

Rival Structures for Career Anchors: An Empirical Test of the Circumplex

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Précis

La manière d'organiser les ancres de carrière selon une logique circulaire a récemment donné naissance à plusieurs structurations rivales qui n'ont pu être validées empiriquement. Contrairement à ces structurations athéoriques, un modèle théorique de structuration est proposé. En utilisant la technique statistique de Browne (1992), il s'avère que le modèle théorique est supérieur aux autres structurations. Les résultats obtenus sont aussi en accord avec une structuration par quadrants regroupant des ancres de carrière compatibles. Le quadrant du *carriériste* se compose de l'ancre de gestion; le quadrant du *protéen* regroupe respectivement les ancres de compétence technique/fonctionnelle, de défis créatifs, d'entrepreneuriat et d'autonomie/indépendance. Le quadrant du social rassemble les ancres de style de vie et de service/dévouement alors que le quadrant du *bureaucratique* fait référence à l'ancre de sécurité/stabilité.

Abstract

The way of organizing career anchors according to a circular logic has recently given birth to several competitive structures that did not receive empirical support. Unlike these structures of career anchors that were atheoretical, a new theoretical structuring model is proposed. Using the statistical technique developed by Browne (1992), it turns out that the theoretical model

is superior to other structures. The results are also consistent with a structure based on quadrants of compatible career anchors. The *careerist* quadrant consists of anchor management; the *protean* quadrant respectively combines the technical/functional competence of anchors, creative challenges, entrepreneurship and autonomy/independence. The *social* quadrant brings together lifestyle as well as service/dedication anchors while the *bureaucratic* quadrant refers to the security/stability anchor.

In recent years, the responsibility for career management has gradually passed from the organization to employees. However, this change does not mean that the idea of career anchors is outdated, in the sense that career aspirations are still a major concern for employees (Mercure & Vultur, 2010). Furthermore, the theory of career anchors that arose in the 1970s through Schein's work (1978) is still generating interest among researchers (Rodrigues, Guest, & Budjanovcanin, 2013). According to Schein, the idea of a career anchor refers to an individual's tendency to choose a work environment that reflects the perception of their talents, motivations and needs. Among young adults, initial career choices are made based on a fairly vague notion of these perceptions. As individuals advance in their career tackling the challenges of the early years, they gradually develop what Schein calls an "individualized" career choice that results from the interaction between the in-

dividual and the work environment. This is how they forge a "stable" career identity. This psychological process is at the source of career orientations or career anchors¹ that hinge around three areas: 1) talents and skills; 2) motivations and needs; and 3) values. According to Schein, over time a single stabilizing career anchor emerges, guiding and limiting a person's career path. When individuals face a situation in which they have to make a difficult professional choice, they use this so-called dominant career anchor because it is an affirmation of what is truly important to them in their career.

Schein originally identified five career anchors: the management anchor, the technical/functional competence anchor, the security/stability anchor, the entrepreneurial creativity anchor and the autonomy/independence anchor (Schein, 1975). Schein later added three more career anchors: the service/dedication to a cause anchor (which belongs to the service anchor identified by DeLong, 1982), the pure challenge anchor (which belongs to DeLong's variety anchor) and the lifestyle anchor (Schein, 1987).

Feldman & Bolino (1996) have remarked that in Schein's study (1978), around one-third of respondents had multiple career anchors, suggesting the possibility of simultaneous primary and secondary anchors. This observation was confirmed by a study by Martineau, Wils, & Tremblay (2005) conducted with 900 Quebec engineers. They maintained that multidimensional



dominance refers to “lack of differentiation,” i.e. the interiorization of a number of complementary anchors, while the “differentiation” that underlies Schein’s work (1975; 1978; 1987; 1990; 1996) refers to the interiorization of a single career anchor (or one-dimensional dominance). To the extent that several dominant career anchors can coexist simultaneously within the same individual and that this is the case for the majority of individuals (Chapman, 2009), a new research problem emerges, that is, structuring career anchors that refer to relationships between career anchors. In fact, a number of structuring models have been proposed in recent years.

Reference Framework

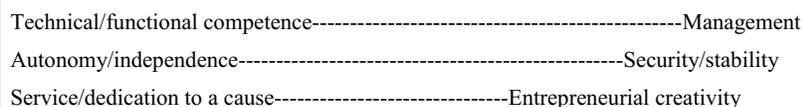
The structuring of career anchors was approached inductively (atheoretical model) and deductively (theoretical model). Let’s look at atheoretical models first.

Atheoretical models

A number of authors have proposed a career anchor structure based either on purely speculative relationships between these career anchors or on relationships that emerge from partial empirical results. The origin of these models goes back to Schein’s work. In 1990, after years of research and experiments, Schein developed a model of mutually inconsistent career anchors. For example, as presented in figure 1, he suggested that the technical/functional competence anchor was in opposition to the management anchor, that the security/stability anchor was in opposition to the autonomy/independence anchor and that, lastly, the entrepreneurial creativity anchor was in opposition to the service/dedication anchor (Barclay, 2009). We should note by the way that Schein did not propose anything for the lifestyle and pure challenge anchors.

It took until 1996 for a more elaborate model to be designed by articulating the anchors according to a circular logic. Feldman & Bolino

Figure 1. Schein's structuring model (1990)



(1996) proposed an octagon model for structuring career anchors according to which the centrality of career anchors is implemented within each of the three groups of anchors (talent, motives and needs, attitudes and values) and not within all anchors combined, as Schein argues (Barclay, 2009). The technical/functional competence, management and entrepreneurial creativity anchors would relate to the individual’s talents; they would be centred on day-to-day work. The security/stability, autonomy/independence and lifestyle anchors would represent motives and needs; they would focus on how individuals want to structure work based on their desires and their lives. Lastly, the service/dedication to a cause and pure challenge anchors would represent attitudes and values; they also relate to the individual’s identification with their job and the organizational culture. Feldman & Bolino (1996) stipulate that someone could have a dominant career anchor for each of these categories, which would explain the existence of primary and secondary career anchors by virtue of their complementary nature.

