Abstract

This paper outlines a conceptual framework of the entrepreneurial mindset (EMS) as an individual-level phenomenon, within a multilevel context, capturing the opportunity recognition process. The model depicts the specific elements of EMS that are triggered by organisational and employee-level elements. Our knowledge of EMS continues to expand, yet, our knowledge remains fragmented and to be merited, because of its current incomprehensive conceptualization and due to the lack of understanding of its role in the entrepreneurial opportunity recognition process. This paper conceptualises EMS within a comprehensive conceptual framework, depicting the specific elements and delineating the antecedents. Our conceptualisation is built on reviewing and synthesizing the entrepreneurship literature, focusing on EMS. We specifically focus on the distinctness of EMS and its elements. By comparing similar concepts, we create a nomological network to verify its distinctness. By systematically synthesizing literature, essential elements regarding the ability and willingness as part of an opportunity recognition process emerge, embodying EMS. Furthermore, we develop an integrative framework, proposing a future research agenda. The advantages of a conceptual EMS framework are discussed, as well as the theoretical and managerial implications.
Conceptualising the Entrepreneurial Mindset

ABSTRACT This paper outlines a conceptual framework of the entrepreneurial mindset (EMS) as an individual-level phenomenon, within a multilevel context, capturing the opportunity recognition process. The model depicts the specific elements of EMS that are triggered by organisational and employee-level elements. Our knowledge of EMS continues to expand, yet, our knowledge remains fragmented and to be merited, because of its current incomprehensive conceptualization and due to the lack of understanding of its role in the entrepreneurial opportunity recognition process. This paper conceptualises EMS within a comprehensive conceptual framework, depicting the specific elements and delineating the antecedents. Our conceptualisation is built on reviewing and synthesizing the entrepreneurship literature, focusing on EMS. We specifically focus on the distinctness of EMS and its elements. By comparing similar concepts, we create a nomological network to verify its distinctness. By systematically synthesizing literature, essential elements regarding the ability and willingness as part of an opportunity recognition process emerge, embodying EMS. Furthermore, we develop an integrative framework, proposing a future research agenda. The advantages of a conceptual EMS framework are discussed, as well as the theoretical and managerial implications.

Keywords Entrepreneurial mindset | Entrepreneurship | Willingness | Ability | Self-Regulated Learning

Introduction

Recently, the entrepreneurship community embraced a new term regarding the raised interest in adapting to the economic and political changes in a fast-paced work environment: the entrepreneurial mindset (EMS). In contemporary entrepreneurship literature, EMS is defined as “the ability and willingness to rapidly sense, act and mobilize, in response to a judgmental decision under uncertainty about a possible opportunity for gain” (Shepherd, Patzelt, & Haynie, 2010, p. 62). In other words, EMS concerns an individual ability regarding
what one is able to do, a cognitive element regarding what one is willing to do, and a response to an opportunity: whether one acts or not (McMullen & Kier, 2016).

The entrepreneurship literature proposes that within an entrepreneurial context (McMullen & Kier, 2016), educational context (Täks, Tynjälä, Töding, Kukemelk, & Venesaar, 2014) or corporate context (Shepherd et al., 2010), EMS aids individuals in using strategies and taking actions in uncertain situations (McGrath & MacMillan, 2000), to optimally invest resources. The conjoint consideration of EMS as the ability with multiple facets cognition, willingness, and responsiveness, render the concept as a unique approach to entrepreneurial action in multiple contexts, something that other concepts have not been able to do, thus illustrating its importance and usefulness as compared to other concepts such as entrepreneurial orientation and intentions. Specifically, EMS is a more integrating concept, predicting entrepreneurial initiatives, and thus a concept that deserves more attention.

Whilst EMS appears promising (Krueger, 2017; Robinson, Neergaard, Tanggaard, & Krueger, 2016; Culkin & Mallick, 2011) as both a concept and a solution to adapt to external changes, the academic community requires clarification regarding the distinctness and value of EMS. Next to this, the academic community debates EMS’ clarity concerning its conceptualisation and elements (Naumann, 2017): what are we talking about when we discuss the ability and the willingness (Shepherd et al., 2010)? Thus far, we seem to know that EMS is “the essence of being entrepreneurial”, and it plays a possible pivotal role in the development of entrepreneurs and their expertise (Blenker, Korsgaard, Neergaard, & Thrane, 2011; Krueger, 2007, p. 123).

Nevertheless, EMS research still appears in its infancy, leaving room for in-depth investigations (Naumann, 2017; Robinson et al., 2016). The only literature review conducted thus far (Naumann, 2017) argues the literature to be too fragmented, making synthesis impossible without relying on other work besides EMS. There is, therefore, an urgent need for setting the canvas for future development and advancement of this promising concept. Naumann (2017) discusses how existing literature mainly discusses attributes of EMS, rather than the concept itself in a comprehensive manner.

With this paper, therefore, we investigate the comprehensive conceptualisation of EMS and we address its distinctness and its essential elements. Mainly, we address conceptual development, to clarify why entrepreneurship research utilises EMS more frequently since its existence, whether this is valid and how EMS can be utilised and investigated in future research. We believe this is important, not only for our understanding of the concept itself, but also for understanding the focal point of EMS within the entrepreneurship domain, similar as to how
Ireland, Covin and Kuratko (2009) approached conceptualising corporate entrepreneurship strategy. We utilise a systematic literature review to map, synthesize and evaluate the literature (Booth, Sutton, & Papaioannou, 2016) and a conceptual development approach to develop a research agenda for future research (Ireland et al., 2009).

This paper contributes to entrepreneurship research by proposing a conceptual framework to direct future research and establish a comprehensive understanding of EMS, by investigating inconsistencies. We believe that lack of agreement on the conceptualisation of EMS might be source for confusion and a distinctive and clear conceptualisation, therefore, could help in overcoming inconsistencies, thus moving research forward. This paper provides research with an overview of EMS definitions and distinguishes its precise elements. We deepen the discussion on the opportunity recognition process topic, building on the work of Shepherd et al. (2010) and the mindset theory of action phases of Gollwitzer (2012).

Prior to discussing the methodology and the literature, we discuss the importance of EMS, and we provide an elaborate background, discussing the need for further research (Shams & Kaufmann, 2016). We conclude with a discussion and propose a conceptual framework, guiding future research.

1.1 Embracing the Entrepreneurial Mindset

The word mindset is derived from the Greek ‘Metanoia’, referring to the process of changing the mind, understanding or perception, and ‘Kairos’, referring to the right time for an opportunity (Myers, 2011). In Greek rhetoric, Metanoia and Kairos go hand in hand and cannot exist without one another. Similarly, the mindset liberates people from a narrow point of view: McMullen and Kier (2016, p. 663) describe EMS as the ability to “liberate entrepreneurs from erroneous preconceptions, such as that they can identify and exploit emerging profit opportunities”.

