MAP-X
Technical manual
Version 2.0

HELENE HOPPE REVALD
Director of Psychometrics, Occupational Psychologist

DENNIS HVASS
Psychometrician, Occupational Psychologist

RALUCA CHIFOR
Psychometrician, Occupational Psychologist

Assessio

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

Table of Contents

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

1. Overview and Theoretical Rationale

Too much of a good thing?

All positive and adaptive traits that are otherwise valued in the workplace can have a negative side when performed too much or too often. For example, research suggests that conscientious managers are welcomed at work because they are planful, organized, rule-following, and reliable. Yet carried to an extreme, to their staff they may seem picky, critical, and micromanaging. Unhappily, Conscientiousness is associated with an increased incidence of abusive management such as intensely surveilling others' work, setting unrealistic deadlines, or pushing employees beyond their levels of competence and resources (Camps, Stouten, & Euwema, 2016), arising from a desire to "get things done the right way" and achieve ambitious goals. Similarly, individuals who score high on Agreeableness may be interpersonally naive and enter overly obedient relationships, in which they risk being taken advantage of or even compassion fatigue.
A large and growing literature (Ames & Flynn, 2007; Debusscher, Hofmans, & De Fruyt, 2014; Grant, 2013; Le, Robbins, Ilies, Holland, & Westrick, 2010) shows that:
- Curvilinear relationships are observed for all personality traits (performance drops at the extremes).
- Middle scores may well be preferable in many contexts, particularly in leadership roles.
- Average leaders are less likely to get their teams into trouble.

In other words, when taken to the extreme, otherwise fruitful and helpful behaviors can become counterproductive and destructive (for oneself as well as for others). These extreme dispositions harm an individual's ability to make effective decisions, work with their colleagues, and navigate stressful situations — all of which diminish organizational performance and individual and team effectiveness (Gaddis & Foster, 2013; Zeigler-Hill & Marcus, 2016). This occurs even though the individual may remain unaware of their extreme behavior or fail to even see the link to negative outcomes (Bortolotti & Mameli, 2012).

How Best to Measure Extreme Traits?

In the past, several attempts have been made to capture these extreme tendencies under various headings such as "dark traits", "derailers" or "dysfunctional traits" – all of which consider these extremes as something outside of the realms of normal personality. However, there is evidence for an overlap between normal-range personality and clinical-level personality disorders: traits in both domains share latent dimensions (Harms & Spain, 2015; Hopwood et al., 2018; Widiger & Mullins-Sweatt, 2008). For example, Kate Walton and her colleagues examined the overlap between a measure of normal personality and a measure of psychopathy. Contrary to their expectation that the psychopathy measure would be more extreme than normal personality traits, both measures substantially mapped the same latent domain (Walton, Roberts, Krueger, Blonigen, & Hicks, 2008). Furthermore, Widiger and his colleagues have done considerable work on the dimensional approach to dysfunctional personality disorders and have created a lexical map of descriptive words to highlight the negative consequences of extreme scores (Vachon et al., 2013; Widiger, 2015; Widiger, Gore, Crego, Rojas, & Oltmanns, 2016).

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

Clinical psychology has similarly seized on the Five Factor Model (FFM) as a solution to its own issues in adequately measuring dysfunctional personality disorders (PDs). Diagnostic categories were developed in a traditional medical model that saw mental disorders as qualitatively distinct conditions. However, descriptions of various disorders shared common features and the reliability of diagnoses between clinicians was poor. In the face of mounting evidence that PDs are dimensional in nature (Eaton, Krueger, South, Simms, & Clark, 2011; Hopwood et al., 2018) the latest manual from the American Psychiatric Association has an experimental diagnostic model based on the idea that the behavioral dispositions which fall at the extremes of the FFM are likely to be dysfunctional, maladaptive, and strain interpersonal relationships, while personalities that lie in the middle are more likely to be adaptive and functional.

One such attempt is the Personality Inventory for DSM-5 (PID-5) assessing 25 dysfunctional personality trait facets, which can be combined to yield indices of the five broader trait domains linked to the FFM dimensions: Detachment (Extraversion), Antagonism (Agreeableness), Disinhibition (Conscientiousness), Negative Affect (Emotional Stability), and Psychoticism (Openness). Although coined as a diagnostic tool, PID-5 has been used for research purposes in non-clinical populations and holds significant correlations with the Big Five. In addition, the PID-5 holds great psychometric properties with good internal consistency, test-retest and inter-rater reliability. For this reason, we chose PID-5 as the basis for developing scales to capture the aversive extremes of normal personality (scales that make up the MAP-X).

The Assessio Extremes Model

On the basis of the literature and prior efforts to characterize negative behavior, we feel justified in developing a measure of extreme personality dispositions based on our FFM assessment tool, MAP. It is important to emphasize that the approach we have followed represents a break from prior psychometric efforts and represents an innovative approach to conceptualizing extreme personality traits. Although drawing on developments within both clinical and organizational psychology, we emphasize that this tool makes no attempt to measure clinical personality disorders, nor should it be used for diagnostic or other clinical purposes. In addition, MAP-X has the utility of being quickly calculable from the administration of a single personality assessment.

Unlike PID-5, which was designed to measure dysfunctional or maladaptive traits only at the low ends of each FFM dimension (except for the high end on Openness), MAP-X attempts to capture extreme behaviors at both ends of the FFM dimensions within the realms of normal work behavior. Although high scores on most traits are usually considered desirable in the workplace, one can easily imagine why extreme high scores might cause problems at work for the individual or their colleagues. In addition to the examples given above, being extroverted is highly beneficial for networking and engaging with others. However, extreme extraverts may also come across as intrusive or be overly reliant on the company of others, thus struggling to work on their own.

In Table 1 we present the five dimensions of the MAP-X labelled as the extreme poles of the corresponding FFM construct. As we have already argued, behavioral dispositions, on any point of the spectrum, are simultaneously productive and counterproductive and what is considered good or bad is dependent on the context in which the behavior is being assessed. As such, we refer to the MAP-X scales as having dual labels. For example, the Extraversion scale can be described as being the "Attention Seeking" scale (where high

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

means to describe someone who is dominant and intrusive) or described as the "Withdrawn" scale (where high describes someone who is timid and socially reserved).

Such labels provide practitioners with a more flexible vocabulary to talk about dysfunctional dispositions, and ultimately help people better understand themselves. Further, reporting scores on scales that only have one label, that can be either socially desirable or undesirable, can lead individuals to falsely assume that higher scores are better and that they have the "wrong" personality profile.

Table 1. MAP-X scales and high-level definitions.

Extreme Low	FFM	Extreme High
Withdrawn	Extraversion	Attention Seeking
Reserved, shy, prefer to work alone	Outgoing, sociable, networking	Dependent, needy, dominant
Insensitive	Agreeableness	Overcaring
Self-focused, inconsiderate, dismissive of others' feelings	Warm, empathic, trustworthy	Overly consensus-seeking, exploitable, excessively involved in other people's problems
Impulsive	Conscientiousness	Rigid
Distractable, disorganized, overlooks details	Organized, reliable, focused	Inflexible, perfectionistic, overly cautious
Emotional	Emotional Stability	Unresponsive
Sensitive, anxious, worries excessively	Emotionally flexible, controlled, self-assured	Detached, unconcerned, overly optimistic
Conformist	Openness	Eccentric
Practical, conventional, unimaginative	Curious, open to ideas, thoughtful	Impractical, unrealistic, too experimental

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

2. Interpretation of the Scales

In this chapter we provide suggestions and cases to guide users in interpreting MAP-X scales. When reading these interpretations, it is important to note that scale scores indicate risks or dispositions to act in a certain way. That is, an extreme score does not mean that a person will *always* act in these ways, just that they are more likely to. After all, some people are better at mastering their tendencies and managing their dysfunctional behaviors than others. Furthermore, cultural or social norms can facilitate or inhibit socially inappropriate behavior (e.g., a company culture showing acceptance of being insensitive towards others).

However, having proved that risk behaviors can be tied to personality extremes, we also need to highlight the implication that personality is characterized by predetermining behavioral patterns, describing deeply ingrained, all-encompassing patterns of behavior. Hence, MAP-X describes behaviors that, if not carefully managed and inhibited, will form the individual's more basic behavioral patterns and automatic responses.

The importance of context

Personality is not the only thing that determines our behavior. The context is also important.
The theory of Situational Strength distinguishes between strong and weak situations. A strong situation is characterized by clear behavioral expectations that make personality less important. For example, very few candidates in a job interview will start by criticizing the company – even if they are critical by nature. In a weak situation, such as an everyday situation, personality can emerge more clearly because there is less at stake. In this way, personality is reflected in concrete behavior depending on the strength of the situation.

Trait Activation Theory is another approach, which is based on the idea that, in every situation, there are signals that evoke specific personality traits in us. For example, a thorough analysis will call for a critical mindset. In other words, our personality traits are activated depending on the situation. The idea behind this theory is that we thrive and perform best in a job where our personality traits match the demands of the situation.

Triggering factors

When talking about risk behaviors, the perception is that these are behaviors that only occur when you are under pressure. That is not quite true. Extremes at either end will typically be more visible to others and describe behavior that is characteristic of the person across situations. Just like personality traits, MAP-X scores reflect deeply ingrained, all-encompassing patterns of behavior. Managing or controlling these behaviors is possible but very demanding. Thus, when under pressure or during tough times, inhibiting these behavioral tendencies becomes even more difficult.

However, other factors can trigger these risk behaviors as well, namely:

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

- **Critical situations**

  Most of us know what acceptable behavior is and can restrain ourselves when we try, but when we are under pressure it becomes more difficult – and therefore one's risk behavior will become more apparent in these situations.

- **Safety and familiarity**

  Managing your behavior requires energy and willpower and can be difficult to maintain over time and in situations where it is less necessary. Therefore, situations where we feel safe or familiar will also be situations where we become less controlled.

- **Cultural impacts**

  What behaviors are considered inappropriate or productive might differ across contexts depending on cultural impacts and interpersonal compositions. Because of this, cultural cues may legitimize certain behaviors – also extreme ones – thus creating a challenge when changing contexts.

- **"Weak" situations**

  In strong situations where we know how to behave, we can act accordingly. In weaker situations, the ones we rarely think about or give much weight to, our personality will generally come out more clearly.

In MAP-X, the scales are arranged with dual labels (low and high extremes) linked to the Big Five:

Withdrawn	**EX**	Attention seeking
Insensitive	**AG**	Overcaring
Impulsive	**CO**	Rigid
Emotional	**ES**	Unresponsive
Conformist	**OP**	Eccentric
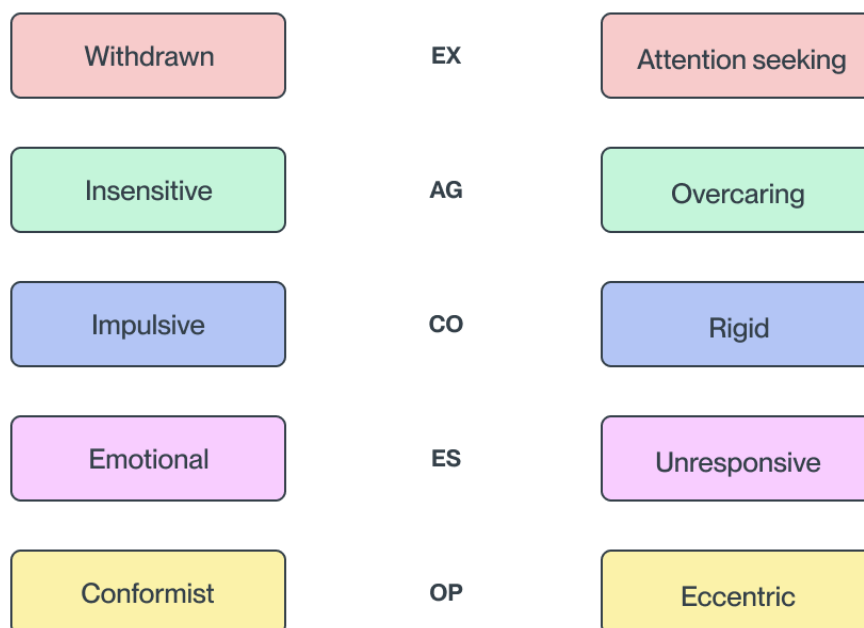
1.1 Withdrawn

The Withdrawn scale corresponds to the low pole of the FFM Extraversion dimension. From research, it is known that an individual who is low in Extraversion (i.e. introverted) is typically perceived as shy, contained,

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

and quiet. They seek less company from others, often preferring more solitary activities. Although not necessarily aloof, they might display less energy or enthusiasm in social settings (Lischetzke & Eid, 2006). Introverted behavior is not inherently asocial but as the size of one's social group increases, extraverted individuals take up more space in the conversation (Wilt & Revelle, 2015b).

