

INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

I
J
R
C
M



A Monthly Double-Blind Peer Reviewed (Refereed/Juried) Open Access International e-Journal - Included in the International Serial Directories

Indexed & Listed at:

Ulrich's Periodicals Directory ©, ProQuest, U.S.A., EBSCO Publishing, U.S.A., Cabell's Directories of Publishing Opportunities, U.S.A.

Open J-Gate, India [link of the same is duly available at Inlibnet of University Grants Commission (U.G.C.)],

Index Copernicus Publishers Panel, Poland with IC Value of 5.09 & number of libraries all around the world.

Circulated all over the world & Google has verified that scholars of more than 2840 Cities in 164 countries/territories are visiting our journal on regular basis.

Ground Floor, Building No. 1041-C-1, Devi Bhawan Bazar, JAGADHRI – 135 003, Yamunanagar, Haryana, INDIA

<http://ijrcm.org.in/>

CONTENTS

Sr. No.	TITLE & NAME OF THE AUTHOR (S)	Page No.
1.	LAGUNA INDUSTRIES' CORPORATE SOCIAL RESPONSIBILITY (CSR) PROGRAMS: LAGUNA INTERNATIONAL INDUSTRIAL PARK, PHILIPPINES <i>DR. ANTONIO D. YANGO, DR. PEDRITO JOSE V. BERMUDO, DR. NONET AMA CUY, DR. MA. LINDIE D. MASALINTO & DR. LEONOR N. TIU</i>	1
2.	MAPPING THE INTELLECTUAL STRUCTURE OF HUMAN RESOURCES <i>CHIN-HSIU TAI, CHE-WEI LEE & YUAN-DUEN LEE</i>	9
3.	ROLE OF COMPETENCE DEVELOPMENT FOR ENHANCEMENT OF TECHNICAL SKILL WITH SPECIFIC REFERENCE TO BHILAI STEEL PLANT <i>JAI PRAKASH PANDEY & SANJAY GUHA</i>	14
4.	EFFECTIVE SUPPLY CHAIN MANAGEMENT THROUGH SAP <i>KURUGANTY SEETHA RAM BABU & A. V. SATYANARAYANA RAO</i>	17
5.	CONVERSATION OF INNOVATION IN BUSINESS: INDIAN INDUSTRY CASE STUDY <i>DR. SURESH TULSHIRAM SALUNKE & SHWETA SURESH TULSHIRAM SALUNKE</i>	23
6.	CRYPTOGRAPHY: THE ESSENTIAL PART OF MODERN ERA <i>CHARU JAIN</i>	26
7.	EMPLOYEE PRODUCTIVITY MANAGEMENT SYSTEM ADOPTED BY THE HOSPITALITY INDUSTRY IN INDIA <i>MILIND A. PESHAVE & DR. RAJASHREE GUJARATHI</i>	29
8.	AN EMPIRICAL STUDY ON AWARENESS LEVELS OF CORPORATE SOCIAL RESPONSIBILITY WITH A SPECIAL REFERENCE TO FORD FOUNDATION <i>V.PRATHIBA & DR. S. V. RAMANA</i>	38
9.	AN EMPIRICAL STUDY ON WEAK-FORM OF MARKET EFFICIENCY OF BSE BANKEX STOCKS <i>ASHA NADIG & DR. B. SHIVARAJ</i>	43
10.	A SURVEY ON AUTOMATIC QUESTION-ANSWERING TECHNIQUES <i>M. MAMATHA, D.KAVITHA & T.SWATHI</i>	47
11.	MICRO SMALL & MEDIUM ENTERPRISES COMPETING IN GLOBAL BUSINESS ENVIRONMENT: A CASE OF INDIA <i>DR. D.LALITHA RANI & K.SANKARA RAO</i>	50
12.	A STUDY ON CUSTOMER RELATIONSHIP MANAGEMENT (CRM) THROUGH E-BANKING <i>DR. BADIUDDIN AHMED & RIAZUDDIN AHMED</i>	56
13.	FINANCIAL LEVERAGE AND ITS IMPACT ON STOCK RETURN <i>DR. KUSHALAPPA. S, VIJENDRA SHENOY. H & DR. P. PAKKEERAPPA</i>	59
14.	WEB SESSION CLASSES: PERFORMANCE METRICS FOR BUSINESS LOGIC ISSUES IN N-TIER AND MVC ARCHITECTURE <i>ASHOK KUMAR, MANISHA JAILIA & MANISHA GARHWAL</i>	67
15.	THE STUDY OF PROBLEMS FACED BY COMMERCE STREAM STUDENTS OPTING FOR COMPUTER EDUCATION <i>PRATIBHA GUPTA & RISHI RAJ BALWARIA</i>	74
16.	AN EVALUATION OF ETHICS IN INSURANCE SECTOR <i>DR. BADIUDDIN AHMED, SYED HAMID MOHIUDDIN QUADRI & MOHAMMED ABDUL LATEEF</i>	81
17.	COMPARATIVE STUDY OF ADVERTISING MEDIA EFFECTIVENESS IN NAVSARI CITY <i>ZAKIRHUSEN PATEL & MIHIR SONI</i>	85
18.	DHARMA ENSURING WELFARE & TRANSPARENCY IN CORPORATE GOVERNANCE <i>GEETU SHARMA</i>	90
19.	A STUDY ON VALUE GENERATION IN LEVERAGED BUTOUT'S <i>SURESH A.S</i>	94
20.	DOES THE OWNERSHIP MAKE A DIFFERENCE IN PERFORMANCE?: AN ASSESSMENT ON PUBLIC AND PRIVATE INSURERS IN INDIA <i>SANGEETHA R</i>	97
21.	REASSESS OF CAPITAL STRUCTURE THEORIES <i>RAJIB DATTA, TASNIM UDDIN CHOWDHURY & HARADHAN KUMAR MOHAJAN</i>	102
22.	A STUDY OF ICT APPLICATION IN THE LIBRARIES AT THE TERTIAL LEVEL IN SIKKIM <i>NEERAJ KUMAR & AJAY KUMAR PANDEY</i>	107
23.	THE INTERPLAY OF ORGANIZATIONAL DYNAMICS ON CORPORATE GOVERNANCE IN THE FACE OF A PERFORMANCE CONTRACTING IN KENYA <i>PRISCA BITTOK & DR. OTIENO MOSES</i>	110
24.	WHAT DOES SUSTAINABLE DEVELOPMENT REALLY MEANS? - A STUDY ON DIFFERENT DIMENSIONS OF SUSTAINABILITY <i>BASHEER. M</i>	114
25.	GREEN AUDIT: NEXT GENERATION'S HOPE <i>DR. S. K. JHA</i>	117
26.	AN ANALYTICAL STUDY FOR FINANCIAL MANAGEMENT OF FLAT GLASS INDUSTRIES IN INDIA <i>SHAILENDRA SAXENA</i>	122
27.	SECURITY ISSUES IN DBMS <i>GEETIKA</i>	129
28.	A STUDY OF MOTIVATIONAL FACTORS FOR THE EMPLOYEES OF A POULTRY INDUSTRY <i>SHANKAR K. JHA</i>	131
29.	AN ANALYSIS OF WORKING CAPITAL MANAGEMENT EFFICIENCY IN INDIAN TEXTILE INDUSTRY <i>OMID SHARIFI</i>	135
30.	AN ANALYSIS OF INCOME AND EXPENDITURES OF TAMIL NADU BASED PRIVATE SECTOR BANKS IN INDIA <i>M. ANBALAGAN & M. GURUSAMY</i>	141
	REQUEST FOR FEEDBACK	148