Whereas one may consider the mindset as fixed, Dweck (2017) argues this is not necessarily so: it can be dynamic, when an individual is open to adaptation and growth. Gollwitzer (2012) further describes that there are certain stages of mindset development, explaining why some believe a mindset to be fixed: for a mindset to fully develop, certain milestones need to be achieved without which a progress to the next level is impossible. Gollwitzer (2012) captures this within the four phases of the mindset theory of action phases: the pre-decision phase, where one needs to decide on a goal or opportunity, the pre-action phase, where one needs to decide on an act, the action phase, where one acts, and the post-action phase, where one evaluates the previous phases. The phases run progressively in terms of growth: one
has to pass one phase to move forward to the next. Building on Dweck (2017) and Gollwitzer (2012), we consider the mindset adaptable and changeable, rather than an attribute ‘set in stone’.

EMS is a specific case of a mindset for an entrepreneurial context. It captures how entrepreneurs think and adapt (Costa, Caetano, Frederiks, & Santos, 2017; Haynie, Shepherd, Mosakowski, & Earley, 2010), explaining that what makes entrepreneurs entrepreneurial and what makes one person more entrepreneurial than the other (Krueger, 2017; McMullen & Kier, 2016). Indeed, as indicated by Hisrich and Kearney (2011, p. 7), “entrepreneurship is not limited to a select group of people; any person with the right mindset, drive, and motivation can develop an entrepreneurial perspective”. EMS is a process-oriented concept with a cognitive (thinking) and active behavioural (adapt) aspect (Naumann, 2017). Though not always similarly interpreted, a growing number of entrepreneurship scholars argue that EMS is a prerequisite to act and adapt in ambiguous and uncertain (entrepreneurial) situations (Blenker et al., 2011).

Some still question the need for EMS, compared to other often utilised concepts. There have been attempts explaining why some people behave entrepreneurially whereas others do not, but results remain to be merited (Shepherd & Patzelt, 2018; De Jong, Parker, Wennekers, & Wu, 2015). Characteristics such as alertness (Gaglio & Katz, 2001), emotions (Fang He, Sirén, Singh, Solomon, & von Krogh, 2017), enterprising behaviour (Blenker et al., 2011), prior knowledge (Shepherd & Patzelt, 2018) and traits as entrepreneurial self-efficacy, locus of control (Brandstätter, 2011), pro-activeness, and risk-taking propensity (De Jong et al., 2015; Rauch & Frese, 2007) only partially explain entrepreneurial behaviour (Gawke, Gorgievski, & Bakker, 2017; Hayton & Kelley, 2006).

To give an example, Zhao and Seibert (2006) compared the big five personality traits of entrepreneurs and managers, and though they have found significant differences between entrepreneurs and managers regarding their personality traits, Brandstätter (2011) argues that the entrepreneurial process is more complex than the direct influence of personality traits on entrepreneurial behaviour. Indeed, Shepherd and Patzelt (2018) agree that the entrepreneurial process is more complex than direct relationships between a characteristic and entrepreneurial behaviour. This thus illustrates how fragmented research is and how the results only partially explain entrepreneurial behaviour.

One explanation for the limited predicted power of the aforementioned efforts, could be that academics investigated fragments of what combined is EMS (Robinson et al., 2016). Next to this, we propose that it is important to acknowledge and synthesize what drives EMS, whilst conceptualising it. This acknowledgement and clarification on the distinction is necessary,
because the lack of it could be one reason for confusion in the conceptualisation and understanding of EMS. Knowing an antecedent from an element can decrease the level of ambiguity surrounding the concept: rather than an attribute being part of EMS, it could be the trigger starting an entrepreneurial, opportunity recognition process.

2. Methodology

This paper proposes a comprehensive conceptual framework, building on a systematic review approach (Booth et al., 2016) synthesizing literature and offering guidance for future research (LePine & Wilcox-King, 2010). Regarding the literature review, we selected the reviewed articles based on inclusion criteria, as we believe a clear methodology is important to reduce subjective bias (Booth et al., 2016). We conducted the selection and review of the literature in four stages: criteria formulation, database search, article screening and elimination, and in-depth reading and analysis.

In the first stage, we identified inclusion criteria: the articles must concern 1) entrepreneurs, 2) EMS and its characteristics and 3) defining and conceptualising EMS. The second stage concerned the database search utilising the keywords “entrepreneurial mindset”, and “mindset and entrepreneurship”. We utilised Web of Science to select articles based on topic, citation, tagging information and title. Web of Science is a comprehensive database of peer-reviewed journals within the business field, such as entrepreneurship (Webster & Watson, 2002). We used EBSCOhost to verify our results, not yielding new ones. This verified that we have a comprehensive overview of all relevant articles.

The keyword search provided 98 articles. We removed two articles covering another field than business or entrepreneurship. Since the entrepreneurship community embraced EMS as a novelty within the education, entrepreneurship and corporate context, we have chosen to focus on these fields of interest. The second keyword search did not provide new articles.

In the third stage, we assessed the articles on title, abstract, and a keyword search for EMS within the articles. If an article discussed a different type of mindset than an entrepreneurial one, we eliminated the article from the assessment. We removed 43 articles.

The final stage concerned assessing the articles in depth. A summary was written per article containing the content, providing insight in how the articles met the inclusion criteria. In this stage, we removed 33 articles; the literature review finally contained 19 articles. Figure 1 provides a visual overview of our research method.

Next to the literature review, we followed Podsakoff et al. (2016) to create a nomological network: we surveyed the literature and induced and organised key attributes. We build on
previous work (i.e., Shepherd et al., 2010; Haynie et al., 2010; Ireland, Hitt, & Sirmon, 2003) to establish a definition of EMS. Furthermore, in order to clarify whether EMS is a distinct entrepreneurship concept and as part of the nomological network, we compared EMS to similar and often discussed concepts, as discussed by the reviewed literature, in both a theoretical and methodological manner (Cronbach & Meehl, 1955). We utilised Atlas.ti 7 as a word crunch tool to investigate the key attributes of similar concepts and EMS.

**METHODS**

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**Inclusion criteria**
The articles must concern:  
1) Entrepreneurs (individual-level)  
2) The mindset and its characteristics  
3) Definition/conceptualisation of EMS  

<table>
<thead>
<tr>
<th>Research area:</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timespan published:</td>
<td>2001-2017</td>
</tr>
</tbody>
</table>

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**Figure 1.** Applied Research Method for the Literature Review Analysis

3. Results

We present the findings and the relationships from a concept-centric perspective and conclude with a comprehensive conceptual framework. Furthermore, this paper has an aggregative nature (Booth et al., 2016): we bring information together and integrate the information to provide extended knowledge.

3.1 EMS as a Distinct Entrepreneurship Concept

EMS can indeed be seen as a distinct concept (McGrath & MacMillan, 2000), answering the question why people act entrepreneurially. The EMS literature matures: entrepreneurship academics utilise EMS to describe and distinguish the entrepreneurial individual (Shepherd et al., 2010; Smith, Mitchell, & Mitchell, 2009), building on the early ideas of Schumpeter (1934): he described how entrepreneurship, and specifically being an entrepreneur or behaving like one, is not job dependent. As explained by Stevenson and Jarillo (1990), being entrepreneurial does
not necessarily mean that one has to be a businessperson: even so-called employees who are 
dependent on their job and organisation can be entrepreneurial. Behaving entrepreneurially is, 
according to Schumpeter, carrying out new combinations of either resources or behaviours, a 
view supported by more recent literature (Wright, 2001).

