. We need to be more precise about what we want in terms of the GAC framework.
Possible conclusions in terms of choice of testing mechanisms	We need to have better/more triangulation: more different mechanisms to test GAC.
Possible conclusions in terms of transparency	We need to explain better to students what we are looking for.
Possible conclusions in terms of monitoring	We need to include GPA in our student success monitoring; see if the GPA predicts success better than other indicators for GAC.

The Motivation statement	What can you say about it?
One professor reads all motivation statements	This is a subjective and qualitative testing mechanism.
What criterion is involved	That may be unclear: to the university, to the students, even to the professor.
What norm is applied	That may be unclear: to the university, to the students, even to the professor.
How satisfactory is this practice	Possible answers: - We are satisfied, no change. - We want to change in some ways; see next rows.
Possible conclusions in terms of articulation of criteria/norms	- We need to explain what PCTs we look for in the Motivation statement, using the PCT framework (see GT PCT). - We feel unable to articulate precisely what we are looking for.
Possible conclusions in terms of choice of testing mechanisms	- We improve the use of Motivation Statements, e.g. by more precise articulation (in the PCT framework) and/or assessment by more than one professor and/or assessment on the basis of an assessment protocol. - We stop it because we feel unable to articulate precisely what we are looking for. - We stop it because, although we do know what PCT we are looking for, we feel that Motivation Statements aren't a sound and reliable way to test if the students have them.
Possible conclusions in terms of transparency	We need to explain better to students what we are looking for.
Possible conclusions in terms of monitoring	We need to include Motivation Statements in our student success monitoring; see if it predicts success better than other indicators for PCT.

Missing Tool for coherent admission framework

Once the Matrix has allowed to identify the elements that are – in the eyes of those responsible for that Master's programme – in most urgent need for change, and once the Two Column Tables have helped to analyse the precise nature of the problem and possible remedies, it is important to bring these various elements back together again into a holistic and comprehensive admission process.

Admission is a holistic process

- Both measurable and (inter)subjective
- With possible trade-offs between elements
- In interaction between academics and administrative staff
- With transparency to a degree

The Mastermind Europe project still needs to develop a visual tool for this. One that allows to give differential importance to various elements, to articulate ways in which 'strong' elements can counterbalance 'weaker' ones. The tool also need to help find the optimum between measurable and (inter)subjective assessment mechanisms as well as the way that academics and administrative staff cooperate.

In the Focus Group meetings in Vilnius and Barcelona, we devoted specific attention to the impact of admission on applicants: how the admission process itself can make applicants more or less eager to enrol, if they are admitted.

The process may contain elements that actually attract the applicants to the university, to the programme, to its lead academics, or to other applicant or enrolled students. On the flip side, the admission process may actually turn students off: make them less eager to enrol than when they started the process.

Procedural elements

- What elements in the current process might be decreasing students' motivation to apply?
- What elements in the current process might be increasing students' motivation to apply?
 - Individually – in group dynamics?

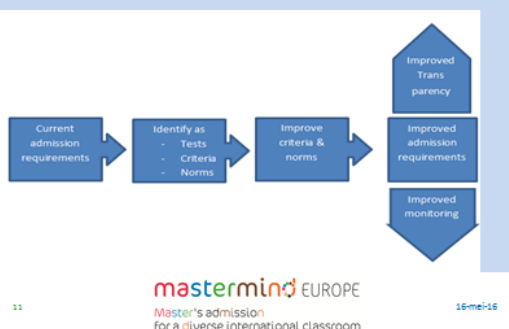
Purpose: find possible ways to improve the current process

Chain of steps to change

The Mastermind Europe project visualises the whole process of changing the admission process to enhance increasing diversity in the international classroom in a sequence of steps. The key message here is that the process doesn't end with the improved admission process itself; the improvement in transparency, in the information for prospective students on the website and elsewhere is an equally important part.

If admission is less about deciding which student will be grant the right (or privilege) of

Chain of Steps to Change



admission and is more about creating the best possible match between the nature and demands of the programme and the potential and aspirations of the students, it is crucial to give the best possible information to applicants a) about what they can expect and b) what will be expected of them.

