Running head: DEVELOPMENT AND VALIDATION OF AN OBJECTIVE INTRA-
ORGANIZATIONAL CAREER

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SUMMARY

This study aimed to develop and validate a new objective measure of intra-organizational career success, i.e. the Managerial Career Success Measure (MCSM). Although there has been a recent emphasis in the careers literature on the subjective career, there is still a need for a valid operationalization of “traditional”, objective career success as this construct is still considered relevant by many occupational and national groups; furthermore, many studies continue to use objective career success as a (dependent) variable. With regard to content validity, it appears that the measure that was developed incorporates some elements of the commonly used measures of objective career success (i.e. managerial level, number of promotions, salary and salary progression) whilst steering clear of some of the issues with each of them separately. Concurrent and discriminant validity were explored by analyzing data from three empirical studies that were carried out in a large heterogeneous managerial population ($N = 1101$). Results indicate that the MCSM displays higher levels of content and construct validity than do other, commonly used measures of objective career success.

Keywords: career success, managerial careers, validation

Development and validation of an objective intra-organizational career success measure for managers

INTRODUCTION

An established definition of career success is “the accomplishment of desirable work-related outcomes at any point in a person’s work experiences over time” (Arthur, Khapova & Wilderom, 2005, p. 179). Evidently, validly operationalizing and measuring this much-researched construct is a prerequisite for empirically examining predictive or correlational relationships between career success and other variables. The most essential distinction that is made between various measures of career success is that between subjective and ~~or~~ objective measures (Boudreau, Boswell & Judge, 2001; Verbruggen, Sels & Forrier, 2007). Functional (managerial) level (e.g. Hurley & Sonnenfeld, 1998; Hurley-Hanson, Wally, Segrest Purkiss & Sonnenfeld, 2005; Judge, Cable, Boudreau & Bretz, 1995; Kirchmeyer, 1998; Tharenou, 1999), promotions (e.g. Judge *et al.*, 1995; Seibert, Crant & Kraimer, 1999; Tharenou, 1999), salary (e.g. Gattiker & Larwood, 1988; Judge *et al.*, 1995; Seibert *et al.*, 1999; Tharenou, 1999) and salary progression (e.g. Orpen, 1998; Wayne, Liden, Kraimer & Graf, 1999) are most frequently used for measuring objective career success; career satisfaction (e.g. Greenhaus, Parasuraman & Wormley, 1990) for subjective career success (Arthur *et al.*, 2005). However, measurement of these operationalizations often occurs in a rather unsystematic way – if details are mentioned at all in the papers reporting the studies – making it quite difficult to establish predictive theories of career success from the accumulated volume of research on the matter. ~~Salary and promotions, for instance, are often conceptualized by career scholars as closely related. Conversely, several authors (e.g. Judge *et al.*, 1995; Ng *et al.*, 2005) found only a weak relationship between these~~

~~two measures, advising researchers not to regard these operationalizations of career success as interchangeable. As a consequence, predictors of career success found in studies using salary as a dependent measure and predictors found in studies that focus on the number of promotions attained should not be consolidated into one predictive model of career success without addressing content (and construct) validity issues.~~

Rationale for the current study

Although the recent literature tends to emphasize subjective career success over objective career success (Arthur et al., 2005), it appears that the use of more traditional-organizational, objective measures of career success is still needed in order to achieve a full understanding of the career success of (groups of) individuals. Post-modern careers literature de-emphasizes the current-day relevance of the “career of advancement” (i.e. a career in which identities are bound to organizations and attainment is parced in increments of authority tied to formal positions in a chain of command), while simultaneously emphasizing the increasing prevalence of “careers of achievement” (i.e. careers in which progress is scaled in terms of increments of skill, position in a network of practitioners and, sometimes, the setting in which one practices) (Zabusky & Barley, 1996, p. 187). However, several recent publications have concluded that claims about the speed and inevitability of the shift from organizational-traditional to more boundaryless career types have to be put into perspective (Verbruggen *et al.*, 2007) and that the traditional, bounded career (in which employees stay with their employer and aspire stability) is alive and well (Guest & Mackenzie Davey, 1996). Verbruggen *et al.* (2007) found that only 6 percent of the 957 respondents in their study were in a boundaryless career whereas 60 percent experienced bounded careers. The authors questioned the portability of the boundaryless career concept to other than US settings,

the value people place on job security and the unionization of organisations (two cultural and institutional elements that tend to reinforce the “old” psychological contract) being at the heart of the discussion (Sullivan, 1999; Sels, Janssens, Van den Brande & Overlaet, 2000; Schömann, 2002; OECD, 2002; Forrier, 2003).

Furthermore, many authors departing from the perspective of post-modern career theory seem to assume that “more and more of the best people are thinking like free agents” (Tulgan, 2001, p. 37), and that, consequently, organizational-traditional career types are no longer *wanted* by employees. However, recent empirical work has come to the conclusion that the majority of employees continue to desire more traditional career types (e.g. Guest & Mackenzie Davey, 1996; Gunz, Evans and Jalland, 2000; Janssens, Sels & Van den Brande, 2003; King, Burke & Pemberton, 2005; Smith & Sheridan, 2006; Dries & Pepermans, 2007; Verbruggen *et al.*, 2007). For instance, Walton and Mallon (2004) concluded that “although the boundaries of career have shifted, they have not melted into thin air” (p. 77). While their study participants favoured career self-management, continuous learning and autonomy, they still regarded these aspects of careers mostly as a means to achieving objective career outcomes such as promotions.

This paper focuses on improving the content and construct validity of the objective objective-career success construct, applied to a managerial research population. It offers a detailed description of the development and validation of a new integrative objective-career success measure named the Managerial Career Success Measure (MCSM). This measure aims to incorporate a number of commonly used and popular objective success criteria while steering clear of some of the issues with each of them separately.