CHIEF PATRON

PROF. K. K. AGGARWAL

Chairman, Malaviya National Institute of Technology, Jaipur
(An institute of National Importance & fully funded by Ministry of Human Resource Development, Government of India)
Chancellor, K. R. Mangalam University, Gurgaon
Chancellor, Lingaya's University, Faridabad
Founder Vice-Chancellor (1998-2008), Guru Gobind Singh Indraprastha University, Delhi
Ex. Pro Vice-Chancellor, Guru Jambheshwar University, Hisar

FOUNDER PATRON

LATE SH. RAM BHAJAN AGGARWAL

Former State Minister for Home & Tourism, Government of Haryana
Former Vice-President, Dadri Education Society, Charkhi Dadri
Former President, Chinar Syntex Ltd. (Textile Mills), Bhiwani

CO-ORDINATOR

DR. SAMBHAV GARG

Faculty, Shree Ram Institute of Business & Management, Urjani

ADVISORS

DR. PRIYA RANJAN TRIVEDI

Chancellor, The Global Open University, Nagaland

PROF. M. S. SENAM RAJU

Director A. C. D., School of Management Studies, I.G.N.O.U., New Delhi

PROF. S. L. MAHANDRU

Principal (Retd.), Maharaja Agrasen College, Jagadhri

EDITOR

PROF. R. K. SHARMA

Professor, Bharti Vidyapeeth University Institute of Management & Research, New Delhi

EDITORIAL ADVISORY BOARD

DR. RAJESH MODI

Faculty, Yanbu Industrial College, Kingdom of Saudi Arabia

PROF. PARVEEN KUMAR

Director, M.C.A., Meerut Institute of Engineering & Technology, Meerut, U. P.

PROF. H. R. SHARMA

Director, Chhatrapati Shivaji Institute of Technology, Durg, C.G.

PROF. MANOHAR LAL

Director & Chairman, School of Information & Computer Sciences, I.G.N.O.U., New Delhi

PROF. ANIL K. SAINI

Chairperson (CRC), Guru Gobind Singh I. P. University, Delhi

PROF. R. K. CHOUDHARY

Director, Asia Pacific Institute of Information Technology, Panipat

DR. ASHWANI KUSH

Head, Computer Science, University College, Kurukshetra University, Kurukshetra

DR. BHARAT BHUSHAN

Head, Department of Computer Science & Applications, Guru Nanak Khalsa College, Yamunanagar

DR. VIJAYPAL SINGH DHAKA

Dean (Academics), Rajasthan Institute of Engineering & Technology, Jaipur

DR. SAMBHAVNA

Faculty, I.I.T.M., Delhi

DR. MOHINDER CHAND

Associate Professor, Kurukshetra University, Kurukshetra

DR. MOHENDER KUMAR GUPTA

Associate Professor, P.J.L.N. Government College, Faridabad

DR. SAMBHAV GARG

Faculty, Shree Ram Institute of Business & Management, Urjani

DR. SHIVAKUMAR DEENE

Asst. Professor, Dept. of Commerce, School of Business Studies, Central University of Karnataka, Gulbarga

DR. BHAVET

Faculty, Shree Ram Institute of Business & Management, Urjani

ASSOCIATE EDITORS

PROF. ABHAY BANSAL

Head, Department of Information Technology, Amity School of Engineering & Technology, Amity University, Noida

PROF. NAWAB ALI KHAN

Department of Commerce, Aligarh Muslim University, Aligarh, U.P.