External coherence

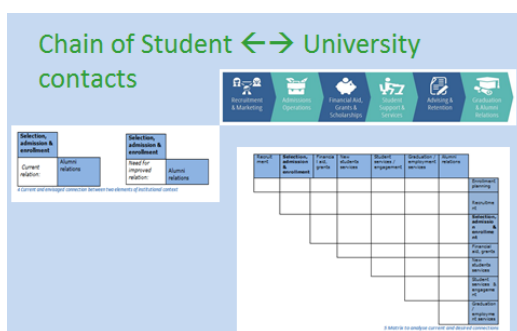
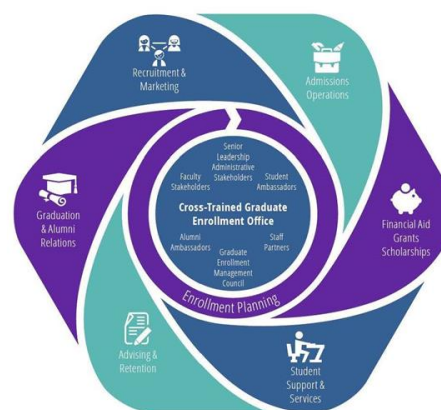
Finally, the Mastermind Europe project – and the Vilnius and Barcelona Focus Group meetings – also aim to provide tools for the external coherence: the coherence of the admission process with key dimensions of its immediate context. We have isolated two of these dimensions in particular.

The first external coherence is within the interaction between admission office and the other administrative units of the university and the students. Here, the Mastermind Europe project builds strongly – and gratefully - on the work done by NAGAP, the Association for Graduate Enrolment Management in the US. Their



chainlike visualisation shows the sequence of contacts that a student may experience, but also the organisation in separate and often disconnected silos within the university.

To break through this fragmented reality, NAGAP has developed the model of the integrated Graduate Enrolment Management circle. It visualises the ideal interaction between the various administrative units with which the student is in touch during his/her stay (and afterwards).



At the Vilnius Focus Group meeting, we discussed a first attempt at a visual tool for European Master's programmes and universities to analyse the actual and desired interaction between the distinct administrative units at their own institution. Although this is clearly still very much 'work in progress' it did already trigger interesting discussion - as well as suggestions for improvement.

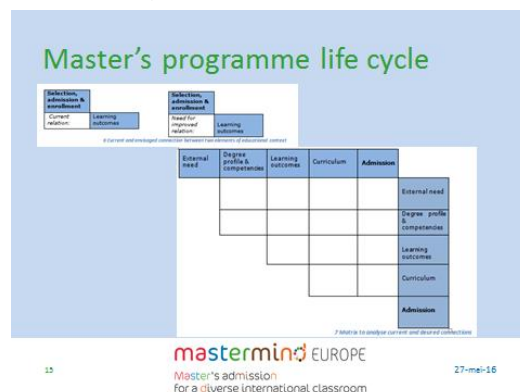
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The second form of external coherence concerns the way in which admission to a specific master's is embedded within the whole lifecycle of that master's programme. Within each Master's programme there is – or should be – a logical connection between the main subject and general purpose of the programme and - on the one hand - the need in society for its graduates: as young researchers or professionals or teachers or generally highly education participants the the economy and society.

On the other hand, there is – or should be – a logical connection between main subject/purpose and the curriculum and the courses of which it consists. The “Degree Profile” and the “Learning Outcomes” also have their place in the whole chain of connected elements of the Master's programme. The Admission process and the admission requirements should be logically and consistently connected to these other elements.

Here too, the tool discussed in Vilnius is no more than a first attempt, but already triggered useful comments.



Concluding remarks

In a way, the present document gives a snapshot view on where the Mastermind Europe project stands in the Spring / Summer of 2016 – which is slightly more than one year before the end of the Erasmus+ support for the project.

The project will no doubt continue after the closing date in September 2017. Between now and then, a series of pilot projects will be conducted with single Master's programmes. To test the principles, Guiding Tools and Forms/Key Tools with Focus Groups from a variety of universities and disciplines is one thing. To test them on one specific Master's programme – jointly with the senior academics and administrator for that programme – is another step.

We welcome all comments of this snapshot presentation of our current stage of development – with suggestions how to improve and how to progress.

*[Kees Kouwenaar](#), August 2016,
revised April 2018*