HR Professionalism in the Computing Environment: Predicting Job Performance within Different HR Roles

Hung-Yue Suen and Jiann-Min Yang

Department of Management Information System, National Chengchi University, Taipei, Taiwan

[Abstract] Although Information Technology (IT) is often considered a driver of change within the Human Resource (HR) function, the required competencies related to job performance for HR professionals in the computing environment have received little attention in HR or IT literature. This paper seeks to explore the possible HR/IT competency predictors of job performance within different HR roles. A data mining approach was used to explore the prediction model, and an in-depth interview was designed to probe the key findings of the results and explore the context in more detail, in which 501 HR professionals within ten financial service companies in Taiwan participated. The study found the different combination of IT and HR competencies have a different performance predictive impact on the different roles for the HR professional. Overall, results suggest that the Credible Activist rated as the most salient and important competence for HR professionals and some competencies may not be as important as a matter of course. The research establishes a holistic view guiding the direction and content of the future development of HR practitioners in computing environment.

[Keywords] IT competencies; HR competencies; HR roles

Introduction

The prominence of information technology (IT) has grown substantially in recent years (Gardner, Lepak, & Bartol, 2003), and IT usage is pervasive in organizations' Human Resource (HR) activities. IT advances in this area are being driven primarily by strong demands from HR professionals for enhancement in speed, effectiveness, and cost containment (Mishra & Akman, 2010), and combining knowledge management, organizational culture, and intranets to create virtual HR development (Bennett, 2009).

There is growing evidence that organizations that are able to make the best use of technology are able to deliver desirable consequences, but organizations' lack of necessary IT competencies may cause unexpected consequences (Strohmeier, 2009). Increasingly, IT has reshaped the core competencies in HR, and the effective use of IT has become one of the HR competency domains. Also, there has been an increase in the number of people with advanced technological backgrounds within the HR function (Bell, Lee, & Yeung, 2006). HR professionals will need not only technical training in new systems use, but also conceptual knowledge to select, manage, and evolve with new technology (Jones & Hoell, 2005).

Additionally, bringing IT advances into HR increasingly calls for an integration of diverse expertise, interdisciplinary comprehension, and modernization of the HR profession (Bondarouk & Ruël, 2009). IT competencies will affect the outcome of IT investments (Huang & Wong, 2010) and have an impact on HR roles (Haines, III & Lafleur, 2008). It implies that the traditional HR competencies are not obsolete but rather must be supplemented with IT competencies (Bell, et al., 2006).

Regrettably, in the areas of HR and IT, rigorous empirical studies are uncommon, and few studies have addressed the associations among IT, HR, and performance (Haines, III & Lafleur, 2008). Although IT is often considered a driver of change within HR (Bell, et al., 2006), little attention has been paid to what kinds of IT competencies and HR competencies could predict the job performance of different HR roles.

In addressing the issue at the individual level, this paper seeks to address the gaps within IT/HR literature and provide a data mining approach with interview evidence to explore the best competency predictors for job performance within different HR roles. It is hoped that by exploring this issue, we will be able to develop a holistic picture of HR professionalism in a computing environment.

Theory Background

HR Competencies

HR competencies include knowledge, ability, and values, which define what is expected from those who work in HR and form the basis for assessment and improvement in the quality of HR professionals (Ulrich, Brockbank, Johnson, & Younger, 2007). A twenty-year, large-scale study, which collected 360-degree surveys from over 40,000 HR professionals in hundreds of companies, plus extensive reviews of academic work, has evaluated every mainstream HR competency in companies that represent a wide range of industries, sizes, and locations, including Europe, Asia, Latin America, and North America. Dave Ulrich and Wayne Brockbank from the RBL Group and the Ross School of Business at the University of Michigan conducted the Human Resource Competency Study (HRCS) to generate three high-level dimensions with six HR competency domains. The study resulted in five waves of data collection (1988, 1992, 1997, 2002, 2007). Although the competencies in this model are deemed important for effective functioning, few studies have related them to actual performance in various HR roles. The HR competency model has identified the following six behavioral competency domains (Ulrich, et al., 2007):

The Credible Activist must be respected, admired and, most of all, listened to. The Credible Activist must also be willing to take a stand or position on important issues, even at the risk of becoming unpopular.

The Operational Executor ensures that all aspects of managing employees and the organization are met through the implementation of policies and procedures and the advancement of HR technology.

The Business Ally contributes to the success of the business by serving the value chain and interpreting social context.

The Talent Manager & Organizational Designer ensures not only that an organization attracts good talent today but also that it continues to develop this talent.