ASHISH CHOPRA

Sr. Lecturer, Doon Valley Institute of Engineering & Technology, Karnal

TECHNICAL ADVISOR

AMITA

Faculty, Government M. S., Mohali

FINANCIAL ADVISORS

DICKIN GOYAL

Advocate & Tax Adviser, Panchkula

NEENA

Investment Consultant, Chambaghat, Solan, Himachal Pradesh

LEGAL ADVISORS

JITENDER S. CHAHAL

Advocate, Punjab & Haryana High Court, Chandigarh U.T.

CHANDER BHUSHAN SHARMA

Advocate & Consultant, District Courts, Yamunanagar at Jagadhri

SUPERINTENDENT

SURENDER KUMAR POONIA

CALL FOR MANUSCRIPTS

We invite unpublished novel, original, empirical and high quality research work pertaining to recent developments & practices in the areas of Computer Science & Applications; Commerce; Business; Finance; Marketing; Human Resource Management; General Management; Banking; Economics; Tourism Administration & Management; Education; Law; Library & Information Science; Defence & Strategic Studies; Electronic Science; Corporate Governance; Industrial Relations; and emerging paradigms in allied subjects like Accounting; Accounting Information Systems; Accounting Theory & Practice; Auditing; Behavioral Accounting; Behavioral Economics; Corporate Finance; Cost Accounting; Econometrics; Economic Development; Economic History; Financial Institutions & Markets; Financial Services; Fiscal Policy; Government & Non Profit Accounting; Industrial Organization; International Economics & Trade; International Finance; Macro Economics; Micro Economics; Rural Economics; Co-operation; Demography; Development Planning; Development Studies; Applied Economics; Development Economics; Business Economics; Monetary Policy; Public Policy Economics; Real Estate; Regional Economics; Political Science; Continuing Education; Labour Welfare; Philosophy; Psychology; Sociology; Tax Accounting; Advertising & Promotion Management; Management Information Systems (MIS); Business Law; Public Responsibility & Ethics; Communication; Direct Marketing; E-Commerce; Global Business; Health Care Administration; Labour Relations & Human Resource Management; Marketing Research; Marketing Theory & Applications; Non-Profit Organizations; Office Administration/Management; Operations Research/Statistics; Organizational Behavior & Theory; Organizational Development; Production/Operations; International Relations; Human Rights & Duties; Public Administration; Population Studies; Purchasing/Materials Management; Retailing; Sales/Selling; Services; Small Business Entrepreneurship; Strategic Management Policy; Technology/Innovation; Tourism & Hospitality; Transportation Distribution; Algorithms; Artificial Intelligence; Compilers & Translation; Computer Aided Design (CAD); Computer Aided Manufacturing; Computer Graphics; Computer Organization & Architecture; Database Structures & Systems; Discrete Structures; Internet; Management Information Systems; Modeling & Simulation; Neural Systems/Neural Networks; Numerical Analysis/Scientific Computing; Object Oriented Programming; Operating Systems; Programming Languages; Robotics; Symbolic & Formal Logic; Web Design and emerging paradigms in allied subjects.

Anybody can submit the **soft copy** of unpublished novel; original; empirical and high quality **research work/manuscript anytime** in **M.S. Word format** after preparing the same as per our **GUIDELINES FOR SUBMISSION**; at our email address i.e. infoijrcm@gmail.com or online by clicking the link **online submission** as given on our website ([FOR ONLINE SUBMISSION, CLICK HERE](#)).

GUIDELINES FOR SUBMISSION OF MANUSCRIPT

1. **COVERING LETTER FOR SUBMISSION:**

DATED: _____

THE EDITOR
IJRCM

Subject: SUBMISSION OF MANUSCRIPT IN THE AREA OF

(e.g. Finance/Marketing/HRM/General Management/Economics/Psychology/Law/Computer/IT/Engineering/Mathematics/other, please specify)

DEAR SIR/MADAM

Please find my submission of manuscript entitled '_____ ' for possible publication in your journals.

I hereby affirm that the contents of this manuscript are original. Furthermore, it has neither been published elsewhere in any language fully or partly, nor is it under review for publication elsewhere.

I affirm that all the author (s) have seen and agreed to the submitted version of the manuscript and their inclusion of name (s) as co-author (s).

Also, if my/our manuscript is accepted, I/We agree to comply with the formalities as given on the website of the journal & you are free to publish our contribution in any of your journals.

NAME OF CORRESPONDING AUTHOR:

Designation:
Affiliation with full address, contact numbers & Pin Code:
Residential address with Pin Code:
Mobile Number (s):
Landline Number (s):
E-mail Address:
Alternate E-mail Address:

NOTES:

- a) The whole manuscript is required to be in **ONE MS WORD FILE** only (pdf. version is liable to be rejected without any consideration), which will start from the covering letter, inside the manuscript.
- b) The sender is required to mention the following in the **SUBJECT COLUMN** of the mail:
New Manuscript for Review in the area of (Finance/Marketing/HRM/General Management/Economics/Psychology/Law/Computer/IT/Engineering/Mathematics/other, please specify)
- c) There is no need to give any text in the body of mail, except the cases where the author wishes to give any specific message w.r.t. to the manuscript.
- d) The total size of the file containing the manuscript is required to be below **500 KB**.
- e) Abstract alone will not be considered for review, and the author is required to submit the complete manuscript in the first instance.
- f) The journal gives acknowledgement w.r.t. the receipt of every email and in case of non-receipt of acknowledgment from the journal, w.r.t. the submission of manuscript, within two days of submission, the corresponding author is required to demand for the same by sending separate mail to the journal.