To better understand the dynamic between these three career poles, Feldman & Bolino (1996) proposed an octagon structuring model for career anchors (see Figure 2). According to this model, there is proximity among certain so-called compatible or complementary anchors (adjacent anchors on the octagon, such as technical/functional competence and pure challenge anchors) and an opposition between other so-called incompatible anchors (anchors diametrically opposed in the octagon, such as the security/stability and entrepreneurial creativity anchors). To the extent that Feldman and Bolino based their work on a few empirical studies to establish the relationships between the an-

chors in the octagon (Wils, Wils, & Tremblay, 2010), this model must be considered atheoretical.

A third model was put forth by Bristow (2004). To clarify, he suggested different terminology from Schein for readers who are not familiar with the career anchors. Terminology changes were the following: technical/functional competence became “expert,” management became “managing others,” autonomy/independence became “gaining in autonomy,” stability/security became “ensuring one’s security,” entrepreneurial creativity became “innovation,” service/dedication to a cause became to “serving others,” pure challenge became “reaching a goal” and, lastly, lifestyle became “maintaining balance.”

In the end, as figure 3 shows, Bristow (2004) recommends that pure challenge, entrepreneurial creativity and autonomy/independence be complementary, whereas entrepreneurial creativity and technical/functional competence, as well as autonomy/independence and stability/security would be mutually opposed. However, like the previous models (Schein, Feldman, & Bolino), Bristow’s model remains atheoretical.

In 2009, Chapman developed a fourth model to establish relationships between career anchors; there are two versions of this model. In the first version of his model, entrepreneurial creativity, pure challenge and technical/functional competence are presented, for example, as being complementary career anchors, whereas stability/security and pure challenge were identified as being opposite anchors (see Figure 4 for the other relationships between career anchors).

Also in 2009, Chapman proposed another version of the model of opposite career anchor relationships based on Schein’s model. In



Figure 2. Feldman and Bolino's octagon career anchor structure (1996)

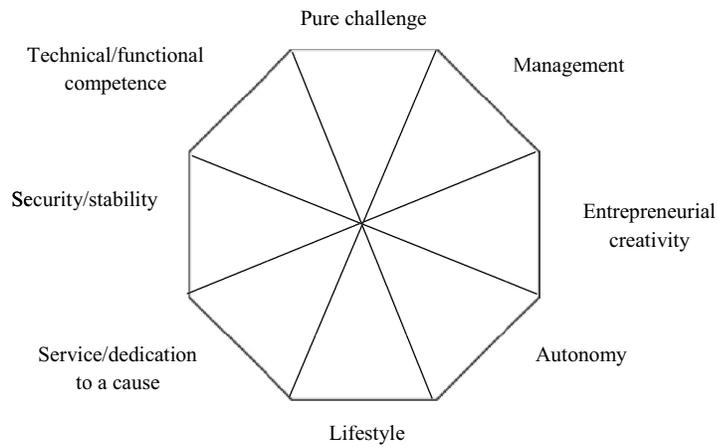


Figure 3. Bristow's anchor structuring model (2004)

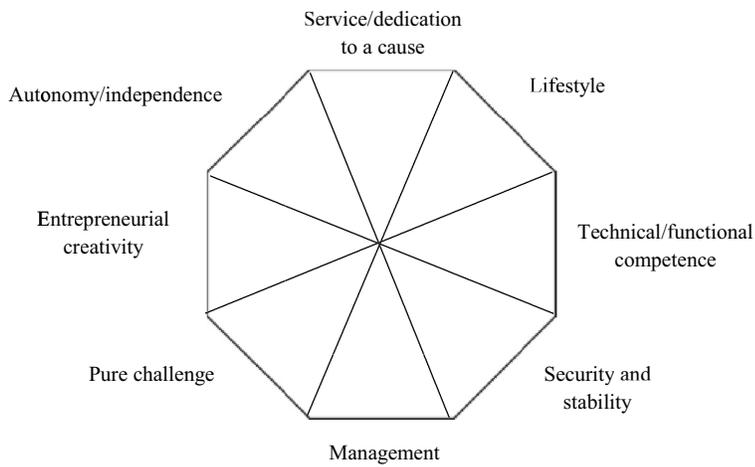
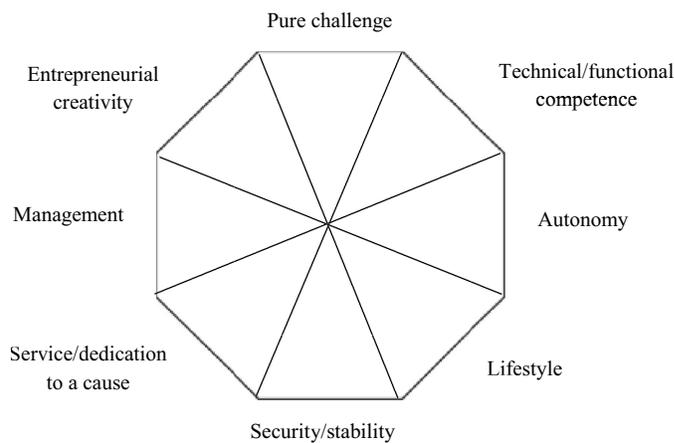


Figure 4. Chapman's anchor structuring model (2009a)





addition to the three oppositions in Schein's model, he added a fourth: pure challenge versus lifestyle, as shown in figure 5.

Empirical Research Into Atheoretical Career Anchor Models

Three empirical studies looked at atheoretical models of structuring career anchors. Chapman (2009) mainly tested Feldman and Bolino's model in his doctoral thesis from primary data, whereas Barclay (2009) and Barclay, Chapman & Brown (2013) tested all atheoretical models from secondary data.