Content validity issues with commonly used measures of objective career success

When assessing content validity, the question that must be addressed is: “Is this measure capable of assessing the full domain implied by its label?”.

Functional level (i.e. the level one has reached in an organization’s hierarchy), although observable and measurable, and reflecting, to a certain extent, social understanding about what career success encompasses (Walton & Mallon, 2004; Verbruggen *et al.*, 2007), fails to incorporate some factors that are essential to the evaluation of career success. When used as an absolute measure (e.g. Hurley-Hanson *et al.*, 2005), comparing the functional level of employees from organizations with different hierarchical structures may lead to incorrect inferences. ~~For instance, one person may be relatively higher up in the organizational hierarchy than another, but at a lower level in absolute terms (e.g. when he or she is at the second of three managerial levels while the other is at the fourth of nine managerial levels).~~ A possible way of solving this issue is to consider employees’ current functional level relative to the total number of levels in the hierarchy of the employing organization (Cox & Nkomo, 1991; Kirchemeyer, 1998). In a similar vein, Hall’s (1976) Managerial Achievement Quotient (MAQ) and Luthans, Rosenkrantz and Hennessey’s (1985) Managerial Success Index (MSI) both attempted to reduce organizational variability by forcing functional level data into a model with five managerial levels, a practice with questionable ecological validity. Furthermore, even with this “relative functional level” approach, problems can arise when comparing career success between employees. For instance, the career success of two employees who are, relatively, at the same functional level may still be evaluated differently by others if one of them is going through a “fast track” while the other’s career has plateaued a decade ago (Altman, 1997). Another (construct) validity

issue is the positive relationship between functional level, tenure and age, as being older or having been in an organization longer should, rationally speaking, not determine career success (Judge & Bretz, 1994).

Using the number or speed of *promotions* (i.e. moves made up the hierarchical ladder of an organization) as a career success measure essentially causes the same problems, as comparisons between employees from different organizations will, again, depend on organization-specific differences in the number of possible moves, related to the number of hierarchical levels.

Salary (i.e. the net or gross, monthly or yearly payment of the work delivered within an organization) and *salary progression* (i.e. the net or gross increase in payment of the work delivered within an organization) are probably the most popular commonly used operationalizations of objective career success; nevertheless, their content validity is debatable. Altman (1997) commented: “Money is not only the simplest measure of success, it is also the finest measure. There is nothing as measurable, quantifiable, perfectly comparable like money” (p. 7). Furthermore, salary reflects a societal norm used to make judgements about career success (e.g. Hall, 1976, 2002), although it is, at best, still only a proxy for attaining personal financial and material career goals. Nonetheless, research on the determinants of salary has uncovered some matters that jeopardize its ability to serve as a valid measure of career success. For instance, salary and number of promotions display only a weak relationship (Judge *et al.*, 1995; Ng, Eby, Sorensen & Feldman, 2005), implying that they are distinct constructs that are predicted by different sets of factors (Jaskolka, Beyer & Trice, 1985). Sels, Overlaet, Welkenhuysen-Gybels & Gevers (2000) gathered survey gathered survey data from over 15000 employees. They ~~They~~ found that 66 per cent of salary

variance could be explained by gender, educational level, tenure, functional level, sector and nationality of the parent company. Other authors have contended that financially successful managers tend to be male and white (Jaskolka *et al.*, 1985), and that women continue to earn lower salaries than men, even when they are at equally high functional levels and report equal levels of career satisfaction (Kirchmeyer, 1998; Perrewé & Nelson, 2004). Finally, Carruth, Collier and Dickerson (2004) found that there are still statistically significant differences in salaries between industries. The point made is that it is very well possible that two employees, who have arrived at equal relative functional levels at an equal relative speed, might still differ in salary based on their gender, race, tenure and/or employment sector. As such, ~~u~~Using salary as a measure of career success, ~~then~~, yields an unsatisfactory internal validity, i.e. causes bias in exploring causal relationships between career success and the independent variables one wishes to study in relation to it (Trochim, 2000). ~~A final, more pragmatic concern researchers must to take into consideration when using salary as a measure is that item response rates for salary items in surveys are generally much lower than for many other types of items (e.g. Moore, Stinson & Welniak, 2000; Roemer 2000), which makes it very difficult to obtain large data sets (Sels *et al.*, 2000). A possible solution would be to obtain salary data from organizational records; in some countries, however, privacy laws may obstruct such data collection techniques. Furthermore, the incorporation of “sensitive” items such as salary items into a survey might cause self-selection bias amongst potential respondents (Hudson, Seah, Hite & Haab, 2004).~~

DEVELOPMENT AND CONTENT VALIDATION OF THE MCSM

Development of the MCSM

According to our operationalization of objective career success, in the form of a computational formula referred to as the Managerial Career Success Measure (MCSM), a career actor is most successful when he or she has made a maximum of upward career moves within his or her organization in a minimum amount of time. The measure is intra-organizational and relates to the concept of fast-track careers (e.g. Altman, 1997) and careers of advancement (Zabusky & Barley, 1996). Before going into detail on the implications this approach has on the content validity and usability of our measure, we will discuss ~~exactly~~ the development and theoretical properties of the MCSM. The MCSM is made up out of three sub-indicators that are multiplied into a total score: a level indicator (L), a tenure indicator (Y) and a mobility indicator (M).

The *level indicator* (L) is computed ~~as follows~~ follows:

$$L_i = \frac{l_i - 1}{l_{\max} - 1} \quad (1)$$

The hierarchical level (l) a career actor has reached at time i ranges between 1 (the lowest possible managerial level in the organization) and $l_{\max}$ (the highest possible managerial level in the organization). When l_i is divided by $l_{\max}$, a relative value results, allowing for comparison between managers in different organizations (Cox & Nkomo, 1991). We thus opted for a relative approach to the assessment of managerial level. W; ~~we~~ believe that using a relative measure is the most valid ~~best possible~~ approach, but we feel that the level indicator should not be interpreted as an indicator of career success without considering information on tenure and speed of career advancement in addition. Note that if l_i equals 1, the level indicator equals 0 due to the insertion of the “-1” in the numerator (we also inserted “-1” in the denominator so that ~~so that~~ the ratio between l_i and $l_{\max}$ ~~would~~ would not be distorted). As the formula used to compute the MCSM is multiplicative, being at the lowest managerial level thus causes the entire score to equal

0, indicating no success. This implies that, in our operationalization of objective career success, a manager can “start” being successful from the first upward move on.

