

**Organizational boundaries and beyond: A new look at the components of a
Boundaryless Career Orientation**

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Abstract

Purpose

The key purpose of this paper is to develop a new conceptualization of the boundaryless career—a widely acknowledged contemporary career concept—that reflects its original description more fully than previous literature has done, and to apply this conceptualization in an empirical investigation of career behavior and intentions of a large sample of European Information Technology (IT) professionals.

Design/methodology/approach

As part of a large study of IT professionals in Europe ($N = 1,350$), we had three research objectives. First, we developed and empirically tested a new operationalization of a person's boundaryless career orientation (BCO) that reflects the originally proposed boundaryless career meanings more closely than existing approaches. Second, we used this to identify in a holistic manner different patterns of BCO. Third, we examined the nature and extent of links between BCO and self-reported career behavior and intentions.

Findings

We identified five BCO factors that differentiate individuals into three distinct clusters. Although organizational boundaries appeared to be salient for most individuals, they did not differentiate the clusters. Instead, geographical mobility preference and rejection of career opportunities emerged as highly differentiating but hitherto rarely examined types of career boundaries.

Practical implications

Our findings can help HR managers to gain a better understanding of different mobility preferences amongst different groups of employees, which could lead to the development and

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implementation of more refined reward schemes and career development practices in organizations.

Originality/value

This study provides a new operationalization of the BCO that is grounded in its original definition and offers a new empirically tested 15-item BCO measure. It contributes to career research with scarce empirical findings regarding the components of the BCO, their salience for individuals, and the connections between BCO and behavior.

Keywords:

Boundaryless career concept, boundaryless career orientation, boundaries, contemporary career, measurement

Organizational boundaries and beyond: A new look at the components of a Boundaryless Career Orientation

The boundaryless career {Arthur, 1994 #393; Arthur, 1996 #564} has become one of the most prominent and influential contemporary career concepts. In their seminal edited book, Arthur and Rousseau {, 1996 #564} explained that “[...] the term boundaryless distinguishes our concept from the previous one—the ‘bounded,’ or organizational career” {, #564@3}. Boundaryless careers were defined as “[...] the opposite of ‘organizational careers’—careers conceived to unfold in a single employment setting” {, #564@5}. Arthur and Rousseau described a boundaryless career as being characterized by six specific meanings: (1) moving across the boundaries of separate employers, (2) drawing validation and marketability from outside the present employer, (3) being sustained by external networks or information, (4) breaking traditional organizational assumptions about hierarchy and career advancement, (5) rejecting existing career opportunities for personal or family reasons, (6) perceiving a boundaryless future regardless of structural constraints. Common to all meanings is that they emphasize an individual’s independence from rather than dependence on traditional organizational career structures and principles {Arthur, 1994 #393; Arthur, 1996 #564}.

Despite some notable exceptions {e.g., \Rodrigues, 2010 #1161}, terminology regarding the boundaryless career is often imprecise. Therefore, three key terms need to be clearly distinguished. In this paper, the term “boundaryless career” is used exclusively to refer to the theoretical concept, as defined by Arthur and Rousseau {, 1996 #564}. The concept comprises two subsidiary components, namely boundaryless career orientation (BCO) and boundaryless career path (BCP). A BCO describes an individual’s preference for pursuing such a career. The BCP refers to an individual’s career path that reflects elements postulated in the boundaryless career. There is a difference between, for example, someone being open to the

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idea of rejecting opportunities for family reasons (BCO) versus actually doing so (BCP). That is, the BCO describes a person's preferences, whereas the BCP focuses on what he/she reports actually doing.

The boundaryless career has been referred to in numerous publications. It has been widely acknowledged as a valuable tool for career theory and practice in an era when mobility and self-driven careers are a major focus of attention {e.g., \Sullivan, 2009 #1050; Rodrigues, 2010 #1161}. However, its frequent and varied use has also prompted some critical examination, particularly in the last few years {e.g., \Sullivan, 1999 #508; Arnold, 2008 #718; Greenhaus, 2008 #1674; Inkson, 2008 #1713; Inkson, 2012 #1563}.

A first key concern about the concept is related to the role of boundaries therein {e.g., \Rodrigues, 2012 #1714; Inkson, 2012 #1563; Inkson, 2008 #1713}. It has repeatedly been argued that careers cannot develop in the absence of boundaries and that the existence of boundaries is not necessarily negative for individuals {e.g., \Gunz, 2000 #768}. Boundaries may helpfully structure people's careers and help make sense of them, providing a map of the terrain. Therefore, examining what kinds of boundary people feel ready to cross, and the nature of the boundaries they perceive, gets to the heart of individuals' career thinking and action. As a result, various authors have provided important conceptual input about the nature of "boundaries". For example, Gunz, Evans, and Jalland {, 2002 #920} suggested a classification of four different boundary types, based on their permeability and the similarity between work roles on either side of the boundary. Their work was conceptually refined by Gunz, Peiperl, and Tzabbar {, 2007 #909}, who particularly examined various components of boundary permeability and the social construction of career boundaries. Taking Gunz et al.'s work further, Rodrigues and Guest {, 2012 #1714@12} recently suggested various boundary types with different characteristics, viewing them "as socially constructed and subjectively perceived limits surrounding or encircling a domain". In a different, yet related strand of

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research, various researchers provided important findings about the context-specificity of boundaries, for example, regarding industry {e.g., \Bagdadli, 2003 #1725; Gunz, 2000 #768} and culture {e.g., \Ituma, 2009 #1729}. However, despite such sophisticated thinking, boundaries have often been reduced to inter-organizational mobility in the boundaryless career literature {e.g., as highlighted by \Sullivan, 1999 #508; Greenhaus, 2008 #1674; Inkson, 2012 #1563}. This does neither adequately capture the conceptual developments in the field nor does it take into account Arthur and Rousseau's {, 1996 #564} initially much broader notion of a boundaryless career.

This leads to a second key concern, namely whether existing operationalizations fully reflect the original meanings of the BCO. Surprisingly, this question has hardly been addressed to date. Sullivan and Arthur {, 2006 #544} suggested the boundaryless career can be split into “physical mobility” (i.e., intra- and inter-organizational moves, geographical relocations etc.) and “psychological mobility” (i.e., an individual’s career-related openness and curiosity). Building on this distinction, Briscoe, Hall, and Frautschy DeMuth {, 2006 #545} suggested 13 items to capture a BCO. They differentiated a BCO into a “boundaryless mindset” (i.e., psychological mobility orientation, measured with eight items) and an “organizational mobility preference” (i.e., physical mobility orientation, measured with five reverse-coded items). Today, this scale has become by far the most widely applied measure to capture a BCO. However, Briscoe et al.’s {, 2006 #545} items do not seem to capture fully the six original meanings suggested by Arthur and Rousseau {, 1996 #564}, and some may not be clearly related to any of the meanings. Particularly, meanings 4, 5 and 6 are hardly addressed therein, whereas there is a strong emphasis on organizational mobility (meaning 1). Therefore, a refined operationalization of the BCO is required that more closely represents the core of the original concept and reduces potential ambiguity regarding the classification of the items.

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A third concern addresses the dearth of research regarding the potential link between preferences and behavior in the context of the boundaryless career. An important finding by Briscoe et al. {, 2006 #545} was that having a strong BCO may, but does not necessarily, translate into a corresponding BCP. In line with similar findings {Khapova, 2005 #879}, this provides support for the conceptual distinction between the two components. However, despite repeated calls for more research on career behavior {e.g., \Rodrigues, 2010 #1161; Inkson, 2012 #1563}, the boundaryless literature has predominantly focused on linking BCO to attitudinal outcomes, such as career success {e.g., \Verbruggen, 2012 #1737} and commitment {e.g., \Briscoe, 2009 #990}. Although there is a valuable, growing body of literature focusing on career behavior {e.g., \Rodrigues, 2010 #1161; Bidwell, 2010 #1176}, the link to BCO has not yet been made therein. As a result, despite its conceptual and practical relevance, the interplay between BCO and BCP has remained largely untested to date.