The Chapman study was intended to look at Feldman and Bolino's (1996) two hypotheses, more specifically the question of the plurality of career anchors and their relationships. From a sample of 1,361 participants working for an oil multinational, Chapman created an index ("indices of mutual presence" or IMP) to identify patterns of career anchors. In his study, career anchors were measured using an instrument similar to Schein's (*Career Orientation Inventory* or COI), but using the forced-choice method (ipsative data). On the one hand, the results showed that "more than 40 percent individuals can be typified by multiple career anchors" (Chapman & Brown, 2014, page 732) On the other hand, in terms of relationships between complementary and opposite anchors, the results do not corroborate the oppositions between the anchors (mutually exclusive relationships) that are the basis of the Feldman and Bolino model. In other words, complementarity prevails over oppositions. Chapman then inductively used his data to propose a structuring model.

Barclay (2009) and Barclay, Chapman, & Brown (2013) evaluated different atheoretical structurings of career anchors, from secondary data (seven empirical studies). From a consolidated sample of around 2,700 individuals who took part in all these studies, the authors mainly used principal component method of exploratory factor analysis to ana-

lyze and illustrate their data. They also used confirmatory factor analysis to test the incompatibilities between anchors that are specified in the different atheoretical models.

Barclay noted that the oppositions of career anchors proposed by Feldman & Bolino (1996) was not significantly more negative than those proposed by the models of Bristow (2004) and Chapman (2009). Also, the results of the confirmatory factor analysis have shown that the Feldman and Bolino model does not fit better than the three other models. In fact, Schein's model is the one that seems to fit best, but this data fit is not satisfactory.

Criticism of These Empirical Studies

To try to explain the different and non-significant results for the circular logic test of career anchors, Chapman and Barclay suggest that using certain methods of data collection could contribute to producing non-significant results. For example, using a Likert five-point scale, participants tend to provide biased answers that will generate more positive than negative correlations (Barclay, 2009). This argument is, however, debatable to the extent that Chapman (2009) and Cai (2012) measured career anchors in different ways (forced-choice technique, Likert scale and a variant of the Likert scale called "economic exchange method"), but this did not change the correlation patterns or help validate a structuring model of anchors. Furthermore, Likert scales are commonly used in many valid measurement instruments. Measurement does not seem to be the main explanation for non-significant results. Besides, it should be emphasi-

zed that knowledge of the factor structure of Schein's instrument cannot be considered weak. When Schein's original instrument is used, the nine-factor solution (entrepreneurial creativity being split into two parts, creativity and entrepreneurship) only approaches acceptable level of construct validity (Danziger, Rachman-Moore, & Valency, 2008). In short, it is unlikely that the absence of validation of atheoretical structuring models is primarily explained by the improper measurement of career anchors.

Barclay, Chapman, & Brown (2013) essentially used two types of factor analysis (exploratory and confirmatory) to validate atheoretical models. They conclude that a two-dimensional structuring such as proposed by Feldman and Bolino (1996) is inadequate to reflect the complexity of relationships between career anchors, leading them to propose a three-dimensional model instead. Before making the structuring model more complex, it is important to ensure that sufficient empirical studies have *adequately* tested structuring models. To the extent that anchors are organized according to a circular structure, factor analysis is not the appropriate technique for testing a circumplex (Fabrigar, Visser, & Browne, 1997).

Unlike Chapman and Barclay, who point primarily to methodological weakness to explain the absence of validation of structuring models for career anchors, the absence of theory may be the main reason for it. In other words, the absence of validation of these models also comes from a theoretical weakness justifying the relationships between anchors. For example, Feldman and Bolino's model is inductive in that it is based only on the study by Nordvik (1991). Taking

Figure 5. Chapman's anchor structuring model (2009b)

Technical/functional competence-----	Management
Autonomy/independence-----	Security/stability
Service/dedication to a cause-----	Entrepreneurial creativity
Pure challenge-----	Lifestyle



into account all empirical studies on career anchors, a number of contradictions between the conceptual model and the empirical evidence arise (Wils et al., 2010). Starting from the principle that most anchors are similar to the motivational areas described by Schwartz (1992), it is possible to use the structure of values developed by Schwartz (1992) to form a theoretical basis for structuring career anchors (Wils et al., 2010).

Theoretical Model for Structuring Career Anchors

Based on the theory of the universal structure of fundamental values (Schwartz, 1992), Wils, Wils, & Tremblay (2014) proposed a model for structuring career values. Two perpendicular axes divide the circular model into four parts or quadrants. Horizontally, there is the bureaucratic self-concept (bureaucratic quadrant) versus the protean self-concept (protean quadrant); vertically, the careerist self-concept (careerist quadrant) versus the social self-concept (social quadrant). Career anchors are theoretically associated with these quadrants: the management anchor with the careerist quadrant, the pure challenge and autonomy anchors with the protean quadrant, the service/dedication to a cause anchor with the social quadrant and the security/stability anchor with the bureaucratic quadrant. Because of the different meanings of some items of Schein's measurement instrument, a few anchors could be placed in two quadrants (Wils et al., 2014). For example, the autonomy/independence anchor could belong either in the careerist quadrant (sense of freedom) or the protean quadrant (sense of professional autonomy). This study refines this theoretical model by arranging career anchors in a circular logic (circumplex) to represent their dynamic. In other words, the anchors are organized within each quadrant. To do this, we need to go back to the work of Schwartz (1992) according to which values are associated with ten motivational areas (Wils, Lun-

casu, & Waxin, 2007) organized as follows: power, followed by accomplishment (self-affirmation quadrant), hedonism, stimulation and then self-orientation (openness to change quadrant), universalism, followed by benevolence (self-transcendence quadrant), tradition/conformity and, to complete the loop, security (continuity quadrant).

As figure 6 shows, the careerism quadrant covers the management anchor. In fact, values such as social power or hierarchical authority, which characterize managers who have a management anchor, belong to the motivational area of power. To the right of the management anchor is the technical/functional competence anchor. We should note that we have placed this anchor straddling the careerism and protean quadrants because of the different meanings² attributed to it. According to Schein's career anchor measurement instrument, some items refer to functional managers who attach importance to values such as professional success, competence or influence, values that characterize the motivational area of accomplishment in Schwartz (located to the right of power) and that belong in the careerism quadrant. On the other hand, other items refer to the development of professional expertise as well as attachment to a professional area, which would tend to situate them in the protean quadrant, because values such as expertise characterize professionalism.