Furthermore, EMS seems to be a necessity to establish strategic entrepreneurship: a 
distinct concept, leading to both tangible and intangible results (Ireland et al., 2003). No 
literature questions the existence of EMS, however, the interpretation and implementation of 
the concept still is questioned.

3.1.1 Definitions of EMS in the Literature

There are prominent definitions of EMS which are frequently utilised. In more general 
terms, EMS is “the ability and willingness of individuals to rapidly sense, act and mobilize in 
response to a judgmental decision under uncertainty about a possible opportunity for gain” 
(Shepherd et al., 2010, p. 62, adapted from McMullen & Shepherd, 2006). Shepherd et al. 
(2010) stress that EMS is the combination of the ability and the willingness of an individual, 
referring to what one can do and what one wants to do, whenever an opportunity arises. As 
indicated by McGrath and MacMillan (2000), EMS is the superordinate concept of the 
combined dimensions cognition (since individuals respond to a judgmental, or cognitive, 
decision) and a sense or attitude of an individual towards an opportunity, whether there is a 
possibility for gain (Shepherd et al., 2010; Ireland et al., 2003).

More specifically, EMS is “a growth oriented perspective through which individuals 
promote flexibility, creativity, continuous innovation and renewal. [...] even under the cloak of 
uncertainty, the entrepreneurially minded can identify and exploit new opportunities because 
they have cognitive abilities that allow them to impart meaning to ambiguous and fragmented 
situations” (Ireland et al., 2003, p. 968). Ireland et al. (2003) herewith indicate the effects of 
EMS: how EMS can lead to promoted flexibility, creativity and innovation.

Others argue that EMS concerns a form of an expert mindset, rather than a novice 
mindset (Robinson et al., 2016), specifically regarding changes in the deeper cognitive 
structures, enabling more expert-based entrepreneurial thinking. Expert-based entrepreneurial 
thinking refers to expanding what one knows and how one knows it: the knowledge structures. 
Robinson et al. (2016) build on the propositions of Krueger (2007) and McGrath and MacMillan 
(2000), increasing the ability to rapidly sense and adapt to an opportunity, by responding to 
better-developed knowledge structures. The knowledge structures or the “know-how” (rather 
than the “know-what”) aid people in making judgements.
As we review prior definitions, we share the idea that EMS concerns the ability of an individual, rather than only a cognitive mindset or behaviour. The ability refers to the possession of means to do something, something that can improve in proficiency. How people both think and adapt is captured in the ability of EMS (Shepherd et al., 2010). As McGrath and MacMillan (2000) posit, EMS concerns a trainable way of thinking about and acting upon opportunities, grasping the benefits of uncertainty. EMS is “the formation of individual beliefs with regard to the feasibility and desirability of entrepreneurial action” (Shepherd et al., 2010, p. 65). The ability thus contains the trainable aspects of EMS, providing evidence for it being more than a static state (Robinson et al., 2016; Täks et al., 2014; Ireland et al., 2003).

A source of confusion might however be the tendency of scholars to equate the presence of EMS with uncertain environmental conditions (McGrath & MacMillan, 2000). EMS might be useful in an environment that lacks the uncertainty; confounding the external environment with EMS might thus be cause for confusion. Nevertheless, the perception of such uncertainty is of value to EMS (Haynie et al., 2010; Ireland et al., 2003): it causes individuals to spot opportunities, changes and chances. Interpreting what actually is an uncertain situation is rather impossible because it is so relative to an individual perspective (Ireland et al., 2003).

We propose to view EMS as the ability of an individual and the willingness of an individual to rapidly sense, act and mobilize in response to a judgmental decision under perceived uncertainty. Our definition strongly parallels that of McGrath and MacMillan (2000) and Ireland et al. (2003). The distinction we propose concerns the perceived uncertainty as indicated by Haynie et al. (2010) and Ireland et al. (2003), with the emphasis on the individual level (Robinson et al., 2016). The willingness refers to both the definition of McGrath and MacMillan (2000) as well as the expert influences as discussed by Robinson et al. (2016).

3.1.2 EMS and Related Concepts

Our review shows that prior research has put significant effort in establishing EMS as a distinct concept, by relating it to a number of important, yet different concepts within the field. Here, we explain the differences between similar concepts and EMS.

Following Cronbach and Meehl (1955) we created a nomological network by identifying similar theoretical concepts and comparing them on a conceptual and empirical (measurement instrument) level (see also Podsakoff et al., 2016) to investigate the differences between similar concepts. In the literature review we identified five comparable concepts: entrepreneurialness (Shepherd et al., 2010), entrepreneurial intention (Robinson et al., 2016; Shepherd et al., 2010), entrepreneurial cognition (McMullen & Kier, 2016; Haynie et al., 2010), entrepreneurial
attitude (Shepherd et al., 2010; Mitchell, 2007), and entrepreneurial imagination (McMullen & Kier, 2017). We investigated which other concepts the reviewed literature mentions which appear to be at a similar level of investigation, broadly accepted, concerning entrepreneurs and mentioned by multiple authors in different papers.

The first concept is entrepreneurialness, defined as “how entrepreneurial either an individual’s mindset or an organisational culture is – the higher the entrepreneurialness, the more entrepreneurial the mindset and culture” (Shepherd et al., 2010, p. 60). Entrepreneurialness, therefore, refers to the level of EMS. However, entrepreneurialness is mainly used in a descriptive manner, rather than in terms of operationalised measurement. Shepherd et al. (2010) for instance discuss the entrepreneurialness of the mindset or an organisation, without explaining or explicating key attributes. It is, therefore, impossible to compare the concepts on an operational level, as Cronbach and Meehl (1955) suggest. We argue that entrepreneurialness refers to something else than EMS, as it can be used to describe the variation of EMS, or the variation of an entrepreneurial culture (Shepherd et al., 2010).

An entrepreneurial intention either builds on the Theory of Planned Behaviour (TPB) (Van Gelderen et al., 2008; Ajzen, 1985) or the SEE model by Shapero (Krueger, Reilly, & Carsrud, 2000). An entrepreneurial intention, viewed from TPB, consists of attitudes, perceived behavioural control and subjective norms (Van Gelderen et al., 2008), whereas viewed from the SEE model by Shapero (Krueger et al., 2000) intentions are discussed in terms of perceived desirability, propensity to act and perceived feasibility. Van Gelderen et al. (2008) consider the use of TPB as the most appropriate manner to describe intentions, because of the ambiguity revolving around the SEE model. They furthermore consider attitudes similar to perceived desirability, and perceived behavioural control to be similar to perceived feasibility (see also Liñán & Chen, 2009).

Exogenous factors trigger desirability, and building on the work of Van Gelderen et al. (2008), we believe that exogenous factors trigger attitudes. A change in the desirability to act, as Shepherd et al. (2010) frame desirability, inevitably implies a change in entrepreneurialness of both EMS and the organisation. Shepherd et al. (2010) discuss how entrepreneurial intention can lead to a change in EMS, referring to intentions as an antecedent. Entrepreneurial intentions stimulate learners in their awareness process, something research discusses to be the first step in advancing EMS (Robinson et al., 2016; Haynie et al., 2010).