As described in future chapters, our own analyses show strong to moderate correlations between Withdrawn and measures of withdrawal, anhedonia, and intimacy avoidance. This indicates that individuals scoring high on Withdrawn will avoid close relationships and have trouble forming and maintaining them. These individuals can seem cold, reserved, disinterested in socializing or ill-at-ease in social settings. They will seek social interactions less often and might avoid being around large groups of people.

With a facet combination in the computation of Withdrawn of low-end Social Need, Social Image and Cheerfulness with the highest weight on Social Need, the scale of Withdrawn may be interpreted as the degree to which people may come across as overly reserved and avoidant of others. High scorers are shy, withdrawn or even aloof. They tend to be guarded, not investing in relationship building and struggle with collaboration.

1.2 Attention Seeking

The Attention Seeking scale corresponds to the high pole of the FMM Extraversion dimension. From research it is known that extraverted individuals are often perceived as social, dominant, cheerful, and energetic. Extraversion is relatively stable across the life span and is known to be heritable (van den Berg et al., 2016). Concerning its neurobiology, extraversion is linked to regions of the brain implicated in reward sensitivity, the behavioral activation system, and positive emotions. This suggests that the core of extraversion is seeking social attention, enthusiasm, positivity, and seeking rewards (Wilt & Revelle, 2015a).
People with extreme levels of Extraversion are more likely to be emotionally intrusive, engage in excessive self-disclosure, and seek thrilling experiences (McCrae, Löckenhoff, & Costa, 2005).

These findings indicate that individuals who score high on Attention Seeking will be needy, extremely social, perhaps excessively talkative or indiscreet. They will often engage in small talk and seek the company of others. If they act overly cheerful or energetic, they might be perceived as unserious and become a distraction for others. They might also be boastful about their achievements or show a preoccupation with social image. They may trample others' boundaries by monopolizing their attention or disregarding their need for personal space.

In teams, they will dislike working separately from others, preferring to solve their tasks in close collaboration. They may prefer to take on a leadership role. They might also distract others from work by engaging in frequent small talk or gossip.

With a facet combination in the computation of Attention Seeking of high-end Social Need, Social Image and Cheerfulness with the highest weight on Social Need, the scale of Attention Seeking may be interpreted as the degree to which people crave social contact. They might seem overly reliant on others, needy, or attention-seeking. They typically struggle to complete tasks independently, preferring to seek help from others rather

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

than find solutions on their own. Their desire for social interaction might cause them to engage in too much chit-chat and distract others from work.

2.1 Insensitive

The Insensitive scale corresponds to the low extreme of the FFM Agreeableness dimension. Research has shown that those who are low on Agreeableness (i.e. disagreeable) are often perceived as blunt, argumentative, and self-interested (Graziano & Eisenberg, 1997). Disagreeable individuals tend to place their self-interest above the needs and feelings of others. They are unconcerned with others' welfare and thus unlikely to extend themselves for other people.

Hogan, Chamorro-Premuzic and Kaiser (2013) showed that Agreeableness is useful for getting a job but is not related to subsequent advancement. In addition, research found that being argumentative, egotistical, aggressive, and headstrong had no effect on producing useful and original ideas but was related to having those ideas taken up (Hunter & Cushenbery, 2015).

Research has found a relationship between extreme disagreeableness and antisocial behavior (delinquency, bullying, criminal offending, and aggression). While other personality traits (emotional stability and conscientiousness) are also related, the effect size for Agreeableness was the strongest and most consistent of the five domains (Jones, Miller, & Lynam, 2011). Other findings point to strong links between disagreeableness, Machiavellianism, and psychopathy (Muris et al., 2017).

In our research, we found that Insensitive is moderately to strongly associated with callousness, deceitfulness, and manipulativeness. Together, these findings indicate that Insensitive individuals will be seen as less empathetic, very direct, perhaps egotistic or overly competitive. Because they take an instrumental view of relationships, they might sometimes act in exploitative ways.

In team settings, these individuals are likely to prioritize their own goals over those of the team, especially if there is some misalignment between the two. They will seek to dominate social dynamics, either by adopting a leadership position or by firmly arguing for their ideas. While they do not necessarily like conflicts, they will certainly not shy away from engaging in them. Because of their bluntness, others might perceive them as intimidating, impolite, or sometimes even rude.

With a facet combination in the computation of Insensitive of low-end Communication, Altruism and Compassion with the highest weight on Compassion, the scale of Insensitive may be interpreted as the extent to which people are likely to exhibit self-focus and a lack of concern for the needs, feelings or wellbeing of others. High scorers are more prone to dismiss others' feelings, transgress boundaries to achieve goals, or take an egoistic approach in their decisions.

2.2 Overcaring

The Overcaring scale captures the high extreme of the FFM Agreeableness dimension. Agreeable individuals are often perceived as compassionate, cooperative, and sincere. Previous research has found that Agreeableness is one of the strongest personality predictors of team collective performance, yet one of the

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

weakest personality predictors of individual task performance (Bradley, Baur, Banford, & Postlethwaite, 2013). High scores on this trait have been associated with group cohesion as agreeable individuals want to be liked and value harmony over competition (Bell & Brown, 2015). Highly agreeable individuals want to create and maintain positive relationships with others and are more tolerant of people who are different from themselves (Graziano & Bruce, 2008; Graziano & Eisenberg, 1997).

While these traits are obviously useful in maintaining relationships, research shows that too much of a good thing can lead to negative effects for the individual. Since agreeable individuals are generally obedient and considerate, they may be at risk of being taken advantage of or might fail to assert themselves or act politically. For example, experimental studies have shown that Agreeableness is sometimes associated with lesser pay (Judge et al., 2012).

This research suggest that Overcaring individuals are likely to be very transparent and overly preoccupied with the needs of others, at times even naïve. Their preference for fitting in and maintaining harmony may mark them out as submissive and conflict-avoidant. While they are eager to help their colleagues, they might often prioritize this at the expense of their own tasks. In addition, they might be prone to compromise their interests in favor of others (Gore, Presnall, Miller, Lynam, & Widiger, 2012). This puts them at a higher risk of postponing decisions or abandoning ideas when met with resistance from others.

In teams and groups, they will work to maintain good relationships, insist on being honest, and may devote excessive time to soothing others or promoting social harmony. While they are more forgiving of others' mistakes, they might struggle to offer very negative feedback. They might often refrain from picking sides or even take a firm stance in a debate. They might also refuse to make tough calls or compromise on important matters to avoid upsetting others.

With a facet combination in the computation of Overcaring of high-end Communication, Altruism and Compassion with the highest weight on Compassion, the scale of Overcaring may be interpreted as the extent to which people may over-identify with or prioritize the needs of others. High scorers tend to be too honest, compassionate and easily taken advantage of. They tend to put others first, even when it's to their own detriment, and they might delay important decisions if they feel that those might upset others or risk stirring up conflict.

3.1 Impulsive

The Impulsive scale corresponds to the low end of the FFM Conscientiousness dimension. Research has continuously shown that Conscientiousness plays an integral role in nearly every consequential life outcome, from success in school to achieving at work, and living a longer, healthier life.
People with low Conscientiousness often have trouble controlling their impulses, planning ahead, adhering to strict rules and procedures, or finalize projects that require big investments in terms of time and effort.

In our validation studies, we found moderate to strong relationships between Impulsive and measures of distractibility, irresponsibility, and disinhibition. These findings indicate that people who score high on this extreme will often struggle to follow strict procedures, maintain routines, or perform tedious tasks. They are unlikely to plan things ahead, which may lead to missing deadlines or being underprepared in case of

MAP-X , technical manual | Version 2.0 ©Assessio 2024

emergencies. Even getting the bigger picture, they might fail to consider the details, which can lead to frequent or repeated mistakes. In jobs that require adhering to strict safety procedures, forgetting details might physically put the person (or their colleagues) in danger.

In teams, these people often fail to work based on shared deadlines or protocols. Because of this, they might end up contributing less than their colleagues or push their responsibilities on others. Therefore, others might perceive them as unreliable and avoid collaborating with them. While not necessarily lazy, these people struggle with organizing their work and matching their rhythm with others.

With a facet combination in the computation of Impulsive of low-end Diligence, Self-Discipline and Decision Making with the highest weight on Self-Discipline, the scale of Impulsive may be interpreted as the degree to which people are easily distractable, prone to skipping monotonous work, and only focused on what is most interesting to them. High scorers are more likely to cut corners, overlook important details, abandon burdensome tasks, and not focus on long term goals.

3.2 Rigid

The Rigid scale corresponds to the high end of the FFM Conscientiousness dimension. There is much research pointing to the fact that people falling within the normal range of the FFM Conscientiousness domain tend to be orderly, well-organized, and thorough (McCrae & Costa, 1997). This allows them to do well in most types of work. Conscientious employees are generally more reliable, hard-working, and show lower rates of absenteeism and counterproductive work behavior (Chamorro-Premuzic & Furnham, 2010; Hogan & Holland, 2003; Roberts, Chernyshenko, Stark, & Goldberg, 2005).

That said, a number of findings indicate there is a considerable downside to being overly conscientious, which corresponds to the Rigid scale. Desirable characteristics such as rule-orientation, industriousness, self-discipline, and responsibility have downsides such as workaholism, perfectionism, obsessing over details, inflexibility, and excessive persistence (Coker, Samuel, & Widiger, 2002; Samuel & Gore, 2012; Saulsman & Page, 2004). In a long series of research, Flett and Hewitt have shown that perfectionism is associated with psychological maladjustment, especially rigidity, negative self-evaluation, anxiety, and setting unrealistic performance goals (Hewitt, Flett, & Mikail, 2017; Hewitt & Flett, 1991; Stoeber, Otto, & Dalbert, 2009).

These findings indicate high scorers on the Rigid scale will often be perceived as perfectionistic, excessively orderly, and at times assuming more responsibilities than they can realistically fulfill. Because they hold onto very high performance standards, some people might find them unreasonable or hard to please. When working in a team, they might show a tendency towards micro-managing others, even if they have not been officially assigned a leadership role. While their attention to detail will help them identify and correct potential mistakes, they might often come across as nit-picky, overly critical, or controlling. They are likely to show signs of distress if met with a sudden change of plans. Since knowing things in advance is crucial to them, they might struggle to adapt to unforeseen circumstances.