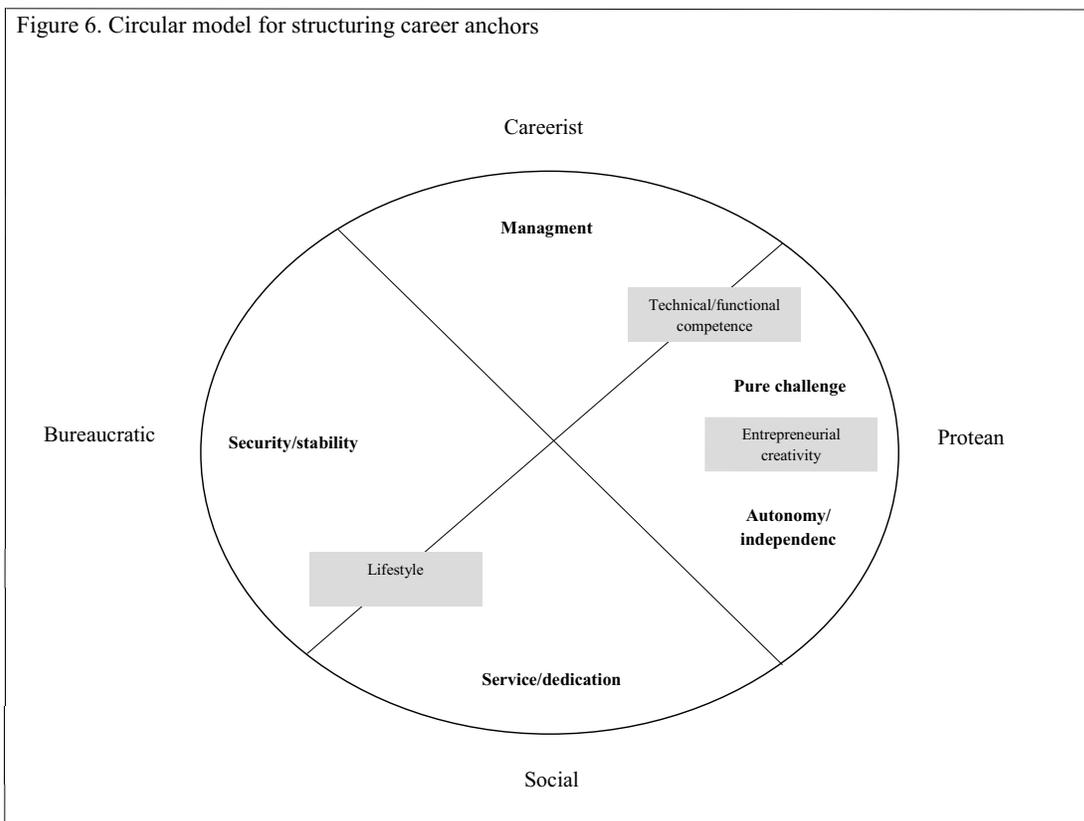
The protean quadrant groups three anchors, i.e. pure challenge, entrepreneurial creativity and autonomy/independence. On the one hand, the pure challenge anchor is associated with the motivational area of stimulation based on the sharing of values such as a varied or exciting life. On the other hand, the autonomy/independence anchor is associated with the motivational area of self-orientation because of the sharing of values such as independence. Between these two anchors, we placed the entrepreneurial creativity anchor, which is straddled between the motivational area of sti-

mulation (value such as daring or the risk associated with entrepreneurship) and self-orientation (value of creativity).

The social quadrant is associated with the service/dedication anchor based on shared values because the motivational areas of universalism and benevolence use values required for service to others (open-mindedness, being helpful, a meaning for life). The bureaucratic quadrant covers the anchor of security/stability, which is directly associated with the motivational area of security. Lastly, we placed the lifestyle anchor between the social quadrant and the bureaucratic quadrant because of the different meanings assigned to the concept of lifestyle. On the one hand, lifestyle can refer to the desire to have enough time for friends, family or volunteer work, which would place it in the social quadrant because of concern for others. But this anchor can also indicate the desire to have enough time for oneself (for example, for personal leisure or travel), which would associate it with the bureaucratic quadrant (insert 3 sidenote) because a salary provides enough financial security for consumption (Mercure & Vultur, 2010). In Figure 6, we have highlighted (see the boxes) the anchors whose location is uncertain because of the different meanings, whereas the other anchors that are not in the boxes refer to anchors that are clearly identified with a motivational field. In short, the circular logic of our model is as follows: management, technical/functional competence, pure challenge, entrepreneurial creativity, autonomy/independence, service/dedication to a cause, lifestyle and security/stability.

Empirical Studies About the Theoretical Model

No study has tested the circular logic of the theoretical model presented in this study. However, two studies showed a link between the quadrants and career anchors. A first version of the circular structuring model of anchors was



compared with empirical data by Wils et al. (2010) using the methodology developed by Schwartz (data standardized on an individual basis, the use of an SSA “smallest space analysis” multidimensional scaling analysis by Guttman-Lingoes). From a sample of 880 Quebec engineers, these authors showed that the management anchor is part of the self-affirmation quadrant (corresponding to the careerist quadrant), that the creativity and pure challenge anchors are part of the openness to change quadrant (here called the protean quadrant), that the service/dedication anchor belongs to the self-transcendence quadrant (social quadrant) and that the security anchor is connected to the continuity quadrant (bureaucratic quadrant). A second study about the link between career values and career anchors largely confirms these results from several samples from the hospital sector (Wils et al., 2014). However, the technical competence anchor is instead associated with the bureaucratic quadrant, whereas the entrepreneurship and independence anchors are connected with the careerist quadrant.