We argue that capturing entrepreneurial intentions is not the same as capturing and measuring EMS, especially since intentions appear to influence EMS as an antecedent (Robinson et al., 2016). On a conceptual level, the concepts seem distinct from one another, but
to completely understand whether the concepts are not in fact relabelled additions to the process of proliferation, we argue it important to understand what measurement scales, capturing the relative concepts, measure in terms of internal validity (Podsakoff et al., 2016; Cronbach & Meehl, 1955). Researchers regularly measure entrepreneurial intentions utilising the Entrepreneurial Intentions Questionnaire (Liñán & Chen, 2009; Liñán, 2008), a 20-item questionnaire measuring personal attitude, subjective norm, perceived behavioural control, and entrepreneurial intention as a composite variable.

An entrepreneurial attitude is often discussed as part of entrepreneurial intentions (Liñán & Chen, 2009), guiding people in their entrepreneurial activities (Shepherd et al., 2010). Shepherd et al. (2010) discuss entrepreneurial attitudes as part of EMS: less risk-averse attitudes equals more of EMS and entrepreneurial attitudes are influenced by the organisational environment (Robinson et al., 2016; Mitchell, 2007). An entrepreneurial attitude is also discussed as a firm-level concept, specifically applicable to family firms (Bettinelli, Sciascia, Randerson, & Fayolle, 2017). Bettinelli et al. (2017) consider entrepreneurial attitudes similar to an entrepreneurial orientation of an organisation.

When utilising Web of Science searching for entrepreneurial attitude, articles overlap with entrepreneurial intentions articles (Karimi, Biemans, Lans, Chizari, & Mulder, 2016). An entrepreneurial attitude is only part of what is necessary as an entrepreneurial individual: combined with a few other variables an entrepreneurial attitude is, according to some, part of a latent variable named imagination (McMullen & Kier, 2016), or an antecedent for entrepreneurial intentions according to others (Liñán & Chen, 2009).

Based on McMullen and Kier (2017; 2016), we investigated entrepreneurial imagination. Entrepreneurial imagination is creativity-based (Chang, Yao, Chen, King, & Liang, 2016), driving creative thinking. Entrepreneurial imagination is the ability to consider new ideas or realities by connecting dots that other people appear not to see. However, it will not directly lead to entrepreneurial initiatives: instead, it influences entrepreneurial intentions. Others argue that imagination might be a necessary antecedent of identifying oneself with entrepreneurship (Down & Warren, 2008). We argue that imagination is part of a cognitive process (Cornelissen, 2013), leading up to entrepreneurial intentions, specifically because imagination is so explicitly discussed to not lead to entrepreneurial initiatives.

Regarding entrepreneurial cognition, McMullen and Kier (2016) propose that it is part of EMS: entrepreneurial cognition could differentiate between consequences of EMS viewed as positive (i.e., goal achievement) and consequences of EMS perceived as negative (i.e., escalation). Entrepreneurial cognition aids in explaining the adapt-ability of EMS. Shepherd et
al. (2010) discuss that EMS concerns thinking about and adapting to entrepreneurship. They moreover discuss to take a cognitive approach to analyse EMS, something that Robinson et al. (2016) describe as a start but not enough: EMS arguably concerns the willingness and ability and judgmental decision, rather than just one aspect (McGrath & MacMillan, 2000), which cognition is.

Entrepreneurial cognition can be measured by utilising the measure of adaptive cognition (Haynie & Shepherd, 2009), an inventory designed to measure cognition and metacognition, with regard to spotting and answering to opportunities. Haynie and Shepherd (2009) discuss entrepreneurial cognition as the memory, ability to learn, problem identification, and ability for decision-making. It aids people in judging whether an opportunity is worth pursuing and judging whether one has the ability and willingness to pursue an opportunity. The actual pursuit and the actual ability are not part of entrepreneurial cognition though (Haynie & Shepherd, 2009), demonstrating its differences with EMS.

From a theoretical perspective, EMS seems distinct from other frequently mentioned concepts (Robinson et al., 2016; Shepherd et al., 2010), as indicated in Table 1. Imagination for instance, a variable that seems quite similar to EMS, concerns an ability, though consequently leading to intentions rather than actual entrepreneurial initiatives. Based on the conceptual comparison, we posit EMS to be a distinct concept.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Level</th>
<th>Categorisation</th>
<th>Consequence</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS</td>
<td>Individual</td>
<td>Ability, willingness</td>
<td>Entrepreneurial behaviour</td>
<td>EMP</td>
</tr>
<tr>
<td>Imagination</td>
<td>Individual</td>
<td>Ability, cognition</td>
<td>Entrepreneurial intentions</td>
<td>Imaginativeness</td>
</tr>
<tr>
<td>Attitude</td>
<td>Firm, Individual</td>
<td>Orientation</td>
<td>Entrepreneurial intentions</td>
<td>EAO</td>
</tr>
<tr>
<td>Cognition</td>
<td>Individual</td>
<td>Mental cognition</td>
<td>Entrepreneurial behaviour</td>
<td>MAC</td>
</tr>
<tr>
<td>Intentions</td>
<td>Individual</td>
<td>Orientation</td>
<td>EMS</td>
<td>EIQ</td>
</tr>
<tr>
<td>Entrepreneurialness</td>
<td>Firm</td>
<td>General</td>
<td>-</td>
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Recently Davis, Hall and Mayer (2016) developed a measurement tool for EMS: the Entrepreneurial Mindset Profile (EMP), based on the Entrepreneurial Attitude Orientation (EAO) scale (Robinson, Stimpson, Huefner, & Hunt, 1991) and the General Entrepreneurial Tendency scale (Caird, 1990). Davis et al. (2016) measure a constellation of factors, combined representing EMS.
Davis et al. (2016) claim to be the first to create a measure, capturing EMS. As they discuss, other measures consequently, inherently or accidentally may capture EMS, but no other measurement tool has been focused on EMS solely. For this reason, despite the fact that it may not yet be the most adequate or best tool available, we utilise the measure of Davis et al. (2016) for our nomological, methodological comparison.

Table 2. Distinctness of Measurement Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Author</th>
<th>Key Attributes</th>
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<tbody>
<tr>
<td>EMP</td>
<td>Davis et al. (2016)</td>
<td>Ability, moods and feelings, active skills, chances and risks, passion, drive to excel, mindset, economic payoff, sensing, willingness</td>
</tr>
<tr>
<td>EIQ</td>
<td>Liñán &amp; Chen (2009)</td>
<td>Appraisal, detail oriented, determination, intention, preparing, estimation</td>
</tr>
<tr>
<td>EAO</td>
<td>Robinson et al. (1991)</td>
<td>Active, affect, associations, attitude, self-reflection, conscientiousness, economic focus, experience, impressions, recognition, attempt, salience, preference</td>
</tr>
<tr>
<td>Imaginativeness</td>
<td>McMullen &amp; Kier (2017)</td>
<td>Artistic, connecting, emotions, expressions, images, originality, mental</td>
</tr>
<tr>
<td>MAC</td>
<td>Haynie &amp; Shepherd (2009)</td>
<td>Assessment, attention, awareness, evaluation, formulation, intuition, novelty, progress, responsiveness</td>
</tr>
</tbody>
</table>

Comparing the EMP to measures stated in Table 2 leads us to believe that these measures investigate distinct concepts. For instance, the EMP and the Imaginativeness (McMullen & Kier, 2017) scales measure an ability and provide a relatively similar definition of the concepts. However, the EMP measures elements of EMS, such as cognition, risk-taking, attitudes and seizing opportunities, which are not captured in the Imaginativeness scale. Compared to all scales, the EMP is the only scale capturing the ability and the willingness of individuals to think about entrepreneurial activities and engage in them.

