An Integrated Framework Linking IT Human Resource Strategies and Individual Career Motives to the Staying Behaviors of IT Professionals

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Submitted to MIS Quarterly Special Themed Issue
First Draft, October 1999
Revised, April 2000
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Abstract
The problem of locating, recruiting, and retaining information technology (IT) professionals in a market plagued by supply-demand imbalances is increasingly becoming a top priority with senior IT executives. Although there is widespread acknowledgement in the practitioner literature of the pivotal role played by the IT human asset, the academic literature provides limited robust explanations for addressing the staying behaviors of IT professionals. Motivated by the need to extend our understanding of the retention of IT human capital, this paper presents a new theoretical perspective that integrates two traditional explanations: one organization-centric and the other individual-centric. The underlying basis for this integrated perspective is an adaptation of Rousseau’s (1995) theory of psychological contracts. We focus on two critical factors in Rousseau’s theory: messages organizations send, specifically through the IT HR strategy as reflected in IT HR practices, and individual predispositions in the form of career motives of IT professionals. We develop a theory of staying behavior by explicating these two concepts – IT HR strategy and career motives of IT professionals. A grounded theory approach is used to develop the concept of IT HR strategy. Two conceptual archetypes of strategy and hypotheses relating them to staying behavior are derived. A more deductive approach, involving a review and discussion of two elements of career motives – career stage and career anchor – is used to develop the concept of career motives of IT professionals. The effects of these career motives on staying behavior are posited to be mediated by the individual’s preferred employment duration, which represents a key component of Rousseau’s psychological contract. Preliminary insights into the new integrated perspective that juxtaposes IT HR strategy with IT professionals’ career motives are offered. Investigation of the propositions presented here is only one part of a future research agenda. We also articulate unanswered questions – theoretical, practical, and measurement – that would be important to investigate.
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Introduction

The problem of locating, recruiting, and retaining information technology (IT) professionals in a market plagued by supply-demand imbalances is increasingly becoming a top priority with senior IT executives (Agarwal and Ferratt, 1999; Brancheau et al., 1996). Recent estimates of the IT labor shortage suggest that it is the most acute in close to 50 years, with few signs of abatement (SIM, 1998). Consider the following data related to economic projections for the decade spanning 1998 to 2008: the US Bureau of Labor Statistics identifies “Computers and Data Processing Services” as the industry with the fastest wage and salary employment growth, systems analysts as the one occupation with the largest job growth, and IT-related occupations as the top five of the ten fastest growing occupations (BLS, 2000). In this hyper competitive labor market, it is no surprise that a large number of organizations report disturbingly high IT turnover rates. There is broad-based agreement that in today’s digital, networked, and information intensive economy, IT human capital represents a critical organizational asset for realizing competitive advantage. In such an environment, an understanding of why IT professionals choose to remain in an existing employment contract (i.e., their staying behavior) is clearly of considerable theoretical and practical value.

The causes underlying observed retention effects among employees in general, and IT professionals in particular, may be summarized by integrating two distinct world views, one organization-centric and the other individual-centric. The literature in the organization-centric tradition has focused on deliberate managerial actions, particularly specific human resource (HR) practices, such as compensation and training, as determinants of staying behaviors. In contrast, the literature in the individual-centric tradition has primarily assigned salience to individual perceptions and psychological variables related to turnover, such as perceived ease of movement and job dissatisfaction (Lee, Mitchell, Holtom, McDaniel, and Hill, 1999).
Although there is widespread acknowledgement in the practitioner literature of the pivotal role played by the IT human asset, the academic literature provides limited robust explanations for addressing IT retention concerns. Motivated by the need to extend our understanding of the retention of IT human capital, this paper presents a new theoretical perspective that integrates the traditional, organization-centric and individual-centric explanations. The underlying basis for this integrated perspective is an adaptation of Rousseau’s (1995) theory of psychological contracts. We focus on two critical factors in Rousseau’s theory: messages organizations send, specifically through the IT HR strategy as reflected in IT HR practices, and individual predispositions in the form of career motives of IT professionals. (See Figure 1.) We describe a theory of staying behavior by explicating these two concepts – IT HR strategy and career motives of IT professionals, and constructing a nomological network for the key dependent variable of staying behavior.

Figure 1. Preliminary Integrated Model

The remainder of this paper is organized as follows. We begin with a brief summary of prior literature related to human resource practices in IT, followed by a discussion of the notion of HR strategy as articulated in the strategic HR management literature. The review reveals gaps in theorizing which our research seeks to address. Of particular concern is one aspect of our conceptual frame: IT HR strategy. A grounded theory approach, involving qualitative analysis of hundreds of IT HR practices described by top IT managers and associated HR managers in 32 organizations, is used to develop the concept of IT HR strategy. Two ideal type strategies and predictions related to the effects of IT HR strategy on the key
dependent variable of retention are developed. The following section describes the second major element of our conceptual frame – the career motives of IT professionals – and the specific constructs that populate this frame. A more deductive approach, involving a review and discussion of two elements of career motives – career stage and career anchor – is used to develop the concept of career motives of IT professionals. Hypotheses relating these career motives to staying behavior are suggested. The last substantive section of the paper contains an early exposition of the integrated perspective that juxtaposes IT HR strategy with career motives. Investigation of the hypotheses presented here is only one part of a future research agenda. The paper concludes with a summary of major contributions and suggestions of significant unanswered research questions – theoretical, practical, and measurement – that should be investigated in future research.

Summary Overview of Prior Literature

Prior theoretical and empirical work examining alternative ways of recruiting and retaining employees falls into broad categories: research related to specific practices and research suggesting that there is a higher level conceptual frame called HR strategy. Arguably, in a competitive labor market it is important for managers to craft a coherent set of practices, i.e., an IT HR strategy, that can assist in meeting the firm’s needs for IT talent. Surprisingly, however, the IT literature has been devoid of discussions related to IT human resource strategy. Instead, it has focused at the level of practices. For a broader look at HR strategy, the human resource management literature must be examined. A brief review of both literatures follows. The review concludes by pointing out some key gaps in this research that our work seeks to address.

Human Resource Practices

Rather than an examination of practices within the context of a comprehensive set of categories that can be utilized as an organizing framework for IT human resource practices, a major emphasis of prior work in the IT academic literature has been on the implementation details and effects of specific human
resource practices. The majority of this work examines HR issues independently, viz., issues related to skills (e.g., see Lee, Trauth, and Farwell, 1995, and Todd, McKeen, and Gallupe, 1995), career planning (e.g., see Ferratt, 1992, and Ginzberg and Baroudi, 1988), and training and development (e.g., see Agarwal, Prasad, and Zanino, 1996; Ferratt and Agarwal, 1994).

In contrast, the broader human resource management (HRM) literature has examined many more practices than the IT literature. Indeed, comprehensive lists of HR practices do exist with the number of categories ranging from a few to many. For instance, a typical broad classification scheme (e.g., Miller, 1992) may have four categories, e.g., recruitment and selection, appraisal, reward, and development. More detailed lists of best practices or high performance work practices (e.g., Pfeffer, 1994) provide further elaboration and suggest which practices are related to higher performance. High performance work practices or, more broadly, employment systems are conceptualized as a collection or bundle of HR practices that collectively lead to desirable organizational outcomes, such as increased productivity or overall firm performance. Several writers (e.g., U.S. Department of Labor (1993), Kochan and Osterman, 1994; MacDuffie, 1995; Huselid, 1995; and Pfeffer, 1994) provide examples of such practices which include job rotation, self-directed work teams, social events, and contingent pay.