The *tenure indicator* (Y) is computed as follows ~~follows~~:

$$Y_i = \frac{(y_{\max} + 1) - y_i}{y_{\max}} \quad (2)$$

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In order to assess tenure, we consider the number of years (y) an employee has worked as a manager in the organization at time i , relative to the maximum number of years a person can possibly work as a manager in the organization ($y_{\max}$). Operationalizing $y_{\max}$ in a somewhat objective manner (that would be applicable to different organizations) proved difficult, and the variable was ~~finally~~ set to a constant term of 45, representing an extreme case in which a person would be a manager from the age of 20 through 65 – 65 being the full retirement age in most OECD ([Organisation for Economic Co-operation and Development](#)) countries. We do, however, advise not to generalize “ $y_{\max} = 45$ ” without taking into consideration the labour market conditions of the country under study as ~~Furthermore, even within the OECD, full retirement ages are subject to change across time (OECD, 2005. For instance, several OECD countries are planning to phase in a gradual increase in statutory retirement age from 65 to 67 (OECD, 2005). It follows that, although $y_{\max}$ is —at least to our opinion— best set to a constant term, a contingency approach may be appropriate to determine the value it should take on (i.e. dependent on the working population and time frame under study).~~ The tenure indicator yields a low value when tenure is high, and vice versa. However, the indicator can never equal 0 as a result of the insertion of the “+1” in the numerator. Through these interventions we wish to add an element relating to speed of advancement to our measure. ~~Yet, ; however,~~ we feel that the sole fact of the tenure being maximal should

not cause the entire measure to equal 0. In other words, the level indicator (L) is moderated by the score of the tenure indicator (Y).

The *mobility indicator* (M) is computed as follows ~~follows~~:

$$M_i = \frac{l_i - l_s + 1}{l_{\max}} \quad (3)$$

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The mobility indicator was ~~developed designed~~ to indicate the number of upward career moves a manager has achieved at time i . The managerial starting level (l_s) is deducted from the current managerial level (l_i), resulting in an absolute value that is considered relative to $l_{\max}$. When a career actor is currently at the highest managerial level in the organization while starting at the lowest possible managerial level ($l_s = 1$), the mobility indicator reaches its maximal value (1). By analogy with the tenure indicator, it cannot equal 0 as a result of the insertion of the “+1” in the numerator.

The *Managerial Career Success Measure (MCSM)* at time i combines (1), (2) and (3) into the following ~~multiplicative~~ computational formula:

$$MCSM_i = \left(\frac{(l_i - 1)}{(l_{\max} - 1)} \right) * \left(\frac{((y_{\max} + 1) - y_i)}{y_{\max}} \right) * \left(\frac{(l_i - l_s + 1)}{l_{\max}} \right) * 100$$

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Multiplication of the indicators causes the measure to be standardized so that all possible scores range between 0 and 100, which is a conceptual advantage.

Content validation of the MCSM

We indicated earlier that it has been our intention to develop a measure of objective ~~objective~~ career success that incorporates some commonly used measures of success while steering clear of some the typical pitfalls. The MCSM seems to be an accurate and easily computable objective measure of managerial career success in intra-organizational careers. Rather than measuring one aspect of a career, the MCSM is an integrative measure that combines data on managerial level, tenure and number of

promotions. Furthermore, each of these ~~is are~~ assessed as ~~a~~ relative values, so that an element of advancement speed is also incorporated.

One of the major benefits of the MCSM is that it relies solely on factual ~~objective~~ information that is readily available from personnel records, and thus ~~objectively observable~~. In a number of situations, however, data ~~may would~~ need to be gathered by self-report. For instance, in some studies, when data is collected by random sampling of anonymous respondents, it will not be possible to obtain objective organizational records for each respondent. In addition, ~~several~~ countries do not allow for consultation of personnel records because of specific privacy legislations. However, this problem applies to each of the commonly used measures of objective ~~objective~~ career success. We do not believe that MCSM scores obtained by self-report would cause self-serving bias or common method variance as the questions asked are factual and not clearly linked to any assessment of career success (Podsakoff & Organ, 1986). ~~However, Yet~~, it is not quite clear yet if people are *able* to report on the “observed variables” of the MCSM, in such a way ~~(current managerial level, managerial starting level, highest possible managerial level and current managerial tenure)~~ in a fully ~~objective way, i.e. so~~ that their self-reports would correspond to archival data. ~~Therefore, we have opted to label the MCSM as an “extrinsic” rather than an “objective” measure as this label appears more accurate—and appropriately labelling measures is essential to their content validity (Trochim, 2000).~~

According to the MCSM, a manager should be judged successful in his or her career when a maximal number of upward career moves have been made within a minimal period of organizational tenure. The MCSM approach thus ~~definition~~ alludes to the idea of ~~high potentials and~~ fast-track careers, and that of “high-potential” employees

~~many authors describe high potentials as employees who advance faster than peers~~ (e.g. Altman, 1997; Bournois & Rousillon, 1998; Derr, Jones & Toomey, 1988; Viney, Adamson & Doherty, 1997), ~~whose~~ Organizations invest heavily in the identification, and development and retention are seen as crucial in terms of future organizational success of this specific employee group and consider their retention crucial as they are seen as the future leaders of the organization (Gritzmacher, 1989). We thus believe that the MCSM reflects the views organizations have on career success and that hence, the measure would prove useful as a tool to detect organizational and individual antecedents of career success, allowing for rationalization of high-potential identification and development policies (Wayne *et al.*, 1999). Furthermore, ~~we believe that~~ the MCSM reflects broader (societal) norms about what career success encompasses as it incorporates as indicated earlier all commonly used measures of objective career success other than salary and salary increase.