In line with Davis et al. (2016), we argue that EMS comprises multiple elements capturing the ability and willingness of individuals, leading to entrepreneurial initiatives (Shepherd et al., 2010). This could explain why separate concepts and measures, such as an
attitude scale, do not bring forth concrete results regarding the relationship with entrepreneurial initiatives.

3.2 Antecedents of EMS

The literature has furthermore addressed the antecedents of EMS. For the purpose of providing structure, we distinguish between two levels of antecedents: the organisational level and the individual level.

Individual level antecedents, or characteristics, influence EMS (Shepherd et al., 2010) on a self-regulated basis: self-regulated beliefs and goal setting lead to utilising and improving EMS, or as Kyrgidou and Petridou (2011) describe, initiating EMS. Other individual antecedents relating to EMS are individual needs, intentions, heuristics and orientation (Robinson et al., 2016; Shepherd et al., 2010). Becoming entrepreneurial seems dependent on regulating structures (McMullen & Kier, 2016; Haynie et al., 2010; Shepherd et al., 2010). Utilising EMS requires internalising regulating structures, up until the moment that organisational influences are internalised and no longer actively needed. Goals, intention and action-orientation are captured in self-regulation (McMullen & Kier, 2016), thus meaning that self-regulatory processes activate and stimulate EMS.

Organisational level characteristics influencing EMS in either a positive or a negative manner are commitment and incentives (McMullen & Kier, 2016), as captured in various influences from the management (Hornsby, Kuratko, Holt, & Wales, 2013). Employees within an organisation should be more prone to utilise EMS when they obtain the right incentives from their organisation, if not management. In contrast, when other people or organisations are not committed to the individual, employees may be less prone to utilise EMS (McMullen & Kier, 2016). Known is that self-regulation might cause escalation of EMS consequences, because self-regulation can be too efficient for uncertain situations. McMullen and Kier (2016) indicate that more research is necessary to advance academic knowledge, especially since most research focuses on the higher educational institutions as a contextual setting.

3.3 Elements

Regarding the content of EMS, Robinson et al. (2016) argue that EMS is more than the mental aspect: the entrepreneurial paradigm weighs equally to the mindset, and this combination of elements is what makes EMS distinct from other entrepreneurial concepts. We propose to acknowledge EMS as a concept with multiple elements (Robinson et al., 2016): a
meta-model (Edwards, 2001) reflected by three elements named affect, skills and cognition, sub-divided over the ability and willingness aspect of EMS, as well as the sensing, acting and mobilizing aspects, illustrated in Figure 2. The elements work simultaneously (or in orchestration, see Rudolph, Katz, Lavigne, & Zacher, 2017): the utilisation of the elements enables individuals to master entrepreneurship. The elements are thus complimentary to one another; they work even when the antecedents vary over individuals, time and context. Complimentary furthermore refers to the fact that EMS can grow and develop.

This process-oriented approach acknowledges the heterogeneity of entrepreneurial individuals and avoids universal standpoints (Baltes & Carstensen, 1996). One can consider EMS as a family concept (Podsakoff et al., 2016), as explained by Wittgenstein (2009) with regard to games: there are multiple attributes that belong to games but the combination of the attributes and the degree of the attributes do not all have to be similar. This applies to EMS when considering the elements and content.

As indicated by Shepherd et al. (2010) and illustrated in Figure 2, EMS consists of an ability and willingness of an individual, meaning that one of the two is not enough to actually utilise one’s EMS. Indeed, EMS literature discusses multiple willingness processes, by approaching EMS as a self-regulatory [willingness] process, whilst at the same time referring to an ability that can be developed (Haynie et al., 2010). Moreover, Shepherd et al. (2010, p. 62) discuss that EMS concerns the ability and willingness to “sense, act and mobilize”, thus creating a matrix with six dimensions: the ability to sense, act and mobilize, and the willingness to sense act and mobilize.

Furthermore, we discern three elements, comprised within the ability and willingness dimensions: cognition, skill and affect. Cognition for instance concerns knowledge, decision-making, opportunity spotting, thinking, self-regulation, and acceptance of uncertainty and change (Robinson et al., 2016; Shepherd et al., 2010). Other research focuses on the necessary skills, considering pursuing innovation, exploiting profit opportunities and ability to behave strategically (Culkin & Mallick, 2011). Finally, the literature discusses affect in terms of attitudes, feelings and affective states (Robinson et al., 2016).

The reviewed literature often does not explicate how affect, skills and cognition are complimentary to one another and how they fit within the Shepherd et al. (2010) conceptualisation. Robinson et al. (2016) are one of the first to argue that there is more than just one aspect to EMS: they discuss that EMS consists of knowledge, skills and capabilities. Though they elaborately discuss the cognitive aspects, such as deep beliefs, deep-levelled schemata and scripts, they do argue that possessing just the knowledge is not enough to
stimulate EMS. For learning to obtain and utilising EMS, something Robinson et al. (2016, p. 668) argue plausible, it is important for people to reflect and zoom in on the “attitudes/modes of behaviour” (see also Noble, 2015). The exact composition of EMS facets are delineated in Table 3.

3.3.1 The Cognitive Element

The cognitive element of EMS appears unique and possibly the depicting factor of what makes someone entrepreneurial. Discussion remains on the foundation of the cognitive aspects: some argue the cognitive aspect to be capacity based, such as alertness (Zur, 2015), flexibility and adjustment to uncertainty (McMullen & Kier, 2016), others describe the cognitive aspect as scripts, schemata and knowledge (Noble, 2015; Urban, Venter, & Shaw, 2011; Shepherd et al., 2010). We believe that the reason for this is that cognition in fact is different for the sensing, acting and mobilizing aspects of EMS, as indicated in Figure 2. Different cognitive aspects are needed at different stages, when crossing different thresholds.

The reviewed literature describes the cognitive approach in terms of beliefs and knowledge as well as the subjective framing of positive outcomes. The latter refers to people’s bias to frame an outcome more positively, or expecting a more positive outcome, than expected rationally or logically. This differentiates EMS from a managerial mindset (Shepherd et al., 2010), being able to, by logical reasoning, come to a positive expectation or conclusion is in important distinction (Zur, 2015).