**From Practices to HR Strategy**

Recent thinking in strategic human resource management (e.g., Delery and Doty, 1996; Youndt, Snell, Dean and Lepak, 1996; Pil and MacDuffie, 1996) suggests that an organization’s HR strategy, also known as an employment system, a work force management system, or an HR system may well represent a strategic asset (Becker and Gerhart, 1996). One of the earliest conceptualizations of human resource strategy is offered by Walton (1985). He distinguishes between two types of employment or work force management systems: one that is premised on imposing control and a second that is focused on eliciting commitment. He also describes a transitional strategy, which characterizes the movement from control to commitment. Each strategy is associated with a unique set of practices related to job design principles,
performance expectations, management structures and systems, compensation policies, employment assurances, employee voice policies, and labor management relationships. Walton notes that although the commitment strategy exhibits positive effects on performance, it is not without costs. In particular, successful implementation of a commitment strategy requires considerable investment in training and development, in compensation, and in providing employment assurances.

Delery and Doty (1996) note that writers in the field of strategic human resource management have adopted three dominant modes of theorizing: universalistic, contingency, and configurational perspectives. Universalistic approaches, embodied in “best practice” research argue that there are a number of human resource management practices that are efficacious regardless of situational contingencies. Contingency approaches, on the other hand, suggest that the effects of a practice or a human resource system on salient outcomes are moderated by a variety of contingency variables, such as firm strategy (e.g., see Youndt et al., 1996). Finally, configurational perspectives focus attention on patterns of practices that exhibit internal consistency or “fit” among the set of human resource practices comprising the strategic bundle. This line of work advocates a more holistic approach to the identification of effective practices, recognizing that an individual practice in isolation may not result in desired outcomes, but a synergistic combination of practices (e.g., see Pil and MacDuffie’s (1996) reference to complementary practices) can have an identifiable effect on organizational performance.

The Need for a New Conceptual Frame from the Organizational Perspective

The literature reviewed above provides examples of specific human resource practices that may be utilized to recruit and retain IT professionals. Furthermore, it contains descriptions of the notion of HR strategy representing a coherent constellation of HR practices. Nevertheless, two significant limitations make it necessary to conduct further research to develop a theoretical definition of the concept of IT HR strategy, consisting of a coherent set of HR practices for recruiting and retaining IT professionals.
First, the appropriateness of the extant literature on universalistic high performance work practices has not been validated with respect to recruitment and retention, particularly of IT professionals. One could argue that IT professionals are similar to other employees, at least at the same occupational level, and hence, “best practices” for managing the latter should be effective for IT professionals also (Ferratt and Short, 1986 and 1988). However, the IT professional as well as the IT profession possess characteristics that could circumscribe the practices that are most effective for recruiting and retaining them. For example, during recruitment of IT professionals, firms seek a mix of two very different skill sets: IT skills and business skills (Lee et al., 1995). Further, the demand-supply asymmetry for IT professionals is uncharacteristically high, not only resulting in pressure to escalate salaries, but also creating a compelling need for firms seeking IT talent to look beyond traditional HR practices to attract IT staff. Moreover, as technologies mature and new technologies appear on the market, firms have targeted needs for brief periods of time -- the Y2K problem and the associated demand for legacy system skills is an example of the fluctuation in demand. More recently, the explosion of electronic commerce has created a profound shortage of qualified workers and resulted in increasing difficulty with the retention of this scarce skill (Dembeck, 2000). The half-life of specific skills is unusually short, resulting in a constant need for skill renewal and development. Given that the effectiveness of HR practices for IT professionals could be substantially affected by their volatile technology environment, labor market shortages, and other characteristics specific to IT, validation of high performance work practices for recruiting and retaining IT staff would be helpful to IT managers and researchers.

Second, none of this work has specifically examined the notion of alternative IT HR strategies. For reasons similar to those articulated above, existing conceptualizations of HR strategy may not generalize very well to IT professionals. Thus, a key gap in prior work that we seek to address is the definition of alternative IT human resource strategies and their relationship to the staying behavior of IT professionals. The definition needs to be more helpful to managers and researchers than just a set of retention practices
or categories of such practices and the associated suggestion that more of these practices will lead to
greater staying behavior.

The Concept of IT HR Strategy and Staying Behavior

As noted above, prior literature provides limited discussion of what the construct of IT HR strategy represents. Below we briefly explicate it as an empirically grounded theoretical concept. This concept should help IT managers and researchers consider alternative approaches to coping with IT retention challenges.

Overview of Research Strategy

The research effort to define IT HR strategy was conducted in two phases over an 18-month time frame. In Phase 1, we conducted interviews with IT and HR executives from 32 purposively selected companies. The objective of these interviews was to develop a fine-grained understanding of the wide range of effective and innovative IT HR practices in use. Interpretation of these data resulted in a categorization scheme identifying four practice categories under recruitment and eleven under retention. However, identification of practice categories was by itself, insufficient as a theory of managing IT professionals. A re-examination of and further reflection on the interview data (Phase 2), particularly from a retention perspective, revealed interesting patterns that allowed us to extract the concept of IT HR strategy. Detailed findings from Phase 1 are summarized in Appendix A and in Agarwal and Ferratt (1999). Here, we focus more on the explication of findings from Phase 2.

Neither the extant IT literature nor the general HRM literature provide conceptual classification schemes that are rich enough to constitute an *a priori* theory of practices in use in IT. Rather, they can serve as a starting point into which empirical observation can be situated. The grounded theory approach used in our theorizing has been characterized as an “inductive theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously
grounding the account in empirical observations or data” (Martin and Turner, 1986, p. 141). The interpretive nature of grounded theory allows us to iteratively refine and expand the existing classifications to accommodate empirical data (Glaser and Strauss, 1967). Second, grounded theory allows us to make analytical generalizations (Yin, 1994), rather than relying on strictly quantitative, statistical generalizations. Finally, this is the first study we are aware of that has specifically examined the notion of IT HR strategy. The lack of adequate theoretical frames suggests the need to evolve the concept of IT HR strategy from a cycle of field work, analysis and reflection, revisiting the literature, additional field work, and further analysis and reflection.

Developing the Concept of IT HR Strategy

The multitude of specific practices discovered in Phase 1, and their subsequent classification into categories, provides a useful catalog of recruitment and retention practices for IT managers to consider. However, the number of categories is too large to help managers make choices and, furthermore, they are not anchored to a theoretical model that could guide choices. Suggesting that an organization should adopt all of these effective and innovative practices, one practice in each of the categories, or some practices from a few of the categories is of limited value. Attempting to explain how managers should use these findings required us to go beyond the data to make sense of them.

Underlying Dimensions of the Concept

What are alternative configurations of complementary, coherent bundles of IT HR practices, i.e., alternative IT HR strategies? We re-examined the data collected in Phase 1 to see if different strategies would emerge with differential effects on staying behavior of IT professionals. In reviewing the concern various organizations had about retention, we found that some companies intended to keep their employees for the long term, but that others had shorter-term intentions. Indeed, one of the key dimensions of the employment contract is its duration (Rousseau, 1995; Kalleberg, Knoke, and Marsden, 1995; Kalleberg and Reve, 1993). The length may range from short-term, as in the case of some
contractors, to long-term. An organization’s stance on this dimension has the potential to influence its choice of and investment in other human resource practices. For example, career paths and support for longer term career development are more likely to be important elements of a human resource strategy designed to retain employees for the long term rather than one designed for short- or even intermediate-term retention. Helping employees maintain their current technical skills through training and development is more likely to be an important element of a strategy designed to retain employees at least for an intermediate length of time rather than one designed for short term retention. The longer retention enables the organization to obtain the benefit of its investment.

Another striking difference we observed during Phase 1 interviews is the type of culture organizations developed to address the work that IT organizations need to deliver. Some were very focused on productivity, while others had a balance between concern for productivity and concern for the individual. Appendix B provides examples of interview excerpts illustrating different cultures. This re-examination of the data from phase 1 suggested to us that alternative IT HR strategies could be derived from (1) the length of the employment relationship with an IT professional sought by the IT organization and (2) the relative emphasis the organization places on concern for productivity and concern for the individual. Further explanation of these two dimensions will show how they help define alternative coherent bundles of retention practices.