Given the prevalence of the boundaryless career in the literature, we argue that these three key concerns are consequential. For example, to date it is still unknown whether the six meanings postulated by Arthur and Rousseau {, 1996 #564} translate into empirically observable dimensions, and if not, what dimensions are embedded in their six meanings. Also, they may result in inaccurate interpretations of research findings because the dominant conceptualizations and measures of BCO do not fully capture the concept. From a practical point of view, using the boundaryless career to assess mobility-related career orientations of employees may be promising for HR managers. However, if they applied the concept based on the existing literature, HR managers may obtain inaccurate results because a suitable BCO measurement tool is not yet readily available. Therefore, we had three main research objectives: First, we developed and empirically tested a new operationalization of a person's boundaryless career orientation (BCO) that reflects the originally proposed boundaryless career meanings more closely than existing approaches. Second, we used this to identify in a

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holistic manner different patterns of BCO. Third, we examined the nature and extent of links between BCO and self-reported career behavior and intentions.

Method

Developing a New Operationalization of the Boundaryless Career Orientation

Feldman and Ng {, 2007 #1074@368} argued that due to the lack of conceptual precision and its often imprecise interpretation and use in the literature “ironically, [...] the construct of boundaryless careers has become somewhat boundaryless itself”. Therefore, we decided to go back to the conceptual roots, using Arthur and Rousseau’s {, 1996 #564} original six meanings as well as Sullivan and Arthur’s {, 2006 #544} conceptual refinement (described earlier in this paper) as a starting point for our new operationalization of the BCO. In addition, we also took into account DeFillippi and Arthur’s {, 1996 #567@123-124} definition, offered in the same book as Arthur and Rousseau’s {, 1996 #564} description:

“[The] typical boundaryless career is characterized by a career identity that is independent of the employer [...]; the accumulation of employment-flexible know-how [...]; and the development of networks that are independent of the firm [...], nonhierarchical [...], and worker enacted.”

Our approach allowed us to focus less narrowly on the crossing of organizational boundaries than previous research had often done, as recommended by Sullivan and Arthur {, 2006 #544} amongst others. Table 1 (second column) provides an overview of the new operationalization, also highlighting the theoretical sources used to develop its seven aspects.

Aspect 1 (“Crossing organizational boundaries”) addressed the first and most frequently discussed of the six meanings described by Arthur and Rousseau {, 1996 #564}. Aspect 2 (“Crossing occupational or geographical boundaries”) reflected Sullivan and Arthur’s {, 2006 #544} operationalization. Although they did not clearly distinguish between these two types of mobility, occupational and geographical mobility orientations were operationalized separately in this study. Aspect 3 (“Feeling independent of any one employer”) captured a core component of a BCO—an individual’s subjectively perceived independence of an

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employing organization {e.g., \DeFillippi, 1994 #392; Arthur, 1996 #564; Sullivan, 2006 #544; DeFillippi, 1996 #567}. Aspect 4 (“Developing and maintaining non-hierarchic firm-independent networks”) again reflected a central element of the BCO that has repeatedly been highlighted in the literature {e.g., \DeFillippi, 1994 #392; Arthur, 1996 #564; Sullivan, 2006 #544; DeFillippi, 1996 #567}. It captured the second and third meanings of Arthur and Rousseau’s {, 1996 #564} original description and the “knowing-whom” career competency {DeFillippi, 1994 #392; DeFillippi, 1996 #567}. Aspect 5 (“Accumulating employer-independent know-how”) was based on the “knowing-how” competency that is considered crucial for individuals to pursue a BCP successfully {DeFillippi, 1994 #392; DeFillippi, 1996 #567; Eby, 2003 #108}. Aspect 6 (“Rejecting career opportunities for personal reasons”) covered the fourth and fifth of Arthur and Rousseau’s {, 1996 #564} six meanings. This aspect specifically focused on the rejection of career opportunities (e.g., the rejection of hierarchical advancement), which defies traditional assumptions of a career as a steady upward movement. Aspect 7 (“Considering oneself boundaryless despite existing boundaries”), finally, captured the sixth of Arthur and Rousseau’s {, 1996 #564} meanings. This aspect reflected the importance of an individual’s perception in the initial notion of the boundaryless career.

In an iterative process that included discussions with several career researchers, items were defined for each of these seven aspects. Whenever possible, they were based on existing scales, particularly Briscoe et al.’s {, 2006 #545} items, but several items had to be newly developed to cover all aspects fully. In total, 34 items were used to address the seven aspects of a BCO, as shown in Table 1. The importance individuals attached to these items was measured on a five-point Likert scale (1: of no importance to me; 5: very important for me).

--- *Insert Table 1* ---

Empirical Application of the New Operationalization

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As part of a wider study of career orientations of Information Technology (IT) professionals in Europe, our sample comprised ten IT organizations from Switzerland, Germany and the United Kingdom, covering a wide range of industries (e.g., software development, financial services, manufacturing, communication) and company sizes in both the private and public sector. As IT professionals are known for their high mobility and turnover rates {e.g., Bidwell, 2010 #1176; Saxenian, 1996 #565}, they are suitable for an investigation of mobility-related career orientations.

A large online survey was developed in which the 34 BCO items were listed in random order, interspersed with 20 items intended to reflect other career concepts, most notably the protean career {Briscoe, 2006 #545; Hall, 2002 #69 - a list of all 54 items and the corresponding results can be obtained from the authors}. The survey also covered various additional themes, including questions about actual and intended career behavior. Several academics, senior IT professionals and HRM experts tested the survey that was iteratively refined based on their feedback. Finally, a pilot study with 55 Swiss IT professionals was conducted. It confirmed that the survey worked well both in terms of its content and technical functionality.

The study employed two stages of data collection. In late 2008, the survey was launched in all ten participating companies. Overall, 1,708 individuals provided usable answers (44.8% response rate). 52.4% of the respondents were Swiss, 19.7% held UK citizenship and 14.5% were of German nationality. The respondents were predominantly male (83.8%) and married (53.7%). Their average age was 39.8 years ($SD = 8.8$). In their career history, respondents had worked in IT for an average of 13.6 years ($SD = 8.25$). They had been with their current employer for 8.5 years ($SD = 7.78$) and had held their current role for 3.5 years ($SD = 3.58$). Over the last five years before the survey, respondents, on average, had changed jobs within an organization 1.23 times ($SD = 1.61$), changed jobs between organizations 0.68 times ($SD =$

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1.02) and relocated geographically 0.34 times ($SD = 0.68$) due to job changes. Respondents' mean estimated likelihood that they would still work for their current employer in twelve months' time was 78.8% ($SD = 25.23$) on a scale from 0 to 100%.

In June 2009, a second survey was launched. Its main purpose was to verify the findings from survey 1 and to examine whether the items found to be relevant for measuring BCO would provide stable results when applied again after nine months. Its core part consisted of those items that had loaded on one of the factors in survey 1. In contrast to the first survey, the items were not presented randomly but grouped according to the factor they had loaded on. That survey was only sent to participants in the first survey who had indicated that they were interested in future contacts. In total, 161 usable responses were collected (58.7% response rate). Respondents in survey 2 were representative of the full sample with regard to the key demographic characteristics.