Criticism of These Empirical Studies

One of the weaknesses of these two studies is having used a modified or short version of the career anchors instrument like many studies (for example, Igarria, Greenhaus, & Parasuraman, 1991). Furthermore, the study by Wils et al. (2010) is not about career anchors as defined by Schein, but rather about the facets of career anchors that result from the relationship between the items used to measure the anchors and Schwartz’s motivational areas. Another weakness of the two studies stems from the fact that multidimensional scaling analysis is an exploratory statistical technique that does not allow for testing a circular structure. This study is intended to address these two shortfalls using Schein’s original instrument along with a confirmatory statistical technique designed to test a circumplex, i.e. the circular stochastic process model. In the end, the study’s results make it possible to evaluate rival structures of career anchors to evaluate whether the proposed theoretical model is superior to atheoretical

structurings. In other words, the goal of this study is to identify the structuring model that is closer to the empirical model of the circumplex from the analysis of data.

Methodology

Sample

The data was collected using a self-administered questionnaire sent to 2,300 management graduates from a Quebec university. Since no initial sampling was done, all graduates in administration, accounting and industrial relations from this university make up the population of the study. Of the 2,300 questionnaires mailed to the graduates’ home address, 366 were returned completed, for a response rate of 15.9%. Before sending the questionnaire, it was subject to a pre-test to ensure that it was relevant and understandable, and a reminder letter was sent one week after the questionnaire was initially mailed to encourage subjects to respond.

Before analyzing the data, this convenience sample was refined. We withdrew a number of ob-



servations for different reasons. First, five subjects did not respond to a number of statements (over 50% of data missing per individual). Second, six other subjects frequently used the same point on the scale, (insert 4 sidenote) which suggests a lack of effort to seriously evaluate the career statements. We then eliminated subjects with little work experience, because Schein (1990a) believes that a minimum of five years of experience is required for the anchors to become clear and stable. Therefore, we eliminated 31 subjects with under five years of experience and 11 others who did not answer the question about their work experience (for 42 subjects eliminated). In total, 53 subjects were eliminated, which reduced the sample to 313 subjects.

Measurement

The career anchors were measured with the French version of Schein's original instrument, which is made up of 40 items (Schein, 2004). Respondents were to use a six-point Likert scale (1= Completely agree, ... 6= Completely disagree) to evaluate the extent to which they agreed with each of the 40 statements. Each of the eight anchors were measured by five items. As an illustration, one of the items to measure the pure challenge anchor reads as follows: "I dream of a career filled with problems to solve and challenges to tackle." The English-language version of Schein's instrument shows an almost satisfactory construct validity (Danziger et al., 2008). Given that Schein's instrument is long, many researchers have used a short version of the original. For example, Igbaria & Baroudi (1993) validated a short English-language version of Schein's instrument that also presents an acceptable factor structure with alpha coefficients ranging from 0.62 to 0.90. An adapted, short French-language version of this instrument also shows satisfactory reliability with alpha coefficients ranging from 0.73 to 0.82 (Tremblay, Wils & Proulx, 2002). Furthermore, this ver-

sion, which was reworked by Roger (2006), also showed a satisfactory construct validity (correlation between 0.41 and 0.47 between the anchors measured by two different instruments).

Statistical Analysis

All the analyses were conducted with R software (R development core team, 2013). For the past few years, R software, which is a programming language, has been popular not only because it is free, but also because it makes it possible to conduct specialized analyses not available with commercial software such as SPSS. One of these specialized analyses is found in the package CircE library (Grassi, 2014) which estimates the structural models for circumplexes (Fabrigar, Visser, & Browne, 1997). The mathematical details of this technique are explained in Browne (1992) who is behind CIRCUM software in the DOS environment. In fact, CircE is a more up-to-date version of this software, which was developed with R (Grassi, Luccio, & Di Blas, 2010). Lastly, we used the lavaan package library for the confirmatory factor analysis, again with R. We also used the packages psych, rela, GPArotation and corpcor libraries for the exploratory factor analysis (principal component analysis).

Characteristics of the Sample

With respect to the characteristics of the sample, the average age is relatively high at 40.5, and respondents earn on average \$72,834 annually. Women comprise 47.2% of the sample. Furthermore, the large majority of respondents have a bachelor's degree (79.5%) and 21.2% of them have a graduate degree.

Findings

The findings section is divided in two parts: the results of the factor analyses and the results from the structural model to test the circumplex.

Factor Analyses

Since the factor structure of Schein's instrument has not been validated for the French version of Schein's instrument, we performed an eight-factor confirmatory factor analysis (i.e. the eight anchors indicated in Schein's theory). The results do not allow us to conclude that the eight-factor model is adequate based on the indices (insert 5 sidenote) of fit. In the case of the eight-factor confirmatory factor analysis, we obtained values lower than 0.95 for the CFI and the TLI (0.69 and 0.66 respectively). According to Byrne (2001), values lower than 0.95 are insufficient to assert that a model fits well with the data. For the RMSEA, a value lower than 0.05 is a good fit, and we obtained a value higher than 0.08 for the eight-factor solution. With respect to the SRMR, we obtained a value higher than 0.05 (i.e. 0.09), whereas a value lower than 0.08 is desirable for a good fit. Lastly, we observed that the result of the test χ^2 was significant at $p = 0,000$, leading us to the conclusion that the model is not adequate. By the way, we should point out that the eight-factor structure tested using the confirmatory factor analysis by Danziger et al. (2008) was worse than the nine-factor structure (the entrepreneurial creativity anchor was divided in two), but that the latter was not entirely satisfactory (with the English-language version of Schein's instrument).