The Culture & Change Steward appreciates and embraces the company's culture and must be able to communicate and articulate it in a way that employees can understand.

The Strategy Architect knows how to make the right change happen by sustaining strategic agility and engaging the customer.

IT Competencies

With the growth of IT usage, HR professionals are increasingly being tasked with helping to identify technology needs, managing IT vendors, and mobilizing IT to support and evaluate the HR function. All of these tasks require IT expertise (Bell, et al., 2006) that influences how well the HR professionals can apply IT knowledge, applications, and information systems to their tasks in the computing environment (Yoon, 2009).

In the computing environment, maximizing IT potential presumes not only that the technology be adopted and used but also that it be used well. Competence in IT is especially important because of its effect on the performance of IT usage (Marcolin, Compeau, & Huff, 2000). Lack of IT competencies has impacted the adaptation and implementation of the IT-supported application (Olivas-Luján, Ramirez, & Zapata-Cantu, 2007). Albeit IT is often considered a driver of change within the HR function (Bell, et al., 2006), little research explores what types of HR roles require more IT competencies.

However, HR professionals and business managers should not be expected to know everything about IT (Bassellier, Reich, & Benbasat, 2001) because they have different knowledge, assumptions, and expectations concerning IT (Kollmann, Häsel, & Breugst, 2009). Thus, this study adopted the definition of IT competencies as "the set of IT-related knowledge and experience that a business manager possesses" (Bessellier, Benbasat, & Horner Reich, 2003) and adopted the components of IT competencies developed by Bassellier et al (2003) for the HR professional. The IT competencies are divided into the following four clusters, modified from Duedahl, Andersen, & Sein (2005).

Technology & Applications involve the awareness of current and emergent technologies and knowledge that is both generic to all industries and specific to the organization and its competitors. This cluster also includes knowledge of current and emergent applications and generic and organization-specific applications.

System Development involves an understanding of system development methods and project management practices.

Management of IT includes knowledge of IT planning, business deployment, IT resource allocation, and mapping of IT-knowledge people and secondary sources of IT knowledge.

IT Experience includes experience with using IT, implementing IT projects, and managing IT functions that reflect both the diversity of IT experience and the level of IT responsibility taken. This cluster also involves having a process-oriented view of an organization to synergize information-system and business processes and having a vision for the role of IT in an organization and seeking IT transformational power.

Goodhue and Thompson (1995) argue that individual performance impacts will occur when the technology meets the users' needs and provides features that support the requirements of the task. Indeed, the technology will be accepted by individuals only if the functions of the technology correspond with the tasks (Yen, Wub, Cheng, & Huang, 2010) and therefore, predicts performance (Cane & McCarthy, 2009). Accordingly, if the IT implementation is not compatible with the roles of HR professionals, there may be a diminished influence on their jobs (Gardner, et al., 2003).

Also, the barrier for HR professionals' being able to play different roles in an organization is their lack of certain competencies (Long & Wan Ismail, 2008), whereas different HR roles may require different combination of HR and IT competencies. Accordingly, the question arising from such an argument is: *What are the different roles of HR professionals?*

HR Roles

The cluster of HR roles in this research study is linked to the five-role model proposed by Ulrich and Brockbank (2005) in their book, *The HR Value Proposition.* The five-roles model was synthesized and revised based on Ulrich's famous four-role model for HR professionals from the mid-1990s to the mid-2000s. In summary, HR professionals are **Employee Advocates**, charged with ensuring that the employer/employee relationship is one of reciprocal value. In addition to advocating for employees today, they develop the future workforce and help employees unlearn old skills and master new ones as **Human Capital Developers**. They are also **Functional Experts**, designing and delivering HR practices that ensure individual ability and create organization capability. As **Strategic Partners**, they focus on being business literate and business savvy to help line managers at all levels reach their goals. To tie it all together, they must be genuine **HR Leaders** who are credible, both within their HR functions and to those outside (Ulrich & Brockbank, 2005).

Since the association between the HR and IT competencies and the HR actual performance by difference HR roles are unknown (Caldwell, 2008), this study seeks to explore the possible HR and IT competency predictors of job performance for the five HR roles.

Methods

Measures

The instrument used in this study has been developed from previous studies because using well-established and accepted scales can provide high convergence and discriminate validity. A five-point Likert-scale was used for assessing HR and IT competencies.

HR competencies. The survey instrument was developed based on the six domains composed of 65 items identified in the HRCS (Brockbank, Ulrich, Thompson, & Woodard, 2009).

IT competencies. The construct was measured using four dimensions with 30 items adopted from Bassellier, et al. (2003).