Admittedly, the rationale behind the MCSM is built on a rather traditional but, as discussed in the Introduction, still relevant definition of career success emphasizing upward mobility within the current organization (Guest & Mackenzie Davey, 1996; Smith & Sheridan, 2006; Dries & Pepermans, 2007; Verbruggen *et al.*, 2007). To gain a full understanding of a manager's career (intra- as well as inter-organizational) the MCSM must be complemented with subjective measures However, ~~the measure is not intended to be used *per se*, and we strongly advise not to interpret it without considering concomitant data on subjective (intrinsic) career success. Some authors have suggested that objective measures of career success are mostly applicable to “bounded” careers (i.e. traditional careers, in which employees stay with one employer and aspire stability) while subjective measures are better suited for assessing career success in post-modern~~

careers (in which employees change employers and long for change and flexibility, often referred to as “boundaryless” or “protean” careers) (Arthur *et al.*, 2005; Heslin, 2005; Verbruggen *et al.*, 2007). However, several publications raise doubts on the alleged current dominance of post-modern careers types over traditional types (Guest & Mackenzie Davey, 1996; Forrier *et al.*, 2005) and others report that functional level, status and upward career moves are still prominently valued by individuals asked to evaluate their own career success (Walton & Mallon, 2004). Clearly, a full picture of the career success construct can only be achieved by applying both objective and subjective approaches to its measurement (Arthur *et al.*, 2005; Hall & Chandler, 2005). In conclusion, we are convinced that a combination of MCSM scores and subjective career success scores (if desirable, complemented with some indication of salary) provides a better and fuller measure of career success than those that have been used in the past.

CONCURRENT VALIDATION OF THE MCSM

In contrast with content validity, which is more *definitional* in nature, concurrent validity examines *relationships*, i.e. assesses whether an operationalization behaves as expected, given our knowledge of the construct (Trochim, 2000). More specifically, it examines the degree to which the operationalization is similar to other operationalizations that it theoretically should be similar to (convergent validity), and not similar to other operationalizations that it theoretically should not be similar to (discriminant validity) (Trochim, 2000).

Our first set of hypotheses looks into the relationship between the MCSM and the commonly used objective and subjective measures of career success discussed earlier. We posit that our measure ~~and the others~~ should be positively correlated to the

others as they are all, at least to some extent, measures of the same domain. This approach to measuring convergent validity is labelled the *correlational approach* (Shavelson & Stanton, 1975). It is important to note that one of these commonly used measures of career success – i.e. current managerial level – is, in our study, in fact part of the measure that is being validated (it corresponds to the y_i variable incorporated in the MCSM).

Hypothesis 1a: MCSM scores correlate significantly with current managerial level.

Hypothesis 1b: MCSM scores correlate significantly with salary.

Hypothesis 1c: MCSM scores correlate significantly with salary progression.

Hypothesis 1d: MCSM scores correlate significantly with career satisfaction.

Another way of measuring convergent validity is by looking at the differences in test scores between groups of people who would be expected to score differently on the test, which is labelled the *contrasted groups approach* (Shavelson & Stanton, 1975). Frequently reported are differences in career advancement between men and women. Previous research has found that women are less likely than men to reach top levels (Cox & Nkomo, 1991; Stroh, Brett & Reilly, 1992; Schneer & Reitman, 1995) and earn lower incomes (Judge *et al.*, 1995; Kirchmeyer, 2002; Schneer & Reitman, 1995; Stroh *et al.*, 1992) but at the same time, perceive their careers to be as successful as men (Judge *et al.*, 1995; Kirchmeyer, 1998). The current paper aims to replicate these findings, using the MCSM as a measure of objective career success.

Hypothesis 2a: MCSM scores are significantly higher for men than for women.

Finally, *discriminant validity* is assessed, examining whether scores on the MCSM are not explained by variables that, theoretically, should not explain objective career success. First, tenure and age should not account for large amounts of variance in career success scores, as was discussed in the Introduction (Judge & Bretz, 1994).

Second, educational level, although an important asset for employees on organizational entry, should not continue to play a significant role in promotion attainment and speed of advancement during the entire course of the career – in later ~~later~~ career stages, actual job performance should be the most important criterion for obtaining promotions (Hurley-Hanson *et al.*, 2005). Finally, employment sector should not interfere ~~play any role with~~ career success score.

Hypothesis 3a: Variance in MCSM scores is not significantly explained by tenure.

Hypothesis 3b: Variance in MCSM scores is not significantly explained by educational level.

Hypothesis 3c: Variance in MCSM scores is not significantly explained by age.

Hypothesis 3d: Variance in MCSM scores is not significantly explained by sector.

Method

Sample and procedure

Data from three large-scale survey studies were brought together. Originally, these studies were not designed to provide data for the construct validation process of the MCSM. ~~H;~~ however, each of them targeted managers working in Belgium, and their combined data proved useful for testing of the hypotheses in the current study. The criteria for inclusion in the final (aggregate) respondent sample were:

- (a) being a manager, which was operationalized in each of the three studies as the combination of “having a functional title that includes the term manager” and “giving direction to at least one subordinate” ~~(in order to avoid responses from employees with managerial job titles but no real managerial responsibilities);~~
- (b) having provided full information concerning the variables l_i , l_s , $l_{\max}$ and y_i , so that an MCSM score could be computed in correspondence to the measure’s theoretical properties.