Results

This section describes the quantitative BCO factor and cluster results from the first survey. It also provides a brief overview of the relevant key findings from survey 2. In order to maximize the quality of our data, we applied various stringent filter criteria for the analyses. For example, individuals with more than one missing value per factor were excluded from further analyses, which reduced sample sizes. Finally, factors were calculated with a sample size of $N = 1,350$, and clusters with a sample size of $N = 1,324$.

Factor Results

Based on considerations provided by Hair et al. {, 2006 #830}, an exploratory factor analysis (EFA) was performed. That is, we did not attempt to assign items to factors based on the seven aspects because we had no *a priori* reason to assume that the aspects would translate neatly into factors and we were open to new interpretations based on the empirical data. The factor analysis applied VARIMAX rotation, following an established multi-stage

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process {Hair, 2006 #830}. To achieve practical (rather than just statistical) significance, only factor loadings larger than 0.5 were taken into account {Hair, 2006 #830}. Following Hair and colleagues, no cross-loadings larger than 0.5 and only variables with communalities larger than 0.5 were accepted. Items that did not meet these criteria were deleted. In an iterative process, new factor analyses were conducted with reduced sets of variables, all of which were subject to the same requirements and criteria as the first one. In total, four iterations were made, as shown in Table 1. Then, a solution was reached that met all the specified criteria. Overall, eight factors emerged, including 25 of the 54 initially used items. That solution explained 61.37% of the variance of the 25 items, which is deemed satisfactory in social sciences {Hair, 2006 #830}. Five of the factors, consisting of 15 items, reflected a BCO, as shown in Table 2. The other three reflected the protean career orientation, and are not discussed here.

--- Insert Table 2 ---

The first factor (F1 - Organizational mobility preference) comprised five reverse-coded items, all of which primarily focused on an individual's preference for remaining with his/her organization. Thus, high scores on F1 indicated a high preference for leaving the organization. Three items stemmed from the corresponding aspect in Table 1 but the other two were originally intended to reflect independence from any one employer. Three of the five items were taken from Briscoe et al.'s {, 2006 #545} scales, whereas the other two were newly developed for this study. Based on these five items, the factor corresponded well with aspect 1 of our operationalization (crossing organizational boundaries).

All three items in the second factor (F2 - Geographical mobility preference) were newly developed for this study and focused on an individual's preference for leaving his/her geographical location for a new job. High scores on F2 indicated a high preference for

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moving geographically. Factor 2 split the original aspect and confirmed the conceptual distinction between occupational and geographical mobility made in our operationalization.

The third factor (F3 - Occupational mobility preference) comprised three newly developed items. High scores on this factor implied a high preference for changing occupations. The first two items were related to an individual's preference for moving into a different occupation. The third item had been developed with a wider focus, generally referring to "unconventional career moves". However, in the survey it seemed to have been predominantly interpreted as moving out of IT. As in factor 2, the conceptual distinction between occupational and geographical mobility orientation was empirically confirmed.

Both items in the fourth factor (F4 - Preference for working beyond organizational boundaries) originated from Briscoe et al.'s {, 2006 #545} scale, and focused on an individual's preference for working with people beyond his/her organization. Higher scores on this factor indicated greater preference for such cooperation. This factor incorporated items intended to reflect elements of two aspects of our operationalization, "developing and maintaining non-hierarchic firm-independent networks" and "accumulating employer-independent know-how".

Lastly, the fifth factor (F5 - Rejection of career opportunities for personal reasons) consisted of two newly developed items. One of them ("I have turned down jobs or assignments because they would have gone against what is important to me in life") had originally been meant to capture an aspect of the protean career orientation but loaded on this factor. Deliberately, to avoid a normative approach, it was not prescribed what exactly "personal reasons" might be. Both items in this factor referred to rejection of career opportunities in the past. Several other items, focusing on such decisions in the present or in the future, were included in the survey but they did not load on this (or any other) factor. High scores on this factor corresponded with more past rejection of career opportunities.

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Table 1 also shows how the seven aspects derived from the literature and the five empirically derived factors were related. Organizational mobility preference (aspect 1) was well-reflected by a single factor. Occupational and geographical mobility preference emerged as two separate factors. Aspect 3, the feeling of independence from any one employer, was not explicitly represented in any of the new factors. Aspects 4 and 5, focusing on individuals' preferences for activities beyond organizational boundaries, were both reflected in factor 4. Aspect 6 regarding the rejection of career opportunities was well represented in factor 5. Finally, no factor clearly addressed aspect 7. However, at least one of the items designed to reflect aspect 7 became incorporated in factor 3, referring to “unconventional career moves”. It is notable that of the 15 items in the five factors, only three were original items from a previously used scale. Another two items were adapted from an existing scale. The remaining ten items, however, were all newly developed for this study. This indicates that the new operationalization and earlier attempts to operationalize BCO are substantially different.

All scale scores (i.e., the mean of the item scores, each with equal weighting) for each factor were positively correlated, most of them significantly, as shown in Table 3. However, the correlations were not so high as to imply a major overlap between them. This further supported the assumption that the factors were related but measured distinct dimensions.

--- *Insert Table 3* ---

The positive correlation between geographical and occupational mobility preference ($r = .27; p < .001$) was especially notable. This implies that those with a preference for changing occupations also tend to have a preference for geographical relocations, and vice versa. Thus, although our data give us strong reasons to separate occupational and geographical mobility, they are nevertheless somewhat related. The correlations of factor 4 implied that there are positive relationships between an individual's preference for working with people beyond his/her organizational boundaries and this person's preference for geographical ($r = .25; p <$

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.001) and occupational mobility ($r = .34; p < .001$). As shown in Table 3, mean scores of the factors ranged between 3.04 and 4.01 on a five-point scale. Thus, overall, the participants expressed a slight to moderate preference to cross each boundary. Regarding the standard deviations, the substantially higher value of factor 5 is notable. It indicates that participants particularly differed in terms of their past rejection of career opportunities.

--- *Insert Table 4* ---

As shown in Table 4, analyses with selected variables from survey 1 revealed several significant correlations between the five factors. Inter-organizational job changes over the five years prior to the survey were positively correlated with a preference for organizational ($r = .13; p < .001$) and geographical mobility ($r = .09; p < .01$). Interestingly, intra-organizational mobility showed a different pattern. The number of intra-organizational changes over the previous five years showed a slight negative correlation with organizational mobility preference ($r = -.07; p < .05$). Instead, there was a significant positive correlation with participants' preferences for changing occupations ($r = .09; p < .01$) and for collaborating beyond organizational boundaries ($r = .12; p < .001$). This suggests that the drivers for job changes within or across organizational boundaries may be substantially different. Preference for geographical mobility was positively correlated ($r = .28; p < .001$) with the number of individuals' actual geographical changes over the five years prior to the survey. Additionally, preference for geographical ($r = -.12; p < .001$) as well as occupational mobility ($r = -.11; p < .001$) was significantly negatively related with individuals' tenure in the IT industry. Further, younger respondents indicated a significantly higher preference for organizational ($r = -.09; p < .01$) and geographical mobility ($r = -.11; p < .001$) than older ones, whereas the rejection of career opportunities was positively correlated with age ($r = .12; p < .001$). Finally, the estimated likelihood of remaining in one's current job—that is, intended career behavior—

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was strongly negatively correlated with individuals' preferences for organizational ($r = -.34$; $p < .001$), geographical ($r = -.22$; $p < .001$) and occupational mobility ($r = -.21$; $p < .01$).