HR roles. HR professionals fulfill multiple, not single, roles and no one professional plays all HR roles (Ulrich & Brockbank, 2005). Thus, the variable was determined whether each HR professional was or was not involved in any HR role according to the job description for separate subgroup regressions, while each participant acted two or above HR roles in this study, and the results of HR roles were all confirmed with the HR managers and HR heads.

Job performance. This study used job performance as a dependent variable to explore the required HR and IT competency elements for different HR roles. We acquired each respondent's performance measures from an objective record in his/her company's HRIS after getting approval from their HR heads that were told the individual performance record would be anonymous. The performance rating was scaled as follows: 5-Exceptional Performer, 4-Above Target Performer, 3-On Target Performer, 2-Below Target Performer, and 1-Unsatisfactory Performer.

Data Collection

A great amount of anecdotal research has shown that organizational factors, such as industry, user training, infrastructure, and software, significantly affect IT usage (Lee, Kozar, & Larsen, 2003; Olivas-Luján, et al., 2007). Thus, ten financial service companies with same Human Resource Information Systems (HRIS; i.e. People Soft) and condition were selected to participate in this study to control for the organization factors.

The participants represent a diversified sample that covers organizations of varying sizes and financial sectors, and in total, those companies represent more than one hundred thousand employees in Taiwan. The corresponding HR departments hire 1,285 HR professionals (10 HR heads excluded) and provide HR services for the ten financial companies and employees, and the HR functions and positions cover the five HR roles in accordance with the purpose of this study. Those HR departments have introduced Human Resource Information Systems (HRIS) for performance management, compensation, recruitment and selection, personnel and benefit administration with employee self-service, and an HR portal and an e-learning platform.

After we instructed all the respondents through webinar, two web-based questionnaires were e-mailed to the 1,285 HR professionals with 214 HR managers, and we requested that the 1,285 HR professionals complete the self-rated IT competencies based on the first questionnaire. Next, we asked the 214 HR managers and their respective HR heads to assess their immediate subordinates' HR competencies based on the second questionnaire, whereas the 214 HR managers' HR competencies were evaluated by their immediate supervisors as well. The 10 HR heads was excluded because no one could evaluate their HR competencies in this study. Then we obtained the 1,285 HR professionals' actual performance data, their multiple HR roles, and required personal profiles from their personnel records in HRIS to avoid common method bias. 557 provided feedback (43%) before due date, of whom 501 (91%) were valid, generating an overall response rate of 39 percent.

One common technique to find the best combination of predictor variables is stepwise regression used in data mining. Although there are many variations, the most basic procedure is to find the single best predictor variable and add variables that meet some specified criterion. The result is a combination of predictor variables, all of which have significant coefficients (Tsai, 2009).

Hence, to predict job performance, stepwise regression was run on the following ten predictors: credible activist (X1), operational executor (X2), business ally (X3), talent management & organization designer (X4), culture & change steward (X5), strategy architect (X6), technology & applications (X7), system development (X8), management of IT (X9), and IT experience (X10). Job performance (Yi) was the criterion variable. According to Hardy (1993), separate subgroup regressions can be used to examine possible differences between subgroups. Therefore, this study adopted separate subgroup regressions to identify potential differences in the HR and IT competency elements that enhance job performance among the five HR roles.

Furthermore, we conducted a one-on-one in-depth interview with 20 HR managers and their HR heads that represent the 10 companies, which was designed to probe the key findings of the results and explore the context in more detail. In this study, each respondent was interviewed using a set of guiding questions that revolved around defining HR competencies and IT competencies as well as HR roles. The open questions focused on each competency domain of HR and IT, as well as the associations with job performance by the HR roles in which they primarily dedicated. Moreover, probes and follow-up questions helped to capture the range and limits of each respondent's opinions of the situation with respect to why they considered some competencies as critical part of the job performance.

All interviews were audio recorded for transcription and analysis. Analysis of the interviews involved the search for a series of dominant and subdominant themes, while paying special attention to the relationship between the HR/IT competencies and job performance by different HR roles. This entailed a cyclical process involving multiple steps. First, interviews were reviewed with theoretical issues in mind. Next, each interview was examined to see if a consistent theme(s) emerged across the HR roles and the HR/IT competencies. In the third step, each interview with its associated themes was compared with other interviews and situated with respect to them. The final step involved establishing one or more dominant themes along with related sub themes that are then reported in the findings.

Results

Descriptive Statistics
Table 1 shows a profile of the survey sample from the HR professionals of 10 companies and the descriptive statistics of all variables included in this study. A total of 501 usable surveys were received from those respondents, with 39% response rate. There was no significant difference in the variance of all variables across the ten companies ($p > .01$).