Study I was originally set up to investigate the characteristic management activities, personality traits and motivations of NGO (Non-Governmental Organizations) managers, and compare them to those of managers employed in other employment sectors. In total, 55 NGO managers filled in the web-based questionnaire. Data for other employment sectors were gathered both by a paper-and-pencil survey (N = 299) and a web-based survey (N = 152). The surveys from study I contained all items necessary to compute respondents' MCSM scores as well as all items of the career satisfaction scale developed by Greenhaus *et al.* (1990), which is the most frequently used measure of subjective career success (Arthur *et al.*, 2005). In total, 506 respondents returned completed and valid questionnaires.

Study II investigated several competency models' capacity to predict managerial success and effectiveness. Data were gathered by an online survey. In total, 366 questionnaires were returned. Study II incorporated all items necessary to compute respondents' MCSM scores as well as current net month salary and first net month salary as a manager.

Finally, study III aimed to demonstrate the internal validity issues that arise when salary data are used as a proxy of career success. An online survey was set up and potential respondents were contacted through three large Belgian management associations. 229 managers participated in the survey, which contained all items necessary to compute respondents' MCSM scores, the career satisfaction scale (Greenhaus *et al.*, 1990) as well as current net month salary and first net month salary as a manager.

Merging data from these three separately conducted studies into one research sample can be categorized as a form of convenience sampling – a method that entails

great risk of sampling bias. However, Table 1, which provides an overview of the aggregate sample sizes per variable and some sample demographics, illustrates that the combined sample came from a variety of employment settings and exhibited a good demographic dispersion. Nevertheless, it is imperative to view the current study as exploratory rather than representative. For instance, response rates were not available for all studies, considering the fact that data for Study I (where students distributed surveys to acquainted managers) and Study III (where representatives of Belgian management associations distributed surveys to their members) were (partially) collected using snowball sampling. Furthermore, in all three studies respondent anonymity was ensured at the outset, rendering the gathering of non-response data impossible. Finally, due to missing data (as not all studies surveyed all variables relevant to the current study) sample sizes ranged from 190 to 1101 for the different statistical analyses reported later in this paper. However, bearing in mind the exploratory nature of the current study, it is assumed that the aggregate data from studies I, II and III does supply valuable information for the validation process of the MCSM.

Insert Table 1 about here

It is important to note that Study I, II and III, which were all carried out within the same research department, used identical measures (described below) to operationalize the reported variables.

Dependent variables

Objective career success. MCSM scores were used for operationalizing objective career success. Variables l_i , l_s , $l_{\max}$ and y_i were assessed by the following (open-ended) items: “In the organization I am currently working for, my managerial

level equals ... [single numberfigure]", "In the organization I am currently working for, the first managerial level I took up equalled ... [single numberfigure]", "In the organization I am currently working for, the highest managerial level equals ... [single numberfigure]" and "I have been working in my current organization as a manager for ... [single number] years now". Respondents were instructed to indicate their responses with a single number higher than, or equal to 1 (as a reference point, the lowest managerial level in the organization was to be given a value of 1), preferably relying on objective data (e.g. organizational diagrams).

Subjective career success. Subjective career success was measured using the five items from the career satisfaction scale developed by Greenhaus *et al.* (1990). An example item of this scale is "I am satisfied with the success I have achieved in my career". Respondents were instructed to indicate their agreement with each item on a 5-point scale. The measure displayed high internal consistency ($\alpha = .86$).

Current net month salary. Salary data was obtained by asking respondents to specify their most recently received net month salary in Euro, in one single figure (as a response to one open-ended item). They were asked to base their response on objective information (i.e. their salary sheet). No information was gathered about other elements of the compensation package (e.g. 13th month pay, holiday bonuses, health insurance plans, and other employee benefits); several studies have found that net month-based measures produce higher response rates and more accurate responses, without compromising measurement reliability and validity (e.g. Canberra Group on Household Income Statistics, 2001; Marlier, Atkinson, Cantillon & Nolan, 2006).

Net month salary progression. Net month salary progression was not questioned as such, but was calculated by subtracting respondents' managerial starting salaries

from their current salaries. Respondents were instructed to specify the first salary they received as a manager in the current organization

Current managerial level was treated as a separate dependent variable in some of the analyses. This variable corresponds to l_{it} . As mentioned earlier it was assessed by the item “In the organization I am currently working for, my managerial level equals ... [single number]”.

Current managerial tenure was also treated as a separate dependent variable in some of the analyses. This variable corresponds to y_i . As mentioned earlier it was assessed by the item “I have been working in my current organization as a manager for ... [single number] years now”.

Independent variables

The independent variables *gender*, *educational level*, *age* and *employment sector* were all operationalized as categorical items. Response categories for each variable can be found in Table 1. ~~*Current managerial tenure* was treated as a separate dependent variable in some of the subsequent analyses. This variable corresponds to y_i ; as described earlier it was assessed by the item “I have been working in my current organization as a manager for ... years now”.~~

Results

Distribution of MCSM scores and career satisfaction scale scores

Results indicated that both career success measures displayed a non-normal value distribution. The MCSM scores ($N = 1101$) had an average of 20.64 ($SD = 20.56$, indicating high dispersion), a skewness value of 1.45 and a kurtosis value of 2.30 ($Z = 5.23$, $p < 0.01$). These distribution measures, indicating skewness to the left, show that

MCSM scores in this sample were predominantly low (22 per cent of respondents got a score of “0”, suggesting a floor effect) and that the values “peaked” instead of making up a flatter type of distribution. Natural log and square root transformations of the MCSM scores were computed, and although the shape of the distribution did improve, the Kolmogorov-Smirnov normality statistics did not ($Z = 1.71, p < 0.01$ and $Z = 4.86, p < 0.01$ respectively). We decided to keep the measure in its original form, as adding a transformation would make it more complex without significantly improving normality.

Career satisfaction scale scores ($N = 601$) displayed an average of 3.89 ($SD = .70$) and were also non-normally distributed ($Z = 2.78, p < 0.01$). The distribution shows skewness to the right (i.e. a tendency towards high scores) and some “peakedness” (skewness = -0.58; kurtosis = 0.57). The original study by Greenhaus *et al.* (1990) did not report on the distribution of the career satisfaction scale scores, so that we cannot draw comparisons.