Research agrees on certain aspects of cognition, such as opportunity spotting, thinking entrepreneurially and self-regulation (Patel & Mehta, 2016; Zur, 2015). Ireland et al. (2003) consider opportunity recognition or spotting to be at the heart of entrepreneurship and a necessary aspect of EMS. They argue that opportunity recognition and advantage seeking behaviour take place simultaneously as abilities. We believe this indicates that the search is part of the willingness aspect of EMS and, by working in orchestration with the ability aspect, it aids individuals in crossing the pre-decision phase as described by Gollwitzer (2012), something we consider a threshold.
Table 3
Approach and Aspects of the Entrepreneurial Mindset

<table>
<thead>
<tr>
<th>Author</th>
<th>Cognitive</th>
<th>Skills</th>
<th>Affective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shepherd et al. (2010).</td>
<td>Beliefs, knowledge*, positive outcome framing, receptivity, decision-making*</td>
<td>Ability to sense, act and mobilize*</td>
<td>Attitudes on risk, affective state*, emotions*</td>
</tr>
<tr>
<td>Robinson et al. (2016).</td>
<td>Schemata’s, knowledge*</td>
<td>skills*</td>
<td>Intentions, attitudes/modes of behaviour</td>
</tr>
<tr>
<td>Mitchell (2007).</td>
<td>Opportunity spotting*, perspectives</td>
<td>Capabilities*, exploiting opportunities*</td>
<td>Attitudes*</td>
</tr>
<tr>
<td>Culkin &amp; Mallick (2011).</td>
<td>Thinking*</td>
<td>Communicating, organizing, learning</td>
<td>Feelings*</td>
</tr>
<tr>
<td>Haynie et al. (2010).</td>
<td>Metacognition, cognitive strategies, reflective of motivation, cognitive adaptability, self-regulation*, decision heuristics, awareness</td>
<td>Ability to sense, act and mobilize*, strategic skills</td>
<td>Goals*, motives, needs, motivated tactician*</td>
</tr>
<tr>
<td>Ireland et al. (2003).</td>
<td>Opportunity spotting*, alertness*, option weighing*, think entrepreneurially*, capturing the benefits of uncertainty, perception, flashes of superior insight</td>
<td>Ability to sense, act and mobilize*</td>
<td></td>
</tr>
<tr>
<td>Kyrgidou &amp; Petridou (2011).</td>
<td>Opportunity spotting*, focus on creativity and renewal</td>
<td>Competence exploration, managing resources strategically, creating innovation*, executing competitive advantages, set of actions to structure and bundle resources</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Constructs</td>
<td>Skills</td>
<td>Terms</td>
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<td>--------------------</td>
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<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>McMullen &amp; Kier (2016)</td>
<td>Promotion focus, <em>opportunity spotting</em>, adaptability, self-regulation*, decision-making*, validation of alternatives</td>
<td><em>Ability to sense, act and mobilize</em>, planning, exploit profit opportunities*</td>
<td><em>Goals</em>, <em>motivation</em>, commitment</td>
</tr>
<tr>
<td>Shams &amp; Kaufmann (2016)</td>
<td><em>Knowledge streams</em>, accept uncertainty and change*</td>
<td><em>Capabilities</em>, ability to take calculated risks</td>
<td></td>
</tr>
<tr>
<td>Smith et al. (2009)</td>
<td>Scripts, cognitive skills, <em>decision-making</em>, social cognition</td>
<td><em>Skills</em>, pursuing innovation*</td>
<td></td>
</tr>
<tr>
<td>Taks et al. (2014)</td>
<td><em>Think like entrepreneurs</em>, orientation toward entrepreneurial activities, dealing with uncertainty and change*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wright et al. (2001)</td>
<td><em>Thinking entrepreneurially</em></td>
<td><em>Strategic decision-making skills</em></td>
<td><em>Affect</em>, <em>motivation</em>, self-starting attitude, goals*</td>
</tr>
<tr>
<td>Campos et al. (2017)</td>
<td>Cognition, anticipating on problems, overcoming setbacks, planning for opportunities, future orientation, feedback cycles</td>
<td><em>Set of entrepreneurial skills</em>, growing a business, pursuing innovation*, identify and exploit opportunities ability*</td>
<td></td>
</tr>
<tr>
<td>Laalo &amp; Heinonen (2016)</td>
<td><em>Thinking</em>, responsibility, autonomy, accept uncertainty and change*</td>
<td><em>Skills</em></td>
<td></td>
</tr>
<tr>
<td>Author(s)</td>
<td>Descriptive Terms</td>
<td>Positive Terms</td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Makimurto-Koivumaa &amp; Belt (2016)</td>
<td>Flexibility, belief in one capabilities, seeing possibilities, cognitive knowledge processing, curiosity, uncertainty tolerant*, creativity</td>
<td>Skills*, active, ability to be dynamic</td>
<td></td>
</tr>
<tr>
<td>Patel &amp; Mehta (2016)</td>
<td>Thinking*, effectual reasoning, discovery driven planning, risk-seeking*, meta-cognition*, resilience</td>
<td>Utilising abilities*, communication*, learning*</td>
<td></td>
</tr>
<tr>
<td>Urban et al. (2011)</td>
<td>Opportunity recognition*, thinking*</td>
<td>Dynamic learning, ability to sense, act and mobilize*, ability*</td>
<td></td>
</tr>
</tbody>
</table>
Robinson et al. (2016) delve into what we see as the cognitive ability aspect of EMS, what they refer to as a mental prototype. A prototype is necessary for people to change EMS to a deeper, more experienced, level. Learning or obtaining EMS consists of using a prototype to imprint a learner, someone who is training EMS. People need an anchor, “it is necessary to help [them] become aware of those experiences in the past that have shaped them and given them routines and ways of acting that can be invoked as entrepreneurial” (Robinson et al., 2016, p. 673). Robinson et al. (2016) indicate implications to implement learning via prototypes to enhance EMS, though focused on entrepreneurial learning in higher education.

3.3.2 The Skills Element

Next to cognition, it is essential to enable people to obtain and use skills to “seize and exploit opportunities, take risks, think strategically, work flexibly, manage complexity, and acquire team-working skills and commercial awareness” (Culkin & Mallick, 2011, p. 2), capturing the utilisation of the ability. Culkin and Mallick (2011) interviewed corporate key-figures in a variety of industries to investigate what kind of skills are necessary to work and grow in a corporate environment. The authors argue that the dynamic change in the environment is the sole driver for the developing need for entrepreneurial skills in a corporate environment.

We believe that skills are thus an aspect of EMS deserving acknowledgment. The most widely utilised and cited definition of EMS, as well as our definition, include skills within the conceptualisation of EMS: research refers to the ability to sense, act and mobilize as a critical resource for entrepreneurship as well as a necessity for EMS. Research often mentions abilities, capabilities and skills and appears to use the terms interchangeably (Shams & Kaufmann, 2016). The skills and cognitive aspects of EMS seem complimentary to one another, as they are interchangeably build on one another (Patel & Mehta, 2016; Urban et al., 2011).