Cluster Results

We explored whether meaningful clusters of people with different BCO could be identified. Using the five factors, we applied both hierarchical (Ward's method) and non-hierarchical algorithms to calculate clusters of respondents in a two-step analysis {Hair, 2006 #830}. Based on this approach, three clusters of BCO were identified ($N = 1,324$). Figure 1 shows the cluster centers of these five factors, indicating respondents' preferences for a particular factor.

--- *Insert Figure 1* ---

Importantly, organizational mobility preference did not differentiate the three clusters. The sample responded in a very homogeneous way regarding their preference for changing employers. This is a notable finding given the emphasis on organizational mobility in the boundaryless career discussion. Instead, occupational mobility preference, a factor that emerged in this study, clearly distinguished one cluster from the other two. The newly found factor geographical mobility preference was a major differentiator between all three clusters. Factor 5 (rejection of career opportunities for personal reasons) was also a key differentiator between them. This provided further empirical and conceptual justification for keeping that factor despite its weak Cronbach's alpha. When comparing the gender distribution, no significant differences between the three clusters were found. As a next step, differences between the three clusters were analyzed with One-Way-ANOVA Scheffe post hoc tests. Significant findings ($p < .05$) are described in the paragraphs below, along with an analysis of the key characteristics of each cluster.

Respondents in the first cluster ($n = 458$)—we labeled them “Work-life-balancers”—scored above midpoint on each factor, with the highest scores on factor 5, the rejection of

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career opportunities. That is, these individuals expressed a high preference for organizational, geographical as well as occupational mobility. Also, their preference for working beyond organizational boundaries was high, as was their past rejection of career opportunities for personal reasons, which clearly distinguished them from the other two clusters. Work-life-balancers scored significantly higher on all factors than the second cluster (“Stay-puts”). Compared with the third cluster (“Careerists”), particularly past rejection of career opportunities for personal reasons was much higher. Only regarding their preference for geographical relocations, Work-life-balancers scored significantly lower than Careerists. In line with their BCO, Work-life-balancers had been more mobile than Stay-puts over the five years prior to the survey within and across organizations as well as geographically. Also, they had spent less time in their current position than Stay-puts but more time in IT than Careerists.

Respondents in the second cluster were called “Stay-puts” ($n = 468$). Their most distinctive characteristic was that they had by far the lowest scores on geographical mobility preference, indicating a low preference for moving or relocating. In addition, Stay-puts indicated a significantly lower preference for organizational and occupational mobility as well as a lower preference for working beyond organizational boundaries than the other two clusters. Only regarding the rejection of career opportunities, Stay-puts scored significantly higher than the third cluster, Careerists. In congruence with their preferences, Stay-puts had moved less over the previous five years within and across organizations (compared with Work-life-balancers), as well as geographically (compared with both other clusters). They had been in their current position for longer and considered the likelihood of remaining in their jobs as higher than both other clusters. Furthermore, the average Stay-put was older and had worked longer both in the IT industry as well as for their employer than the average Careerist.

Lastly, the key characteristics of the third cluster, “Careerists” ($n = 398$), were their high preference for geographical relocations and their low rejection of career opportunities.

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Although this cluster did not significantly differ from Work-life-balancers on factors 1, 3 and 4, their scores on geographical mobility were significantly higher than in both other clusters. In contrast, the rejection of career opportunities for personal reasons was significantly lower than for Work-life-balancers and Stay-puts. In line with their BCO, Careerists had more often moved geographically over the five years prior to the survey than Stay-puts. Instead, compared with Stay-puts, Careerists had spent less time with the employer as well as in their current position, and they thought it was less likely they would remain in their current job. Lastly, they had spent the shortest time working in IT of all clusters.

Results from Survey 2

The results of survey 1 were largely confirmed in the second survey. The same factors (applying EFA) and clusters were found. Cronbach's alphas of four factors improved in survey 2 (see Table 3). In particular, the highly increased reliability of factor 5 ($\alpha = .80$) supported the decision to keep this factor despite its low alpha in survey 1. Second, the correlations were fairly high (between .54 and .72) over the nine months between the two surveys. However, *t*-tests revealed that mean score levels on factor 3 (occupational mobility preference) and factor 5 (rejection of career opportunities) had slightly, but significantly ($p < .01$) decreased. Between the two surveys, individuals seemed to have become slightly less intent on changing occupations and less inclined to reject career opportunities. Arguably, this was a consequence of the deteriorating labor market conditions in the wake of the economic crisis at that time.

Following best practice advice {Worthington, 2006 #2188}, we also conducted a confirmatory factor analysis (CFA) on the time 2 data, using AMOS version 21 {Arbuckle, 2012 #2191} in order to test the validity of the factor structure identified at time 1. Each of the 15 retained items was an observed variable, permitted to load only on a latent variable representing the factor it contributed to at time 1. The five latent factors were all permitted to

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correlate with each other. This produced a Chi-square value of 145.6, which is significant ($p < .001$, $df = 80$) and indicative of a less than perfect fit. However, the ratio between Chi-square and degrees of freedom was 1.82, which is considered a reasonably strong fit {Tabachnik, 2007 #835}. Regarding other fit statistics, the CFI was 0.90, the TLI 0.85, and the RMSEA was 0.07. Taken as a whole, these indices suggest that our model derived from time 1 data is a borderline acceptable fit to the time 2 data {Kline, 2005 #2190}. In particular, the indices that are least swayed by sample size (CFI, RMSEA) are relatively positive, though falling just short of the levels recommended by some authorities {e.g., 0.95 for the CFI and 0.06 for RMSEA: \Hu, 1999 #2189}. Standardized regression coefficients of items on latent factors ranged from 0.43 to 1.07, with a median of 0.68. Correlations between latent factors were low, with the greatest deviation from zero being 0.29. Not surprisingly, a single latent factor model with all items loading on it was an extremely poor fit (e.g., CFI of 0.31). Overall, we can conclude that (1) the 15-item five-factor structure is adequate for the purposes of creating a meaningful assessment of BCO and (2) BCO is multi-dimensional, not uni-dimensional.

Discussion

In this section, we contextualize our results in the wider boundaryless career discourse and consider the salience of different types of career boundaries for individuals.

Factor 1: Organizational Mobility Preference

Given the prominent role of inter-organizational mobility in the academic discourse on the boundaryless career, the occurrence of organizational mobility preference as a distinct factor in the data analysis was not surprising. Nevertheless, two aspects seem noteworthy. First, this factor included three items that were intended to capture individuals' preference for organizational mobility but it also comprised two items with a focus on an individual's feelings of independence from an employer. The inclusion of these two items may suggest that the original conceptual distinction between organizational mobility orientation and

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individual feelings of independence of any one employer in the boundaryless career {Arthur, 1996 #564} has been overstated.

Second, based on the high academic interest in organizational mobility, one might have expected higher mean scores on this factor or, at least, more substantial differences between the three clusters. However, the relatively homogeneous individual scores on this factor—both within and between the clusters—implied that organizational mobility preference may not be the essential criterion when it comes to explaining differences in BCO. Geographical and occupational mobility preferences seem to be of greater salience to many individuals.

Factor 2: Geographical Mobility Preference

Findings from empirical studies {e.g., Bidwell, 2010 #1176} suggest that geographical boundaries may be important for individuals. Yet, although Sullivan and Arthur {, 2006 #544} briefly referred to geographical mobility, it has been largely ignored in the conceptual discussion of the boundaryless career. Geographical mobility preference, defined as an individual's willingness to relocate for a job, emerged as a new factor in this study. It was also a strong differentiator between the three clusters. According to their career behavior, geographical mobility seemed to act as a boundary Stay-puts were loath to cross whereas Careerists showed a much higher preference for moving across geographical boundaries.