With a facet combination in the computation of Rigid of high-end Diligence, Self-Discipline and Decision Making with the highest weight on Self-Discipline, the scale of Rigid may be interpreted as the degree to which people are perfectionistic, overly strict, or inflexible. High scorers tend to struggle in unstructured environments and are overly focused on doing things right. They might find it difficult to change their initial

MAP-X , technical manual | Version 2.0   ©Assessio 2024

plan when encountering unexpected drawbacks. Because they are very methodical, they might also be slow in reaching a decision.

4.1 Emotional

The Emotional scale measures the low pole of the FFM Emotional Stability dimension. This refers to a relatively stable tendency to respond to threat, frustration, or loss with negative emotions (Lahey, 2009). Individuals with low Emotional Stability (also termed 'neurotic') are often described as tense, easily rattled, prone to negative feelings, and self-doubting. Research shows that Neuroticism is widely associated with reduced coping, lower job satisfaction, and difficulty in maintaining work relationships (Judge, Heller, & Mount, 2002; Lahey, 2009; Roberts et al., 2007).

People who score high on the Emotional trait tend to be anxious, worried, and tense. They often interpret setbacks or criticism through a lens of personal inadequacy, leading to feelings of failing, not living up to expectations and pervasive disappointment with life. Alert to risk, individuals are more likely to interpret events pessimistically and doubt their abilities to surmount difficulties. They might ruminate over past mistakes (Perkins, Arnone, Smallwood, & Mobbs, 2015) and may easily feel self-conscious if their behavior is met with negative reactions from others. Indeed, our own research confirmed that low Emotional Stability was linked to negative affect in general, especially anxiousness.

These individuals are prone to missing opportunities by focusing too much on risks and problems. When working in a team, they may ramp up the emotional tone of a discussion and unconsciously steer it to interpersonal concerns, rather than objective facts. Teams which contain a large proportion of neurotic members have been shown to underperform, have a higher incidence of interpersonal disagreements (O'Neill & Allen, 2011; Peeters, Van Tuijl, Rutte, & Reymen, 2006), and induce a low team morale. These individuals may need frequent soothing from others, and want colleagues to pay attention to their problems, worries, and distress, which can be wearing. Others may find these people too intense and overly negative.

On the other hand, high scorers on the Emotional scale are motivated to prove themselves and to repair perceived faults in the eyes of others. Evidence suggests that anxiety can lead to increased effort (Smillie, Yeo, Furnham, & Jackson, 2006; Tamir, 2005), although this may come at the cost of burnout and reduced resilience (Nettle, 2006).

With a facet combination in the computation of Emotional of low-end Emotions, Temper and Self-Control with the highest weight on Emotions, the scale of Emotional may be interpreted as the extent to which people are easily concerned and experience strong feelings of anxiety, worry, and frustration. High scorers are likely to dwell on mistakes or get frustrated over criticism. They can be aversive to potential risks or problematic situations and may be indecisive.

4.2 Unresponsive

The Unresponsive scale measures the high extreme of the FFM Emotional Stability dimension. From research, it is known that stable individuals tend to be less reactive to stress, are even-tempered, and unlikely to get

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

overwhelmed by negative feelings. It is important to note that these people are not necessarily optimistic and positive; rather, they do not experience as many negative emotions (Chamorro-Premuzic & Furnham, 2010).

As described above, FFM research has tended to assume that more of a trait is better. Indeed, many early studies suggested that high levels of Emotional Stability are better for job performance (Barrick & Mount, 1991), wellbeing (Lahey, 2009; Roberts et al., 2007), marital satisfaction (Botwin, Buss, & Shackelford, 1997), and longevity (Terracciano et al., 2008). However, newer and more sophisticated research designs show that higher emotional stability is not always better. As Miller and his colleagues noted, "anxiety is a useful trait for anticipating negative outcomes and risks".

In fact, authors suggest that lacking emotions such as fear, anger, or shame increases someone's likelihood to engage in risky, potentially harmful behaviors (Carter et al., 2018). In line with this suggestion, Le and his colleagues conducted a thorough review of the relationships between various FFM traits and job performance and found that extreme scores on both ends resulted in dysfunctional work behavior (Le et al., 2010). A similar pattern was found in other studies (Debusscher et al., 2014).

Researchers also found a relationship between extreme Emotional Stability and targeted measures of psychopathy (Lynam, Gaughan, Miller, Mullins- Sweatt, & Widiger, 2011). This suggests that high scorers might be perceived as carefree, excessively self-assured, seemingly unconcerned or impassive. Although less susceptible to panic or self-doubt, they might often dismiss threats or fail to address legitimate concerns. While they will rarely lose their cool, they might be blind to feedback or feel that it doesn't apply to them (i.e. "the feedback is wrong"). Their apparent indifference might be a result of their limited ability to experience negative emotions. Thus, they might come across as overly confident or perhaps even ignorant.

While they are good at managing their own emotions, they will not always know how to respond to the feelings of others. Since they are prone to downplaying problems, they might come across as passive or dismissive of others' feelings. They might also be slow in tackling urgent requests, potentially leading to an escalation of the problem.

With a facet combination in the computation of Unresponsive of high-end Emotions, Temper and Self-Control with the highest weight on Emotions, the scale of Unresponsive may be interpreted as the degree to which people seem emotionally detached and reluctant to act with urgency when needed. High scorers might seem over-optimistic, not taking problems seriously or responding adequately to negative events. They tend to be unconcerned with what other people think and unlikely to act with urgency when met with an aversive situation.

5.1 Conformist

The Conformist scale measures the low extreme of the FFM Openness dimension. Research has shown that people with low Openness have trouble adapting to change, display a low tolerance for different lifestyles, and tend to have a narrow range of interests (Piedmont et al., 2012). They often lack imagination and show little interest in abstract ideas. Therefore, they are unlikely to participate in philosophical discussions or debates, as they tend to be more concerned with the very practical aspects of things. In line with this, they are less keen on experimentation and more inclined to stick to what they already know.

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

Besides unfamiliar ideas and activities, these people might also be reluctant to explore complex emotional states. In line with this, research has found an association between low levels of openness and alexithymia (i.e. an inability to identify, express, or accurately describe one's own feelings) (Taylor & Bagby, 2004; Zimmermann, Rossier, De Stadelhofen, & Gaillard, 2005).

People with high scores on the Conformist scale will often be perceived as dull, narrow-minded, or overly attached to familiar notions. This might result in a difficulty to understand the perspectives of others or accept different points of view. In addition, they might be more inclined to form prejudicial attitudes towards others (Flynn, 2005). For instance, studies found that low Openness is associated with a preference for hierarchical and conventional power structures and a tendency to endorse authoritarian policies (Butler, 2006; Peterson, Smirles, & Wentworth, 1997).

In the context of teamwork, high scorers will probably dislike ambiguity and struggle to manage misalignments in terms of goals, values, or working methods. A sudden change of pace or priorities might upset them, potentially leading to pushback from their side. While their realism helps them flag unrealistic goals, they might be too quick in turning down ideas that are different from what they know. At times, this might result in clinging to obsolete practices and halt innovation.

With a facet combination in the computation of Conformist of low-end Imagination and Mindset with the highest weight on Imagination, the scale of Conformist may be interpreted as the degree to which someone may come across as narrow-minded, unimaginative, or lacks interest in new or seemingly unrealistic or impractical ideas. High scorers may seek comfort in what is practical, champion the status quo, and avoid change. They are more preoccupied with 'what is', rather than 'what can be'. Thus, they might lack imagination and vision.

5.2 Eccentric

The Eccentric scale measures the high extreme of the FFM Openness domain. Research has pointed to the fact that open people can be described through a broad mix of characteristics, such as intellectual curiosity, creativity, artistic interests, emotional and imaginative richness, and unconventionality. The unifying theme of this broad personality domain is cognitive exploration (Deyoung, Grazioplene, & Peterson, 2012; Kaufman, 2013).

Studies have found a link between Openness and fragmented thinking, diffuse identity, unstable goals, and non-conformity with societal norms (Piedmont et al., 2012). Our validation research points to moderate associations between high Openness and measures of eccentricity or perceptual dysregulation. When integrated with previous research, these findings indicate that individuals scoring high on Eccentric will often come across as unconventional, quirky, perhaps bizarre or excessively idealistic.

Research suggests that extreme Openness scores might have opposing effects on work performance – it is associated with individual proactivity, but might negatively affect team effectiveness (Neal, Yeo, Koy, & Xiao, 2012). Eccentric individuals will typically thrive in dynamic, flexible environments and are likely to struggle in jobs that require them to do a lot of routine work. While they don't necessarily miss deadlines, these people

Zero Talent Waste.

MAP-X , technical manual | Version 2.0

©Assessio 2024

might adopt a more chaotic pace of work or have a distorted view of priorities. In leadership positions, they might assume great risks for the sake of pursuing a grand vision. As teammates, they might slow down decision-making by continuously proposing new ideas. They will often excel in brainstorming solutions but might struggle to decide on which to pursue. While their intellectual curiosity allows them to think outside the box, their solutions might sometimes lack practicality. Experimenting with different ideas and tools might lead them to useful discoveries, but it might also cause their team to waste time and resources (Deyoung et al., 2012; Piedmont et al., 2012). They might also revise their decisions or change their mind often, which can confuse or frustrate others.

With a facet combination in the computation of Eccentric of low-end Imagination and Mindset with the highest weight on Imagination, the scale of Eccentric may be interpreted as the extent to which individuals endorse unusual or unrealistic ideas. High scorers might get too invested in grand plans while failing to consider what is actually possible. They may want to try out new things, even when this is unnecessary or unproductive. This might cause them to violate social norms or create friction. Thus, others might find their behavior disruptive, and they may waste valuable time or resources.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

3. Scale construction

As outlined in previous chapters, the MAP-X measures an individual's dysfunctional behavioral tendencies in light of their extreme personality traits. That is, problematic dispositions that can get in the way of them leading successful personal and professional lives. To capture and predict extreme behavior linked to the FFM (Five Factor Model), scales were constructed from combining and weighting each of the facets in Assessio's personality test MAP. The choice of MAP as the underlying foundation was based on three key reasons. First, MAP was already designed to measure FFM behavioral dispositions in applied contexts (Sjöberg, Svensson, & Sjöberg, 2019). Second, MAP has already been widely validated (Sjöberg et al., 2019). Finally, there is a large global database of responses on MAP thereby assisting in normative scoring for high stakes situations.

To construct the MAP-X scales, a sample of 208 working adults completed the MAP assessment alongside the "Personality Inventory for the DSM-5" (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012). The PID-5 is a 220-item self-rated personality assessment for adults and measures the dimensional conceptualization of personality disorders that have been described previously. It assesses 25 dysfunctional personality trait facets, which can be combined to yield indices of the five broader trait domains linked to the FFM model: Detachment (Extraversion), Antagonism (Agreeableness), Disinhibition (Conscientiousness), Negative Affect (Emotional Stability), and Psychoticism (Openness). Respondents are asked to rate how well the item describes them. The PID- 5 has been well-validated and is primarily a tool for research and clinical applications (Al-Dajani, Bagby, & Bagby, 2016), why it doesn't hold the contextualized qualities that MAP does.

To compare results and ensure stability of the computational model, the study was repeated using a cross-validation sample of 254 working adults who also completed both assessments. This data was collected in 2023 in collaboration with the Justus-Liebig University. During data collection, a recruitment setting was simulated to ensure that conclusions drawn from the first sample could generalized to a high-stake setting. Furthermore, a few items were added as attention checks to ensure participants were paying close attention to reading and answering the items properly. As a result of these precautions, the sample size dropped from 322 to 254 cases.