Competence exploration is beneficial for EMS and an important aspect (Zur, 2015; Kyrgidou & Petridou, 2011). Though competence exploration explicitly refers to skills, Kyrgidou and Petridou (2011) complete their definition of competence exploration with knowledge and action, what we consider the willingness approach. They thus appear to indicate that viewing EMS from just one perspective may not be sufficient to clarify the concept and align with our idea that also skills are subdivided over the willingness and ability aspect of EMS.
3.3.3 The Affective Element

Furthermore, we argue for an affective element, again subdivided over the willingness and ability aspect of EMS. EMS concerns seeing, sensing and seizing opportunities, which is a passionate act in itself (Zur, 2015). Frequently mentioned aspects explaining this passionate act are goals and motivation, specific trainable aspects as part of EMS (McMullen & Kier, 2016; Haynie et al., 2010), stimulated by the compassion of EMS (Zur, 2015). The passionate act furthermore includes self-efficacy, self-confidence and self-starting attitudes (Makimurto-Koivumaa & Belt, 2016; Zur, 2015).

Other research explains EMS in terms of attitudes towards risk, affective states, feelings and emotions (Shepherd et al., 2010). Shepherd et al. (2010) explain that those with EMS tend to be less risk-averse and are motivated to take risks, even going as far as seeking risks (Noble, 2015). However, Shepherd et al. (2010) acknowledge that this deserves more attention in terms of empirical research, especially in a holistic fashion.

Though not often recognised as a separate element of EMS, it is distinguishable that there are affective components within EMS and within the willingness and ability division. Motivation (Campos et al., 2017), self-identity (Shepherd et al., 2010) and/or a form of attitudes, moods and feelings (McMullen & Kier, 2016; Zur, 2015) is recognised in all literature. After all, every entrepreneur, every individual in general, has at some point in time to deal with frustration (McMullen & Kier, 2016), enthusiasm (Shams & Kaufmann, 2016), setbacks (Campos et al., 2017), confidence boosters (Makimurto-Koivumaa & Belt, 2016), doubts (Noble, 2015) and uncertainty (Zur, 2015), but also other people.

We thus argue that EMS contains an affective element. Investigating and conceptualising EMS from a non-affective approach would, in our opinion, be an underestimation of the comprehensiveness of the concept. We believe we can distinguish between willingness affect and ability affect: the first focuses on social reliability and the latter refers to self-identification, attitudes and wanting to initiate entrepreneurship, as illustrated in Figure 2.

3.3.4 Three Dimensions of EMS

The reviewed literature has thus led us to believe and argue that EMS consists of multiple elements in a matrix form, as specified in our dynamic conceptual framework, and that viewing them as separate perspectives does not aid to the comprehensiveness of the concept, nor to its explanatory power, nor to its utility and measurement in empirical research. As indicated, the consideration “of EMS as the ability with multiple facets cognition, willingness,
and responsiveness, render the concept as a unique approach”; the facets can be compartmentalised into affect, skills and cognition, subdivided over the willingness and ability aspect of EMS.

![Conceptual Model of EMS](image)

**Figure 2. Conceptual Model of EMS**

### 3.4 Theoretical Lenses

For our comprehensive conceptual framework, we build on the mindset theory of action phases from Gollwitzer (2012), based on the Rubicon model, and the work of Shepherd et al. (2010). Gollwitzer (2012) investigated the stages through which a mindset develops: One chooses whether or not she will partake on an arisen opportunity (pre-decision phase). Next, one has to decide whether she will act on the opportunity, by utilising his or her skills and ideas (pre-action phase). This can lead to the pursuit of an opportunity (action phase), which one will evaluate afterwards, regarding the achievements (post-action phase).

Though the mindset theory of action phases is not developed for entrepreneurial purposes per se but rather as a goal-striving and goal-setting theory, we utilise the phases as described by Gollwitzer (2012) to explain the development of EMS, as well as in what stage it is determined whether an entrepreneurial initiative can be achieved. Specifically, we believe that the phases delineate thresholds that need to be crossed for an individual to move forward in utilising EMS. As Gollwitzer (2012) explains, the different phases indicate whether one utilises all skills or extends his or her attitude. For instance, by stepping into the pre-action phase, or as we refer to as crossing the pre-action threshold, Gollwitzer (2012) expects people...
to strengthen their attitude towards a certain goal. Henderson, De Liver and Gollwitzer (2008) tested whether people respond more extremely in their attitude when they already passed the pre-decision phase and found evidence supporting their hypothesis.

For our conceptual model, we combine the work of Gollwitzer (2012) with the work of Shepherd et al. (2010): Shepherd et al. (2010) indicate that EMS goes through certain developments and that reflection is an important mean to (re)start the cycle, what they refer to as the entrepreneurial spiral. We believe that the evaluation phase that Gollwitzer (2012) describes, in an entrepreneurial sense concerns the development process of the entrepreneurial spiral that Shepherd et al. (2010) describe. Shepherd et al. (2010) describe the interaction between the context the individual resides in, and the mindset and how this interaction can cause, perpetuate and stop an entrepreneurial spiral. Similarly, Gollwitzer (2012) discusses an ongoing evaluation process, capturing how an individual can move back and forth in between the different phases.

3.5 The Future of EMS

Based on the entrepreneurship literature, we note the value that EMS can create (Ireland et al., 2003): for instance in terms of entrepreneurial action (McGrath & MacMillan, 2000) and innovation (Ireland et al., 2003). EMS aids individuals to adapt in uncertain situation, such as in a work environment (Shepherd et al., 2010). Specifically, EMS results in effective functioning of an individual in an entrepreneurial manner and managing resources in a strategic manner, by utilising and perceiving possible resources (Shams & Kaufmann, 2016). Individuals utilising their EMS obtain individual gains, for instance in terms of enabling a better opportunity perception mechanism (Shepherd et al., 2010).

On an organisational level, utilising EMS appears to result in better teamwork and bundled actions, and strategic entrepreneurship within an organisation and sustained competitive advantages. Individuals can maximize their utility by utilising EMS (Hitt, Bierman, Shimizu, Kochhar, 2001). EMS and related processes are thus necessary tools to create and develop economic activity by blending risk-taking, creativity and innovation with sound management, within a new or existing organisation.

Furthermore, EMS is part of strategic entrepreneurship (Kyrgidou & Petridou, 2011), focusing on creativity and renewal and identifying opportunities, to bring forth strategic opportunities for organisations and thus building on EMS (Ireland et al., 2003). EMS concerns the ability to free entrepreneurs from preconceptions to identify opportunities and to enable them to profit from those opportunities. EMS is furthermore associated with dynamic
capabilities, facilitating entrepreneurial initiatives, concerning a specific state of mind orienting people towards entrepreneurial activities and opportunities, thus underlining the possible utility and impact of EMS.

EMS may well lead to a sustained competitive advantage via perceived and tangible resources as a starting point (Shams & Kaufmann, 2016; Hitt, Bierman, Shimizu, & Kochhar, 2001). Based on the literature, we argue that organisations and employees should focus on new-value creating strategies (Kraaijenbrink, Spender, & Groen, 2010; Hitt et al., 2001), for which EMS is a tool (Shams & Kaufmann, 2016; Smith et al., 2009). Building on the work of Hornsby et al. (2013), we believe that organisational conditions and individual characteristics are important external or environmental influencers regarding the development of EMS. Shepherd et al. (2010) and Haynie et al. (2010) recognize these aspects. We herewith argue for its importance as a future research direction.