Factor 3: Occupational Mobility Preference

Like geographical mobility preference, occupational mobility preference emerged as a new, distinct factor in this study. Occupational mobility preference has hardly been empirically examined before in the context of the boundaryless career {Sullivan, 1999 #508}. However, in two of the three career orientation clusters the preference for crossing occupational boundaries was higher than organizational mobility preference. This is remarkable because a basic tenet in most contemporary analyses of career is that individuals tend to be more loyal to their profession than to their organization {e.g., Hall, 2002 #69}. In

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particular, IT professionals have often been characterized accordingly {e.g., \Khapova, 2005 #879; Saxenian, 1996 #565}. Our cluster results, however, implied that although some participants may, indeed, be strongly attached to their profession, others appear to have a high preference for crossing occupational boundaries. Lastly, in line with Arnold and Cohen {, 2008 #718} it became apparent in our data that especially in large organizations it is well possible to be occupationally mobile without crossing organizational boundaries.

Factor 4: Preference for Working beyond Organizational Boundaries

The items included in the fourth factor clearly referred to aspects 4 (Developing and maintaining non-hierarchic firm-independent networks) and 5 (Accumulating employer-independent know-how), both focusing on individuals' preferences for activities beyond organizational boundaries. Only 5.3% of the respondents ($N = 1,350$) scored below the midpoint on our five-point Likert scale. Thus, the overwhelming majority appeared to have a preference for inter-organizational collaboration. This also lends empirical support to DeFillippi and Arthur's {, 1994 #392; , 1996 #567} claims regarding a distinctive role for the knowing-whom competency in contemporary careers.

Factor 5: Rejection of Career Opportunities for Personal Reasons

Factor 5 bridged items that had originally been intended to address aspects of protean and boundaryless career orientations. Hence, this factor may be seen as an example of the “independent, yet related” {Briscoe, 2006 #545@32} nature of these two concepts. Further, it was notable that both items on this factor referred to past rejection of career opportunities. Despite the presence of four BCO items referring to present or future intentions of rejecting career opportunities, none of those prevailed in the factor analysis. However, as shown in Figure 1, this factor emerged as a key differentiator between the three clusters. It was positively related to individuals' age and tenure in the IT industry, which is hardly surprising given that the items referred to past rejections. In addition, however, there was also a positive

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relationship between factor 5 and the number of inter-organizational transitions, which indicates that rejecting career opportunities may eventually increase the likelihood of changing employers. Therefore, such rejections may come at a price for individuals. For example, in line with findings from the German labor market {Dütschke, 2007 #876}, they could result in reduced opportunities for future intra-organizational advancement.

The Five Factors in the Context of the Boundaryless Career

The five factors extracted in the data analysis appeared to be of both statistical and practical significance. The results in Table 4 highlight that these factors of BCO and corresponding actual and intended career behavior were meaningfully linked. For example, a high preference for organizational mobility was positively related to the number of inter-organizational career transitions but negatively correlated with intra-organizational mobility, organizational tenure, and the perceived likelihood of remaining in the current organization. Also, high preference for geographical mobility was strongly linked with actual geographical mobility over the five years prior to the survey. However, supporting Briscoe et al.'s {, 2006 #545} findings, the relatively low correlations between BCO and actual behavior in our results may also imply that the extent to which individuals can act on their BCO is limited, despite Arthur and Rousseau's {, 1996 #564} meaning 6. For example, career-related sunk costs {Meyer, 1991 #2187} and—at least temporarily—economic conditions {Inkson, 1995 #1165} may act as barriers for individuals to translate their career orientations into action. Arguably, as noted earlier, the effect of a deteriorating economy on individual orientations was also visible in our time 2 data. Although one would expect many individuals to follow their preferences when given the opportunity (e.g., in better economic conditions), we may not expect a very high correlation between career orientations and behavior due to the variety and multitude of perceived or real obstacles individuals may face when trying to enact their preferences.

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The cluster results further showed that different groups of people respond to career boundaries in highly different ways. For example, as argued above, Careerists may perceive a geographical boundary as “chalk line” {Gunz, 2002 #920}, that is, as being highly permeable, whereas Stay-puts may view the same boundary as “glass wall” {Gunz, 2002 #920}, that is, as having low permeability. As shown in the cluster analysis, the interplay of the factors was particularly interesting. However, the correlations between the five factors were quite low (see Table 3). In support of our CFA results, this suggests that it is helpful to resist the temptation to aggregate the factor scale scores into one overall score, despite a marginally acceptable alpha of the overall 15-item scale ($\alpha = .69$).

In this study we provide evidence that our BCO operationalization represents the notion of the original boundaryless career more broadly than existing approaches have done. First, the empirical results were in line with various authors {e.g., Inkson, 2012 #1563; Lazarova, 2009 #1077} who have argued that the narrow focus in the boundaryless career on inter-organizational mobility—preference or behavior—may be misleading. Although organizational mobility was found as a career boundary, it did not differentiate as clearly between individuals as has often been assumed in the literature. Also, when linking our factors to actual career behavior, we found that *inter-* and *intra-*organizational mobility (not necessarily linked to hierarchical advancement) were related to the factors in clearly different ways (see Table 4). Further, geographical and occupational mobility preference emerged as distinct factors, both of which have so far hardly been covered in the boundaryless career discourse. The positive correlation between the two factors indicates that individuals with a preference for an occupational change also tend have a preference for geographical relocations, and vice versa. However, when comparing preferences with behavior (see Table 4), a more complex picture was revealed, indicating that preference for geographical mobility may translate more strongly into behavior than preference for occupational mobility does. In

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line with corresponding research {e.g., \Henneberger, 2007 #1002}, this may suggest that, for most people, geographical mobility is more easily enacted and carries fewer short-term sacrifices than occupational change.

Second, in support of various authors {e.g., \Rodrigues, 2012 #1714; Gunz, 2002 #920}, factors 4 and 5 provided empirical evidence that not all career boundaries are objectively observable even though, from an individual point of view, they may well be “as real as the actors experiencing or managing them make them” {Gunz, 2007 #909@474}. So, whatever their nature, personal reasons may act as strong career boundaries for individuals.

Lastly, additional comparisons revealed various notable links between the newly found factors and clusters and other career orientation approaches, such as career anchors—a concept of values-driven career orientations {Schein, 1978 #208; Rodrigues, 2013 #1818}. For example, our factor 2 (geographical mobility preference) shows various similarities with the geographical security anchor that has been identified as having a potentially powerful impact on individuals’ careers {Igbaria, 1993 #717}. Also, there is considerable overlap between factor 3 (occupational mobility preference) and the occupational orientation described by Rodrigues et al. {, 2013 #1818}, whereas factor 5 (rejection of career opportunities for personal reasons) shares several characteristics of the lifestyle anchor {Schein, 1978 #208; Rodrigues, 2013 #1818}. Further, our clusters appear to be comparable to—but clearly distinct from—career orientation clusters described by Gerber, Wittekind, Grote, Conway, and Guest {, 2009 #1036}. For example, their two “traditional” clusters are similar to our Stay-puts, whereas their “independent” cluster has much in common with our Careerists. In addition, Chi-Square tests revealed that our three clusters differed highly significantly ($p < .001$) in terms of nationality. Work-life-balancers were most prevalent amongst UK citizens, whereas Stay-puts were most frequently found amongst Swiss and Careerists amongst German IT professionals. This is in line with Gerber et al. {, 2009 #1036},

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who found clear differences between career orientation clusters in the UK and Switzerland (and even within Switzerland), and it provides further support for the importance of taking culture into account when studying careers {e.g., \Khapova, 2009 #1038}. Overall, these comparisons indicate that there are several meaningful connections between our BCO operationalization and other career orientation typologies. Therefore, in line with recent research that has attempted to broaden the perspective on career orientations {Rodrigues, 2013 #1818}, combining various conceptual approaches might result in a more complete understanding of individuals' career orientations.