**Length of Relationship**

As noted above, researchers have acknowledged that a key element of an employment contract is its duration. At one extreme, organizations can seek a long-term relationship with IT professionals under the assumption that firm-specific knowledge and commitment is valuable to develop and maintain to obtain productive contributions. At the other extreme, organizations may seek only a short-term relationship with IT professionals under the assumption that IT skills are generic and transferable, and that company-specific knowledge and commitment is not critical to obtain productive contributions. In between the
extremes are organizations desiring a relationship that yields productive contributions for a number of years to reduce the costs of higher turnover and related recruiting while also avoiding the costs associated with building and maintaining a long-term relationship.

Associated with an organization’s stance on this dimension are choices of retention practices. As might be expected, organizations seeking a long-term relationship will invest more in career development and security. Organizations seeking a short-term relationship are more likely to expend additional resources on compensation and short-term benefits since they are not as interested in investing in career development and security.

Relative Concern for Productivity and the Individual

The concern for productivity and the concern for the individual manifested in the excerpts presented in Appendix B suggested to us that employers are bundling inducements to achieve high performance in all cases and higher retention in those cases where concern for the individual is higher. Consider the following excerpt from an interview with a chief information officer:

“The overall human resources strategy emphasizes a productive and results-oriented culture. Jobs are not rigidly defined and employees have discretionary authority in the performance of their work. Considerable emphasis is placed on training and development of employees, and performance is measured on results as well as behavior. Compensation is linked to both individual performance and organizational performance.”

The concern for productivity, or a results-oriented culture, appeals to professional achievement needs in IT professionals (Couger, 1986, and Ferratt and Short, 1986). The HR practices that would serve as inducements to satisfy these needs are work arrangements, performance measurement, and employability training and development. Work arrangements appealing to achievement needs in a results-oriented culture would include interesting, challenging work. Performance measurement would include feedback, which is important for high achievers (McClelland and Koestner, 1992). Employability training and development would appeal to the growth needs associated with the high-achievement needs of IT
professionals. A culture with a more balanced concern for both productivity and the individual, i.e., the person-oriented culture, appeals to a broader set of personal, life needs beyond just the professional achievement needs of IT professionals. Inducements such as providing life-style accommodations, e.g., via flexible work scheduling, along with achievement-related inducements, such as employability training and development, would be emphasized.

Two Ideal Strategy Types

These two dimensions -- length of relationship and relative concern for productivity and the individual -- should drive the specific bundle of inducements that will be offered to maintain a productive relationship. The realities of the labor market will also affect retention practices, but within the context of a firm’s IT HR strategy. As emphasized in the theoretical development and empirical findings reported in the strategic HRM literature, we would expect more successful firms to have a more coherent strategy. That is, the bundle of practices would be consistent within an ideal strategy type. This expectation arises from the notion of internal (Becker and Gerhart, 1996) or horizontal (Wright and Snell, 1998) fit as conceptualized in the recent human resource management literature. Although these two dimensions could result in the definition of many ideal types, we focus on two extreme, ideal IT HR strategy types to illustrate obviously different, or alternative, IT HR strategies. The organization's interest in either a short-term or a long-term relationship, i.e., the organization’s preferred employment duration, is the managerial value that conceptually separates these two strategies. The relative concern for productivity and the individual is manifested in the IT HR practices that are likely to realize a specific employment duration. As shown in Figure 2, higher concern for the individual is more consistent with a long-term retention strategy. Relatively low concern for the individual is more consistent with a short-term retention strategy.
Figure 2. Preferred Employment Duration and Concern for Productivity and the Individual

Long-Term Investment (LTI) Strategy

An organization following a long-term investment strategy sees IT people as worth developing and retaining because of their specific knowledge and competencies relative to the organization as well as IT. This strategy is more likely to be found in organizations where the values driving the HR strategy for all employees, not just IT professionals, are focused on developing and maintaining long-term relationships. Organizations seeking a long-term relationship will invest more in career development and security. They may even encourage people to gain experience in other organizations and return with greater knowledge and competencies. Managerial messages will reflect the long-term benefits of employment with them. For example, career planning and career paths may be emphasized. They may build on the organization’s reputation for employment security and financial stability in differentiating themselves from competitors. They will tailor their compensation and benefits to support longer-term relations, such as the provision of vacation benefits that are significantly longer than competitors. Indeed, one employer we talked with had six-week vacations. IT professionals expressed their reluctance to leave that employer! Another had financial benefits that increased the longer one stayed:

“One IT professional noted that ‘profit-sharing is huge,’ but it is not available until one has a year and a half of tenure. Officers and above have stock options. The biggest challenge is to get people to stay three years. If they stay five, ‘we gotcha!’”
To maintain a long-term relationship, these organizations will tailor HR practices to achieve not only short-term productivity but also longer-term productivity and retention. Such practices may include (1) designing work arrangements to provide sustained opportunities for interesting work -- for example, through job rotation -- (2) providing training and development to build new competencies based on technologies to be adopted in the future or to broaden the IT professional's business knowledge or managerial skills, and (3) conducting performance measurement to identify individual developmental needs consistent with both short- and long-term organizational goals. In addition, these organizations will also have HR practices that show a concern for the individual beyond the concern for short-term productivity. Such practices may focus on employee participation, community building, and lifestyle accommodations, generally recognized as high-involvement work practices that exhibit positive effects on turnover intentions (Vandenberg, Riordan, and Eastman, 1999).

**Short-Term Producer (STP) Strategy**

An organization following a short-term producer IT HR strategy has an urgent need for productive IT people. It views IT people as providing highly valuable contributions to the organization in the short term and believes that IT people willing and able to provide these contributions are driven by short-term professional achievement and financial goals. Compared to the LTI strategy, the short-term producer strategy has more emphasis on immediate compensation, less emphasis on practices related to longer term career development and security, and less emphasis, in general, on practices related to concern for the individual. Therefore, in comparison to the LTI strategy, we hypothesize that organizations successfully implementing the short-term producer strategy will experience higher turnover and have lower intentions to stay among its IT professionals. Consequently, these organizations will also engage in recruiting activities to a greater degree.
Discussion

The difference in these two ideal type strategies can be summarized through the degree and type of emphasis placed on IT recruiting and retention practices (Table 1). The degree of emphasis may range from no emphasis to considerable emphasis. The type of emphasis may be a time orientation, i.e., from short-term to long-term. It may also be a relative emphasis on the concern for productivity and the individual, i.e., from high concern for productivity and low concern for the individual to high concern for both. It is important to point out that an IT HR strategy not only influences an organization’s strategic choice of HR practices and where it is willing to invest, it also has a profound impact on the specific implementation of the practice. For instance, Table 1 shows that both STP and LTI organization place a high degree of emphasis on concern for productivity related practices. Yet, the manner in which a specific practice such as performance measurement is implemented is distinct across the two strategies. Performance measurement in the STP strategy will tend to be used primarily for evaluation and compensation adjustment purposes, with a corresponding emphasis on the measurement of observable skills and output. In an LTI environment on the other hand, performance measurement is likely to be used as a developmental tool as much as an evaluation tool, implying that dimensions such as behaviors are more likely to be important. One would also expect to see a greater emphasis on 360-degree evaluations here, allowing multiple inputs into the measurement process.