Table 1. *Descriptive Statistics*

Sectors			Performance Rating (Mean: 3.22; SD: 1.43)		
	Number	*Percentage*		*Number*	*Percentage*
Financial Holding	15	2.9%	5 (Exceptional Performer)	35	7.0%
Commercial Bank	195	38.9%	4 (Above Target Performer)	121	24.1%
Security	105	21.0%	3 (On Target Performer)	195	38.9%
Property & Casualty Insurance	50	10.0%	2 (Below Target Performer)	119	23.8%
Life Insurance	87	17.4%	1 (Unsatisfactory Performer)	31	6.2%
Fund Management	16	3.2%			
Investment Bank	11	2.2%	**HR Role Dedication (person time)**		
Asset Management	22	4.4%		*Number*	*Percentage*
			Employee advocate (EA)	135	26.9%
Gender			Human Capital developer (HC)	151	30.1%
	Number	*Percentage*	Functional expert (FE)	302	60.3%
Male	129	25.7%	Strategic partner (SP)	109	21.8%
Female	372	74.3%	Leader (LD)	84	16.8%
Education			**IT Competencies**		
	Number	*Percentage*		*Mean*	*SD*
Master	191	38.1%	Technology & Application	2.87	1.12
Bachelor	296	59.1%	System Development	2.68	1.23
College	10	2.0%	Management of IT	2.92	1.17
High School	4	0.8%	IT Experience	2.93	1.29
Others			**HR Competencies**		
	Number	*Percentage*		*Mean*	*SD*
Manager	84	16.8%	Credible Activist	3.15	1.04
Non-manager	417	83.2%	Operational Executor	3.37	1.10
			Business Ally	2.94	1.34
	Mean	*SD*	Talent Mgr/Org Designer	3.08	1.29
Age	36.32	6.12	Culture & Change Steward	2.89	1.32
Seniority in company	5.89	5.52	Strategy Architect	2.97	1.33

Note: Average span of control in the sample is 4.53 director reports (SD=1.74)

Correlations and Reliability
Table 2 displays the reliability and correlations among all variables. Confirmatory factor analysis and internal consistency analysis were carried out on the sample. Individual item loadings for all factors were

above 0.6 (principal components analysis followed by Varimax Rotation), and all the Cronbach α values were above 0.7, which is acceptable for capturing the dimensions (Nunnally, 1978). Furthermore, we assessed the degree of multicollinearity, and there was no serious problem based on the variance inflation factor (VIF), which should be fewer than 10 (Chatterjee, Hadi, & Price, 2000).

Table 2. *Correlations and Reliability*

Variables	α	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	Yi
X1. Credible Activist	.869	1										
X2. Operational Executor	.867	.628	1									
X3. Business Ally	.883	.629	.675	1								
X4. Talent Mgr/Org Designer	.855	.637	.617	.673	1							
X5. Culture & Change Steward	.844	.622	.611	.613	.625	1						
X6. Strategy Architect	.854	.556	.566	.590	.680	.674	1					
X7. Technology & Application	.871	.558	.521	.499	.524	.510	.473	1				
X8. System Development	.832	.560	.401	.376	.466	.439	.423	.693	1			
X9. Management of IT	.874	.627	.554	.524	.556	.551	.472	.690	.654	1		
X10.IT Experience	.878	.596	.564	.525	.537	.501	.504	.746	.670	.702	1	
Yi. Job Performance	--	.785	.670	.692	.688	.669	.610	.561	.539	.630	.605	1

Correlation across variables are all significant at the 0.01 level (2-tailed)

Predictors of Job Performance

As shown in Table 3, a series of stepwise regression analyses were performed to test systematically for the predictive power of each independent variable against the dependent variable of job performance. We used 0.05 probability of F as a sideline of entry to select one of the variables, which is crucial to the model. To test the colinearity of the variables selected by applying the model at the same time, we set 0.1 probability of F as a limit of removal. One of the variables enters the models if the probability of F is less than 0.05 and is removed from the models if the probability is more than 0.1, when more than one variable is selected in the models. The probability of F presents contribution of the variables to the model whether they reach the significance or not.

The findings suggest that the best performance predictors for an employee advocate are credible activist and business ally. For a human capital developer, the best performance predictors are credible activist, management of IT, strategy architect, and IT experience. For a functional expert, the best performance predictors are credible activist, operational executor, and system development. For a strategy partner, the best performance predictors are business ally and strategy architect. For an HR leader, the best performance predictors are operational executor, culture & change steward, and system development.