Convergent validity: correlational approach

Table 2 shows that current managerial level, current net month salary, net month salary progression and intrinsic career success correlate significantly with the MCSM scores and with each other.

Insert Table 2 about here

Subsequently, it was tested whether the MCSM, current managerial level, the career satisfaction scale, current net month salary and net month salary progression measure one underlying variable, i.e. career success. ~~Structural~~ Therefore, structural equation modelling was performed using LISREL (Jöreskog & Sörbom, 1993). Specifically, we fitted a one-factor model in which the latent variable, i.e. career success, ~~the latent variable,~~ was represented by the five observed variables. ; i.e. the MCSM, current

~~managerial level, the career satisfaction scale, current net month salary and net month salary progression.~~ The model was applied only to those respondents who had given valid responses to all items assessing the model's observed variables ($N = 172$). Furthermore, the multicollinearity between current net month salary and net month salary progression (see Table 3), caused risk at inaccurate parameter estimates and Type II error (Grewal, Cote & Baumgartner, 2004). Therefore the factor model was fitted twice: the first model excluded net month salary progression, the second model excluded current net month salary. Because of the relatively small sample size and the non-normal data distribution, robust maximum likelihood estimation was applied (Kline, 2005). Goodness of fit statistics for both models are presented in Table 3, which shows that both models fit the data very well, and which salary variable is excluded from the model has little impact on the parameter estimates. All career success measures are thus significant predictors of the same latent variable, allowing us to accept hypotheses 1a, 1b, 1c and 1d.

Insert Table 3 about here

Convergent validity: contrasted groups approach

An independent samples *t*-test showed that men displayed significantly higher scores on the MCSM than did women ($t(1096) = 4.57, p < 0.01$), leading to the acceptance of hypothesis 2a. Furthermore, it was found that men and women did not differ in terms of career satisfaction ($t(488) = 1.74, ns$), a finding that corresponds to those of previous studies (Judge *et al.*, 1995; Kirchmeyer, 1998).

Discriminant validity

In order to investigate the discriminant validity of the MCSM measure, simple linear regression analyses were conducted for each dependent variable, using each

independent variable as a predictor (see Table 4). All predictors but tenure were recoded into dummy variables for regression. Two remarks must be made here: first, each dependent-independent combination was analyzed in a *separate* regression analysis (testing predictive models composed out of several predictors was not utile because of the high multicollinearity between them); second, in this particular case, *low* R^2 values point to *high* discriminant validity (as we do not want these independent variables to influence the measurement of career success). Although Table 4 does present F -values and significance levels, considering the R^2 values makes more sense, as these are indicators of effect size that are not susceptible to sample size. For instance, the relationship between current managerial level and employment sector appears significant when consulting the F -value while the actual effect size of the relationship is very small i.e. 1% of shared variance. Considering the R^2 values in Table 4, it is clear that especially current net month salary and net month salary progression are influenced by some of the independent variables under study (i.e. age and current managerial tenure, respectively). It appears that the MCSM measure and the career satisfaction scale are least influenced by gender, tenure, educational level, age and sector, leading us to accept hypotheses 3a, 3b, 3c and 3d. The slight influence of gender on MCSM scale score is not surprising considering the acceptance of hypothesis 2a.

Insert Table 4 about here

DISCUSSION

The purpose of this study was to develop and validate a new integrated measure of objective career success, ~~which we named~~ the Managerial Career Success Measure (MCSM). Career success has often been studied as a dependent variable, but is rarely operationalized in a well-reasoned manner, which hinders accumulation of knowledge

about the construct. The MCSM appears to be a fairly straightforward, standardized, easy to calculate and valid measure of objective career success. The findings reported in this paper indicate that the measure displays acceptable levels of content and concurrent validity compared to other, commonly used measures of career success.

Validity of the MCSM

A first investigation into the distribution of our measure implied floor effects and a general inclination towards lower MCSM scores. We argue, however, that the measure does not necessarily have to produce normally distributed values. Since our operationalization of career success was partly based on the notion of careers of advancement (Zabusky & Barley, 1996) and “fast-track” careers (Altman, 1997) – i.e. a manager is to be considered successful when he or she has made a maximal amount of career moves in a minimal amount of time – it would, in fact, be more logical to expect that only a minority of managers would receive the label “very successful”. As such, this attribute of the MCSM should not deteriorate the measure’s *content validity*. As was discussed earlier in the content validation section of this paper, the MCSM ~~that~~ deals much better with ~~certain~~ content validity issues of career success measurement ~~much better~~ than do other, commonly used measures of career success, that are often used in research without any justification of, or details on, the specific mode of measurement (Arthur *et al.*, 2005).

As regards *concurrent validity*, both convergent and discriminant validity of the MCSM were scrutinized. Significant correlations were found between the MCSM and current managerial level, current net month salary, net month salary progression and career satisfaction (the most commonly used measures of career success in the literature), providing support for the *convergent validity* of our measure. ~~I;~~ In addition, a

structural equation model fitted the MCSM, together with the commonly used success measures ~~of career success~~, onto one latent construct (i.e. career success). All measures were found to significantly predict the latent construct, although current managerial level and MCSM scores emerged as the best predictors. We argue that using the MCSM as a measure of objective career success is the better choice, considering the content validity of ~~these both~~ two measures. Current managerial level assesses career success in a unidimensional way, ~~compared to lesser nuance than does~~ the MCSM – the latter complements data on respondents’ managerial level with data on their managerial tenure and advancement speed. A final argument in support of our measure’s convergent validity was the difference found between men and women’s MCSM scores. A large number of publications in the field of career success suggest that such results would be expected from any valid measure of career success (Cox & Nkomo, 1991; Stroh *et al.*, 1992; Schneer & Reitman, 1995). The *discriminant validity* of the MCSM was also addressed, and compared to the discriminant validities of the other measures of career success by examining the relationships between “~~confoundingsing~~” variables – in the current study: gender, tenure, educational level, age and sector – and each separate career success measure separately. In line with our expectations, the results clearly showed that current net month salary and net month salary progression were most affected by these confoundings variables, especially by age and by current managerial tenure. The MCSM, on the other hand, was least affected by these variables.