To optimize prediction of the PID-5 target domains and thus convergent validity of the MAP-X scales, different computational models were examined: Trait scores (i.e., basing MAP-X scores on extreme ends of the general trait scores from MAP), facet weightings (combining and weighting MAP facets to maximize prediction of the target domain), and item subsets (selecting an item subset based on Machine Learning algorithms aimed at maximizing explained variance of the target domain (cf. Yarkoni, 2010)). For both datasets, the facet weighting approach showed superior predictions across the five domains compared to both trait scores and item subsets. Hence, this method served as the basis for constructing each of the MAP-X scales.

Regression models of MAP facets and PID-5 criteria

The facet weights were derived from a series of multiple linear regressions with each of the PID-5 domains as the criterion and the corresponding trait facets as predictors. Regressions were carried out for the five PID-5 domains consisting of three facets each linked to each of the big five traits (Detachment, Antagonism, Disinhibition, Negative Affect, and Psychoticism linked to Extraversion, Agreeableness, Conscientiousness,

Emotional Stability, and Openness, respectively). In addition, we also considered 10 additional PID-5 facets that are not specifically linked to any of the five overall domains but might constitute relevant criteria.

The results of these regressions for the initial and cross-validation samples are presented in Table 2 showing the multiple correlation coefficient (R) derived from optimal weighting of facets compared to the correlation between the overall (i.e., unit-weighted) trait score for each of the best predicted target PID-5 domains and facets (marked in italics). The scales chosen for final scale construction are highlighted in bold.
For Conscientiousness and Emotional Stability, the corresponding PID-5 domains of Disinhibition and Negative Affect, respectively, showed the best predictions compared to any of the facets. However, for Extraversion and Openness, the domain facets of Withdrawal and Eccentricity were better predicted than the overall domains of Detachment and Psychoticism. Finally, the prediction of Antagonism – the intended target domain for Agreeableness – was inferior to the prediction of the non-domain facet of Callousness. For this reason, this PID-5 facets were chosen instead of the domains as the target criteria for Extraversion, Agreeableness and Openness.

In addition to achieving optimal predictions (maximizing R), the PID-5 facets of Withdrawal, Callousness, and Eccentricity are more closely linked to the behavioral domains MAP-X scales were designed to capture. For instance, the tendency to withdraw from others and avoid social contact is better captured by the narrower domain of Withdrawal compared to the general domain of Detachment (that includes Anhedonia and Intimacy Avoidance as well). Similarly, the domain of Antagonism focuses on aspects of deceitfulness, grandiosity, and manipulativeness, whereas Callousness is better aligned with insensitive behavior, i.e., showing little compassion for others. Finally, the Psychoticism domain also includes the facets of Perceptual Dysregulation and Unusual Beliefs, both of which are far less relevant in a working context (and not very well predicted) compared to the facet of Eccentricity.

Table 2. Results of regression models predicting target PID-5 scales in MAP-X.

MAP-X scale	PID-5 domain/facet	Initial sample (N = 208)		Cross-val. sample (N = 254)	
		Multiple R	Trait R	Multiple R	Trait R
EX	Detachment	.61	.58	.75	.66
	Withdrawal	*.72*	*.63*	*.84*	*.72*
AG	Antagonism	.56	.37	.55	.42
	Callousness	*.62*	*.59*	*.75*	*.73*
CO	**Disinhibition**	**.63**	**.59**	**.76**	**.69**
	Distractibility	.59	.53	.74	.70
ES	**Negative Affect**	**.80**	**.77**	**.79**	**.77**
	Anxiousness	.79	.74	.87	.82
OP	Psychoticism	.44	.22	.55	.27
	Eccentricity	*.53*	*.20*	*.58*	*.21*

MAP-X , technical manual | Version 2.0   ©Assessio 2024

Deriving facet weights

Based on these optimal predictions, the scales were constructed by combining and weighting the three strongest correlating facets (except for the Conformist/Eccentric scale that used only two) as determined by their standardized beta coefficients across datasets (rescaled proportionally to a sum of 1.00). In determining the final weights, the values of 0.65 and 0.75 were chosen as the guiding and absolute limits for any facet as to prevent final MAP-X scales from relying too much on just a single facet (i.e., merely representing a single facet as opposed to a unique combination of facets indicative of risk behaviors).

A complete overview of facets used to construct each of the MAP-X scales is presented below in Table 3 (with the highest weighted facets highlighted in bold).

Table 3. MAP facets used in constructing MAP-X scales.

MAP-X scale	EX	AG	CO	ES	OP
Facet A	**Social Need**	Communication	Diligence	**Emotions**	**Imagination**
Facet B	Social Image	Altruism	**Self-Discipline**	Temper	Mindset
Facet C	Cheerfulness	**Compassion**	Decision Making	Self-Control	-

An example of the scale weighting approach is listed below in Table 4 showing the regression model for Withdrawal predicted from each of the five Extraversion facets in MAP. Please note that for this example, signs have been reversed to reflect that *low* scores on the MAP-X scale predict *high* scores on Withdrawal.

Table 4. Facet weights derived from regression models targeting Withdrawal.

Withdrawal	Initial sample (N = 208)			Cross-val. Sample (N = 208)			Final weight
MAP facet	Std. Beta	Prop. Weight	Adj. weight	Std. Beta	Prop. Weight	Adj. weight	
Social Need	0.61	0.77	0.79	0.76	0.86	0.77	0.65
Social Image	0.10	0.12	0.12	0.09	0.10	0.09	0.15
Pace of Life	0.04	0.05	0.00	0.01	0.02	0.00	0.00
Excitement Seeking	-0.02	-0.02	0.00	-0.11	-0.13	0.00	0.00
Cheerfulness	0.06	0.08	0.08	0.13	0.15	0.13	0.20

The distributional properties of the final scales are summarized below in Table 5. All scales had excellent levels of skewness and kurtosis (< 0.50), and the mean and median were close to the expected value of 50.

Table 5. Distributional properties of MAP-X scales.

Scale	Mean	Median	SD	Skewness	Kurtosis	P11	P89
EX	50.1	51.0	16.68	-0.32	-0.29	29	71
AG	50.2	50.0	15.21	-0.09	-0.38	31	69
CO	50.1	52.0	15.94	-0.44	-0.26	29	69
ES	50.2	51.0	16.40	-0.41	-0.18	29	70
OP	50.2	50.0	16.93	0.17	-0.05	30	71

Zero Talent Waste.

MAP-X , technical manual | Version 2.0

©Assessio 2024

4. Validity

Despite a clear definition of validity, it is a topic of debate among international researchers and experts, how many types of validity there are, and which research methods are most suitable for shedding light on what. This is mainly due to the fact that, in practice, it can be difficult to determine the type of validity a given study relates to. However, there is a growing consensus that validity is a unitary concept, which can be documented by various forms of statistical and empirical studies.
The following outlines different studies on construct- and criterion-related validity for MAP-X.

Convergent & Discriminant validity

Evidence of convergent validity is obtained by demonstrating relationships (positive correlations) with other measures of similar or related constructs. Conversely, discriminant validity is indicated by a lack of relationships (near-zero correlations) with non-similar or unrelated constructs.

The primary measure used to validate the MAP-X scales is the aforementioned PID-5 measuring dysfunctional dispositions related to personality traits. Tables 6 and 7 list correlations between all MAP-X and PID-5 scales for initial and cross-validation sample, respectively (with relevant correlations highlighted in bold). Please note for the first sample, the non-domain PID-5 scale of Depressivity could not be calculated due to missing data.

In support of the convergent validity, each of the MAP-X scales showed strong correlations with each of their intended PID-5 facet/domain (Withdrawal, Callousness, Disinhibition, Negative Affect, Eccentricity) ranging from .44 to .79 in absolute values across samples. Only one scale (Conformist/Eccentric) was below the .55 cut-off for adequate suggested by EFPA (2013). However, taking into account the reliabilities of the individual scales, the maximum validity coefficient is probably around .80. As a result, the obtained validity coefficients are somewhat diminished (uncorrected values are displayed).

Furthermore, the MAP-X scales showed moderate correlations with adjacent PID-5 scales (e.g., Attention Seeking vs. EX in both data sets, Depressibity and ES in the second sample) as well as the overall PID-5 domains (e.g., Antagonism and AG).

Finally, MAP-X scales had low correlations with dissimilar or unrelated constructs from the PID-5 (e.g., Suspiciousness and Submissiveness) supporting the discriminant validity of MAP-X.

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

Table 6. Correlations between MAP-X and PID-5 (initial sample).

PID-5 scale	EX	AG	CO	ES	OP
Antagonism	.22	**-.42**	-.17	-.24	.07
Deceitfulness	.06	-.44	-.28	-.38	.07
Grandiosity	.12	-.35	-.04	-.18	.08
Manipulativeness	.32	-.26	-.12	-.07	.03
Disinhibition	-.01	-.27	**-.61**	-.54	.28
Distractibility	-.14	-.21	-.49	-.48	.28
Impulsivity	.13	-.18	-.50	-.43	.14
Irresponsibility	.03	-.28	-.51	-.39	.25
Negative Affect	-.08	.01	-.06	**-.79**	.25
Anxiousness	-.19	.04	.01	-.73	.19
Emotional Lability	-.07	.04	-.06	-.67	.29
Separation Insecurity	.11	-.06	-.13	-.51	.15
Detachment	**-.60**	-.29	-.11	-.28	.05
Anhedonia	-.46	-.26	-.16	-.45	-.04
Intimacy Avoidance	-.26	-.16	-.09	-.01	.01
Withdrawal	**-.71**	-.27	-.01	-.23	.13
Psychoticism	-.08	-.12	-.22	-.37	**.39**
Eccentricity	-.13	-.15	-.25	-.41	**.44**
Perceptual Dysregulation	-.08	-.16	-.29	-.44	.33
Unusual Beliefs	.02	.01	-.03	-.10	.19
Non-domain scales					
Attention Seeking	.47	-.22	-.20	-.27	.18
Callousness	-.09	**-.58**	-.21	-.15	.02
Rigid Perfectionism	-.09	-.07	.34	-.33	.02
Risk Taking	.23	-.17	-.26	-.04	.13
Suspiciousness	-.12	-.17	.03	-.34	.12
Hostility	-.08	-.27	-.07	-.41	.01
Perseveration	-.14	-.17	-.10	-.49	.17
Restricted Affectivity	-.31	-.41	-.20	.04	-.08
Submissiveness	-.16	-.14	-.07	-.28	.06
Depressivity	-	-	-	-	-

Note. N = 208. Correlations of interest are highlighted in bold.

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

Table 7. Correlations between MAP-X and PID-5 (cross-validation sample).