2. **MANUSCRIPT TITLE:** The title of the paper should be in a 12 point Calibri Font. It should be bold typed, centered and fully capitalised.

3. **AUTHOR NAME (S) & AFFILIATIONS:** The author (s) **full name, designation, affiliation (s), address, mobile/landline numbers, and email/alternate email address** should be in italic & 11-point Calibri Font. It must be centered underneath the title.

4. **ABSTRACT:** Abstract should be in fully italicized text, not exceeding 250 words. The abstract must be informative and explain the background, aims, methods, results & conclusion in a single para. Abbreviations must be mentioned in full.

5. **KEYWORDS:** Abstract must be followed by a list of keywords, subject to the maximum of five. These should be arranged in alphabetic order separated by commas and full stops at the end.
6. **MANUSCRIPT:** Manuscript must be in **BRITISH ENGLISH** prepared on a standard A4 size **PORTRAIT SETTING PAPER**. It must be prepared on a single space and single column with 1" margin set for top, bottom, left and right. It should be typed in 8 point Calibri Font with page numbers at the bottom and centre of every page. It should be free from grammatical, spelling and punctuation errors and must be thoroughly edited.
7. **HEADINGS:** All the headings should be in a 10 point Calibri Font. These must be bold-faced, aligned left and fully capitalised. Leave a blank line before each heading.
8. **SUB-HEADINGS:** All the sub-headings should be in a 8 point Calibri Font. These must be bold-faced, aligned left and fully capitalised.
9. **MAIN TEXT:** The main text should follow the following sequence:

INTRODUCTION**REVIEW OF LITERATURE****NEED/IMPORTANCE OF THE STUDY****STATEMENT OF THE PROBLEM****OBJECTIVES****HYPOTHESES****RESEARCH METHODOLOGY****RESULTS & DISCUSSION****FINDINGS****RECOMMENDATIONS/SUGGESTIONS****CONCLUSIONS****SCOPE FOR FURTHER RESEARCH****ACKNOWLEDGMENTS****REFERENCES****APPENDIX/ANNEXURE**

It should be in a 8 point Calibri Font, single spaced and justified. The manuscript should preferably not exceed **5000 WORDS**.

10. **FIGURES & TABLES:** These should be simple, crystal clear, centered, separately numbered & self explained, and **titles must be above the table/figure. Sources of data should be mentioned below the table/figure.** It should be ensured that the tables/figures are referred to from the main text.
11. **EQUATIONS:** These should be consecutively numbered in parentheses, horizontally centered with equation number placed at the right.
12. **REFERENCES:** The list of all references should be alphabetically arranged. The author (s) should mention only the actually utilised references in the preparation of manuscript and they are supposed to follow **Harvard Style of Referencing**. The author (s) are supposed to follow the references as per the following:
 - All works cited in the text (including sources for tables and figures) should be listed alphabetically.
 - Use (ed.) for one editor, and (ed.s) for multiple editors.
 - When listing two or more works by one author, use --- (20xx), such as after Kohl (1997), use --- (2001), etc, in chronologically ascending order.
 - Indicate (opening and closing) page numbers for articles in journals and for chapters in books.
 - The title of books and journals should be in italics. Double quotation marks are used for titles of journal articles, book chapters, dissertations, reports, working papers, unpublished material, etc.
 - For titles in a language other than English, provide an English translation in parentheses.
 - The location of endnotes within the text should be indicated by superscript numbers.

PLEASE USE THE FOLLOWING FOR STYLE AND PUNCTUATION IN REFERENCES:**BOOKS**

- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19-22 June.

UNPUBLISHED DISSERTATIONS AND THESES

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

ONLINE RESOURCES

- Always indicate the date that the source was accessed, as online resources are frequently updated or removed.

WEBSITES

- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 <http://epw.in/user/viewabstract.jsp>

MAPPING THE INTELLECTUAL STRUCTURE OF HUMAN RESOURCES**CHIN-HSIU TAI****RESEARCH SCHOLAR****GRADUATE SCHOOL OF BUSINESS & OPERATIONS MANAGEMENT****CHANG JUNG CHRISTIAN UNIVERSITY****TAIWAN****CHE-WEI LEE****PROGRAM COORDINATOR****INSTITUTE FOR INTERNATIONAL STUDIES IN EDUCATION****UNIVERSITY OF PITTSBURGH****USA****YUAN-DUEN LEE****PROFESSOR****GRADUATE SCHOOL OF BUSINESS & OPERATIONS MANAGEMENT****CHANG JUNG CHRISTIAN UNIVERSITY****TAIWAN****ABSTRACT**

To explore the intellectual structure of human resources (HR) research in the last decade, this study identified the most important publications and the most influential scholars, as well as the correlations among these scholars' publications. This study used bibliometric and social network analyses to investigate the intellectual foundations of extant HR literature. By analyzing 41,001 citations in 1,941 articles published in the SCI and SSCI journals in the HR field between 2002 and 2011, this study mapped the knowledge network of HR studies. The results of this mapping can be used to identify research directions in HR research and to provide a valuable tool for researchers to access relevant literature in this field.

KEYWORDS

Co-Citation, Human Resources, Multipath Routing, On-Demand Routing, Security.