Two cases illustrative of different ways in which a similar strategy can be implemented are ManCo and BanCo2 -- both following IT HR strategies that may be characterized as long-term investment. At ManCo we found a rich suite of HR practices in place. Not only did the company invest heavily in career development and security, we saw managers place considerable emphasis on fostering a sense of community, providing opportunities for technical training, and developing leadership capabilities among its entire IT staff. IT professionals recognized and acknowledged the value that the IT organization places on the individual: one IT professional characterized this value as more than what was placed on “products and patents.” In contrast, at BanCo2, few formal training opportunities exist. Indeed, it would
not be inappropriate to portray the IT HR practices at BanCo2 as relatively lean, with fewer initiatives focused on rewards and recognition and flexibility in work arrangements but greater resources directed toward compensation and benefits associated with longer tenure. Yet both these organizations shared a common approach to acquisition and retention -- hire IT professionals at early stages of their career through internship and cooperative programs, provide internal career ladders and opportunities for advancement within and outside the IT organization, and communicate a strong sense of value for the individual. The IT HR strategy, although operationalized in different ways, was successful in both instances in so far as its desired effects on retention are concerned. Reported IT staff turnover at ManCo is in the low, single digits, while at BanCo2, it is approximately 8%.

Although we formally present only two theoretical ideal type strategies here, it is evident that several intermediate strategy types might be implemented by the degree of emphasis on specific HR practices, the short or long-term orientation used to implement the chosen practices, and the relative emphasis on the concern for productivity and the individual manifested in the HR practices. To illustrate with a simple example, start by using the STP strategy as a base for comparison; greater emphasis on employability training and development should result in an alternative strategy that reflects a desire for an intermediate term relationship where the return on investment in training might be realized. In a similar spirit, using the LTI strategy as a base for comparison, less degree of emphasis on longer-term career development and opportunities for advancement, would, ceteris paribus, reflect managerial desires for intermediate term employment durations. These arguments are summarized in the following:

Proposition 1: An organization’s preferred employment duration for IT professionals is associated with the degree and type of emphasis it chooses to place on alternative IT HR practices.

1a: Organizations with a short-term preferred employment duration for IT professionals will implement to a greater degree IT HR practices that emphasize short-term benefits for both the organization and IT professionals, including a high concern for short-term productivity and a low concern for the individual, i.e., they will implement an IT HR strategy similar to the ideal short-term producer strategy.
1b. Organizations with a long-term preferred employment duration for IT professionals will implement to a greater degree IT HR practices that emphasize long-term benefits for both the organization and IT professionals, including a high concern for both productivity and the individual, i.e., they will implement an IT HR strategy similar to the ideal long-term investment strategy.

<table>
<thead>
<tr>
<th>IT HR Strategy Type → Emphasis of IT HR Practices ↓</th>
<th>Short-Term Producer</th>
<th>Long-Term Investment</th>
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<tr>
<td><strong>Type of Emphasis</strong></td>
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<tr>
<td>Time Orientation</td>
<td>Short</td>
<td>Both Short and Long</td>
</tr>
<tr>
<td>Relative Concern for Productivity and the Individual</td>
<td>Results-Oriented</td>
<td>Balanced</td>
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<tr>
<th>Relative Degree of Emphasis</th>
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<tr>
<td>Recruiting</td>
<td>■</td>
<td>□</td>
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<td>Compensation and Benefits</td>
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<td>Concern for Productivity:</td>
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<tr>
<td>Performance Measurement</td>
<td>■</td>
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<td>Work Arrangements</td>
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<tr>
<td>Employability Training and Development</td>
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<tr>
<td>Concern for the Individual:</td>
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<tr>
<td>Opportunities for Advancement</td>
<td>□</td>
<td>■</td>
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<tr>
<td>Opportunities for Recognition</td>
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<tr>
<td>Quality of Leadership</td>
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</tr>
<tr>
<td>Sense of Community</td>
<td>■</td>
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<tr>
<td>Life-style Accommodations</td>
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<td>Longer-Term Concerns:</td>
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<td>Longer-Term Career Development</td>
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<tr>
<td>Organizational Stability and Employment Security</td>
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■ Higher degree of emphasis
□ Lower degree of emphasis

Under what circumstances would an organization rationally seek shorter-term or longer-term employment durations for its IT professionals? Although we subsequently pose this as a question for future research, our field work highlighted a core set of strategic contingencies that appeared to be guiding managers’ choice of IT HR strategy. Firms where IT is a strategic competence, an integral part of business strategy
and where firm-specific knowledge has greater value than generic IT skills appeared to consciously implement a longer term strategy. Interestingly these firms were also located in geographic areas where the labor-market asymmetry for IT labor is not as pronounced as in other parts of the United States. For example, consider these excerpts from a description of a Midwestern bank following a longer term IT HR strategy:

"The business strategy is to increase market share… The job in information systems is to support the 15-20% growth per year. They intend to keep expenses from growing as fast as revenues. IT grows about 15% a year while the rest of the company stays fairly constant."

"The bank uses packaged software from a few key vendors… Integration is the role IT must play. The business may change. The technology will change. Acquiring specific technical expertise may be an opportunity for outsourcing; however, a lot is difficult to outsource. The bank needs people who understand vendor products and the business."

By contrast firms where the shorter term strategy dominated were situated in an environment with a large number of “cross-town” competitors for the same IT labor pool. These were also companies where IT was, in addition to supporting internal processes and strategy, a “product” that generated revenue for the firm. One might expect such firms to have a greater need for leading-edge technical know-how as also for a continual influx of new ideas in comparison to in-depth knowledge of internal systems: all requirements more easily satisfied with continuos replenishment of IT staff through a short term IT HR strategy. For example, consider these excerpts from a transportation company following a shorter term IT HR strategy:

"Among the goals driving the new IT organization are an elevated professionalism… and aligning the organization as a top software development shop rather than a Fortune 500 IS shop. Software developed by this organizations must be as good as shrink-wrapped software. People come to work for this IT organization because it has an exciting, dynamic environment -- that is, they can work on "cool stuff."

"Turnover has recently been high because the company was raided by a competing local firm that made attractive cash offerings."

The strategies described above have considerable overlap with those presented in the general HRM literature. The LTI strategy has conceptual similarities to the commitment strategy described by Walton (1985) and the internal-type employment system of Delery and Doty (1996). The STP strategy echoes the
same values as those reflected in the market-type employment system (Delery and Doty, 1996). Finally, the emphasis of LTI on concern for the individual and career development and security are reflective of the high performance work systems described by Pfeffer (1994). In both these strategies, organizations seek high performance. These IT HR strategies differ from the strategies described in the literature based on their focus on IT professionals rather than the entire organization and explicit recognition of the underlying dimensions. Differences across IT HR strategies result from differing emphases on HR practices that (1) affect the length of the employment relationship and (2) reflect the organization's relative emphasis on concern for productivity and concern for the individual.

**The Effects of IT HR Strategy on Staying Behavior**

As noted in the descriptions of the strategies, predictions regarding turnover vary. One would expect IT organizations that seek medium to longer-term relationships to expend greater resources on practices such as training, career paths and opportunities, building a sense of community, and life-style accommodations; collectively resulting in lower turnover. This is in contrast to organizations that focus primarily on short-term relationships and productivity, where the emphasis at the HR practice level should be on offering inducements that increase the short-term productivity of IT employees. In such environments one would expect to see lower retention and consequently, more effort being expended on recruiting. In general, the expected rate of turnover increases and the concomitant intention to stay decreases as the IT HR strategy moves from LTI to STP.

Proposition 2: An organization’s IT HR strategy is associated with IT professionals’ staying behavior.

2a: IT professionals employed in organizations which implement an STP IT HR strategy will exhibit lower intentions to stay and higher turnover than IT professionals employed in organizations which implement an LTI IT HR strategy.
IT Professionals’ Career Motives and Staying Behavior

The second key element of our overarching conceptual frame is the notion of individual career motives. Besides the employer’s messages, as reflected in the IT HR strategy, Rousseau’s (1995) theory of psychological contracts argues that individuals’ motives influence their psychological contract. Those IT professionals regarding their current employment situation as merely a stepping stone to better opportunity will have a different interpretation of employer and employee obligations as compared with those who seek a long-term career with the organization. Indeed, in a study of the orientations of recent graduates toward their first job, Rousseau (1990) found that certain individuals were seeking to move quickly through employment situations in search of advancement. These “careerists” expected to stay with an organization for less than three years on average. At the other extreme, individuals low on “careerism” sought commitment to a firm and expected to stay for five or more years.