PID-5 scale	EX	AG	CO	ES	OP
Antagonism	.09	**-.48**	-.12	-.09	.15
Deceitfulness	-.15	-.59	-.32	-.30	.15
Grandiosity	.20	-.23	.08	.14	.14
Manipulativeness	.16	-.38	-.07	-.07	.07
Disinhibition	-.16	-.31	**-.75**	-.62	.35
Distractibility	-.28	-.20	-.71	-.66	.38
Impulsivity	.07	-.24	-.58	-.44	.22
Irresponsibility	-.21	-.39	-.63	-.47	.31
Negative Affect	-.15	.06	-.35	**-.79**	.31
Anxiousness	-.34	-.05	-.35	-.84	.28
Emotional Lability	-.12	.08	-.34	-.69	.30
Separation Insecurity	.17	.14	-.16	-.36	.16
Detachment	**-.71**	-.40	-.34	-.46	.06
Anhedonia	-.54	-.29	-.44	-.64	.05
Intimacy Avoidance	-.36	-.26	-.19	-.17	.04
Withdrawal	-.83	-.43	-.21	-.33	.06
Psychoticism	-.24	-.24	-.42	-.49	**.50**
Eccentricity	-.33	-.34	-.41	-.46	**.47**
Perceptual Dysregulation	-.21	-.18	-.45	-.55	.46
Unusual Beliefs	-.05	-.07	-.25	-.28	.37
Non-domain scales					
Attention Seeking	.47	-.09	-.22	-.16	.25
Callousness	-.28	**-.70**	-.24	-.22	.09
Rigid Perfectionism	.03	.00	.29	-.20	.08
Risk Taking	.23	-.25	-.29	-.15	.26
Suspiciousness	-.27	-.29	-.20	-.54	.11
Hostility	-.23	-.38	-.32	-.64	.11
Perseveration	-.20	-.20	-.43	-.57	.34
Restricted Affectivity	-.33	-.49	-.09	.08	-.05
Submissiveness	-.15	.10	-.15	-.16	-.05
Depressivity	-.45	-.15	-.44	-.69	.22

Note. N = 254. Correlations of interest are highlighted in bold.

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

To further substantiate the validity of MAP-X and the link to the FFM, each of the scales were also correlated with trait scores for the Big Five derived from MAP (using data from the global norm updated in 2024) presented below in Table 8 (with correlations of interest highlighted in bold).

These results suggest that MAP-X accurately measures its intended behavioral domains, which is expected given that the MAP-X were constructed to measure the extreme ends of each personality domain. Although correlations of this magnitude (at least above .70 and even above .90 for some scales) might seem to suggest redundancy of scales (as highlighted by EFPA), statistical analyses of difference scores (MAP-X vs. MAP trait scores) showed that scores do vary between the two assessments (although difference scores were normally distributed around a mean of 0), especially when scores are markedly high or low on different combinations of facets. Thus, MAP-X does seem to indicate a risk for certain extreme behaviors, which cannot be inferred directly from (unit-weighted) trait scores on MAP. For instance, a person with high scores on Social Need and Social Image would have a higher risk for Attention Seeking behavior compared to a person with low scores on these facets, even if they had similar overall trait scores on Extraversion.

Table 8. Correlations between MAP-X and MAP trait scores.

MAP trait	EX	AG	CO	ES	OP
Extraversion	**.89**	.27	.30	.25	.24
Agreeableness	.48	**.89**	.50	.46	-.04
Conscientiousness	.41	.48	**.94**	.50	-.06
Emotional Stability	.36	.39	.60	**.93**	-.28
Openness	.44	.31	.25	.04	**.71**

Note. N = 20,348. Correlations of interest are highlighted in bold.

Criterion validity

Criterion validity refers to the relationship between test results and information about test subjects derived from other sources (i.e., external criteria).

Criterion validity was examined with measures of psychopathy and different dimensions of work performance, each of which are described briefly. Results are listed below in Table 9.

- **Psychopathy**: Psychopathy was measured with Levenson's 26-item's Self-report Psychopathy Scale (SRPS) suitable for non-clinical populations to assess primary (relating to a selfish, uncaring, and manipulative attitude towards others) and secondary psychopathy (relating to impulsivity and a self-defeating lifestyle) (Levenson et al., 1995).
- **Counterproductive Work Behavior (CWB)**: CWB was measured with 10-item short version of the Counterproductive Work Behavior Checklist (CWB-C) assessing a range of different counterproductive work behaviors such as coming in late without permission or starting arguments with coworkers (Spector et al., 2010).
- **Organizational Citizenship Behavior (OCB)**: OCB was assessed with a 25-item questionnaire (Staufenbiel & Hartz, 2000) assessing the facets of altruism (helping others), conscientiousness (following rules and instructions), sportsmanship (handling changes and unforeseen events without complaining), and civic virtue (attending conferences, improving skills, representing the company well outside of daily work, etc.).

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

- ▪ **In-role (task) performance**: The OCB questionnaire also contained a subset of items assessing in-role (task) performance, i.e., completing tasks and meeting formal requirements of the job.

Table 9. Correlations between MAP-X scores and external criteria.

Criteria	EX	AG	CO	ES	OP
Primary Psychopathy	-.03	**-.60**	-.13	-.13	.02
Secondary Psychopathy	-.25	-.40	**-.64**	-.59	.20
Psychopathy - Total	-.13	**-.61**	-.37	-.35	.10
CWB	-.07	**-.36**	-.27	-.33	.13
OCB - Altruism	**.45**	.43	.23	.13	.03
OCB - Conscientiousness	.13	.31	**.43**	.30	-.25
OCB - Sportsmanship	.15	.29	.26	**.43**	-.06
OCB - Civic Virtue	**.48**	.30	.33	.22	.11
OCB - Total	.44	**.47**	.45	.39	-.05
In-role Performance	.19	.27	**.48**	.32	-.20
Performance - Total	.43	.47	**.49**	.40	-.09

Note. N = 208. Strongest correlations for each of the criteria are highlighted in bold.

In general, correlations of different MAP-X scales with different criteria exceeded the benchmarks of adequate (> 0.20) or good (> 0.35) criterion-related validity suggested by EFPA (2013). Furthermore, the correlations with different performance dimensions are markedly strong given the abundance of contextual factors affecting these (company culture and values, perceived justice, organizational commitment, etc.).
For psychopathy, there was a clear pattern of AG (Insensitive/Overcaring) being related to primary psychopathy, whereas secondary psychopathy was more related to CO (Impulsive/Rigid) and ES (Emotional/Unresponsive).

For CWB, the strongest predictor was AG (Insensitive/Overcaring) and not CO (Impulsive/Rigid), which was to be expected according to prior research. However, the CWB scale used in the current study had many items relating to interpersonal aspects such as arguing with, insulting or making fun of others.

As expected, total OCB showed strong correlations for almost all scales, the highest being AG (Insensitive/Overcaring). Each of the OCB dimensions were mostly related to their expected scales, except for Altruism which was expected to correlate mostly with AG (Insensitive/Overcaring). However, the items loading on this facet contained a lot of outgoing elements (i.e., actively seeking out and helping others), which might explain the strong correlation with EX (Withdrawn/Attention Seeking).

Finally, in line with expectations, in-role or task performance as well as total performance (summing OCB and task performance) was best predicted by CO (Impulsive/Rigid).

Across MAP-X scales, OP (Conformist/Eccentric) had the weakest correlations with any of the criteria, for which there are several plausible explanations. First, the theoretical overlap between this construct and the performance dimensions in question (and with other criteria linked to maladaptive FFM variants; see Oltmanns & Widiger, 2018) is quite limited. Although tentative, this scale is more likely to correlate with

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

measures of creativity, imagination or even adaptive performance. Second, the linkage between job performance and OP (Conformist/Eccentric) might be more dependent on context than other traits, i.e., that imagination or eccentric ideas are highly related to performance in some positions but unrelated or even hindering performance in others. Lastly, the magnitude of correlations might indicate that there is in fact a curvilinear relationship with performance for this scale. In support of this notion, data showed variable patterns of mean differences between the high and low extreme groups (top and bottom 11 %, respectively) across performance dimensions. For instance, the conformist group had markedly higher scores on in-role (task) performance and the OCB facet of Conscientiousness, whereas the eccentric group had higher scores on the OCB facets of Altruism and Civic Virtue.

Although these results primarily support linear relationships as opposed to curvilinear relationships suggested by the MAP-X model (e., that high extremes are more desirable than low extremes except for OP), there is an abundance of evidence pointing to the undesirable or counterproductive aspects of extremes at the opposite ends (cited in the first section of this manual). Furthermore, the performance dimensions and measures used in research are inherently one-sided as well, thus "favoring" one extreme over the other. For instance, none of the OCB scales in question assess or propose a scoring model, in which you can be too helpful, too conscientious (i.e., rigid), complain too little (put up with everything), and take on too many responsibilities exceeding the individual's available resources, thus running the risk of reduced job satisfaction, engagement and burnout.

5. Reliability

Reliability is defined as the consistency with which an instrument measures a construct.

An often-used measure of internal consistency is Cronbach's alpha (Cronbach, 1951), which is listed below for each of the Map-X scales in Table X. As MAP-X was constructed from existing facets in MAP (at the scale as opposed to the item level), an estimate of reliability was calculated by combining all of the items from facets represented in the respective MAP-X scale. Estimates based on the full MAP traits were not used, as they would likely overestimate true reliabilities of the constructed scales.

As alpha tends to be highly affected by the number of items in the scale, the mean corrected item-total correlation is also listed in the table below. The final column of the table contains the Standard Error of Measurement (SEM) defined as:

$$SEM = SD * \sqrt{(1-r)}$$

Where SD represents the standard deviation, and r refers to the reliability of the scale in question.

As shown in Table 10, all scales have acceptable or excellent levels of reliability with alphas ranging from .72 to .86 with an average reliability of .80. Furthermore, all item-total correlations were above the recommended value of .30 confirming that the alphas reported represent great scale consistencies and not inflated values from having a high number of items. Given the dispersion and reliability of the scales, the average Standard Error of Measurement is only 7.11. If this is used to construct a 68 % confidence interval for the normed score, the true score (T) would most likely fall within a range of no more than ±7 points from the observed score (O). Hence, the likelihood of falsely classifying an extreme tendency (or missing one) at either end of the scale is

Zero Talent Waste.

MAP-X , technical manual | Version 2.0　　　　　　　　　　　　　　　©Assessio 2024

low. That is, even with measurement error, any score from 37-63 would have a high probability of being correctly classified as non-extreme, and most (but not all) scores below 30 and above 70 are likely to be identified correctly as extremes (cf. cut points defined below in the section on standardization).

Table 10. Reliability of MAP-X scales.

Scale	Items	Alpha	Mean Item-Total Cor.	SD	SEM
EX	24	.86	.43	16.68	6.24
AG	24	.77	.32	15.21	7.29
CO	24	.81	.37	15.94	6.95
ES	24	.86	.42	16.40	6.13
OP	16	.72	.32	16.93	8.96
Mean	**22.4**	**.80**	**.37**	**16.23**	**7.11**
Median	**24.0**	**.81**	**.37**	**16.40**	**6.95**

In sum, these estimates show great consistency and measurement accuracy for all MAP-X scales.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

6. Standardization

Standardization refers to the procedure of design and testing that leads to a standardized test. Standardization thus says something about the way in which the test is constructed, thoroughly tried, and tested. There are several ways to standardize, where the best known are the normative and ipsative methods. MAP-X is a normative test, which means that the test result is compared to a relevant norm group.

One of the advantages of normative tests is that they are quick and straightforward to complete. Although there are typically more questions compared to other types of tests, normative tests still take a short time to complete because the questions are easier to answer. Another strength of the normative method is that the test scales are completely independent of each other. Because the scales are measured one at a time, normative tests show more nuances, and make the measurements more accurate.
Most importantly, normative tests are suitable for comparing individuals. The normative test not only provides answers to what is characteristic of the person as an individual, but also what is characteristic of the test person in relation to others. Normative tests thus measure interpersonal differences (i.e., differences between people), where the person's response is compared to the responses of others. Therefore, the normative approach is the preferred method when a tool is to be used for selection purposes and is also an ideal tool for development purposes (providing insight as to how the individual differs from others).