Contributions, Limitations, and Future Research

Contributions

The key purpose of this study was to develop a new operationalization of BCO that reflects its original description more fully than previous literature has done, and to apply this operationalization in an empirical investigation of career behavior and intentions of a large sample of European IT professionals. By doing so, our study makes several contributions to the careers literature. First, we developed and empirically tested a new operationalization of BCO that reflects the originally proposed boundaryless career meanings more closely than existing BCO operationalizations have done. As a result, we offer a new basis for describing and measuring what might be called the “boundaryless career space”. Notably, the low correlations between factors—and the cluster differences—show that this space is multi-dimensional and cannot usefully be summarized in a single overall score. Second, our findings also imply that previous academic research may have too narrowly focused on crossing inter-organizational boundaries. Not only did our results imply that differentiating inter- and intra-organizational mobility preferences may be useful in future research, but we also highlighted four additional career boundaries that have barely been covered in the literature, all of which act as boundaries to many individuals and their careers. This is

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particularly notable given that careers in the IT industry have often been considered as prime examples for “boundaryless careers” {e.g., \Saxenian, 1996 #565; Khapova, 2005 #879}.

Third, we found three distinct clusters of individual BCO. These clusters, as well as the underlying factors, are also of practical relevance, as individuals in different clusters responded to these career boundaries in substantially different ways. Lastly, by linking individual career orientations to (self-reported) career behavior and future intentions, we built on and extended work initiated by Briscoe et al. {, 2006 #545}. For example, we showed that various BCO preferences were related to different types of behavior. Also, to the best of our knowledge, our study is the first one to link BCO and career behavior not only on individual scales but also on a cluster level, which contributes to the hitherto scarce literature on career patterns {Vinkenburg, 2012 #1636}.

Our results have important implications for HR managers. First, our finding that BCO and career behavior are meaningfully but not very strongly correlated, shows that—particularly in economically difficult times—two individuals may have contrasting preferences despite pursuing apparently similar career paths. The three clusters can help HR managers to gain a better understanding of different mobility preferences amongst different groups of employees, if they are given opportunities or incentives. This allows HR managers to address career-related needs more precisely, in line with Gunz et al. {, 2002 #920}, who argued that many career boundaries can be manipulated by organizational practices. It could, for example, lead to the development and implementation of more refined reward schemes and career management practices in organizations that support individuals in following their career orientations. Eventually, such practices will help organizations to retain employees with high performance or critical skills {e.g., \Creed, 2009 #1089}. Second, knowing individual career orientations might be helpful for organizations to anticipate future workforce mobility, particularly in the IT industry where there is a lack of understanding regarding

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individuals' career orientations and corresponding career transitions {e.g., \Coombs, 2009 #1065}. For example, it would allow HR managers to create more secondment opportunities and shadowing roles both internally and externally to provide their staff with such experiences without actually losing them as employees, thereby enhancing their firms' IT capability rather than diminishing it. Also, responding to calls for more individuality in career management {e.g., \Lawler III, 2000 #139}, such strategies could be tailored to individual career management requirements.

Limitations

Due to its large, multi-organizational, multi-cultural sample this study has a solid data base. Nevertheless, several limitations need to be acknowledged. The survey worked with self-reported assessments of the participants and the data may therefore suffer from response bias. Also, although our study did not attempt to provide universally applicable results with regard to careers, it remains a limitation that it was built on a highly educated and predominantly male sample from one profession in Europe. Hence, due to the context-specificity of boundaries {Bagdadli, 2003 #1725; Gunz, 2000 #768}, generalizability of the results may be limited to similar settings—be it regarding gender, education, or occupation. Further, we deliberately focused on Arthur and colleagues' original work on the boundaryless career and, therefore, did not attempt to list every potential boundary individuals might perceive. That means although our work focuses on several core career boundaries, including ones neglected in some past research, it is not an exhaustive checklist of potential boundaries. Finally, it should be noted that relatively few of the original items fell neatly into statistically viable factors. This may be due to poor item wording, although we were careful to keep them closely tied to the original meanings of the boundaryless career (see Table 1). Instead, then, we may infer that the conceptual space occupied by the boundaryless career needs further

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clarification. It may not yet be configured in ways that fully reflect how people think about their careers. Still, we believe that we have taken an important step in the right direction.

Future Research

First, as noted above, generalizability of our results may be limited to similar research settings. Therefore, investigating the five career boundaries using our 15-item instrument on different samples of participants from other countries and industries would provide valuable and novel insights with regard to the generalizability of individual career orientations beyond the occupational and cultural boundaries in this study. Second, it would be important to learn in detail what individuals mean by ‘personal reasons’ as a reason to reject career opportunities. Maybe the alpha value for that construct was low (despite differentiating the clusters) because it is relevant but the current items do not sufficiently reflect the key aspects of personal reasons.

Further research could also take our scales and seek to replicate the factor structure whilst also perhaps adding one or two items to the shortest ones. In the spirit of trying to map out the conceptual space covered by contemporary career concepts, it might also be useful to examine the distinctive contributions of our scales and protean career measures, such as those offered by Briscoe et al. { , 2006 #545 } and very recently Baruch { , 2014 #2133 }, as well as recent conceptual advances in the field of the protean career { Gubler, 2014 #2091 }. Also, as argued above, combining elements of various career orientation typologies (including career anchors) might result in a more encompassing understanding of various dimensions of individual career orientations. Finally, we have sought to focus primarily on a boundaryless career orientation (BCO) rather than a boundaryless career path (BCP). We demonstrate some links between BCO and self-reported career behavior, but a further step forward here could be the development of a measure of the BCP. Future research could therefore focus on constructing such a measure using the factors identified in this paper. Some of the items might

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parallel the BCO items quite closely, whereas others might have to be about the same topic but more specific. For example, to parallel the BCO item “I enjoy working with people outside of my organization”, it might be appropriate to develop items that reflect how much the respondent does that, what proportion is discretionary as opposed to being built into the job, and the extent to which the wish to do this has dictated past and present choices of job and organization.

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Table 1: Items for new operationalization of boundaryless career orientation

Aspect #	Aspect	Item #	Item	Sources	Outcome in factor analysis
1	Crossing organizational boundaries Based on: Sullivan and Arthur {, 2006 #544} Arthur and Rousseau {, 1996 #564}	1	I like the predictability that comes with working continuously for the same organization.	Original from Briscoe, Hall, & Frautschy DeMuth {, 2006 #545@46}, item 9; factor loading 0.505 {Briscoe, 2006 #545@35}; reverse-coded	Item dropped (communality <.5 - third calculation)
		2	I would feel very lost if I could not work for my current organization.	Original from Briscoe, Hall, & Frautschy DeMuth {, 2006 #545@46}, item 10; factor loading 0.660 {Briscoe, 2006 #545@35}; reverse-coded	Item loaded on factor 1
		3	I prefer to stay in an organization I am familiar with rather than look for employment elsewhere.	Adjusted from Briscoe, Hall, & Frautschy DeMuth {, 2006 #545@46}, item 11; factor loading 0.436 {Briscoe, 2006 #545@35}; reverse-coded	Item loaded on factor 1
		4	If my organization provided lifetime employment, I would never seek work in other organizations.	Adjusted from Briscoe, Hall, & Frautschy DeMuth {, 2006 #545@46}, item 12; factor loading 0.748 {Briscoe, 2006 #545@35}; reverse-coded	Item loaded on factor 1
		5	In my ideal career I would work for only one organization.	Original from Briscoe, Hall, & Frautschy DeMuth {, 2006 #545@46}, item 13; factor loading 0.715 {Briscoe, 2006 #545@35}; reverse-coded	Item dropped (communality <.5 - second calculation; loadings <.5 - second calculation)
2a	Crossing occupational boundaries Based on: Sullivan and Arthur {, 2006 #544}	6	I could feel comfortable in work other than IT.	New, no precursor	Item loaded on factor 3
		7	I have already considered changing jobs into a different occupation.	New, no precursor	Item loaded on factor 3
		8	I like the predictability that comes with working continuously within IT.	New, no precursor, reverse-coded	Item dropped (communality <.5 - second calculation; loadings <.5 - second calculation)
2b	Crossing geographical boundaries Based on: Sullivan and Arthur {, 2006 #544}	9	I prefer to stay in a geographical location I am familiar with rather than look for employment elsewhere.	New, no precursor, reverse-coded	Item loaded on factor 2
		10	I would find it motivating to take on a job in another geographical location.	New, no precursor	Item loaded on factor 2
		11	In the past, I have considered changing jobs and moving to a different geographical location.	New, no precursor	Item loaded on factor 2