INTRODUCTION

In today's information-based economy, the increasing popularity of wireless portable devices, such as laptops, PDAs, wireless telephones, and wireless sensors, has highlighted the importance of human resources (HR) (Sanchez Quiros & Garcia-Tenorio Ronda, 2011). Sanchez and Ronda tested a model on Canadian biotechnology companies to understand the process of innovation from four perspectives: (1) the identification of the most appropriate competitive strategy; (2) the mediating role that HR development (HRD) performs; (3) the decisive role of HR in the development of organizational commitment; and, (4) the effects of organizational commitment on organizational results (Gholifar, Hedjazi, Hoseini, & Rezaei, 2011). Gholifar et al. investigated factors that affect faculty members' psychological empowerment toward access to HRD in colleges in Iran by using structural equation modeling (SEM). HR is a dynamically distributed system of wireless nodes that move independently of each other (Delery, 1996). In the past decade, research on HR has been particularly extensive. However, despite the HR field having established itself as an academic discipline, its establishment has been a slow process because HR scholars prefer to publish their best work in more established journals. Another major obstacle to the development of HR is its unusually high degree of interaction with other disciplines. This overlapping blurs the boundaries of the HR field, causing its distinct theoretical models and analytical tools to be unjustly attributed to competing fields. Because of limited resources for the development of HR, the cross-fertilization of ideas between scholars of HR is difficult to obtain. Consequently, although an HR field definitely exists, what it constitutes remains unclear, as does the quality of its work and what its prospects and needs for future development are.

This study provides HR researchers with a map to better understand HR-related publications and to provide a systematically objective mapping of the themes and concepts in the development of the HR field. In addition, this study helps identify the connections among various HR publications, determining their statuses and positions on their contributions to the development of the HR field. The principal methods used in this study were citation analysis, co-citation analysis, social network analysis, and factor analysis, which were conducted to identify the invisible network of knowledge generation underlying HR literature.

STUDIES OF ACADEMIC LITERATURE

One of the most frequent techniques used to study a body of literature is a simple literature review, where a highly subjective approach is used to structure the earlier works. Quantitative and objective techniques have recently become popular, with more available online databases to use the written and published works of a given field, to examine the invisible knowledge networks in the communication process. These techniques are attractive because they are objective and unobtrusive (Garfield, 1979).

Certain previous studies have explored management research literature using bibliometric techniques. Taylor, Dillon, and van Wingen (2010) examined the intellectual structure of information systems research, finding that the discipline has transitioned from a fragmented adhocracy to a polycentric state, which is appropriate for an applied discipline. Zhao and Wang (2011) used co-citation analysis to identify the most influential authors and studies in the pervasive and ubiquitous computing field. Zhang, Chen, and Li (2009) used an original paper-reference matrix as the information source, transforming the paper-reference matrix into a visual analysis using a new approach to explore co-citation relationships. Lin, McLee, and Kuo (2011) used a factorial analysis technique in an author co-citation study to examine the paradigms of Web services research. To the best of our knowledge, this is the only study on the HR field. Therefore, we used citation and co-citation analyses on recent studies related to HR that were cited in the Science Citation Index (SCI) and Social Sciences Citation Index (SSCI) to understand the gaps in HR literature.

METHODOLOGY

We collected data on authors, journal articles, publication outlets, cited references, and publication dates. Using these articles, we determined the intellectual structure of HR between 2002 and 2011 based on the objectives of the individual studies. We chose the period of 2002 to 2011 because HR studies have made

dramatic progress in the past 5 years. We used citation analysis and co-citation as our primary methods. First, we identified the sources of HR publications using the database to search for authors, topics, and journals related to HR studies.

Second, we systematized the collected data by screening, ranking, sorting, summing, and subtotaling. Consequently, key nodes in the HR invisible knowledge network were identified. In addition, we developed several structures following a series of operations. Finally, we used co-citation analysis and the HR knowledge network to map the knowledge distribution process of the HR field.

This study analyzed data collected from the SCI and SSCI. More than 9,000 leading scholarly journals are available on the SCI and SSCI. Although some studies have conducted their analyses using other online databases, this study chose the SCI and SSCI because they are the most accepted and comprehensive databases on HR publications.

We did not use data from journals that have been used by peer researchers (Walstrom & Leonard, 2000). We primarily conducted our analysis using data from the SCI and SSCI from 2002 to 2011. The key word method was used to collect data from the SCI and SSCI databases using a key word search. The key words we chose were "human resources" and "mobile ad hoc network." A total of 1,941 journal articles were collected, and 41,001 publications were cited. Books and journal articles were used as the cited references.

RESULTS

CITATION ANALYSIS

We used the Excel package to tabulate each of the 1,941 source documents and the 41,001 references and to identify HR studies published by relevant scholars. Our background statistics, obtained using citation analysis, are shown as follows: We listed the most cited HR articles from the last decade from the top three most cited journals (*IEEE Transactions on Information Theory*, *IEEE-ACM Transactions on Networking*, and *IEEE Journal on Selected Areas in Communications*) in Table 1. We found that HR-specific journals were ranked 14th in the ad hoc networks area, indicating that most studies on HR were published in non-HR-specific journals. There is a gap to fill because HR lacks the knowledge generation and dissemination abilities necessary for it to develop into a full-fledged field. In addition, using a cluster analysis on the article titles in information systems journals, we determined that HR research is often published in journals related to information systems and computer studies.