Following this negative result, we conducted a principal component analysis (PCA) as recommended by Churchill (1979) and explained by Field, Miles, and Field (2012). This analysis addressed the 40 items with an orthogonal rotation (Varimax). The KMO (Kaiser-Meyer-Olkin), which is 0.80, shows the utility of conducting the PCA (a KMO of 0.80 positioned between "good" and "great" (Field et al., 2012). Furthermore, all the KMOs for individual items are higher than 0.70, which is above the acceptable threshold of 0.50. Bartlett's sphericity test, which is significant at $p < 0,000$, shows that the



correlations between the items are sufficiently strong to conduct a PCA. An initial PCA indicates that a few items pose problems, such as saturation on a factor not anticipated by the theory and unique saturation on one factor. A series of five successive PCAs led to eliminating five items. In the last PCA, eight factors were selected examining the “Scree” graph. These factors, which have a proper value greater than 1, explain 60% of the variance. The analysis of residuals between the correlation matrix and the reproduced matrix shows that the percentage of significant residuals (higher than 0.05) is 26%, which does not exceed the recommended threshold of 50%. The root-mean-square residual is 0.05. Given that 0.05 is lower than the recommended threshold of 0.08, the number of factors extracted is adequate. Lastly, we should note that the number of factors extracted is in line with Schein’s theory, i.e. eight factors. Table 1 shows all the saturation coefficients after the rotation that are higher than 0.30, this threshold being appropriate given the sample size, which is close to 300 observations.

Four of the eight factors correspond fairly well to the anchors as provided by Schein, i.e. the stability/security anchor (component 1), the service/dedication to a cause anchor (component 2), the lifestyle anchor (component 3), the autonomy/independence anchor (component 7). Two other factors almost correspond to two anchors, i.e. the management anchor (component 5) and the technical/functional competence anchor (component 8). In the case of the management anchor, one item from the technical anchor (item 17) negatively saturates with two items from the management anchor (items 26 and 18). This situation is explained by the fact that Schein defines the technical anchor in terms of functional management. Therefore, item 17 of the technical anchor (“I prefer to become a functional senior manager in my field of expertise rather than CEO” is in fact the reverse of the wording of item 26 of the management anchor (“I

Table 1
Summary of PCA results with 35 items

Item/ anchor	Varimax rotated factor loadings							
	1 Stability/ security	2 Service/ dedication	3 Lifestyle	4 Crea- tive chal- enge	5 Mane- ment	6 Entre- pre- neur- ship	7 Autonomy/ independence	8 Tech- nical
Item 20/ Stability/security	0.82							
Item 36/ Stability/security	0.79							
Item 28/ Stability/security	0.77							
Item 4/ Stability/security	0.70							
Item 12/ Stability/security	0.65							
Item 22/ Service/dedication		0.78						
Item 6/ Service/dedication		0.73						
Item 30/ Service/dedication		0.73						
Item 38/ Service/dedication		0.63						
Item 14/ Service/dedication		0.51						
Item 24/ Lifestyle			0.77					
Item 32/ Lifestyle		0.31	0.73					
Item 8/ Lifestyle			0.71					
Item 16/ Lifestyle			0.65					
Item 40/ Lifestyle	0.39		0.48					
Item 21/ Entrepreneurial creativity				0.64		0.35		
Item 29/ Entrepreneurial creativity				0.62		0.39		
Item 23/ Pure challenge				0.62				
Item 31/ Pure challenge				0.59				
Item 7/ Pure challenge				0.55	0.33			0.32
Item 15/ Pure challenge				0.51				0.34
Item 26/ Management					0.85			
Item 17/ Technical					-0.83			
Item 18/ Management					0.68			
Item 5/ Entrepreneurial creativity						0.76		
Item 37/ Entrepreneurial creativity						0.75		
Item 13/ Entrepreneurial creativity						0.70		
Item 19/ Autonomy/independence							0.73	
Item 35/ Autonomy/independence							0.63	
Item 27/ Autonomy/independence	-0.47						0.57	
Item 11/ Autonomy/independence							0.55	
Item 3/ Autonomy/independence						0.35	-0.47	0.35
Item 1/ Technical				0.34				0.69
Item 2/ Management		0.36						0.65
Item 9/ Technical								0.49
Eigenvalues (after rotation, eight factors)	3.58	2.76	2.75	2.68	2.38	2.37	2.34	2.00
% variance	10.00	0.08	0.08	0.08	0.07	0.07	0.07	0.06
Cronbach's alpha	-0.83	0.73	0.75	0.71	0.79	-0.81	0.71	0.57

Note: Factor loadings over 0.40 appear in bold



prefer to become CEO rather than a senior functional executive in my field of expertise”). On the other hand, we left in component 8 which corresponds to the technical anchor (items 1 and 9) one item from the management anchor (item 2) because the wording of the latter item includes the idea of “participation of others” which is central to collaborative work between professionals to better serve internal clients. Lastly, the two last factors do not correspond exactly to the anchors as defined by Schein. In fact, the items in the entrepreneurial creativity anchor were divided in two. Component 6, which includes three items for entrepreneurship, corresponds to the entrepreneurship anchor identified by Danziger et al. (2008). On the other hand, the two other creativity items in the entrepreneurial creativity anchor were combined with the pure challenge anchor items (component 4). This can be explained by the fact that the motivational field of stimulation refers to a “need for excitement, novelty and challenge” (Wach & Hammer, 2003). Rodrigues et al. (2013) also found that challenge was related to the ideas of novelty and innovation. We therefore named this factor “creative challenge.”

Structural models to test the circular logic of the eight anchors. The analysis based on circular stochastic process model with a Fourier series (circumplex covariance structure model) is meant to test the circular representation of data where the distance between the anchors on the circle is a function of their correlation (Browne, 1992). To evaluate the circular structure of the career anchors, the management anchor was placed as a reference variable at 0 degree. Three structural models were specified: (1) the circumplex model with two constraints (equal spacing between the anchors on the circle, equal radii (equal communalities) between the centre of the circle and each anchor); (2) the quasi-circumplex model with one constraint (unequal spacing between the anchors on the circle, but with the constraint of equal radii between

the centre of the circle and each anchor); and (3) the model without constraints (unequal spacing between the anchors on the circle, unequal radii between the centre of the circle and each anchor. For the correlation function, the number of free parameters (m) was set at 3, which is commonly used (Browne, 1992; Perrinjaquet, Furrer, Usunier, Cestre, & Valette-Florence, 2007). In the three cases of figures, the models converged.