Limitations

The MCSM formula is essentially a multiplicative function of difference and ratio scores. A critique on these difference scores, which also holds for ratio scores, is that modelling the difference or ratio conceals important information (Edwards, 1993;

1994). For example, the difference between 4 and 1 is treated the same as the difference between 9 and 6, while an increase of 3 points at the lower end of the scale does not necessarily equal an increase of 3 points at the high end of the scale. Applied to the MCSM, one could argue that a promotion for the first to the second managerial level might be “easier” than a promotion from the third to the fourth level. Although we are aware of this critique, it does not weigh up against standardization of the measure, which is necessary to be able to compare respondents across that work in different organizational structures.

Furthermore, the MCSM is not directly applicable to the “entire” working population. Our measure applies only to the objective career success of managers and cannot account for inter-organizational moves ~~or lateral moves made within the current organization~~. We strongly believe that constructing one overall measure of career success is not possible as career success is a multidimensional construct spanning both the objective and the subjective career (Arthur *et al.*, 2005). Different measures of career success will have to be developed depending on the specific construct and population one wishes to study. The fact that objective career success measures continue to be used in the recent literature (Arthur *et al.*, 2005; Heslin, 2005), and that research indicates that organizational-traditional conceptions of career are still relevant today (Guest & Mackenzie Davey, 1996; Verbruggen *et al.*, 2007; Walton & Mallon, 2004), leads us to believe that managerial intra-organizational career success is a variable of interest to researchers even in the post-modern career age.

Finally, the career satisfaction scale (Greenhaus *et al.*, 1990), which we used as a ~~study's~~ subjective measure of career success to complement and validate our own, objective measure, is not without criticism itself. Social-psychological approaches to

career success —assessment are increasingly suggesting the possibility of multiple dimensions of the subjective career, and in turn of subjective career success.

Consequently, several authors have found fault with the career satisfaction scale based on its uni-dimensionality, which is underlined by the high α values of the measure (Arthur *et al.*, 2005; Arthur, Inkson & Pringle, 1999; Parker & Arthur, 2002; Eby, Butts & Lockwood, 2003). Perhaps an investigation into the content and construct validity of various subjective career success measures would prove an interesting topic for research that is more orientated towards careers of achievement (Zabusky & Barley, 1996).

Implications

Implications for further research. The MCSM is best suited for use in studies that focus on factors that might influence intra-organizational career success, such as networking, mentoring, coaching, participation in training programs, job rotations, traineeships, high-potential programs, and expatriate assignments. Below, we discuss some possible avenues for further research.

First, in order to assess the *external validity* of the MCSM, i.e. the generalizability of the measure (Trochim, 2000), the measure needs to be examined across several samples and in different contexts. The segment of the working population under study and the country in which the research is conducted might interfere with play a role in the validity of the MCSM. The prevalence of boundaryless careers, the value placed on job security and life-time employment, the degree of unionization, For instance, some countries show a higher prevalence of traditional career types than others. For instance, (Arthur *et al.*, 2005; Verbruggen *et al.*, 2007) and societal definitions of success or failure have been found to differ across nations (Bozelionnes, 2002; Chênevert & Tremblay, 1998; Briscoe, 2007).

Second, it would be interesting to examine ~~further the possibility of relationships with criteria related to including~~ inter-organizational and lateral moves ~~in our measure of extrinsic career success. Inter-organizational career moves have become very customary in many countries as certainties vis-à-vis the ability of organizations to offer lifetime employment have disappeared (Arthur *et al.*, 2005). It is clear, nonetheless, that it would be very difficult to incorporate data on inter-organizational career moves in a computational formula analogous to the MCSM; collecting data on l_i , $l_{\max}$, y_i and l_s would be extremely difficult, both from respondent self-reports as from archival data. A possible solution would be to gather data on these variables retrospectively for each subsequent organization, and so reconstruct the career track of each respondent. However, such an intervention would not result in obtaining one easily calculated extrinsic career success score, and in case of self-report surveys, would cause a significant increase in the cognitive load placed on the respondents.~~ With regard to the inclusion of lateral moves, researchers must first examine the role such career transitions may play in any assessment of career success. Even though post-modern career theory stresses the equivalence of upward and lateral moves in contemporary careers, it is not quite certain whether this assertion has yet entered into society's definition of career success (Verbruggen *et al.*, 2007).

A third suggestion for future research is to empirically examine ~~the our presupposed~~ correspondence between MCSM scores based on self-report and MCSM scores based on archival data. As we mentioned earlier in the content validity section of this paper, we do not question such correspondence by reasons of self-serving bias or common method variance; rather, ~~on~~ the *ability* of respondents to report on l_i , $l_{\max}$, y_i

and I_s so that self-report scores on the MCSM would fully correspond to archival data, may be an issue that warrants further examination.

Implications for practice. Future studies could tackle this issue by simultaneously gathering self-report and archival data and comparing them to one another—for instance within an organizational context with a very strict hierarchy (e.g. the army), since in this type of organizations, the MCSM scores that can be obtained from archival data reach maximal objectivity. Another interesting intervention would be to provide one group of respondents with an organizational diagram, and compare the correspondence of their MCSM self-report scores with scores obtained from archival data to a the correspondence in a control group that is instructed to withdraw the required information from their memories (thus producing higher cognitive load).