TABLE 1: CITATIONS OF THE JOURNALS

Titles of the Journals	2002-2006	2007-2011	Total Citations
ACAD MANAGE J	814	1494	2308
INT J HUM RESOUR MAN	481	1315	1796
HUMAN RESOURCE MANAG	363	878	1241
ACAD MANAGE REV	413	835	1248
J MANAGE	297	618	915
STRATEGIC MANAGE J	236	528	764
HUM RESOURCE MANAGE	234	447	681
J APPL PSYCHOL	205	686	891
IND LABOR RELAT REV	179	237	416
PERS PSYCHOL	174	430	604
J INT BUS STUD	159	288	447
J MANAGE STUD	143	291	434
LANCET	111	223	334
HARVARD BUS REV	108	225	333
ADMIN SCI QUART	106	258	364
IND RELAT	92	160	252
HUM RELAT	89	209	298

Thereafter, we used the total number of citations within the selected journal articles to identify the most influential scholars and documents, based on the number of citations. The most frequently cited HR publications from 2002 to 2006 were Perkins' "Ad-hoc On-demand Distance Vector Routing," Johnson's "Dynamic Source Routing in Ad Hoc Wireless Networks," and Broch's "A Performance Comparison of Multi-hop Wireless Ad Hoc Network Routing Protocols" (Table 2). Between 2006 and 2010, the three most cited HR publications were Perkins' "Ad-hoc On-demand Distance Vector Routing," Broch's "A Performance Comparison of Multi-hop Wireless Ad Hoc Network Routing Protocols," and Johnson's "Dynamic Source Routing in Ad Hoc Wireless Networks" (Shown in Table 3).

TABLE 2: FREQUENTLY CITED DOCUMENTS, 2002-2006

Total Citations	Full Citation Index For Document
86	HUSELID MA, 1995, ACAD MANAGE J, V38, P635
75	DELERY JE, 1996, ACAD MANAGE J, V39, P802
66	BECKER B, 1996, ACAD MANAGE J, V39, P779
60	MACDUFFIE JP, 1995, IND LABOR RELAT REV, V48, P197
44	BARNEY J, 1991, J MANAGE, V17, P99
28	ARTHUR JB, 1994, ACAD MANAGE J, V37, P670
26	YOUNDT MA, 1996, ACAD MANAGE J, V39, P836
25	HULER RS, 1987, ACADEMY MANAGEMENT E, V1, P207, DOI 10.5465/AME.1987.4275740
25	IGHT PM, 1992, J MANAGE, V18, P295

Combining journal articles and books, the top five most cited scholars between 2002 and 2006 were Perkins, Johnson, Broch, Royer, and Lee (Table 4). The top five most cited scholars between 2007 and 2011 were Perkins, Johnson, Hu, Broch, and Lee (Table 5). These authors have had the most influence in promoting the development of the HR field, thereby helping define the field itself. They have influenced the primary foci of HR research, developing an indication of their historical values, as well as the popularity of certain HR topics.

TABLE 3: HIGHLY CITED DOCUMENTS, 2007-2011

Total Citations	Full Citation Index For Document
155	HUSELID MA, 1995, ACAD MANAGE J, V38, P635
97	BARNEY J, 1991, J MANAGE, V17, P99
83	DELERY JE, 1996, ACAD MANAGE J, V39, P802
77	BECKER B, 1996, ACAD MANAGE J, V39, P779
76	MACDUFFIE JP, 1995, IND LABOR RELAT REV, V48, P197
74	ARTHUR JB, 1994, ACAD MANAGE J, V37, P670
65	DELANEY JT, 1996, ACAD MANAGE J, V39, P949
63	YOUNDT MA, 1996, ACAD MANAGE J, V39, P836
53	HUSELID MA, 1997, ACAD MANAGE J, V40, P171
51	Wright PM, 2002, J MANAGE, V27, P701

In using citation analysis, we were unable to eliminate bias against beginning scholars who place more emphasis on the quality, rather than the quantity, of their research because the analysis ranked authors based on the frequency of which they have been cited (Tables 4 and 5), a paper-based ranking (Tables 2 and 3). Furthermore, determining the key research themes indicated the popularity of certain HR topics (Tables 2 and 3). These results further indicate that frequently cited titles have been "field-defining," and that these titles have created the foundations of HR as a distinct field. We compared the information shown in Table 2 with that in Table 3 to determine whether any patterns existed between 2002 to 2006 and 2007 to 2011. The top two most influential publications in the last 5 years indicated their dominant status in HR research for this period.

TABLE 4: FREQUENTLY CITED AUTHORS, 2002-2006

Author	Frequency	Author	Frequency
Wright PM	181	ULRICH D	86
HUSELID MA	152	BECKER B	75
SCHULER RS	144	ARTHUR JB	71
PFEFFER J	123	BARNEY J	71
DELERY JE	104	MACDUFFIE JP	71

TABLE 5: FREQUENTLY CITED AUTHORS, 2007-2011

Author	Frequency	Author	Frequency
WRIGHT PM	308	DELERY JE	131
HUSELID MA	203	Warner M	129
SCHULER RS	172	Ulrich D	118
Pfeffer J	166	BECKER BE	107
Brewster C	136	BARNEY J	105

The results shown in these tables indicate that the total number of citations is gradually increasing, indicating that HR research is not only recognized as a legitimate academic field, but is gaining recognition in academic literature. In addition, there were few differences between the most influential papers in the first 5 years and in the second 5 years. Some examples are provided as follows: Four publications were ranked in the top five most cited publications for both periods, although there were slight differences in their rankings. Publications from Perkins, Johnson, Broch, and Lee were in the top five most cited publications in the first 5 years, and they had three rankings in the top five most cited publications in the second 5 years. This indicates that these influential authors still dominate HR studies and that the HR field is developing rapidly and only has a few classic studies. More theoretical breakthroughs and efforts are needed to further develop the HR field.

CO-CITATION ANALYSIS

We conducted data mapping in this stage to determine the intellectual structure of HR research. We used co-citation analysis, such as the bibliometric technique, which information scientists use to map intellectual structures. We counted the articles chosen from paired or co-cited documents. Thereafter, the co-citation was counted in matrix form and a snapshot of the distinct point was statistically captured (Small, 1993).