Shepherd et al. (2010) discuss how EMS, responding to the complex environment, can change over time. EMS is not a concept functioning on its own; it is something that has a dynamic interplay with the environment (Shepherd et al., 2010) or the uncertainty, as indicated in its definition. More specifically, the environment can either enhance or hinder the effect of EMS on entrepreneurial initiatives. Such changes take time, which is why Shepherd et al. (2010) have developed a deviation-amplifying loop model: the model explains how the increase of one variable affects the increase of the other variable, which in turn positively affects the first variable.

In line with Shepherd et al. (2010), we postulate that EMS varies and changes over time and per individual, as indicated in the example in Figure 3. Depending on different circumstances, such as the environment or such as individual changes in characteristics, one can develop the mindset, similar as to the postulation of Dweck (2017). The accumulation of EMS development is something that is not well-represented in research and thus remains a question mark.

Nevertheless, the literature also indicates that the results of EMS do not always have to be positive (McMullen & Kier, 2016; Shepherd et al., 2010): there are plausible negative effects as well, though they have not been ultimately scrutinised in research yet. However, the positive results appear promising and reason for practical implication of EMS.
Furthermore, research pays attention to activities that lead to organisational rejuvenation, or exploration, through the implementation of novel ideas from employees (Belousova & Gailly, 2013). McGrath and MacMillan (2000) argue that EMS aids individuals to actively seek interaction that would lead to knowledge building and idea generation. Shane and Venkataraman (2001) suggest emphasizing the research focus on the central entrepreneurship questions, such as the why, when and how. Recent research directs towards EMS to enhance entrepreneurial initiatives (Costa et al., 2017; Robinson et al., 2016; Shepherd et al., 2010).

EMS is mostly researched within the educational setting (Robinson et al., 2016; Täks et al., 2014). Academics have made serious attempts to initiate and enhance utilising EMS by graduates, as for them to utilise EMS in future work environments. Though research thus may be done within the field of entrepreneurial education (Makimurto-Koivumaa & Belt, 2016), researchers indicate that EMS is most valuable in “life after school” (Täks et al., 2014).

4. Conclusion

The aim of this paper was to comprehensively conceptualise EMS, delving into the antecedents and elements of EMS. The overall results reveal the broad definition of EMS thus far and how the individual is stressed in the conceptualisation of EMS. The results moreover show consensus on the elements of affect, skills and cognition, subdivided over the willingness and ability aspect of EMS that render the concept as such a unique one. With this knowledge and comprehensive understanding, scholars can address EMS and investigate it empirically.
within multiple contexts, such as an organisational one, beyond the previously preliminary investigated education setting, in future research.

We herewith note the value that EMS can create: for instance in terms of entrepreneurial action (McGrath & MacMillan, 2000) and innovation (Ireland, Hitt, Sirmon, 2003). EMS aids individuals to adapt in uncertain situations. Specifically, EMS results in effective functioning of an individual in an entrepreneurial manner and managing resources in a strategic manner, by utilising and perceiving possible resources (Shams & Kaufmann, 2016). Individuals utilising their EMS obtain individual gains, for instance in terms of enabling a better opportunity perception mechanism (Shepherd et al., 2010). We believe EMS may proof to be a useful addition to the intention – entrepreneurial action gap discussion, as our research indicates that EMS distinctly captures an entire opportunity recognition process: from sensing the opportunity to acting on it and mobilizing resources where possible and need be.

4.2 Discussion

Despite the contribution to the entrepreneurship literature, it is, as for every paper, always difficult to restrain from all biases when selecting and assessing literature. We attempted to prevent biases as we came up with a specific set of keywords for our literature synthesis. The keywords have been discussed with multiple researchers investigating the same and relatable topics, as suggested by Booth et al. (2016), to increase the chances of finding an exhaustive amount of literature on the topic (rather than literature with a preferred outcome). Important to note here is that exhaustivity is not a prerequisite for a systematic literature review (Booth et al., 2016). More important is the fit for the purpose, which with the current conceptual paper is to identify and conceptualise EMS.

A specific choice is not to focus on the general “mindset”, since this area is much broader than entrepreneurship, concerning multiple domains, unrelated to the focus of the current paper. Moreover, when focusing on merely “mindset”, over 2,000 hits come up in the search engine of Web of Science, confirming its broadness. Finally, number of citations have not been taken into account, since some of the articles were recently published whilst others were published almost two decades ago, selection based on this criterion could bias the objectivity of the search (Booth et al., 2016).

Our framework indicates the comprehensiveness of the EMS concept and provides details on its sub dimensions in such a manner, that it captures how the entrepreneurial opportunity recognition process develops from spotting an opportunity (i.e., sensing) to seizing the opportunity (i.e., acting and mobilizing). Especially the acting and mobilizing component
is an important addition to the existing discussion, as thus far research remained fragmented on
the answer how and when an individual would pursue the entrepreneurial intention, for instance.

4.3 Recommendations for Future Research and Implications

The elements of EMS are distinguished and can prove useful for future research. However, most research concerns an educational setting and research on EMS in the organisational context may be fruitful (Robinson et al., 2016). Shepherd et al. (2010) argue for the importance of the corporate setting, especially since there has been a recent, in-depth focus on the entrepreneurial context. When Culkin and Mallick (2011) discuss an entrepreneurial context, they refer to the innovative environment wherein potential entrepreneurs can recognise and exploit opportunities.

To date, articles reporting on EMS tend to be conceptual (Campos et al., 2017) or case study based (McMullen & Kier, 2016). Practical papers in a variety of contexts are still scarce (Robinson et al., 2016) and research could benefit from more distinguishable empirical research. As Robinson et al. (2016) indicate, more “hands on” material is necessary to understand the implications of EMS across a variety of people in multiple contexts. We therefore posit that future research can utilise our framework and overview to implement and investigate EMS in “real-life” settings and, by experimenting and intervening, understand the entrepreneurial process and EMS better from an empirical perspective.

Furthermore, it might prove interesting to take social embeddedness into account (Shepherd et al., 2010). Robinson et al. (2016) discuss the mental prototype, which may relate to the identity as discussed by Biniari (2012). Robinson et al. (2016) discuss how the development of the entrepreneurial identity interacts with the development of EMS, thus stressing the importance of the identity concept. Robinson et al. (2016) moreover discuss the importance of the social environment and they draw from Social Learning Theory (based on Bandura, 1977) to discuss this.

Bandura (1977) felt that, at the time of developing his Social Learning Theory, the widely adopted behaviourism did not take the individual self-belief into account, which can serve as a reinforcement for certain behaviour and consequently for people becoming role models. Robinson et al. (2016) argue that this social exchange may enhance the entrepreneurial growth in terms of the mindset and entrepreneurial learning, which is why it may be interesting to take into account for future research. Shepherd et al. (2010) also discuss the importance of others. Specifically, Shepherd et al. (2010) discuss how others can influence the deviation-amplifying spirals. This could thus concern an interesting topic for future research.
References