This preferred duration of the employment relationship, from the employee’s perspective, is an important element of the psychological contract (Rousseau, 1995), and indeed, constitutes a core component that is sought in the employment situation. Rousseau describes four distinct types of contracts, with two being relatively short-term -- transactional and transitional -- and two being relatively long-term -- balanced and relational. It follows that individuals who seek shorter-term transactional or transitional contracts (or longer-term balanced or relational ties) are more likely to join firms that offer such opportunities. Conversely, following the attraction-adaptation-attrition cycle described by Schneider (1987), those who fail to assimilate -- including, in particular, those whose preferred length of relationship is inconsistent with what the organization offers -- will sooner or later leave the organization through a process of attrition. Thus, the psychological contract in terms of the desired temporal nature of the relationship should be an important influence on staying behaviors.

In the context of the information systems workforce, there is evidence that IT professionals are seeking organizational relationships of varied lengths. While some organizations report turnover of IT
professionals that is in the range of 20-30% and average IT professional tenure of less than 3 years, others are able to attract and retain employees for considerably longer periods of time (Agarwal and Ferratt, 1999). In a recent study of employment outsourcing in information systems Slaughter and Ang (1996) note that outsourcing reflects organizational movements towards shorter, market-mediated employment relationships. An alternative interpretation of this prevailing industry trend towards IT outsourcing is that it reflects a decline in worker preferences for longer-term relationships. In other words, it is possible that preferences of IT professionals, potential or actual, are compelling firms to utilize outsourcing as a mechanism for acquiring needed skills and competencies. Indeed, recent evidence of employment behaviors (Economist, 2000) suggests that individuals are exhibiting an increasing propensity to change jobs, with the average 32 year old in the United States already having worked for nine different firms.

With regard to preferred duration of the employment relationship, one would expect Rousseau’s (1990) “careerists” to spend relatively less time with any given employer, and therefore, at any given point in time, they are more likely to turnover. On the other hand, with those for whom a longer-term relationship is important, there is likely to be a lower propensity to leave.

Proposition 3: IT professionals with a shorter preferred employment duration are more likely to leave an organization than those with a longer preferred employment duration.

Although Rousseau (1995) states that individual predispositions are important determinants of an individual's psychological contract (e.g., she argues that such factors “make each psychological contract potentially unique.” (1995, p. 46)), only two such factors are discussed in the theory of psychological contracts: cognitive biases and career motives. The one of interest in our conceptualization is career motives. The extent to which Rousseau elaborates this factor has already been noted, viz., it refers to whether individuals are high or low on careerism, which is reflected in whether their preferred length of employment relationship is of short-term or long-term duration. Otherwise, the theory does not pay explicit attention to individual differences.
In contrast, a rich stream of research with information systems professionals, as discussed below, suggests that a wide variety of such differences might be relevant to leaving behaviors. Although turnover has been associated in prior research with a wide range of psychological variables (e.g., Mowday et al., 1982), we focus here on career motives, specifically on two factors that have received wide support in the information systems and organizational behavior literatures as key variables in predicting employee behavior: career stage and career anchor. These individual differences are theorized as influencing an individual’s preferred employment duration, i.e., their desired psychological contract.

**Career Stage**

The notion of a career stage arises out of an understanding that work attitudes and aspirations might vary systematically as an individual progresses in a career and acquires a range of occupational and life experiences. Each career stage is delineated by specific activities and psychological adjustments (Levinson et al., 1978). Career stages are indisputably an important aspect of organizational behavior because of their relationship to critical outcomes such as organizational commitment (Allen and Meyer, 1993), performance, satisfaction and job involvement (Cron and Slocum, 1986).

A review of prior work reveals considerable equivocality in what constitutes a conceptual and operational definition of career stage. Indeed, extant research has proposed and used several alternative operationalizations of career stage. As noted recently by Allen and Meyer (1993), this multiplicity of definitions and operationalizations used by researchers has limited comparisons across studies. For example, employee age, organizational tenure, and job tenure have all been used to connote career stage. In addition to such demographic variables, some writers have proposed specific models that describe the various stages of a career through which an individual progresses.
One of the earliest models of career stages is that described by Super (1957), who argues that an individual’s career progresses through three stages: exploration, establishment, and maintenance. Using a variant of this model with career stages of establishment (where workers first join an organization and seek to develop competence), advancement (where achievement dominates), and maintenance (where relationships have been cemented and the role of the individual in the organization is well defined), Gould and Hawkins (1978) found that career stage moderates the job satisfaction – performance relationship. Using tenure as a career stage indicator, Mowday et al. (1982) proposed a three-stage model comprised of the pre-entry stage, the early employment stage, and the middle and late career stages.

Dalton, Thompson, and Price (1977) presented a model of professional careers that spans four distinct stages, with each characterized by specific tasks, relationships, and psychological processes. In the apprentice stage, an individual learns the “ropes” under the tutelage of knowledgeable others. Not surprisingly, this stage involves a high level of dependence. Apprentices progress to become colleagues, who are capable of making independent contributions to organizational work. The third stage in this model is that of a mentor who plays the role of an interface agent and a trainer, assuming responsibility for others. In the final career stage of a sponsor, the individual exercises power and helps shape the direction of the organization. Smallwood (1986) applied this four-stage model to careers in information systems and observed that explicit attention by managers to the needs of IT professionals at different stages of their careers can help alleviate the incidence of high turnover.

In summary, there is considerable evidence in theoretical and empirical work supporting a relationship between career stage and employee behavior. Some writers have suggested that career stage will exhibit main effects on turnover, while others have argued that career stage serves as a key moderator of other important relationships such as satisfaction and performance. The exact form of this relationship notwithstanding, and regardless of the particular definition and operationalization of career stage a researcher selects, one would expect to see different leaving behaviors exhibited at distinct career stages.
Thus, career stage constitutes a core determinant of an individual’s psychological contract, which creates the link to leaving behaviors.

Moreover, from a theoretical perspective, it is reasonable to suggest that individuals who are at advanced career stages, i.e., Super’s (1957) “maintenance” stage or Dalton et al.’s (1977) “sponsor” stage, are more likely to have developed greater organizational commitment and are more likely to remain with an employer until retirement. This could arise from a variety of reasons: because the employee has become vested in the organization through benefit packages, because a network of relationships and ties has developed over time, or because the responsibility and power associated with an advanced career stage renders an employment situation more attractive. In contrast, individuals in an early career stage are still in the process of establishing work relationships and learning to perform. A major emphasis here would be on developing needed skills and competencies in a given environment and then “moving on” to better opportunity.

Proposition 4: IT professionals’ career stage is associated with their preferred employment duration.

4a: IT professionals in earlier career stages, such as the apprentice or colleague stage, will prefer shorter-term employment relationships than IT professionals in later career stages, such as the mentor or sponsor stage.

Career Anchor

Prior work has posited that individual career choices are profoundly influenced by individuals' self-concept of who they are and what they seek from a career. This notion has been characterized by Schein (1990, 1996) as that of a career anchor, also labeled a career orientation, consisting of “1) self-perceived talent and abilities, 2) basic values, and, most important, 3) the evolved set of motives and needs as they pertain to the career.” (1996, p. 80). Thus, each anchor represents a base set of needs and values that the individual aspires to fulfill. The precise anchor of an individual may not be revealed until there is a substantial change in the work situation that is imminent. At such a time, the anchor is the “thing that
they will not give up.” Schein’s original work described five career anchors: autonomy/independence, security/stability, technical/functional competence, general managerial competence, and entrepreneurial creativity. Subsequent work with a variety of additional occupations revealed three additional anchors: service or dedication to a cause, pure challenge, and life-style. Schein recognizes the complexity of individuals and their careers by noting that most careers “permit the fulfilling of several of the needs that underlie different anchors” (1996, p. 81), but for most people one of the eight categories is the anchor.