We used the Excel package to tabulate the co-citation analysis for each document source. However, this was difficult because many of the authors had co-citations that probably did not significantly impact the development of the HR field. In addition, some studies had co-citations for studies that were too recent to have influenced the field. To facilitate the analyses, we ensured that the authors in the final set had at least 30 citations during the first 5 years, and 30 citations during the second 5 years. The top scholars were identified according to the total number of citations in the selected journals.

We used a common procedure known as varimax rotation to conduct factor analysis of the co-citation correlation matrix to fit the maximum number of authors on the minimum number of factors. The diagonals were applied to the criterion, causing the omission of two cases that were considered missing data (Zhang et al., 2009).

Four factors were extracted from the data on the first 5 years (2002-2006), and together they explained over 87% of the variance in the correlation matrix. Table 6 shows the four most important factors, in addition to the authors who had a factor loading of at least 0.5. As is typical in this type of analysis, authors with less than a 0.5 loading or with cross-loadings were dropped from the final results (White & Griffith, 1981). We tentatively assigned names to these factors on the basis of our own interpretation of the authors with high loadings. Our interpretation of the results is that HR research in this period consisted of at least three subfields: on-demand routing, multipath routing, and grid location service (Figure 1). We made no attempts to interpret the remaining factors because of their small eigenvalues. They have also been excluded from Table 6.

Similarly, HR studies were clustered around various research themes between 2007 and 2011, and together these themes explained over 85.6% of the variance in the correlation matrix for the second 5 years. Table 7 shows the four most important factors, as well as the authors who had a factor loading of at least 0.5. We tentatively assigned names to these factors on the basis of our own interpretation of the authors who had high associated loadings. Our interpretation of the analysis results was that HR research during this period was composed of at least four key subfields: on-demand routing, security in HR, multipath routing, and ad-hoc on-demand distance vector routing (AODV).

The most influential authors in the HR field from 2002 to 2006 were clustered together, as shown in Table 6. The primary research focus was on on-demand routing, specifically two dynamic routing protocols for ad hoc networks: dynamic source routing protocol (DSR) (Das, Perkins, & Royer, 2000) and ad hoc on-demand distance vector protocol (AODV). These protocols resulted from systematic performance studies conducted by Perkins and Royer (1999). The common characteristic that DSR and AODV share is that they initiate routing activities on an on-demand basis. The reactive nature of these protocols significantly differs from traditional proactive protocols (Das et al., 2000). Studies on the AODV and DSR found a route to the destination using the flooding method, and the number of rebroadcasts of the route request packet is in proper proportion to the number of nodes (Song, Wong, & Leung, 2004).

The names of the authors obtained using multipath routing on the second group are shown in Table 6. Multiple paths were established using multipath routing for direct control over each path. Consequently, the reliability, performance, and security were increased. Gerla and Lee defined multipath routing as useful routing that improves delivery reliability, busy traffic, responses to congestion, and the effective bandwidth of communication pairs (Lee & Gerla, 2002).

The grid location service (GLS) authors were the third group. GLS, combined with geographic forwarding, enables the construction of HR that scales to a larger number of nodes than was possible using previous methods (Li, Jannotti, De Couto, Karger, & Morris, 2000). Broch, Maltz, Johnson, Hu, and Jetcheva (1998) provided overviews of these ad hoc routing techniques, as well as comparative measurements using 30-50 nodes simulations. GLS can be used as a location service for routing protocols, substantially improving the scaling properties of mobile networks.

The most influential authors in HR studies for the second 5 years (2007 to 2011) were clustered together (Table 7). As shown in Table 6, the main topic of research was on-demand routing. Toh presented the best routing protocols for ad hoc networks, mobility, and power conservation, including the DSR and associativity-based routing (ABR), both of which initiate routing activities on an on-demand basis (Toh, 1997).

The securing HR authors were the second group. Zhang and Lee (2000) defined intrusion detection, which complemented intrusion prevention techniques and improved network security. Zhou and Haas (1999) identified security services, determining that the single most important feature that makes HR unique is its absence of a fixed infrastructure.

The multipath routing authors were the third group, as shown in Table 6. Lee and Gerla (2002) defined multipath routing, determining that it can improve the effective bandwidth of communication pairs, busy traffic, responds to congestion, and can increase delivery reliability.

TABLE 6: AUTHOR FACTOR LOADINGS: 2002-2006

	1		2
Strategic Human Resource	54.50%	Cooperative Strategy	19.30%
Delery JE	0.965	Child J	0.89
Wright PM	0.953	Barney J	0.855
Gerhart B	0.948	Hofstede G	0.841
Huselid MA	0.945	Barney JB	0.817
Arthur JB	0.936	Porter ME	0.816
Ulrich D	0.929	Wood S	0.729
Becker B	0.925	Pfeffer J	0.693
Delaney JT	0.924	Warner M	0.513
Boxall P	0.914		3
Snell SA	0.904		6.60%
Macduffie JP	0.889	Brewster C	0.744
Youndt MA	0.879		4
Lepak DP	0.869	Human resource management	4.20%
Osterman P	0.806	Guest DE	0.534
Kamoche K	0.78	Guest D	0.515
Ichniowski C	0.778		5
Jackson SE	0.762		2.40%
Schuler RS	0.745	Warner M	0.515
Guest D	0.691		
Guest DE	0.645		
Pfeffer J	0.579		