From a practice perspective, the MCSM might prove useful as a longitudinal follow-up instrument ~~for of the~~ career development practices in organizations. All too often, organizations implement costly and time-consuming HR systems into their structures without installing systematic follow-up procedures (Wang, Dou & Li, 2002; Hammond, 2005). For instance, many organizations invest a great deal of time and effort into the identification and development of *high-potential* employees (e.g. Altman, 1997; Bourniois & Rousillon, 1998; Derr *et al.*, 1988; Viney *et al.*, 1997). However, follow-up of such employees is often not ~~adequately sufficiently~~ centralized and consequently, many organizations have no clear view of the ~~r^eturn oen ii~~ investment (ROI²) of ~~such development their high-potential management~~ programs (Vloeberghs, Pepermans & Thielemans, 2005). The MCSM may be a helpful indicator to ~~help~~ determine ~~ROI; return-on-investment~~: assuming that organizations would succeed in correctly separating high potentials from non-high potentials, one would expect the

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group of high potentials to advance faster than their peers (Altman, 1997), and thus, obtain higher scores on the MCSM. Should this not be the case, one might infer that there are issues either with the high-potential identification or the development process. ~~We realize that the MCSM does not offer exhaustive, rich information on the career tracks of managers; however,~~ we believe that incorporating objective intra-organizational ~~career measures~~ into personnel databases might assist in detecting development plateaus and gaining insights into the effectiveness of career development policies in organizations (Wayne *et al.*, 1999).

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Table 1

Sample descriptives

Variables	Study	Frequency	<i>M</i>	<i>SD</i>
Objective career success (<i>N</i> = 1101)	I, II, III	--	20.64	20.56
Subjective career success (<i>N</i> = 601)	I, III	--	3.89	0.69
Current net month salary (<i>N</i> = 381)	II, III	--	3216.65	1916.70
First net month salary (<i>N</i> = 345)	II, III	--	2148.12	1349.27
Net month salary progression* (<i>N</i> = 340)	II, III	--	1079.57	1415.61
Gender (<i>N</i> = 1098)	I, II, III			
Female		439	--	--
Male		659	--	--
Age (<i>N</i> = 1052)	I, II, III			
Younger than 26		57	--	--
Between 26 and 35		236	--	--
Between 36 and 45		390	--	--
Older than 45		369	--	--
Educational level (<i>N</i> = 1075)	I, II, III			
Grade school		6	--	--
High school		87	--	--
Bachelor		369	--	--
Master		545	--	--
Doctorate or equivalent		68	--	--
Employment sector (<i>N</i> = 972)	I, II, III			
Agriculture		8	--	--
Industry		291	--	--
Services		417	--	--
Non-profit		220	--	--
Other		36	--	--
Job type (<i>N</i> = 626)	I, III			
Administration		37	--	--
Board		101	--	--
Buying		16	--	--
Department management		94	--	--
Facility management		19	--	--
Financial		49	--	--
Human resources		105	--	--
IT/informatics		12	--	--
Legal		15	--	--
Logistics		19	--	--
Production		13	--	--
Project management		21	--	--
Public relations		18	--	--
Safety/medical		18	--	--
Sales/marketing		45	--	--
Technical/engineering		39	--	--
Other		5	--	--

Note: data from the NGO sector (Study I) was incorporated into the “non profit” employment sector category for analysis.

Table 2

Intercorrelations for the different career success measures

Career success measures	1	2	3	4	5
1. Current managerial level	--				
2. Current net month salary	.37 ^a †	--			
3. Net month salary progression	.42 ^b †	.73 ^c †	--		
4. Career satisfaction scale score	.19 ^d †	.18 ^e †	.17 ^f *	--	
5. MCSM scale score	.29 ^g †	.12 ^h *	.12 ⁱ *	.21 ^j †	--

^a $N = 359$; ^b $N = 323$; ^c $N = 323$; ^d $N = 491$; ^e $N = 186$; ^f $N = 173$; ^g $N = 1101$; ^h $N = 359$; ⁱ $N = 323$; ^j $N = 491$

* $p < 0.05$; † $p < 0.01$

Table 3

Goodness of fit statistics and parameter estimates of factor loadings for the two models of career success tested through structural equation modelling

	Model excluding net month salary progression	Model excluding current net month salary
<i>Goodness of fit statistics</i>		
Satorra-Bentler χ^2	$\chi^2_{SB}(2) = 3.17; p = .205$	$\chi^2_{SB}(2) = 2.13; p = .344$
CFI	.98	1
RMSEA	.058	.020
GFI	.99	.99
<i>Parameter estimates of factor loadings</i>		
Current managerial level	1.05	1.01
Career satisfaction scale score	.19	.20
Current net month salary	.77	--
Net month salary progression	--	.45
MCSM	1.19	1.24

Table 4

Results of linear regression analyses for the different career success measures

Dependent variables	Current managerial level			Current net month salary			Net month salary progression			Career satisfaction scale score			MCSM scale score		
Independent variables	<i>N</i>	<i>R</i> ²	<i>F</i>	<i>N</i>	<i>R</i> ²	<i>F</i>	<i>N</i>	<i>R</i> ²	<i>F</i>	<i>N</i>	<i>R</i> ²	<i>F</i>	<i>N</i>	<i>R</i> ²	<i>F</i>
Gender	1098	.03	35.36†	381	.06	23.08†	340	.05	18.92†	600	.00	1.44	1101	.02	20.86†
Current managerial tenure	1100	.06	73.42†	368	.05	18.85†	331	.25	110.70†	509	.02	12.34†	1101	.00	3.67
Educational level	1101	.01	1.37	381	.02	1.52	340	.00	.11	601	.01	1.30	1101	.00	1.09
Age	1101	.04	13.84†	381	.10	13.49†	340	.06	7.48†	601	.03	5.68*	1101	.01	1.84
Employment sector	1101	.01	2.49*	381	.03	2.52*	340	.01	.80	601	.00	.40	1101	.00	.99

Note: educational level, age and sector were recoded into dummy variables prior to the analyses.

* $p < 0.05$; † $p < 0.01$