Overall, the regression model with those predictive variables explained 50%, 50%, 61%, 60%, 69%, and 56% of the variance in job performance for all HR roles, employee advocate, human capital developer, functional expert, strategic partner, and HR leader, respectively.

Table 3. *Stepwise Regression Analysis of Job Performance for HR Professionals*

Independent Variable	Yi. Job Performance					
	ALL (β)	*EA(β)*	*HCD(β)*	*FE(β)*	*SP(β)*	*LD (β)*
X1. Credible Activist	.597**	.669**	.292**	.537**	--	--
X2. Operational Executor	.256*	--	--	.307**	--	.564**
X3. Business Ally	--	.295*	--	--	.805**	--
X4. Talent Mgr/Org Designer	--	--	--	--	--	--
X5. Culture & Change Steward	--	--	--	--	--	.321**
X6. Strategy Architect	--	--	.258*	--	.207**	--
X7. Technology & Application	--	--	--	--	--	--
X8. System Development	.156*	--	--	.174*	--	.279**
X9. Management of IT	--	--	.282**	--	--	--
X10. IT Experience	--	--	.189*	--	--	--
R^2	.587**	.503**	.606**	.604**	.674**	.559**

Note 1: β represents the standardized regression coefficients for the full model, including six HR competency factors and four IT competency elements.
Note 2: ALL=All HR roles; EA=Employee Advocate; HCD=Human Capital Developer; FE=Functional Expert; SP=Strategic Partner; LD=HR Leader
* $p < .05$, ** $p < .01$

It was found that the different IT and HR competency elements have a different impact on job performance within different HR roles. However, talent management & organization design and technology & applications could not improve the level of predictability in job performance for each HR role.

Qualitative Findings
The findings were further examined in the interviews, which produced some strong views and reactions. The main findings were presented below by different HR roles, and the following quotes selected for each role approximately represent the all interview comments received.

Employee Advocate Serves as a Credible Activist who Knows the Business
The interview findings indicated that most of the respondents expressed the Credible Activist are the critical factor to be a successful Employee Advocate. According to the respondents, credit is antecedent to building trust relations from employer and employees. The respondents also highlighted Business Ally is an important competence for interpreting the social context and integrating the interests of both parties.

> "As employee relations professionals, we need to balance every intervention with what's right for the organization…we need to build the trust from the employees and employers…if we do not have enough knowledge about the business, we do not know how to make a clear alignment between the goals of the organization and the employees."
> (An Employee Relations Manager)

Human Capital Developer Should be a Credible Strategy Architect with IT Experience
The interview responses highlighted that Strategy Architect aligns HR development interventions with corporate and business strategy, and make sure that the training and development investment matches their organization's goal. Also, the respondents indicated that Credible Activist delivering results are more important than doing for Human Capital Developer.

> "HRD (Human Resource Development) functions should be more precisely defined and recognized by the Executives as a major part of the business strategy in the company and seen as an investment rather than a cost." (An HRD Director)

Most of the respondents stated that technology has changed the way learning and education conducted. Experience with IT usage and being able to leverage IT resources can enhance the delivering results.

"We are moving from traditional training-based approaches towards new approaches fostering learning in different ways, such as social media and self-directed learning platform…our training specialists should have knowledge about IT policies to cooperate with IT well and search emerging technology to establish an effective e-learning solutions." (A Training Manager)

Functional Expert is a Credible Operational Executor with Project Management Skills

The respondents indicated Credible Activist delivering results in the right way is critical to be an HR functional expert. It means operating in a principled way and taking action that is consistent with company values, which reflect how the company wishes to be seen and experienced by the HR stakeholders. Most interviewees felt that the Operational Executor domain has heavy impact on the overall HR functions because the functional experts' essential duties were day-to-day operations. The Functional Experts must get results and have functional HR knowledge to accomplish administrative work through the HR portal and the Internet. Therefore, they are IT tool users and are required to involve HRIS development projects, especially in the requirement-taking phase. However, there are higher-level specialists among functional experts who conduct research and turn it into practice.

"We act as a R&D team in HR function and deliver consultancy service to our client and other HR team…our team members are all specialists…they focus on 1-2 specific HR domains…we have to demonstrate project management skills to lead HR and HRIS projects." (A Leader of Center of HR Expertise)

Strategic Partner Plays the Role Business HR with Credibility and Strategic Mindset

Based on the comments, to add value to business decision, to have greater credibility, and to more effectively deliver HR consultancy services, the HR strategic partners need to knowledge of business ally. One of the most difficult challenges for many HR strategic partners is to articulate their company's value proposition, which talk about HR "knowing the business".