Several researchers have utilized the concept of career anchors for the occupational group of IT professionals (Crepeau, Crook, and McMurtry, 1992; Igbaria, Greenhaus, and Parsuraman, 1991; Igbaria and Baroudi, 1993). In a study examining the career anchors of over 300 IT professionals Crepeau et al. (1992) found that several independent career anchors were evident in their sample. These included three of the original five proposed by Schein: managerial competence, technical competence, and autonomy, and a decomposed fourth anchor, security/stability, which was split up as geographic security and organizational stability. Building upon the work of DeLong (1982), Crepeau et al. (1992) also investigated whether IT professionals exhibited the three career anchors of identity, or the desire for status and prestige emanating from employment with a particular firm; service, exemplifying concern for others, and variety, or the desire for challenge. Their empirical results suggested that IT professionals possess these three career anchors. In another study of the career anchors of IT professionals Igbaria, Greenhaus, and Baroudi (1991) found that employees whose career anchors were congruent with their job setting reported high job satisfaction, career satisfaction, strong organizational commitment, and low intentions to leave the organization. Arguing that studies of the career anchors of IT professionals have utilized a diverse set of measures that impedes comparisons, Igbaria and Baroudi (1993) developed and empirically validated a short-form measure of Schein’s career anchors. Factor analysis across two samples resulted in a nine-factor solution, with the security/stability factor again decomposing into organizational stability and geographic security. Igbaria and Baroudi further showed that career anchors tended to covary with demographic and attitudinal variables including gender, age, and job and career satisfaction.
The research reviewed above collectively affirms the importance of career anchors as highly salient to individual career choices. Although the precise number of career anchors varies across conceptualizations, and although there is limited evidence concerning the effects of a mismatch between a specific career anchor and the work situation, the fact that individuals possess distinct and measurable career anchors is widely agreed upon. To the extent that a career anchor represents an individual disposition, it would not be surprising to find that individuals who are in an employment situation where the inducements offered are inconsistent with their career anchor will tend to withdraw from the situation and exhibit behaviors such as absenteeism and turnover. Such a relationship is supported by cognitive dissonance theory (Festinger, 1976), which posits that it is a natural human propensity to seek to reduce a dissonant state and withdraw in circumstances where values and motives are incompatible with the prevailing environment. Indeed, in recent work Igbaria and Baroudi (1993) note that there is a need for further work examining the relationships between career anchors and important job outcomes such as satisfaction, organizational commitment, and turnover. Thus, the inclusion of career anchor as a relevant variable finds theoretical and empirical support for workers in general and IT professionals in particular.

What role do career anchors play in predicting staying behavior? We propose that career anchors influence staying behavior through the mediating construct of IT professionals’ preferred employment duration. For instance, individuals possessing a security/stability anchor will likely prefer longer employment durations and hence, tend to stay longer with an employer. By contrast, IT professionals with a technical competence anchor may view multiple employment situations as offering a greater range of opportunities to develop skills. They would, therefore, seek to enter into a shorter-term employment relationship with any one single employer. Similarly, to the extent that greater organizational tenure is likely to result in a particular job becoming less interesting and challenging, it may be argued that, ceteris paribus, a pure challenge career anchor would result in short term employment preferences as individuals pursue novel opportunities and variety with new employers. The effects of other career anchors on
preferred employment durations, however, are less clear and in need of additional theoretical and empirical work.

Proposition 5: IT professionals’ career anchors are associated with their preferred employment duration.

5a: IT professionals whose primary career anchor is security/stability prefer longer employment relationships than those whose primary anchor is technical competence or pure challenge.

The possibility exists of a relationship between the two individual variables introduced above to elaborate the theory of psychological contracts, i.e., career stage is possibly related to career anchor, although there is limited theoretical and empirical work in support of such an expectation. Plausible relationships here include a positive association between earlier career stages and the anchors of pure challenge, technical competence, and autonomy/independence. Later career stages might be associated with security/stability and lifestyle career anchors, as individuals seek to find an appropriate balance between work-family pressures. Thus, it is evident that the interrelationships among the three variables comprising career motives -- career stages, career anchors, and preferred length of employment -- are complex and in need of further examination. Nevertheless, irrespective of the precise nature of the relationship, there is considerable evidence to support the assertion that they are distinct conceptual constructs that are collectively salient as antecedents of staying behavior.

Integrating Individual-Centric and Organization-Centric Views

Scholars using the organization-centric as well as the individual-centric explanations offer important contributions to our understanding of why IT professionals might elect to terminate an employment contract. Although each view is compelling, by itself it is an incomplete specification of a complex phenomenon. Undoubtedly the motivations and needs defining an IT professional’s career dispositions have a profound influence on their staying behavior, and indeed, on their performance while engaged in the employment relationship. Yet, managerial action and explicit and implicit messages embedded in
organizational HR practices and strategies temper the effects of individual career motives. Figure 3 depicts the key constructs populating the integrated theory of IT professionals’ staying behavior. The theory juxtaposes individual-level explanations of staying behavior (viz., career motives, as manifest in career stage, career anchor, and the individual’s preferred employment duration) with organizational-level antecedents (viz., strategic managerial intent as captured by the organization’s preferred employment duration, and overt managerial action, as manifest in the organization’s IT HR strategy). As suggested above, Figure 3 shows IT HR strategy moderating the relationship between career motives and staying behavior.

![Figure 3. A New Integrated Theoretical Perspective](image)

This integrated framework makes it possible to examine important questions and propose relationships not apparent previously. To illustrate, consider the moderating relationship described above. What is its nature? To the extent that individual and organizational preferences for employment durations align, predicted effects on staying behavior are obvious. On the other hand, when preferences do not align, the outcome is not as simple. An IT professional who prefers a shorter-term employment relationship employed in an organization with a long-term investment strategy might be induced to alter preferences
through an appropriate mix of IT HR practices such as challenging work assignments, aggressive and market-anchored compensation, and opportunities for advancement through well-defined career paths. By contrast, when the employer seeks a short-term relationship and implements a short-term producer strategy to realize this, even if the IT professional desires a longer-term contract, the organization’s preferences will prevail as in the ultimate analysis, it has the authority to terminate the relationship. Hence we propose:

Proposition 6: An organization's IT HR strategy moderates the relationship between an IT professional’s preferred employment duration and staying behavior.

6a: IT professionals who prefer shorter term employment relationships but work in organizations with an LTI IT HR strategy will stay longer with these organizations than IT professionals with similar career preferences who work in organizations with an STP IT HR strategy.

6b: IT professionals who prefer longer term employment relationships and work in organizations with an LTI IT HR strategy will stay longer with these organizations than IT professionals with similar career preferences who work in organizations with an STP IT HR strategy.

Extending the Integrated Model

The model shown in Figure 1 represents a first step toward the development of a robust theory. The model is essentially a static one, indicating that preferred employment duration (both individual and organizational, mediated by IT HR strategy) has a causal effect on staying behavior. Except for career stage which changes over time, no other mechanism for changing causal variables is specified. Several promising directions for future research remain. Three such directions are suggested here.