Score calculation

As each of the MAP-X scales are composite scores based on different traits and facets in MAP, final scores were computed in three steps. First, each of the facets were converted to a modified T score ranging from 0-100 with a mean of 50 and a standard deviation of 20 (i.e., the modified T score corresponds to a C score times ten with one decimal place). Next, a weighted score was calculated by multiplying each of the facet T scores with the appropriate weight as determined by the regression coefficients derived during scale construction (non-relevant facets were given a weight of 0 and hence did not affect the final scores). Finally, weighted scores for each of the facets within the respective traits were summed to compute the final MAP-X scores.

Classifying extremes

Based on distributions within the norm group, scores were then divided into the categories of low extreme/moderate/high extreme based on the classification listed below in Table 11.
To categorize extreme scores, were chose the top and bottom 11 % to differentiate "extreme scores" from simply high or low scores (which usually refers to the top and bottom 23 %). In other words, extreme high and low scores would range from 8-10 and 0-2 on the standard C score, respectively.

Table 11. Classification of MAP-X scores.

Category	Score interval	Percentage	Percentile
Low Extreme	0-29	11	11
Moderate	30-70	78	89

MAP-X , technical manual | Version 2.0 ©Assessio 2024

High Extreme	71-100	11	100

With these classifications, an expected 64 % of cases will have at least 1 extreme (at either end), whereas 36 % are expected to have no extremes (the overall mean and median were 1). The exact distribution of extremes within the norm group is shown in Table 12.

Table 12. Distributions of extremes within the MAP-X norm group.

No. of Extremes	Percentage	Cum. Perc.
0	35.9	35.9
1	34.8	70.7
2	19.4	90.1
3	7.4	97.5
4	2.3	99.8
5	0.2	100.0

Norm group

The MAP-X norm group is entirely consistent with the most recent global norm for MAP updated in 2024. To reflect the current state of normal, work-related behavior, this norm group was updated based on quality standards derived from various international standards, including EFPA, COTAN, and ITC guidelines. In short, these guidelines set out criteria for various aspects of the norm group:

- Update: When was the norm group last updated?
- Sample size: How large is the norm group? Is it sufficiently large to ensure representativeness?
- Composition: How is the norm group composed with respect to different demographics?
- Subgroup differences: Are group differences sufficiently small to prevent adverse impact?

Update

Over time, what is considered normal behavior changes. Major events and crises have an impact on the way people in general behave and new generations may also challenge the existing standards. Therefore, with respect to assessments, it is highly important to update norm groups at a regular basis and make sure that all candidates and people assessed are evaluated with a norm group representing the current state and what is currently considered normal behavior, since that will provide the most valid assessment. In addition, updating the norm group keeps scores balanced and avoids too many candidates getting either high or low scores. In other words, norm updates allow for better differentiation of candidates, which in turn leads to better recruitment decisions.

According to EFPA and COTAN guidelines, a norm of the highest quality should not be older than 10 or 15 years, respectively. At Assessio, however, we are committed to checking if updates are needed at least every 2 years and update our norm groups frequently.

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

The global norm for MAP-X is based on data collected in a high-stake setting (selection and development) from 2019-2023.

Sample size

A good norm group consists of many people, as a high number provides greater representation and statistical certainty. The prevailing view is that the larger the sample, the better the norm group. While that is true, it very much depends on sampling procedures as well as composition with respect to different demographic characteristics. In general, norm groups that are too small run the risk of underrepresentation (e.g., too few people with a certain occupation or education level), whereas too large norm groups risk overrepresentation (e.g., too many people of a certain age or nationality). According to EFPA, a sample size of at least 1,000 constitutes an excellent norm group (in some cases, smaller norm groups may also be sufficient depending on composition, target groups, and intended applications). For high-stake purposes, a norm group consisting of 400-999 people is considered a good sample size (EFPA, 2013).

The MAP-X norm group consists of 20,348 people who were selected through stratified randomization from a total of 227,779 people aged 18-70 who completed the assessment in a high-stake setting. Statistical analyses confirmed that the norm group does not represent a biased sample, as score differences between different samples were only small or negligible across scales (Cohen's d ranging from 0.00-0.42 with an average of 0.15).

Composition

To ensure that a norm group is representative of all target groups and is appropriate for all intended applications, key demographic characteristics must be carefully weighted and balanced, especially those that can lead to potential score differences between subgroups.

To construct a proper global norm, the sample was stratified for gender at the nationality level, hence making each nationality contribute an equal number of main genders (M and F). Then, nationalities were stratified such that each nationality constituted a maximum of 2.5 % of the total norm group. Next, other genders were added to the norm group as well with aim of having a representation of roughly 1 % but with the restriction that this addition did not cause any nationality to be largely overrepresented.

Although the final age distribution was slightly skewed to the left (with a median of 32), statistical analyses revealed no significant relationships between age and any of the scores as evidenced by very low correlations ranging from -.18 to .05, with absolute values averaging just .09. Therefore, it was deemed unnecessary to stratify for age, as this would only reduce the sample size without impacting overall scores across age groups. As the final sample comprised a proper range of education levels and occupations (job families), and there were no major score differences, the sample was not further stratified for any of these demographic variables. The demographic composition of the final norm group is listed below in Table 13.

Table 13. Demographic composition of the global norm for MAP-X.

MAP-X: Global norm	
Last updated	2024

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

Data collection	20219-2023
Sample size	20,348
Composition	
Purpose(s)	Selection: 73 %
	Development: 27 %
Age	18-70 (M = 34.0, SD = 9.57)
Gender	49.8% females
	49.8% males
	.4% other
Nationalities	162, Max. = 2.54 %
Education level (%)	
Elementary school	2.6
Less than 3 years of post-secondary education	12.7
Middle/Junior high/High school	21.3
Other	3.9
PhD	2.5
Unknown	.3
3 or more years of post-secondary education	56.7
Job family (%)	
Architecture and engineering	4.4
Arts design entertainment sports and media	2.4
Building and grounds	1.8
Business and financial operations	9.4
Cleaning and maintenance	1.4
Community and social service	1.3
Computer and mathematical	5.5
Construction and extraction	0.8
Education training and library	3.4
Farming fishing and forestry	.4
Food preparation and serving related	2.1
Healthcare practitioners and technical	2.9
Healthcare support	1.3
Installation maintenance and repair	2.5
Legal	1.1
Life physical and social science	1.9
Management	5.5
Military specific	.1
Office and administrative support	7.0
Other	23.7
Personal care and service	1.2
Unknown	2.7
Production	4.8
Protective service	0.6

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

Sales and related	6.9
Transportation and material moving	5.0

MAP-X , technical manual | Version 2.0   ©Assessio 2024

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

Group differences & Adverse Impact

When using an assessment to make important decisions with a great impact on individuals (such as selection, promotion, and hiring decisions), a key requirement is to ensure fairness and mitigate Adverse Impact (AI), defined as "a substantially different rate of selection in hiring, promotion, or other employment decisions which works to the disadvantage of members of a race, sex or ethnic group" (Uniform Guidelines on Employee Selection Procedures, Equal Employment Opportunity Commission, 1978). The "Four-Fifths rule" can be used to determine whether an assessment has AI. Usually, a selection rate for any demographic group less than four-fifths (or 80 percent) of the selection rate for the group with the highest rate (majority group) is considered evidence of AI. The level of AI depends both on the magnitude of group differences (e.g., between males and females) and the selection ratio, i.e., the number of people hired compared to the total number of applicants.

A first step in preventing Adverse Impact is to ensure that differences between demographic groups reflect true differences (item impact) as opposed to item bias (or Differential Item Functioning or DIF). In other words, including items with a uniform bias for one demographic group would inflate group differences, thus creating a disadvantage for the lowest scoring group. Ensuring that items are not subject to item bias ensures a report of true group differences. However, true group differences can still produce Adverse Impact, why this is still relevant and important to study further.

Second, simulations of expected AI when using the extremes as select-out criteria were conducted for gender (female/male) and age (above/below 40). These calculations assume that individuals are selected out based solely on their extremes profile, which is not realistic nor advisable in practice, as recruitment decisions should be based on a combination of assessments, scales, and other information relevant to the job in question (i.e., KSAOs) to consider both job, team, and organization fit. However, for certain positions, a certain extreme might pose too great of a risk, thus warranting using the extremes as select-out criteria.

Table 14 list the standardized mean differences (Cohen's d) between groups alongside the simulated AI ratio (selection rate of the least represented group compared to the most represented group) for gender (male/female), and age (above/below 40) when selecting out extreme scores, i.e. all scores within the top or bottom 11 % of the norm group (according to the classification).

Table 14. Group differences and Adverse Impact simulations.

Scale	Gender		Age	
	d	AI ratio	d	AI ratio
EX	0.07	1.00	0.19	0.99
AG	0.26	0.99	0.04	0.99
CO	0.11	0.99	0.19	0.98
ES	0.07	0.98	0.12	0.97
OP	0.08	0.99	0.31	1.00

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

Results show that for any given scale, the selection rate of the least represented group is far above 80 % of the selection rate for the most represented group for both gender and age as suggested by the Four-Fifths rule. That is, selecting out extremes altogether does not cause any adverse impact for different genders nor age groups. Given the low effect sizes, selecting out extremes at only the low or high ends is also highly unlikely to produce any adverse impact.

In addition to the extremes for each of the dimensions, the total number of extremes might also raise a concern within a certain position or company, thus stressing the need for selecting out individuals with a certain number of extremes (e.g., more than 0 or 1). Although somewhat arbitrary to do so in actual practice, further statistical analyses showed that the number of extremes is evenly distributed across different gender and age groups as reported in Table 15. Hence, using these criteria as the basis for select-out is highly unlikely to cause any adverse impact as well.

Table 15. Distribution of extremes by gender and age.

Extremes	Gender (%)		Age (%)	
	F	M	40+	< 40
0	35.7	36.1	36.1	35.8
1	35.3	34.4	35.3	34.7
2	19.8	19.1	19.3	19.5
3	7.2	7.5	7.0	7.5
4	1.9	2.7	2.1	2.4
5	0.1	0.3	0.2	0.2
Kendall's Tau	0.007		0.007	
Approx. T	1.06		1.16	
p-value	.289		.245	

In conclusion, when applying proper selections ratios and decision rules (i.e., combining (multiple) scores with information derived from other sources), MAP-X provides a fair and unbiased assessment that does not cause any Adverse Impact for protected groups when used for making employment decisions.

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

7. References

Age Discrimination in Employment Act of 1967. Pub. L. No. Pub. L. No. 90-202, et seq (1967).

Akhtar, R., Boustani, L., Tsivrikos, D., & Chamorro-Premuzic, T. (2015). The engageable personality: Personality and trait EI as predictors of work engagement. *Personality and Individual Differences, 73*, 44–49.

Akhtar, R., Humphreys, C., & Furnham, A. (2015). Exploring the relationships among personality, values, and business intelligence. *Consulting Psychology Journal, 67*(3), 258–276.

Al-Dajani, N., Bagby, T. G., & Bagby, M. (2016). A Psychometric Review of the Personality Inventory for DSM-5 (PID-5): Current Status and Future Directions. *Journal of Personality Assessment, 98*(1), 62–81.

Ames, D. R., & Flynn, F. J. (2007). What breaks a leader: the curvilinear relation between assertiveness and leadership. Journal of Personality and Social Psychology, 92(2), 307– 324.

Association, A. P. (2013). *Diagnostic and Statistical Manual of Mental Disorders,* Fifth Edition (DSM-5) (5th ed.). Washington, DC.: American Psychiatric Association.

Babiak, P., Neumann, C. S. C., D, P., & Hare, R. D. (2010). Corporate Psychopathy: Talking the Walk. *Behavioral Sciences and the Law, 28*(2), 174–193.