As Table 2 shows, the fit indices show that the model without constraints (the third model) is the most plausible: the GFI = 0.98 and the AGFI = 0.93 are higher than the recommended threshold of 0.90; the CFI, which is 0.945, is close to the recommended threshold of 0.95 (a value higher than 0.90 is acceptable); the RMSEA = 0.087 is a little high, but still acceptable (an RMSEA higher than 0.10 indicates a poor fit according to Browne & Cudeck, 1992) and the SRMR = 0.06 is below the recommended threshold of 0.08 (Browne & Cudeck, 1992). In spite of the fact that the fit is not the best, the model without constraints is still acceptable. It is even more acceptable given that the circular structure is new and that the measurement of anchors by the French-language version is not optimal.

The fit indices provide no information on the location of the anchors along the circle. According to Figure 7, which represents the circular logic of the model without

constraints, the anchors are organized in the following order: MG (Management), TC (Technical or technical/functional competence), CC (creative challenge anchor), AI (autonomy/independence anchor), EN (entrepreneurship anchor), SD (service/dedication anchor), LS (lifestyle anchor) and SS (security/stability anchor). The management anchor is in clear opposition to the lifestyle and service/dedication anchors, whereas the stability/security anchor is in clear opposition to the entrepreneurship and autonomy/independence anchor. This arrangement of the anchors also works with the logic of our quadrant-based model. Therefore, the careerist quadrant is made up of the management anchor (alpha=0.79); the protean quadrant includes the technical/functional competence, creative challenge, autonomy/independence and entrepreneurship anchors (alpha=0.82); the social quadrant combines the lifestyle and service/dedication anchors (alpha=0.78); lastly, the bureaucratic quadrant refers to the security/stability anchor (alpha=0.83). We should also note that the careerist and social quadrants are negatively correlated (-0.24), as are the bureaucratic and protean quadrants (-0.19).

Discussion

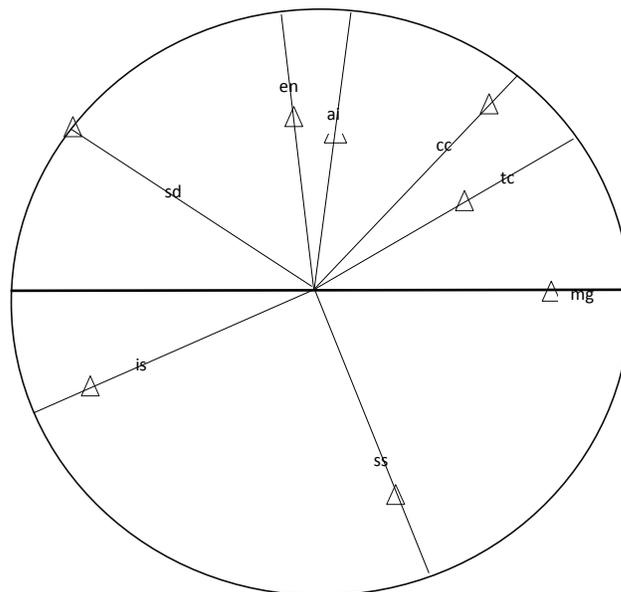
To evaluate the rival structures for career anchors, the circular ordering illustrated in Figure 7 (empirical model based on structural

Table 2
Summary of data fit indices

Models	GFI	AGFI	CFI	RMSEA	SRMR
Equal spacing/equal radii	0.83	0.75	0.41	0.18	0.16
Unequal spacing/equal radii	0.94	0.86	0.80	0.13	0.08
Unequal spacing/unequal radii	0.98	0.93	0.945	0.087	0.06



Figure 7. Career anchor model



- mg: Management anchor
- tc: Technical/functional competence anchor
- cc: Creative challenge anchor
- ai: Autonomy/independence anchor
- en: Entrepreneurship anchor
- sd: Service/dedication to a cause anchor
- ls: Lifestyle anchor
- ss: Security/stability anchor

equation modeling with no constraints) was compared with that of atheoretical/theoretical models proposed in the studies. Let's look at the first model, which is Schein's. While this model does not predict a circular ordering, it still proposes three oppositions. Of the three oppositions predicted, only one is in line with the empirical model: autonomy/independence is in opposition to security/stability. Management is not in opposition to technical/functional competencies, whereas entrepreneurial creativity (creative challenges) is not in opposition to service/dedication to a cause. Basically, this model is inadequate. The second model, that of Feldman and Bolino, proposes a circumplex with four oppositions. Pure challenge (creative challenges) is not in opposition to lifestyle, whereas technical/functional competencies is not in opposition to autonomy. This model is therefore rejected. The third model, Bristow's, proposes a circumplex with four oppositions. Technical/functional competencies

are not in opposition to entrepreneurial creativity (creative challenges), and lifestyle is not in opposition to pure challenges (creative challenges). This model is therefore rejected. The fourth model, Chapman's, proposes a circumplex also made up of four oppositions. Management is not in opposition to autonomy/independence, service/dedication to a cause is not in opposition to technical/functional competencies, lifestyle is not in opposition to entrepreneurial creativity. This model is also rejected. The fifth model, Chapman's, adds an opposition to the three proposed by Schein's first model, but this addition is not appropriate because pure challenge (creative challenges) is not in opposition to lifestyle. In short, these five structures are incongruent with the empirical model.