"HR's greatest opportunity to add value may well be to play a role in the business development and implementation of corporate strategy...the business knowledge is must have for HR to earn a seat at the table." (An HR Generalist Manager)

"Some of my colleagues were blamed as outsiders, because they could not communicate in business language and contribute for the strategy planning and budgeting…when a new business plan coming up and we cannot advice any immediate ideas that truly impact the business, we will not be invited to the meeting again." (An HR Manager)

Some respondents indicated that IT provides transactional HR services at the click of a mouse, freeing up time, and energy for more transformational activities. However, the HR strategic partners derive more of their performance from the other factors than from IT. IT is just an enabler to deliver performance after all.

"Knowing how to use the ERP and business intelligent for collecting information is important, but knowing how to interpret the information and turn it into strategic solutions, and contribute to the conversation around the business table are more important to be a good [HR] generalist." (An International HR Manager)

Most of those respondents were strongly of the opinion that being a Business Ally and a Strategic Architect are critical success factors for the Strategic Partner. A characteristic response was: *"Personal credit and HR expertise can help you get a seat at the table; industry knowledge and strategic thinking can help you take the right seat at the table." (An HR Head)*

HR Leader has to Know Operation, Culture Change, and System Development

The responses for HR Leader's critical competencies indicated that, HR can either outsource all the transactional works or apply the technology to HR administrative services, but HR leaders should be

accountable for the results of Operational Executor that is the hygiene factor of HR function.

> "If our CEO cannot trust you to process administrative stuffs, how can he trust you to deal with anything important?"(A Leader of Shared Service Center)

Some respondents stated that organizational culture should translate to individual actions and beliefs. Almost every HR Leader has the best intentions when it comes to helping people; that is the human side of "human resources". As Culture & Change Stewards, the HR Leaders respect the existed culture, at the same time helping to shape a new culture that will facilitate company success.

> "Corporate culture strengthens or weakens the people capability that impacts firm's performance...We lead the HR functions to facilitate the core values and make change happen, and become culture champions through walking its talk." (An HR Head)

Some respondents expressed that it would be easier to manage HR technology projects with cost-efficient outcomes when the HR Leaders possess essential knowledge of System Development.

> "We understood the power of technology that can save us time and money…we knew the benefit of IT implementation never come when we stuck in mass customization or poor project management." (A Compensation & Benefit Manager)

> "We are HR, not IT folks, and we are impossible to be strong in both HR and IT. However, it is possible to cooperate with IT department or vendors for success based on the common ground—knowledge of system development life cycle and project management." (An HRIS Manager)

An interesting finding in this study was that the Talent Management & Organization Design and Technology & Applications could not improve the predictability of job performance within any HR role by including all IT and HR competency variables. The following interview results indicate that the performance of Talent Management & Organization Design may be major controlled by line managers, not HR.

> "Line managers take responsibility for managing performance, identifying and developing talent in their own areas, and HR have to provide any supporting… line managers fulfill a key role in talent management, but it was sometimes difficult to get them to involve this active role." (A Talent Development Manager)

> "Organization development required line managers and HR to collaborate for getting the right people on the bus in the right seats…HR should plan an active tour guide and line manager should sit on the driver's seat." (An HR Manager)

In terms of Technology & Applications, the HR professionals need less knowledge than do IT professionals, but they can access the information both inside and outside of the organization to leverage the knowledge of others.

> "As a HR professional, it is difficult to catch state-of-the-art technology, but I will try my best to remain a well connection with vendors and IT experts who can provide the information of new technology…the knowledge do assist HR to understand the value and communicate with IT people well, but our performance was determined by the results of IT usage, not the technology." (A Staffing Manager)

Discussion

The quantitative results suggested that the different HR roles require different combination of HR and IT competencies were observed, whereas the qualitative findings were generally in line with the quantitative results and provided important insight into the picture of the HR and IT competencies related to the job performance by different HR roles. The Employee Advocacy role requires the HR professional to be a

"Credible Activist" who listens, communicates, and possesses a "Business Ally" to align the interests of employees and the employer. Also, Employee Advocates are expected to listen and respond to individual needs (Ulrich & Brockbank, 2005); this requires face-to-face interaction with employees and line managers. When employees or managers prefer the HR professional to take on the employee champion role, they have a more negative attitude toward IT application in HR (Voermans, M. and van Veldhoven, 2007), which may explain why the IT competencies could not predict the job performance of the Employee Advocate.