First, assuming that various combinations of career stage and career anchors are possible, an interesting unanswered question is this: What is the effect of different combinations of career stage and career anchors on an IT professional’s preferred length of employment? (See the left-hand side of Figure 3.) Examples of the effects of different combinations of career stage and selected career anchors on preferred employment duration are illustrated in Figure 4. Based on the definitions of these career anchors found in
prior research, the relationships shown are plausible; however, we are not aware of any empirical research in this regard. Furthermore, the two “intermediate” lengths of employment shown in the diagram do not necessarily represent comparable periods of time. Thus, a direction for future research is to empirically examine these plausible relationships. Of course, other combinations of career anchors and career stages should also be examined.

![Preferred Employment Duration](image)

**Figure 4. Example of Relationship among Variables Defining Career Motives**

Second, a logical extension to the theory would be the development and specification of a new set of ideal-type psychological contracts for IT professionals. As presented earlier, major factors defining psychological contracts for IT professionals are IT HR strategy and the career motives of IT professionals. A major contribution of the current research has been the specification of ideal types of IT HR strategy, one of two key requirements for specifying a new set of ideal-type contracts for IT professionals. In addition, our explication of the career motives construct has laid a foundation for the other key requirement, viz., the specification of ideal types of IT HR professionals based on career stages, career anchors, and preferred employment duration of IT professionals. Each ideal type of psychological contract should represent a unique combination of IT HR strategy and preferred employment duration of IT professionals based on career stage and career anchor. Different ideal-type contracts should exhibit
different effects on staying behavior. Although we have already formulated some key elements for defining ideal types of psychological contracts, detailed specification will require the development of additional theory regarding ideal types of IT professionals (as the first direction for future research suggested above implies) and how those fit with the ideal types of IT HR strategy. Preferred length of the employment relationship should be an underlying dimension that dominates the definition of ideal types of IT professionals to determine alignment with short-term and long-term IT HR strategies. Indeed, proposition 6 speaks to this alignment, with propositions 6a and 6b specifically focusing on the alignment of IT professionals' preferred employment duration with the STP and LTI strategies. We leave it to future research to more completely develop a set of ideal types of IT professionals and specify how alignment with the ideal types of IT HR strategy affects staying behavior.

Third, just as a grounded theory approach led to the specification of underlying dimensions of IT HR strategy, a similar research strategy could be taken to validate the underlying dimensions of career motives. We have laid the foundation for such an approach by identifying preferred length of the employment relationship, career stages, and career anchors as useful dimensions found in the literature.

Contributions and Conclusion

The theory developed in this research (see Figure 3), makes three major contributions. First, it presents a powerful theoretical framework to assist managers and researchers in understanding important employment behaviors, particularly those related to staying/leaving of IT professionals. This framework integrates two complementary, yet previously unrelated streams of research. By integrating organizationally and individually based explanations of staying/leaving behaviors through the theory of psychological contracts, a more powerful explanatory model is possible than with either one separately.

Second, it extends the theory of psychological contracts by providing richer definitions of two critical constructs, viz., messages organizations send and career motives. Relative to the first of these constructs,
the definition of IT HR strategy presented in the current paper, with its underlying dimensions and ideal types, provides a comprehensive and detailed definition of the messages IT organizations send about the inducements they offer in exchange for IT professionals' contributions. More specifically, an IT HR strategy consists of a coherent set of HR practices for IT professionals based on the preferred employment duration the organization seeks to establish. HR practices that are leveraged to implement these alternative strategies are discussed. Relative to the second construct in the theory of psychological contracts, the extension of career motives to include not only preferred employment duration sought by IT professionals but also career stages and career anchors provides a richer set of individual predispositions to explain an IT professional's staying/leaving behaviors.

A third contribution -- raising new questions and suggesting pertinent implications for research and practice -- is an extension of the first two and was illustrated previously through the discussion of the need for future research on the fit between different types of IT HR strategy and different types of IT professionals. Besides suggesting future research on the integrated theory, we have also suggested manageable research that focuses independently on the organizational and individual antecedents of IT professionals' staying behavior. Related to the model shown in Figure 3, future research may choose to focus on interesting questions on career motives without regard to IT HR strategy. Similarly, research about IT HR strategy without regard to career motives may be pursued. For example, we suggested propositions 2 and 2a, which need to be validated by investigating whether intention to stay will decrease as IT HR strategy moves from LTI to STP. To further illustrate this third contribution, we raise a few additional questions below -- theoretical, practical, and measurement -- to suggest further research.

From a pragmatic perspective it would be important to understand how an organization should select an appropriate IT HR strategy. A desire to develop such normative recommendations requires us to look outside and beyond the integrated model presented in this paper. Besides investigating horizontal fit as already suggested, the notion of vertical fit as recently articulated in the strategic HRM literature (Wright
and Snell, 1998) suggests that overall HR strategy should be aligned with business strategy. In a similar spirit, one could ask what are the strategic contingencies that should guide the choice of IT HR strategy? Is it the business strategy, the IT strategy, the role of IT in the business, or some combination thereof? Furthermore, it would be fruitful to examine if it is desirable to have multiple IT HR strategies co-exist within a single organization, or is it easier to implement a single, dominant strategy with some variation in specific HR practices to handle unusual circumstances? This question is particularly salient in contemporary IT environments where the IT staff typically consists of a mix of full time employees, professional service partners, and other short-term contract workers. Measuring an organization's IT HR strategy presents interesting challenges. Should it be measured based on the underlying dimensions or via descriptions of the ideal types? Should the measure be based on the assumption that the organization has a single strategy or multiple strategies? If multiple informants are used to assess strategy, how should discrepancies be handled?

From the individual’s perspective, in considering career motives, should a dominant career anchor be assumed or should some hierarchy of career anchors be used? We suspect that the notion of career anchors for IT professionals is in need of revisiting in light of the dramatic changes that have occurred in the economic climate in the past five years. Anecdotal evidence of the employment behaviors of high-tech professionals in the digital economy would seem to suggest that autonomy and lifestyle anchors are beginning to dominate. Moreover, the notion of a “boundary-less” career has been described recently as a metaphor for the reality that individuals no longer expect (and indeed, desire) to spend an entire life-time with a single employer (Arthur and Rousseau, 1996). This suggests that the concept of a career stage is in need of further elaboration for IT professionals specifically. Prior research has assumed a largely “linear” career progression which may not be valid in today’s context. Consider, for example, an IT professional in a “mentor” career stage when a major discontinuity occurs in the technology environment (such as the growth of the internet). Does this individual now enter an “apprentice” career stage? How do career stages evolve as individuals move from one organization to another? Finally, various aspects of the
theory are in need of further specification and empirical validation. For example, the propositions suggested previously could be more precisely formulated and empirically tested. Such work should provide additional insights for extensions and refinements.

In conclusion, there is little doubt that IT professionals represent a scarce and crucial organizational asset whose value is only going to intensify as information technology permeates every aspect of organizational work. Thus, it is important that scholars pay attention to the causes underlying observed staying behaviors. Such research would not only help practicing managers cope better with recruitment and retention problems, it will also help advance intellectual development in the management of IT professionals. This paper represents one step in this direction.
References


Appendix A

Methodology for Phase 1: Developing Practice Categories

Analysis of interview data from Phase 1 was performed using a qualitative multi-stage cluster analytic procedure, consistent with the recommendations of Miles and Huberman (1994). At the first stage of this phase, categories derived from prior literature were utilized to solicit information from respondents: i.e., the survey asked respondents to identify effective and innovative practices in the broad categories of recruitment, retention and development, and work environment and organizational culture. Respondents were cued with examples of practices in each category, for instance, the category related to work environment asked them to consider practices such as “the use of teams, empowerment and information sharing, attitude surveys, and social activities and events.”

