

# The Mastermind Europe Approach

## 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

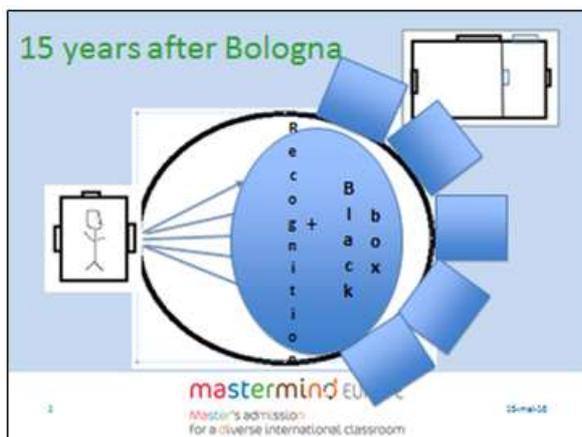


subject and at the same university to complete the full programme of a Bachelor's + Master's cycle. Each Bachelor's programme had a logical follow-up master's programme attached to it and vice versa: each master's 'belonged' to a Bachelor's.

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).

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?"

*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](#).*

### 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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These questions were much less 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.

*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%.*

### MME Survey: Open vs. selective admissions

Table 4.1.1: Open vs. selective admissions (Master's coordinators survey)

Answers	Balto	Central East	Central West	Nordic	South East	South West	Total
<b>Open</b>							
Number	12	13	25	13	2	14	59
Share of all responses	20.3%	43.3%	31.1%	26.3%	22.2%	20.0%	30.3%
<b>Selective</b>							
Number	11	17	50	35	7	36	156
Share of all responses	47.8%	36.7%	68.9%	73.3%	77.8%	80.0%	69.7%
<b>Total</b>							
Number	23	30	75	48	9	50	217
Share	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Survey of Master's Coordinators

Question 2.1: Is admission to your Master's programme open (i.e. you accept all applicants that are formally eligible without any selection)?



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### **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:

- 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?”

**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

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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.*



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### **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.



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**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				
	<b>What you are looking for</b>		<b>What you are looking at</b>	

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").

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*).

### 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 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';

### 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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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.

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

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



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### 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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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 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 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.

### 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

## 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:

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.

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

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**In practice**

Admission element	What can you say about it?
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### **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.

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.

In the Focus Group meetings in Vilnius and

#### 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?

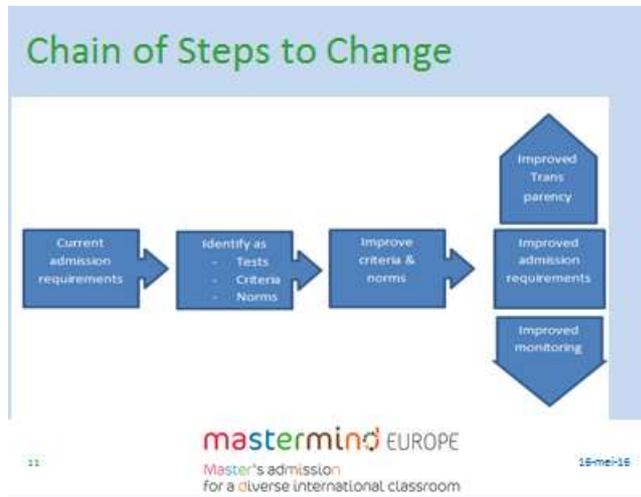
Purpose: find possible ways to improve the current process



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### 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 granted the right (or privilege) of 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

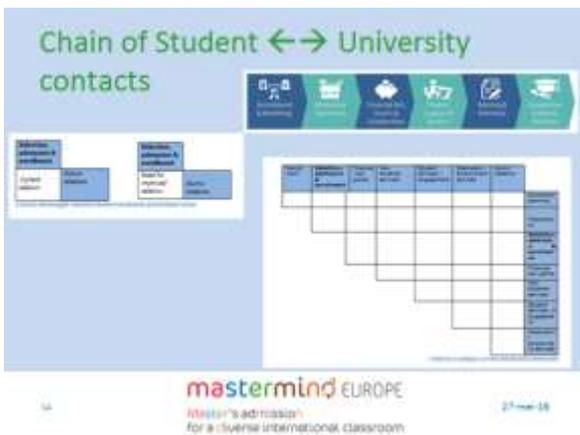


Graduate Enrolment Management in the US. Their chainlike visualisation shows the sequence of contacts that a student may experience, but also the organisation in separate and often disconnected silos within the university.

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.



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*



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