The Human Capital Developers focus on the future talent pipeline aligned with business strategy (Ulrich & Brockbank, 2005), meaning that the roles must earn credibility and take an active stance ("Credible Activist") to recognize business trends and their impact on the business, to forecast potential obstacles to success and to facilitate the process of gaining strategic clarity ("Strategy Architect") for developing future talents (Ulrich, et al., 2007). In particular, successful professionals in Human Capital Development have used IT in training and non-training interventions (Githens, Dirani, Gitonga, and Teng, 2008). Involvement in "Management of IT" activities can increase competencies and give experience in the development of IT visions and strategies for the use of IT within the organization (Duedahl, et al., 2005).

The role of the Functional Expert involves creating solutions to routine HR problems, developing menus of choice, designing programs for unique business needs, and setting overall policy and direction for HR practices (Ulrich & Brockbank, 2005), which may require the Functional Expert to be a "Credible Activist" and an "Operational Executor" and have "System Development" knowledge for transactional HR work and manage IT-supported projects that bring faster processes and cost reduction (Hawking, Stein, & Foster, 2004).

The Strategic Partners are business literate and business savvy, and are required to align HR activities with business strategy and support organization change (Ulrich & Brockbank, 2005). They not only must understand and speak the language of business ("Business Ally"), but they also must contribute to the conversation around the strategy table ("Strategy Architect") (Meisinger, 2005).

IT releases the HR professional from administrative burdens (Ngai & Wat, 2006) and enables the HR professional to collect data and transform the data into strategically valuable information (Bell, et al., 2006). However, identifying problems, establishing strategy, and proposing alternatives are more important for strategic contribution (Meisinger, 2005).

HR's credibility starts and ends with operational excellence. Without flawless HR deliveries, other more strategic things do not matter (Urlich & Brockbank, 2005). This fact explains why the "Operational Executor" predicts the job performance of the HR Leader. The HR Leaders establish an agenda for HR within the firm, and the HR agenda with the greatest impact on business performance is a culture-based HR strategy. The HR Leaders should equip with "Culture & Change Steward" to coach managers in how their action reflect and drive culture, they weave the cultural standards into HR policies and procedures, and they make culture real to employees (Ulrich, et al., 2007). The HR Leaders as well as business managers must understand the potential benefits, dangers, and limitations of IT and lead the electronic HR projects to success. Thus, familiarity with systems development practices and project management are required (Bassellier, et al., 2001).

This research has important implications for management. First, this study highlights the value of evaluating an HR candidate's HR and IT competency with different factors for different HR roles when making hiring decisions or training needs analysis. Second, IT is changing the needed competencies for HR practitioners, and HR practitioners may need to learn the required IT competency elements that they might not already possess, and in particular that HR professionals will need to learn, appreciate and apply such HR and IT competency model in future to be able to perform their roles successfully. Thirdly, regarding the transformation from HR administrator to strategic partner, there are few options other than enhancing competencies of the Business Ally and Strategy Architect.

Last, but not least, in computing environment, it will require a synthesis of HR professionals' expertise in IT competency domains. Hands-on experience with IT projects and IT management are critical to building IT competencies in HR, and HR practitioners should be involved in IT-related project

teams and teach more conceptual topics, such as project management or IT management, rather than focus on narrow software-related training (Bassellier, et al., 2003). Moreover, HR professionals can leverage Management of IT to access IT knowledge and as a reference for where and how to obtain information about IT to help prepare HR professionals to fulfill their roles. Primary sources of IT knowledge are knowledgeable people, internal or external, while secondary sources are the Internet, journals and conferences, for example (Duedahl, et al., 2005).

   One of the limitations of this study is the sample that was derived from the ten financial services companies in Taiwan. The conclusion may not be generalizable beyond this particular population. Ideally, the quantitative and qualitative research needed to include interviews and feedback from all stakeholders to triangulate and synthesize comprehensively all three viewpoints (line managers, employees, and HR). The sample size and restricted qualitative research are likely to affect the quality of our research findings and generalization. A future study might collect diversified data to retest this predictive model.

   Despite these limitations, it is strongly believed that the findings of the study generate a strong basis for future studies. First, further research could explicitly collect data on the HR-IT competency variables across a large sample of organizations to examine the relationship between HR-IT competencies and job performance for different HR roles. Second, more data mining techniques need to be used to confirm and validate the prediction model of this study. Third, the empirical results and interviews evidences emerged from this study would warrant a deeper understanding of the positioning of HR in an organization. Last, this study could also be conducted with more breadth and depth in terms of competence-HR role fit.