Bagby, R. M., Costa, P. T., Widiger, T., Ryder, A. G., & Marshall, M. (2005). DSM-IV personality disorders and the five-factor model of personality: A multi-method examination of domain- And facet-level predictions. *European Journal of Personality, 19*(4), 307–324.

Barrick, M. R., & Mount, M. K. (1991). The Big Five Personality Dimensions and Job Performance : A Meta Analysis. *Personnel Psychology, 44*(1), 1–26.

Bass, B. M., & Yammarino, F. J. (1991). Congruence of Self and Others' Leadership Ratings of Naval Officers for Understanding Successful Performance. *Applied Psychology, 40*(4), 437–454.

Bell, S. & Brown, S. (2015). Selecting and Composing Cohesive Teams. *Team Cohesion: Advances in Psychological Theory, Methods and Practice, 17*, 181-209.

Bogg, T., & Roberts, B. W. (2004). Conscientiousness and Health-Related Behaviors: A Meta- Analysis of the Leading Behavioral Contributors to Mortality. *Psychological Bulletin, 130*(6), 887-919.

Bortolotti, L., & Mameli, M. (2012). Self-Deception, Delusion and the Boundaries of Folk Psychology. *Humanamente, 20(*5), 203–221.

Botwin, M. D., Buss, D. M., & Shackelford, T. K. (1997). Personality and Mate Preferences: Five Factors In Mate Selection and Marital Satisfaction. *Journal of Personality, 65*(1), 107–136.

Boudreau, J. W., Boswell, W. R., & Judge, T. A. (1999). Effects of Personality on Executive Career Success in the U . S . and Europe. *Journal of Vocational Behaviour, 58*(1), 53–81.

Bradley, B. H., Baur, J. E., Banford, C. G., & Postlethwaite, B. E. (2013). Team Players and Collective Performance: How Agreeableness Affects Team Performance Over Time*. Small Group Research, 44*(6), 680–711.

Brandes, M., & Bienvenu, O. J. (2006). Personality and anxiety disorders. *Current Psychiatry Reports, 8*(4), 263–269.

Butler, J. C. (2006). Personality and Emotional Correlates of Right-Wing Authoritarianism. *Social Behavior and Personality: An International Journal, 28(*1), 1–14.

Camps, J., Stouten, J., & Euwema, M. (2016). The Relation Between Supervisors' Big Five Personality Traits and Employees' Experiences of Abusive Supervision. *Frontiers in Psychology, 7*(112).

Carter, N. T., Miller, J. D., & Widiger, T. (2018). Extreme Personalities at Work and in Life. *Current Directions in Psychological Science, 27*(6), 429–436.

Chamorro-Premuzic, T. (2019). *Why do so many incompetent men become leaders? (and what to do about it).* Boston, MA: Harvard Business Review Press.

Chamorro-Premuzic, T., & Furnham, A. (2010). *The Psychology of Personnel Selection*. Cambridge: Cambridge University Press.

Church, A. H. (2005). Managerial self-awareness in high-performing individuals in organizations. *Journal of Applied Psychology, 82*(2), 281–292.

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

Coker, L. A., Samuel, D. B., & Widiger, T. A. (2003). Maladaptive Personality Functioning Within the Big Five and the Five-Factor Model. *Journal of Personality Disorders, 16*(5), 385–401.

Damian, R. I., Spengler, M., Sutu, A., & Roberts, B. W. (2018). Sixteen Going on Sixty-Six: A Longitudinal Study of Personality Stability and Change Across 50 Years. *Journal of Personality and Social Psychology, 117*(3), 674-695.

Debusscher, J., Hofmans, J., & De Fruyt, F. (2014). The Curvilinear Relationship between State Neuroticism and Momentary Task Performance. *PLoS ONE, 9*(9), e106989.

Deyoung, C. G., Grazioplene, R. G., & Peterson, J. B. (2012). From madness to genius: The Openness / Intellect trait domain as a paradoxical simplex. *Journal of Research in Personality, 46*(1), 63–78.

Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The Mini-IPIP scales: Tiny- yet-effective measures of the Big Five factors of personality. *Psychological Assessment, 18*(2), 192–203.

Eaton, N. R., Krueger, R. F., South, S. C., Simms, L. J., & Clark, L. A. (2011). Contrasting prototypes and dimensions in the classification of personality pathology: Evidence that dimensions, but not prototypes, are robust. *Psychological Medicine, 41*(6), 1151–1163.

European Federation of Psychologists' Associations [EFPA] (2013). Review model for the description and evaluation of psychological and educational tests. ver. 4.2.6. EFPA Board of Assessment.

Equal Employment Opportunity Commission, Civil Service Commission, U.S. Department of Labor, & U. S. D. of J. (1978). Uniform guidelines on employee selection procedures. *Federal Register, 43*, 38290–38309.

Finklestein, S. (2004). The Seven Habits of Spectacularly Unsuccessful Executives. Ivey Business Journal Online, (Jan/Feb), Retrieved from: https://iveybusinessjournal.com/publication/the-seven-habits-of-spectacularly-unsuccessful-executives/

Finkelstein, S. (2006). Why smart executives fail: Four case histories of how people learn the wrong lessons from history. *Business History, 48*(2), 153–170.

Flynn, F. J. (2005). Having an open mind: The impact of openness to experience on interracial attitudes and impression formation. *Journal of Personality and Social Psychology, 88*(5), 816–826.

Furnham, A., Richards, S. C., & Paulhus, D. L. (2013). The Dark Triad of Personality: A 10 Year Review. *Social and Personality Psychology Compass, 3(*7), 199–216.

Furnham, A., Trickey, G., & Hyde, G. (2012). Bright aspects to dark side traits: Dark side traits associated with work success. *Personality and Individual Differences, 52*(8), 908–913.

Gaddis, B. H., & Foster, J. L. (2013). Meta-Analysis of Dark Side Personality Characteristics and Critical Work Behaviors among Leaders across the Globe: Findings and Implications for Leadership Development and Executive Coaching. *Applied Psychology: An International Review, 64*(1), 25-54.

Gerlach, M., Farb, B., Revelle, W., & Nunes Amaral, L. A. (2018). A robust data-driven approach identifies four personality types across four large data sets. *Nature Human Behaviour, 2*, 735–742.

Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., & Gough, H. G. (2006). The international personality item pool and the future of public- domain personality measures. *Journal of Research in Personality, 40*(1), 84-96.

Gore, W. L., Presnall, J. R., Miller, J. D., Lynam, D. R., & Widiger, T. (2012). A five-factor measure of dependent personality traits. *Journal of Personality Assessment, 94*(5), 488–499.

Grant, A. M. (2013). Rethinking the Extraverted Sales Ideal: The Ambivert Advantage. *Psychological Science, 26*(6), 1024–1030.

Graziano, W. G., & Bruce, J. W. (2008). Attraction and the initiation of relationships: A review of the empirical literature. In S. Sprecher, A. Wenzel, & J. Harvey (Eds.), *Handbook of relationship initiation* (pp. 269–295). New York: Psychology Press.

Graziano, W. G., & Eisenberg, N. H. (1997). 'Agreeableness: a dimension of personality' in Hogan, R., Johnson, J., & Briggs, S. (Eds.), *Handbook of Personality Psychology* (pp. 795–824). New York: Academic Press.

Harms, P. D., & Spain, S. M. (2015). Beyond the Bright Side: Dark Personality at Work. *Applied Psychology, 64*(1), 15–24.

Heidemeier, H., & Moser, K. (2009). Self-Other Agreement in Job Performance Ratings: A Meta-Analytic Test of a Process Model. *Journal of Applied Psychology, 94*(2), 353–370.

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the Self and Social Contexts: Conceptualization, Assessment, and Association With Psychopathology. *Journal of Personality and Social Psychology, 60*(3), 456–470.

Hewitt, P. L., Flett, G. L., & Mikail, S. F. (2017). *Perfectionism: a relational approach to conceptualization, assessment, and treatment*. New York: Guilford Press.

Ho, A.K., Sidanius, J., Kteily, N., Sheehy-Skeffington, Jennifer, Pratto, F., Henkel, K.E., Foels, R. and Stewart, A.L. (2015). The Nature of Social Dominance Orientation: Theorizing and Measuring Preferences for Intergroup Inequality Using the New SDO7 Scale. *Journal of Personality and Social Psychology, 109*(6), 1003-1028.

Hogan, R. T., Chamorro-Premuzic, T., & Kaiser, R. B. (2013). Employability and Career Success: Bridging the Gap Between Theory and Practice. *Industrial and Organizational Psychology, 6*, 3–16.

Hopwood, C. J., Kotov, R., Krueger, R. F., Watson, D., Widiger, T., Althoff, R. R., et al. (2018). The time has come for dimensional personality disorder diagnosis. *Personality and Mental Health, 12*(1), 82–86.

Hunter, S. T., & Cushenbery, L. (2015). Is Being a Jerk Necessary for Originality? Examining the Role of Disagreeableness in the Sharing and Utilization of Original Ideas. *Journal of Business and Psychology, 30*(4), 621–639.

John, O. P., Angleitner, A., & Ostendorf, F. (1988). The lexical approach to personality: A historical review of trait taxonomic research. *European Journal of Personality, 2*(3), 171–203.

Jonason, P. K., & Webster, G. D. (2010). The dirty dozen: a concise measure of the dark triad. *Psychological Assessment, 22*(2), 420–432.

Jones, S. E., Miller, J. D., & Lynam, D. R. (2011). Personality, antisocial behavior, and aggression: A meta-analytic review. *Journal of Criminal Justice, 39*(4), 329–337.

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology, 87*(3), 530–541.

Judge, T. A., Livingston, B. A., & Hurst, C. (2012). Do nice guys-and gals-really finish last? The joint effects of sex and agreeableness on income. *Journal of Personality and Social Psychology, 102*(2), 390–407.

Kaufman, S. B. (2013). Opening up Openness to Experience: A Four-Factor Model and Relations to Creative Achievement in the Arts and Sciences. *The Journal of Creative Behavior, 47*(4), 233–255.

Kellerman, B. (2013). Leading questions: The end of leadership - redux. Leadership, 9(1), 135–139.

Krueger, R. F., Derringer, J., Markon, K. E., Watson, D., & Skodol, A. E. (2012). Initial construction of a maladaptive personality trait model and inventory for DSM-5. *Psychological Medicine, 42*(9), 1879–1890.

Lahey, B. B. (2009). Public Health Significance of Neuroticism. American Psychologist, 64(4), 241–256.

Le, H., Robbins, S. B., Ilies, R., Holland, E., & Westrick, P. (2010). Too Much of a Good Thing: Curvilinear Relationships Between Personality Traits and Job Performance. *Journal of Applied Psychology, 96*(1), 113-133.

Leary, T. G., Green, R., Denson, K., Schoenfeld, G., Henley, T., & Langford, H. (2013). The relationship among dysfunctional leadership dispositions, employee engagement, job satisfaction, and burnout. *The Psychologist-Manager Journal, 16*(2), 112–130.

Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology, 68*(1), 151–158.

Lischetzke, T., & Eid, M. (2006). Why extraverts are happier than introverts: The role of mood regulation. *Journal of Personality, 74*(4), 1127–1162.

Lynam, D., Gaughan, E., Miller, J., Mullins-Sweatt, S., & Widiger, T. (2011). Assessing the basic traits associated with psychopathy: Development and validation of the Elemental Psychopathy Assessment. *Psychological Assessment, 23*(1), 108-124.

McCrae, R. R. (2010). The place of the FFM in personality psychology. *Psychological Inquiry, 21*(1), 57–64.