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Aspect #	Aspect	Item #	Item	Sources	Outcome in factor analysis
3	Feeling independent of any one employer Based on: Sullivan and Arthur {, 2006 #544} DeFillippi and Arthur {, 1996 #567} Arthur and Rousseau {, 1996 #564}	12	I usually define myself in terms of my profession rather than in terms of my employer (e.g., "I am a software engineer" rather than "I work for company X")	New, based on DeFillippi & Arthur {, 1996 #567}	Item dropped (loadings <.5 - first calculation)
		13	I see myself as a member of my occupational group.	New, no precursor	Item dropped (communality <.5 - first calculation; loadings <.5 - first calculation)
		14	Being part of my current organization means a lot to me.	New, no precursor, reverse-coded	Item loaded on factor 1
		15	If I had to choose, I would rather change my profession than change my current employer.	New, no precursor, reverse-coded	Item loaded on factor 1
		16	In my opinion, changing jobs between organizations is a sign of disloyalty towards employers.	New, no precursor, reverse-coded	Item dropped (communality <.5 - first calculation)
4	Developing and maintaining non-hierarchic firm-independent networks Based on: Sullivan and Arthur {, 2006 #544} DeFillippi and Arthur {, 1996 #567} Arthur and Rousseau {, 1996 #564}	17	I like being able to call on external contacts to solve problems.	New, no precursor	Item dropped (communality <.5 - first calculation)
		18	I enjoy job assignments that require me to work outside of the organization.	Original from Briscoe, Hall, & Frautschy DeMuth {, 2006 #545@46}, item 3; factor loading 0.766 {Briscoe, 2006 #545@35}	Item loaded on factor 4
		19	I look for tasks at work that require me to work beyond my own department.	Adjusted from Briscoe, Hall, & Frautschy DeMuth {, 2006 #545@46}, item 4; factor loading 0.698 {Briscoe, 2006 #545@35}	Item dropped (communality <.5 - third calculation)
		20	I enjoy working with people outside of my organization.	Original from Briscoe, Hall, & Frautschy DeMuth {, 2006 #545@46}, item 5; factor loading 0.843 {Briscoe, 2006 #545@35}	Item loaded on factor 4
		21	In the past, I have sought opportunities that allowed me to work outside the organization.	Adjusted from Briscoe, Hall, & Frautschy DeMuth {, 2006 #545@46}, item 7; factor loading 0.646 {Briscoe, 2006 #545@35}	Item dropped (communality <.5 - first calculation; loadings <.5 - first calculation)
5	Accumulating employer-independent know-how Based on: Sullivan and Arthur {, 2006 #544}	22	I actively seek job assignments that allow me to learn something new.	Adjusted from Briscoe, Hall, & Frautschy DeMuth {, 2006 #545@46}, item 1; factor loading 0.563 {Briscoe, 2006 #545@35}	(Item loaded on a protean career factor)
		23	Whenever possible, I try to develop skills and competencies that can be used in various organizations.	New, no precursor	Item dropped (communality <.5 - first calculation)

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Aspect #	Aspect	Item #	Item	Sources	Outcome in factor analysis
	DeFillippi and Arthur {, 1994 #392} DeFillippi and Arthur {, 1996 #567} Arthur and Rousseau {, 1996 #564}	24	My skills are highly specialized to the needs of my current employer.	New, no precursor, reverse-coded	Item dropped (communality <.5 - first calculation; loadings <.5 - first calculation)
		25	I am confident that I could move to another organization fairly easily if I needed or wanted to.	New, no precursor	Item dropped (communality <.5 - first calculation; loadings <.5 - first calculation)
		26	Staying in my current job for a long time would hamper my future development inside or outside my organization.	New, no precursor	Item dropped (communality <.5 - first calculation)
6	Rejecting career opportunities for personal reasons Based on: Sullivan and Arthur {, 2006 #544} Arthur and Rousseau {, 1996 #564}	27	If I were offered a job at a higher hierarchical level tomorrow, I would take it, regardless of my current personal situation.	New, no precursor, reverse-coded	Item dropped (loadings <.5 - second calculation)
		28	In the past, I have rejected career opportunities for personal reasons.	New, no precursor	Item loaded on factor 5*
		29	In order to move up the organization I am willing to make sacrifices in terms of my personal work-life balance.	New, no precursor, reverse-coded	Item dropped (loadings <.5 - first calculation)
		30	I would reject a new job if it did not allow me to contribute something meaningful to society.	New, no precursor	Item dropped (loadings <.5 - first calculation)
		31	I make my career choices based primarily on financial considerations.	Original from Baruch & Quick {, 2007 #861@491}, reverse-coded	Item dropped (communality <.5 - third calculation; loadings <.5 - third calculation)
7	Considering oneself boundaryless despite existing boundaries Based on: Sullivan and Arthur {, 2006 #544} Arthur and Rousseau {, 1996 #564}	32	I have made career moves that most people would consider too radical.	New, no precursor	Item dropped (loadings <.5 - first calculation)
		33	If I stay in the same job for a long time, it is because it suits my purposes, not because I am wary of change.	New, no precursor	Item dropped (communality <.5 - first calculation; loadings <.5 - first calculation)
		34	I am excited by the thought of making unconventional career moves.	New, no precursor	Item loaded on factor 3

Note: *The second item loading on factor 5 (“I have turned down jobs or assignments because they would have gone against what is important to me in life”) was originally developed to capture an aspect of the protean career orientation.