Conclusion

HR professionals must be able to supplement their skills and increase their know-how to improve their contributions to the organization through their support of IT. They also need to develop their skills to provide expected services, or as more is expected of HR staff, higher quality personnel need to be hired to replace those lacking the needed skills and knowledge in regards to IT and HR competencies (Gardner, et al., 2003). This study confirmed the above argument and found that the combination of IT competencies and HR competencies has a powerful positive effect on job performance for the HR professional. Indeed, those combinations of HR-IT competencies have a different performance predictive impact on the different roles of the HR professional.

   Even though the HR competency model is still well accepted, the links between the competencies and job performance for different HR roles are unknown (Caldwell, 2008). Because IT has been widely used in HR (Martina & Reddingtona, 2010), understanding how to assess the IT competence of those users is critical (Marcolin, et al., 2000). However, the required IT competencies for HR professionals have rarely been identified.

   Both quantitative and qualitative approaches were used in this study to unlock the above-mentioned issues that have rarely been critically addressed in IT or HR literature. The empirical and interview data explored the predictive HR and IT competency elements for job performance for different HR roles. The study also introduced a construct of IT competencies that could be supplemented by the HR competency model for predicting HR performance in the computing environment. An especially prominent aspect in the current findings was that the Credible Activist rated as the most salient and important competence for HR professionals. However, the Talent Management & Organization Design and Technology & Applications may be important to HR, but they could not predict the HR's job performance compared with other competency elements in this study.

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Contributing Authors

Dr. Alaka N. Rao is an Assistant Professor in Organization and Management in the College of Business, San Jose State University. Dr. Rao received her Ph.D. in Organizational Behavior from the Graduate School of Management at the University of California, Irvine and her Bachelor Degree in Economics from the University of California, Berkeley. Dr. Rao's research centers on the management of complex collaborations across geographical and cultural divides. Her current research focuses on how local and global pressures influence the performance of global outsourcing relationships. This research examines the critical role of national culture, employee cognition, and trust in the management of global collaborations. Dr. Rao has also conducted research on how managers exchange and build trust in countries lacking institutional support. Her work has been published in management journals, such as the *Journal of International Business Studies*.

Hung-Yue Suen is a Ph.D. candidate of Management Information System in National Chengchi University, and holds a MBA Degree from National Taiwan University of Science and Technology. He is also a Department Head of International Affairs at Taiwan Life Financial Group. His main research interests include Human Resource Technology and e-Commerce. His study works have been presented in several international conferences and journals. He can be reached at collin.suen@gmail.com

Dr. Jiann-Min Yang, Ph.D. in Management Science, University of Texas at Dallas, USA, is a Professor of Department of Management Information System, National Chengchi University. Among his research interests are: research methodology, knowledge management, enterprise system, and operations research. Professor Yang's research has been presented published in a dozen scientific outlets such as international journals and books, while he is a reviewer for several SCI/SSCI Journals.

Dr. Adel Mohammed Sarea received his Ph.D. in Accounting from Islamic Science University of Malaysia in 2011. Dr. Adel joined Ahlia University in January, 2012 as Assistant Professor. He Conducted research in the area of accounting for Islamic Financial Institutions and published in the journals of repute as well as supervised students for BS & MBA. He can be reached at Adel Mohammed Sarea College of Business and Finance, Ahlia University, Kingdom of Bahrain.

Dr. Sameh M. Reda Reyad was born in 1973. He received his Ph.D. in Accounting from Helwan University, Cairo, Egypt in 2008. He worked as Accounting Lecturer in Higher Technological Institute, 10th of Ramadan City-Egypt. Dr. Sameh joined Ahlia University in February, 2009 as Assistant Professor, he had over 18-year experience in research, training and teaching. He published many papers in regional and international journals. Dr. Sameh became Certified Management Accountant (CMA) & Member in the Institute of Certified Management (USA) in March 2009. He worked as Reviewer in several regional and international journals.

Liu Jiao-hua is Ph.D. Candidate in the College of Economics & Management at Huazhong Agricultural University. Liu's research interests include rural economy and agricultural finance and trade. Liu can be reached at Huazhong Agricultural University, No.1 Shizishan Street, Hongshan District, Wuhan 430070, China. E-mail:jiaohualiu@163.com

Dr. Li Chang-jian is Professor who is currently teaching in the College of Economics & Management, Huazhong Agricultural University. His research interests mainly include farmers' right and rural economy.

Dr. Allam Mohammed Mousa Hamdan, Ph.D. in accounting, is an Assistant Professor of Accounting, who is teaching currently at Department of Accounting, College of Business and Finance, Ahlia University. Dr. Hamdan can be reached ahamdan@ahliauniversity.edu.bh