McCrae, R. R., & Costa, P. T. (1997). 'Chapter 31 - Conceptions and Correlates of Openness to Experience', In *Handbook of Personality Psychology* (Vol. 24), pp. 825-847.

McCrae, R. R., Löckenhoff, C. E., & Costa, P. T. (2005). A step toward DSM-V: Cataloguing personality-related problems in living. *European Journal of Personality, 19*(4), 269–286.

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

Mezulis, A. H., Abramson, L. Y., Hyde, J. S., & Hankin, B. L. (2004). Is there a universal positivity bias in attributions? A meta-analytic review of individual, developmental, and cultural differences in the self-serving attributional bias. *Psychological Bulletin, 130*(5), 11–747.

Mike, A., Harris, K., Roberts, B. W., & Jackson, J. J. (2015*). Conscientiousness. International Encyclopedia of the Social & Behavioral Sciences, Second Edition, 4,* 658–665.

Moshavi, D., Brown, F. W., & Dodd, N. G. (2003). Leader self-awareness and its relationship to subordinate attitudes and performance. *Leadership & Organization Development Journal, 24*(7), 407–418.

Mount, M., Ilies, R., & Johnson, E. (2006). Relationship of personality traits and counterproductive work behaviors: The mediating effects of job satisfaction. *Personnel Psychology, 59*(3), 591–622.

Muris, P., Merckelbach, H., Otgaar, H., & Meijer, E. (2017). The Malevolent Side of Human Nature. *Perspectives on Psychological Science, 12*(2), 183–204.

Neal, A., Yeo, G., Koy, A., & Xiao, T. (2012). Predicting the form and direction of work role performance from the Big 5 model of personality traits. *Journal of Organizational Behavior, 33*(2), 175–192.

Nettle, D. (2006). The evolution of personality variation in humans and other animals. *American Psychologist, 61*(6), 622-631.

O'Boyle, E. H., Forsyth, D. R., Banks, G. C., & McDaniel, M. A. (2012). A meta-analysis of the Dark Triad and work behavior: a social exchange perspective. *The Journal of Applied Psychology, 97*(3), 557–579.

O'Neill, T. A., & Allen, N. J. (2011). Personality and the prediction of team performance. *European Journal of Personality, 25*(1), 31–42.

O'Reilly, C. a., Doerr, B., Caldwell, D. F., & Chatman, J. a. (2014). Narcissistic CEOs and executive compensation. *Leadership Quarterly, 25*(2), 218–231.

Oltmanns, J. R. & Widiger, T. A. (2018). Maladaptive Variants of Adaptive Traits and Bloated Specific Factors. *Journal of Research in Personality, 76*, 177-185.

Ozer, D. J., & Benet-Martínez, V. (2006). Personality and the prediction of consequential outcomes*. Annual Review of Psychology, 57*, 401–421.

Paulhus, D. L., & Williams, K. M. (2002). The Dark Triad of personality: Narcissism, Machiavellianism, and Psychopathy. *Journal of Research in Personality, 36*(6), 556–563.

Peeters, M. A. G., Van Tuijl, H. F. J. M., Rutte, C. G., & Reymen, I. M. M. J. (2006). Personality and Team Performance: A Meta-Analysis. *European Journal of Personality, 20*(5), 377– 396.

Penner, D. D., & Dixon, N. F. (2006). On the Psychology of Military Incompetence. *Administrative Science Quarterly, 26*(2), 307.

Perkins, A. M., Arnone, D., Smallwood, J., & Mobbs, D. (2015). Thinking too much: self- generated thought as the engine of neuroticism. *Trends in Cognitive Sciences, 19*(9), 492–498.

Peterson, B. E., Smirles, K. A., & Wentworth, P. A. (1997). Generativity and authoritarianism: Implications for personality, political involvement, and parenting. *Journal of Personality and Social Psychology, 72*(5), 1202–1216.

Piedmont, R. L., Sherman, M. F., & Sherman, N. C. (2012). Maladaptively High and Low Openness: The Case for Experiential Permeability. *Journal of Personality, 80*(6), 1641– 1668.

Roberts, B. W., Chernyshenko, O. S., Stark, S., & Goldberg, L. R. (2005). The Structure of Conscientiousness: An Empirical Investigation Based on Seven Major Personality Questionnaires. *Personnel Psychology, 58*(1), 103-139.

Roberts, B. W., Kuncel, N. R., Shiner, R., Caspi, A., & Goldberg, L. R. (2007). The Power of Personality: The Comparative Validity of Personality Traits, Socioeconomic Status, and Cognitive Ability for Predicting Important Life Outcomes. *Perspectives on Psychological Science, 2*(4), 313–345.

Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology, 21*(7), 600–619.

Samuel, D. B., & Gore, W. L. (2012). Maladaptive Variants of Conscientiousness and Agreeableness*. Journal of Personality, 80*(6), 1669–1696.

Saulsman, L. M., & Page, A. C. (2004). The five-factor model and personality disorder empirical literature: A meta-analytic review*. Clinical Psychology Review, 23*(8), 1055-1085.

Zero Talent Waste.

MAP-X , technical manual | Version 2.0   ©Assessio 2024

Schaufeli, W. B., & Bakker, A. B. (2006). The Measurement of Work Engagement with a Short Questionnaire: A Cross-National Study. *Educational and Psychological Measurement, 66*(4), 701–716.

Schoel, C., Bluemke, M., Mueller, P., & Stahlberg, D. (2011). When autocratic leaders become an option-uncertainty and self-esteem predict implicit leadership preferences. *Journal of Personality and Social Psychology, 101*(3), 521–540.

Scott Ridley, D., Schutz, P. A., Glanz, R. S., & Weinstein, C. E. (1992). Self-regulated learning: The interactive influence of metacognitive awareness and goal-setting. *Journal of Experimental Education, 60*(4), 293–306.

Sjöberg, S., Svensson, C., & Sjöberg, A. (2019). *Measuring and Assessing individual Potential (MAP) - Technical Manual.* Sweden: Stockholm: Assessio International AB.

Smillie, L. D., Yeo, G. B., Furnham, A. F., & Jackson, C. J. (2006). Benefits of all work and no play: The relationship between neuroticism and performance as a function of resource allocation. *Journal of Applied Psychology, 91*(1), 139–155.

Smith, C. L., Johnson, J. L., & Hathaway, W. (2009). Personality Contributions to Belief in Paranormal Phenomena. *Individual Differences Research, 7*. Retrieved from: www.idr-journal.com.

Spain, S. M., Harms, P., & Lebreton, J. M. (2014). The dark side of personality at work. *Journal of Organizational Behavior, 35*(SUPPL.1), 41–60.

Spector, P. E., Fox, S., Penney, L. M., Bruursema, K., Goh, A., & Kessler, S. (2006). The dimensionality of counterproductivity: Are all counterproductive behaviors created equal? *Journal of Vocational Behavior, 68*(3), 446–460.

Spector, P. E., Bauer, J. A., & Fox, S. (2010). Measurement artifacts in the assessment of counterproductive work behavior and organizational citizenship behavior: Do we know what we think we know? *Journal of Applied Psychology, 95*(4), 781–790.

Staufenbiel, T. & Hartz, C. (2000). Organizational Citizenship Behavior: Entwicklung und erste Validierung eines Meßinstruments. *Diagnostica, 46*(2), 73-83.

Stoeber, J., Otto, K., & Dalbert, C. (2009). Perfectionism and the Big Five: Conscientiousness predicts longitudinal increases in self-oriented perfectionism. *Personality and Individual Differences, 47*(4), 363–368.

Tamir, M. (2005). Don't worry, be happy? Neuroticism, trait-consistent affect regulation, and performance. *Journal of Personality and Social Psychology, 89*(3), 449–461.

Taylor, G. J., & Bagby, R. M. (2004). New Trends in Alexithymia Research. *Psychotherapy and Psychosomatics, 73*(2), 68–77.

Terracciano, A., Löckenhoff, C. E., Zonderman, A. B., Ferrucci, L., Costa, P. T., & Jr. (2008). Personality predictors of longevity: activity, emotional stability, and conscientiousness. *Psychosomatic Medicine, 70*(6), 621–627.

Vachon, D. D., Lynam, D. R., Widiger, T. a., Miller, J. D., McCrae, R. R., & Costa, P. T. (2013). Basic Traits Predict the Prevalence of Personality Disorder Across the Life Span: The Example of Psychopathy. *Psychological Science, 24*(5), 698–705.

van den Berg, S. M., de Moor, M. H. M., Verweij, K. J. H., Krueger, R. F., Luciano, M., Arias Vasquez, A., et al. (2016). Meta-analysis of Genome-Wide Association Studies for Extraversion: Findings from the Genetics of Personality Consortium. *Behavior Genetics, 46*(2), 170-182.

Wales, W. J., Patel, P. C., & Lumpkin, G. T. (2013). In pursuit of greatness: CEO narcissism, entrepreneurial orientation, and firm performance variance. *Journal of Management Studies, 50*(6), 1041–1069.

Walton, K. E., Roberts, B. W., Krueger, R. F., Blonigen, D. M., & Hicks, B. M. (2008). Capturing abnormal personality with normal personality inventories: An item response theory approach. *Journal of Personality, 76*(6), 1623–1647.

Wexley, K. N., Alexander, R. A., Greenawalt, J. P., & Couch, M. A. (2018). Attitudinal Congruence and Similarity as Related to Interpersonal Evaluations in Manager-Subordinate Dyads. *Academy of Management Journal, 23*(2), 320–330.

Widiger, T. (2015). Assessment of DSM–5 Personality Disorder. *Journal of Personality Assessment, 97*(5), 456-466.

Widiger, T. (2019). Personal correspondence.

Widiger, T. A., Gore, W. L., Crego, C., Rojas, S. L., & Oltmanns, J. R. (2016). Five Factor Model and Personality Disorder. The Oxford; T. A. Widiger, Ed.

Widiger, T., & Mullins-Sweatt, S. (2008). Five-Factor Model of Personality Disorder: A Proposal for DSM-V. *Annual Review of Clinical Psychology, 5*(1), 197–220.

Zero Talent Waste.

MAP-X , technical manual | Version 2.0 ©Assessio 2024

Widiger, T., & Trull, T. J. (2007). Plate tectonics in the classification of personality disorder: Shifting to a dimensional model. *American Psychologist, 62*(2), 71–83.

Williams, W. M. (2004). Blissfully incompetent. *Psychological Science in the Public Interest, Supplement, 5*(3), 1-2.

Wilmot, M. P., Wanberg, C. R., Kammeyer-Mueller, J. D., & Ones, D. S. (2019). Extraversion Advantages at Work: A Quantitative Review and Synthesis of the Meta-Analytic Evidence. *Journal of Applied Psychology*. Advance Online Publication.

Wilt, J., & Revelle, W. (2015a). Affect, Behaviour, Cognition and Desire in the Big Five: An Analysis of Item Content and Structure. *European Journal of Personality, 29*, 478–497.

Wilt, J., & Revelle, W. (2015b). Extraversion. In Thomas Widiger (Ed.), *The Oxford Handbook of the Five Factor Model of Personality*.

Yarkoni, T. (2010). The abbreviation of personality, or how to measure 200 personality scales with 200 items. *Journal of Research in Personality, 44*(2), 180–198.

Zeigler-Hill, V., & Marcus, D. (2016). *The dark side of personality: Science and practice in social, personality, and clinical psychology*. American Psychological Association: Washington.

Zimmermann, G., Rossier, J., De Stadelhofen, F. M., & Gaillard, F. (2005). Alexithymia assessment and relations with dimensions of personality. *European Journal of Psychological Assessment, 21*(1), 23–33.