In the second stage of this phase, interview transcripts were qualitatively analyzed to identify more specific categories of practices within each one of these three broad categories. As a first step, transcripts from 11 companies were examined. Consider the following paragraph taken from the interview summary for company M4:

“Recognition and market-driven compensation are essential for retaining people. HR has helped greatly with annual compensation review and mid-year adjustments. They have gone to semi-annual adjustments, most in the base pay, particularly in the high demand areas. The CIO is concerned about the risk of losing people (i.e., a 'precious resource') given the high demands on IT to deliver (i.e., ‘an agenda larger than I can accomplish’). These adjustments are tied in with their performance management system and related bonuses. Performance appraisal includes 3 pieces: supervisor, individual, and peer team, which is cross-functional. These peer teams (of which there are 2-3 with 6-8 members each that represent the 111 developers) are selected by management. They define the essential compensation and recognition needed for success. There is tremendous equity as a result of this process. Individual performance plans include individual learning plans (to commit to a learning organization).”

Data reduction entailed extracting a brief one-line description of each practice within each category and recording it on a separate list. For example, our judgment led us to identifying the practices summarized in the paragraph above as follows:

- Market-driven compensation
- Mid-year compensation adjustments
- Bonuses
- Cross-functional team performance appraisals
- Individual learning plans

This list yielded a large collection of practices in the three broad categories. Both researchers examined the list independently and extracted an overarching set of categories for classifying the large collection of practices: four in the area of recruiting, five in development and retention, and four in work environment and culture. A practice was categorized only if both researchers agreed that it was semantically consistent with the conceptual category. All practices identified by respondents from the 11 organizations could be classified using the preliminary scheme. The second step in the analysis was to create similar lists of practices for all 32 organizations in the sample and to attempt to classify the practices into the preliminary scheme. The complete set of data led to the further refinement of existing categories as well as the addition of a few new ones. For example, the initial category of “Recognizing the Whole Person” under work environment and culture was refined into the two categories: “Sense of Community” and “Life Style Accommodations.” The category “One Time Inducements” was added under recruitment after we observed the pattern that several organizations were indeed offering attractive financial packages as a one-time incentive to hire IT professionals. A decision was also made to combine the broad human resource areas of retention and development and work environment and organizational culture -- as the
manifest intent of these areas is to design practices that are conducive to employee retention. It is important to note that specific practices within each category varied across the different firms -- both in terms of the scope as well as specific implementation details. However, it was still possible to classify practices into a parsimonious set of categories based on the overall goal and specific form of the practice.

Throughout the data reduction process, care was taken to insure that the substantive meaning of the practice, as articulated by the respondents, was maintained. For example, the practices identified from the summary of company M4 above were subsequently classified into three of the eleven retention categories: compensation and benefits (market-driven compensation and bonuses), employability training and development (individual learning plans), and performance assessment (mid-year compensation adjustments and cross-functional team performance appraisals). Given that the bonuses were tied into the normal compensation system, we chose to assign them to the Compensation and Benefits Systems category of practices rather than the Recognition category. The classification of “mid-year compensation adjustments” into the Performance Measurement category rather than Compensation and Benefits Systems was based on the adjustment arising from a performance appraisal process and to be consistent with the categorization of similar practices in other companies.

The final classification scheme is shown in Tables 1 and 2. Four categories of practices are identified in the area of recruitment, while eleven categories were constructed for retention. Each category represents a collection and abstraction of the myriad of practices revealed in our interviews. These categories considerably extend the classifications found in the general HRM literature. For example, the main recruiting category found in the “best practices” stream of the general HRM literature (e.g., Pfeffer, 1994 and Huselid, 1995) is to be selective. Clearly firms are seeking IT employees with specific skill sets, similar to the general category of being selective. Moreover, our research identified three additional recruiting categories. Given the scarcity of supply in the IT labor market, these additional categories of recruiting practices are not surprising. The focus of these categories -- sourcing, competitive differentiation elements, and one-time inducements -- speak to the resourcefulness of organizations in seeking to attract scarce IT human resources. The categories under retention also extend the “best practices” or high performance literature by including not only practices focusing on achieving productivity, such as performance measurement, but also practices addressing individual concerns, such as life-style accommodations.

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<th>Table 1. Recruiting Practices</th>
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<td><strong>Practice Category</strong></td>
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<td>Sourcing</td>
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<td>Skills Sought</td>
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<td>Competitive Differentiation Elements</td>
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<td>One-Time Inducements</td>
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<td>Practice Category</td>
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<td>Performance Measurement</td>
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<td>Quality of Leadership</td>
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<td>Sense of Community</td>
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<td>Life-Style Accommodations</td>
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<td>Organizational Stability and Employment Security</td>
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Appendix B

Methodology for Phase 2: Deriving IT HR Strategy

Sample extracts from Phase 1 interviews supporting length of relationship dimension

“They also have more contractors than ever before to meet market-driven technical needs. A lot of these people like the flexibility to ride the new wave of the week.”

“Employment security is moderate. They try to increase the person’s knowledge and make them a better, more employable commodity.”

“Employment security has been cradle to grave, but that is changing. There has been little turnover within the company with the average age being 50 and average tenure over 20 years.”

Sample extracts from Phase 1 interviews supporting concern for individual versus concern for productivity dimension

“The overall human resources strategy emphasizes a productive and results-oriented culture. Jobs are not rigidly defined and employees have discretionary authority in the performance of their work. Considerable emphasis is placed on training and development of employees, and performance is measured on results as well as behavior. Compensation is linked to both individual performance and organizational performance.”

“The overall human resources strategy has the following elements: extensive training is provided to employees in all areas of the business; employment security is low; there are many internal career opportunities for advancement and employee empowerment is high; job definition is moderate in that the minimum responsibility for jobs is well defined but beyond that employees have discretionary powers; performance is assessed primarily on results; and there is a high degree of profit sharing. The company emphasizes team and individual productivity extensively and always seeks to hire the smartest and the best for all business areas. … The IT organization emphasizes team work in all activities. At the same time, they try to promote an extremely performance-oriented environment where employees are encouraged to do their very best through the use of the evaluation process and compensation methods.”

The following two excerpts illustrate a greater concern for the individual than the preceding excerpts:

“The company has a strong philosophy of building a caring community and a greater sense of belonging among its staff. To foster and strengthen this culture, a lot of community programs are in place. The HR manager alluded to what he called the ‘corporate soul:’ they want to create an environment that values the individual and the contribution of every person and where employees feel connected and take ownership. They are trying to help the organization understand what is a community without using a boiler-plate definition of the word. The analogy that he provided was the following: ‘When individuals park their car in the office parking lot, they leave the window cracked open because they leave 40% of themselves in the car -- and the open window is necessary to give them air to breathe. We want to build a community where everyone shuts their car windows all the way up and brings 100% of themselves into the workplace.’

“The biggest reason why people stayed with the company was the family atmosphere and camaraderie that exists.”
The next excerpt illustrates the mix of concern for productivity (with the emphasis on customer and shareholder satisfaction) and concern for the individual (with the emphasis on employee satisfaction and corporate values):

“there is a growing emphasis by the CEO in all his pronouncements to move the firm towards a performance-based culture. This is viewed as very attractive to the IT professionals. All employees have performance goals that are aligned with three key imperatives: employee, customer, and shareholder satisfaction. Leadership is assessed on adherence to and exemplification of five core corporate values: respect, integrity, trust, credibility, and continuous improvement.”

Finally, these excerpts illustrate the mix of concern for productivity and the individual by recognizing the importance of balance between personal and professional life:

“The impetus for flex scheduling came because they were losing women employees with small children who wanted to work part-time with benefits. ... This recognition of the importance of family life is a change from the conservative company approach that has been part of the company culture. A book that was passed around by senior managers in the past noted that if you don’t carry 2 briefcases and work 80 hours a week, you’ll never get ahead.”

“The work environment and culture drew the HR director to this company. Overall the company cares about its employees. It understands that employees have a life outside of work and accept that. Other companies in the area do not. Yes, they work long hours, but they are rewarded and do fun things. For example, groups have parties, or picnics, or a day away at an amusement park. People budget for these parties.”