Unlike the five previous structures which are atheoretical, we proposed a model based on Schwartz's theory to justify the circular ordering of the career anchors. This model, which proposes organi-

zing the anchors within each of the quadrants (the quadrants are also structured according to a circular logic), is compatible with the empirical model. At the disaggregated level of the anchors, the circular logic proposed by the model (management, technical/functional competence, pure challenge, entrepreneurial creativity, autonomy/independence, service/dedication to a cause, lifestyle and security/stability) is very close to the empirical model (management, technical/functional competence, creative challenges, autonomy/independence, entrepreneurship, service/dedication to a cause, lifestyle, security/stability). Aside from entrepreneurship being located after autonomy/independence, the order is very similar. In terms of oppositions between anchors, management is in opposition to service/dedication to a cause. Security/stability is also in opposition to creative challenges and autonomy/independence. None of the five previous atheoretical structures



(with the expected oppositions) show such compatibility with the circular logic of the anchors from the empirical model. Our model is therefore the most plausible. Furthermore, one of the weaknesses of the above models is that they propose a circular logic without specifying the second-order dimensions (quadrants). So it is hard to group related anchors to form quadrants as our model allows.

This study also raises three uncertainties in our model. First, technical/functional competence, which was straddling management and pure challenge, is actually closer to creative challenges than management. This result seems to indicate that technical/functional competencies refer to professional skills in our sample. These skills go hand in hand with other anchors such as creative challenges and autonomy/independence which are central to professionalism and which characterize the protean quadrant. Second, lifestyle also straddles security/stability and service/dedication to a cause in our model. According to the results, lifestyle is clearly closer to service/dedication than security/stability. This result is consistent with the idea of lifestyle, which puts the focus on friends and family and which is central to the social quadrant. Lastly, entrepreneurial creativity is split in two. Creativity merged with pure challenge, and entrepreneurship was placed after autonomy/independence. To the extent that entrepreneurship refers to “being one’s own boss,” it is logical that it be closely related to autonomy/independence, because the area of self-direction in Schwartz’s theory refers to independence of thought. Creativity was combined with pure challenge. This result can be explained by the fact that the area of stimulation refers to needs for excitement, novelty and challenge in Schwartz’s theory. Here, creativity refers more to novelty and the desire to “build something from my own ideas” (item 21). That said, the exact location of these anchors is not essential to our model to the extent that it proposes a logic based on four

quadrants at the aggregated level (higher order dimensions). It is therefore expected that creative challenges, autonomy/independence and entrepreneurship are part of the protean quadrant. We should note that these higher level anchors show adequate reliability.

Conclusion

The major contribution of this research is that it sheds light on the debate about structuring career anchors, by proposing a new more general structural model for anchors based on Schwartz’s theory of values. Furthermore, the circular logic of this new model was empirically validated. Unlike other studies that have tried to validate the structures of career anchors, to our knowledge our study is unique for having tested the circular logic of anchors with a statistical analysis appropriate to circumplexes (Browne, 1992). Given that our quadrant model is better than rival structures, in the short term researchers could use these quadrants in future studies rather than Schein’s eight anchors. A particularly interesting question would be to find out whether dominant career anchors belong to the same quadrant, closely related quadrants and/or opposite quadrants. Career choices could be difficult, to varying degrees, depending on the scenario. On the other hand, our results support the circular logic of our model of career anchors. In the longer term, this offers an interesting avenue for research to transform our model into a quasi-circumplex. If the management anchor is in opposition to the lifestyle anchor, is DeLong’s identity anchor in opposition to the service/dedication anchor? Along the same lines, if the security/stability anchor is in opposition to the entrepreneurship and autonomy/independence anchors, what anchor is in opposition to the challenge and creativity anchors? Is the functional skill (professional) anchor in opposition to the new technical anchor? Are there several variants of the lifestyle anchor? What anchors are these variants in

opposition to? Like Rodrigues et al. (2013), qualitative studies would be appropriate to clarify the variants of the technical/functional competence and lifestyle anchors. Even though these future studies do not identify a universal set of career anchors, they nevertheless have the potential to lay the groundwork for structuring the anchors according to a quasi-circumplex.

The results of our study also have a practical use. Schein’s measurement instrument for career anchors is long (40 items). To the extent that anchors can be grouped into quadrants, it is possible to reduce the number of items to measure only the quadrants (rather than the eight anchors). Also, understanding the proximity of the anchors will likely help practitioners with their career orientation work.

The limitations of this study also open the door to new studies. First, our study used the French-language version of Schein’s original instrument. Our results indicate that a number of items in this version pose a problem. Also, the French-language version (Schein, 2004), which uses a Likert scale, is not entirely similar to the English-language version (Schein, 1990b) which is based on two different scales (Likert and forced choice). An interesting study would be to establish the construct validity of the French-language version. Our study would also have to be replicated with the English version of Schein’s instrument. Lastly, the external validity of our study should be questioned because our sample was a convenience sample. Other studies with different populations are therefore required to establish the universality of the structure of career anchors. Like Schwartz’s theory of basic values, it is expected that the structure of anchors will be universal, which does not exclude the fact that the importance placed on career anchors can be contingent, that is influenced by context (Rodrigues et al., 2013).



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- 1 The distinction between “career anchor” and “career orientation” is tenuous. Originally, Schein (2004) called his measurement instrument for career anchors “Questionnaire on career orientations.” DeLong also uses the term “career orientation” as a synonym for career anchor. Over time, the idea of career orientation has evolved. On the one hand, a career anchor refers to a stable image of oneself that is congruent with a work environment, whereas a career orientation means a stable career preference related to a social context that is more encompassing than work (see Rodrigues et al, 2013). On the other hand, according to Roger (2006), a career orientation encompasses not only stable choices (career anchors), but also the initial choice of career. In short, the idea of career orientation seems more encompassing than the idea of career anchor, but there is no consensus on the definition of this reconceptualization of career orientation.
 - 2 The technical/functional competence anchor can also have a third meaning not measured by Schein’s instrument, i.e. techniques to master, which could place it in the bureaucratic quadrant.
 - 3 Lifestyle can also have a third meaning: being able to pursue a career with opportunities for balancing work and family, which would associate it with the protean quadrant. For this study, we did not use this meaning, which does not appear in the wording of items measuring the lifestyle anchor.
 - 4 Schwartz uses this criteria (62.5% for a single point on a scale) to refine the data (Schwartz, 1992).
 - 5 These are the indices available with R using the lavaan package library.