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Table 2: Five BCO factors (Rotated Component Matrix)

	Factor 1 – Organizational mobility preference	Factor 2 – Geographical mobility preference	Component Factor 3 – Occupational mobility preference	Factor 4 – Preference for working beyond organizational boundaries	Factor 5 – Rejection of career opportunities for personal reasons
I would feel very lost if I could not work for my current organization. (RC)	.736				
If my organization provided lifetime employment, I would never seek work in other organizations. (RC)	.709				
If I had to choose, I would rather change my profession than change my current employer. (RC)	.686				
I prefer to stay in an organization I am familiar with rather than look for employment elsewhere. (RC)	.667				
Being part of my current organization means a lot to me. (RC)	.643				
I prefer to stay in a geographical location I am familiar with rather than look for employment elsewhere. (RC)		.819			
I would find it motivating to take on a job in a different geographical location.		.817			
In the past, I have considered changing jobs and moving to a different geographical location.		.809			
I have already considered changing jobs into a different occupation.			.813		
I could feel comfortable in work other than IT.			.742		
I am excited by the thought of making unconventional career moves.			.625		
I enjoy working with people outside of my organization.				.828	
I enjoy job assignments that require me to work outside of the organization.			.399	.657	
In the past, I have rejected career opportunities for personal reasons.					.776
I have turned down jobs or assignments because they would have gone against what is important to me in life.					.736

Note: Extraction method: Principal Component Analysis. Rotation method: Varimax with Kaiser Normalization. Factor loadings < .3 are not shown. Factor loadings < .5 in italics; Rotation converged in 9 iterations. (RC) = Reverse coded item

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Table 3: Descriptive statistics, Cronbach's alphas, and Pearson correlations in survey 1 and survey 2

Factors	<i>M(t1)</i>	<i>SD(t1)</i>	$\alpha(t1)$	<i>M(t2)</i>	<i>SD(t2)</i>	$\alpha(t2)$	1	2	3	4	5
1. F1 - Organizational mobility preference	3.42	0.75	.73	3.53	0.76	.76	(.62 ^{**})	.19 ^{**}	.11	.14	.07
2. F2 - Geographical mobility preference	3.04	1.08	.77	3.18	0.93	.67	.16 ^{**}	(.63 ^{**})	.21 ^{**}	.26 ^{**}	-.01
3. F3 - Occupational mobility preference	3.47	0.88	.65	3.52	0.93	.76	.06 [*]	.27 ^{**}	(.69 ^{**})	.27 ^{**}	.19 [*]
4. F4 - Pref. for working beyond org. boundaries	4.01	0.69	.63	4.19	0.74	.85	.08 ^{**}	.25 ^{**}	.34 ^{**}	(.54 ^{**})	.06
5. F5- Rejection of career opportunities	3.33	1.10	.52	3.20	1.32	.80	.04	.02	.08 ^{**}	.07 [*]	(.72 ^{**})

Note: $N(t1) = 1,350$. $N(t2) = 161$. * $p < .05$. ** $p < .01$.; Correlations at t1 are indicated in the bottom left section of the table, correlations at t2 are indicated in the top right section. Correlations of the same factor at t1 and t2 are reported along the diagonal in parentheses ($N(F1; t1-t2) = 144$, $N(F2; t1-t2) = 149$, $N(F3; t1-t2) = 149$, $N(F4; t1-t2) = 145$, $N(F5; t1-t2) = 130$)

Table 4: Correlations between the BCO factors, age and actual/intended behavior

Factors	Age ($n = 1,199$)	Years worked in IT ($n = 1,344$)	Years with current employer ($n = 1,343$)	No. of job changes within org. [^] ($n = 1,334$)	No. of job changes across orgs. [^] ($n = 1,331$)	No. of geographical changes [^] ($n = 1,331$)	Likelihood of remaining here ^{^^} ($n = 1,338$)
F1 - Organizational mobility preference	-.09 ^{**}	-.00	-.28 ^{**}	-.07 [*]	.13 ^{**}	.03	-.34 ^{**}
F2 - Geographical mobility preference	-.11 ^{**}	-.12 ^{**}	-.08 ^{**}	.06 [*]	.09 ^{**}	.28 ^{**}	-.22 ^{**}
F3 - Occupational mobility preference	-.03	-.11 ^{**}	-.01	.09 ^{**}	.02	.05	-.21 ^{**}
F4 - Pref. for working beyond org. boundaries	.02	.01	.08 ^{**}	.12 ^{**}	-.03	.06 [*]	-.13 ^{**}
F5 - Rejection of career opportunities	.12 ^{**}	.13 ^{**}	-.02	.05	.06 [*]	.05	-.03

Note: * $p < .05$. ** $p < .01$.; [^]Participants were asked to indicate the number of inter-organizational, intra-organizational and geographical moves over the five years prior to the survey; ^{^^} Participants were asked to assess the likelihood (in %) that they would still be working for their current employer one year after the survey

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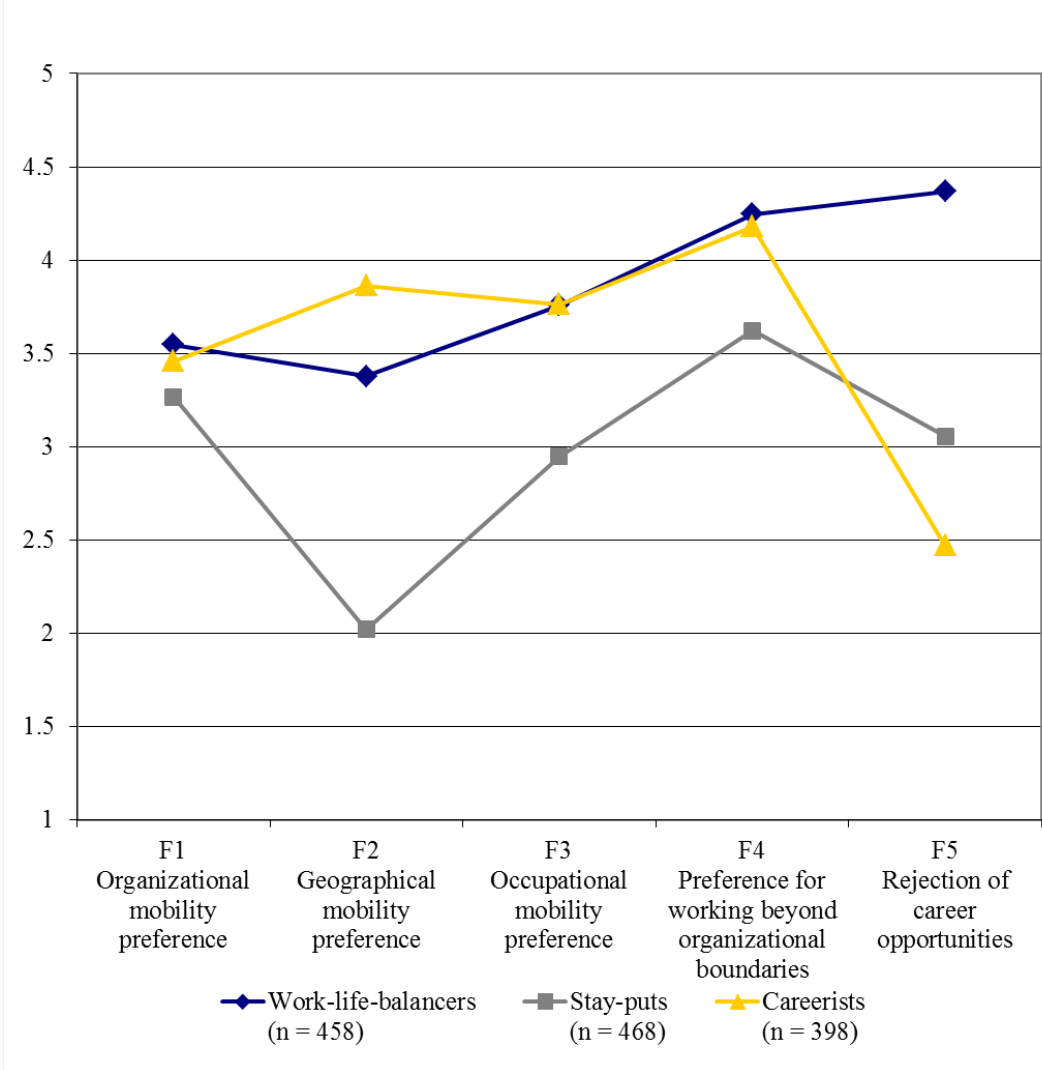


Figure 1: Three clusters of boundaryless career orientations