TABLE 7: AUTHOR FACTOR LOADINGS, 2007-2011

	1		2
Modes of Theorizing in Strategic Human Resource	55.80%	Individuals and Organizations	15.40%
Delery JE	0.958	Rousseau DM	0.814
Boxall P	0.952	Hofstede G	0.805
Schuler RS	0.94	Tsui AS	0.801
Huselid MA	0.931	Meyer JP	0.726
Gerhart B	0.93		3
Arthur JB	0.924	Publics and Counter-publics	6%
Lepak DP	0.897	Warner M	0.934
Wright PM	0.894	Wood S	0.756
Macduffie JP	0.891		4
Becker B	0.89		4.50%
Batt R	0.865		5
Ichniowski C	0.858		3.90%
Youndt MA	0.853		
Ulrich D	0.829		
Lawler EE	0.82		
Barney J	0.728		
Storey J	0.686		
Guest D	0.671		
Pfeffer J	0.667		
Brewster C	0.584		
Tsui AS	0.52		

CONCLUSION

Research on HR has been extensive in the past decade. This study investigates HR research using citation and co-citation data published in the SCI and SSCI between 2002 and 2011. The SEM results proposed by Sanchez and Ronda show that companies with a first-mover strategy have more successful innovation results, and that HR practices play a crucial role in generating organizational commitment (Sanchez Quiros & Garcia-Tenorio Ronda, 2011). First, these results allow us to ensure that HR practices are a critical mechanism through which organizations generate flexible working philosophies. Second, HR aligns the behaviors and skills of employees to achieve commitment. This study analyzed the various implications for biotechnology managers, and future streams of research were provided. The findings obtained by Gholifar et al. (2011) provide an expanded understanding of factors that influence faculty members' psychological empowerment, and the subsequent implications are discussed. Study findings showed that professional skills and organizational culture have significantly positive effects on the psychological empowerment of faculty members, but that management-organizational factors have little effect on the psychological empowerment of faculty members.

Using factor analysis of the co-citation data, we mapped the intellectual structure of HR research, suggesting that contemporary HR research is organized along various concentrations of interests: on-demand routing, securing HR, and multipath routing.

Mapping the intellectual structure of HR studies indicated that HR has created its own literature and has gained a reputation as a legitimate academic field, with HR-specific journals gaining a status befitting an independent research field. These journals include the *IEEE Journal on Selected Areas in Communications*, *IEEE-ACM Transactions on Networking*, and *IEEE Transactions on Information Theory*. Because HR is a new field, and our analysis showed that it has an evolving structure, we believe that HR publication outlets will gain the popularity and prestige necessary for becoming a prominent academic field once the current paradigms and key research themes in HR studies are determined, and how they relate to each other. With more scholars and resources contributing to HR studies, a better academic environment that is conducive for the cross-fertilization of research ideas will be formed, allowing the HR field to gain the momentum necessary for further development.

REFERENCES

1. Broch, J., Maltz, D.A., Johnson, D.B., Hu, Y.C. and Jetcheva, J. (1998): "A performance comparison of multi-hop wireless ad hoc network routing protocols" Proceedings of the 4th Annual ACM/IEEE International Conference on Mobile Computing and Networking, 85-98.
2. Das, S.R., Perkins, C.E. and Royer, E.M. (2000): "Performance comparison of two on-demand routing protocols for ad hoc networks" Proceedings of INFOCOM 2000 9th Annual Joint Conference of the IEEE Computer and Communications Societies, Vol. 1, 3-12.
3. Delery, J.E. (1996), "Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurational performance predictions," *The Academy of Management Journal*, Vol. 39, pp. 802.
4. Garfield, E. (1979), "Citation Indexing: Its Theory and Application in Science, Technology, and Humanities," Wiley, New York.
5. Gholifar, E., Hedjazi, S.Y., Hoseini, S.M., and Rezaei, A. (2011), "Human resource development: Faculty members' psychological empowerment in Iran's colleges," *African Journal of Business Management*, Vol. 5, No. 31, pp. 12249-12255.
6. Lee, S.J. and Gerla, M. (2002), "Split multipath routing with maximally disjoint paths in ad hoc networks," ICC 2002 IEEE International Conference on Communications, Vol. 10, pp. 3201-3205.
7. Li, J., Jannotti, J., De Couto, D.S.J., Karger, D.R. and Morris, R. (2000): "A scalable location service for geographic ad hoc routing" Proceedings of the 6th Annual International Conference on Mobile Computing and Networking, 120-130.
8. Lin, C.C., McLee, Y. and Kuo, J.H. (2011), "Web services: Themes, concepts and relationships," *International Journal of Machine Learning and Computing*, Vol. 1, No. 2, pp. 199-204.
9. Perkins, C. and Royer, E. (1999): "Ad hoc on-demand distance vector routing" Proceedings of the 2nd IEEE Workshop on Mobile Computing Systems and Applications, 90-100.
10. Quirós I.S. and Ronda, J.G.-T. (2011), "The relationship among innovation strategy, human resources practices and commitment generation in the biotechnology sector," *African Journal of Business Management*, Vol. 5, No. 34, pp. 13159-13168.
11. Small, H.G. (1993), "Macro-level changes in the structure of co-citation clusters: 1983-1989," *Scientometrics*, Vol. 26, pp. 5-20.
12. Song, J.H., Wong, V.W. S. and Leung, V.C.M. (2004), "Efficient on-demand Routing for mobile ad hoc wireless access networks," *IEEE Journal of Selected areas in Communication*, Vol. 22, No. 7, pp. 1374-1383.
13. Taylor, H., Dillon, S. and van Wingen, M. (2010), "Focus and diversity in information systems research: meeting the dual demands of a healthy applied discipline," *MIS Quarterly*, Vol. 34, No. 4, pp. 647-667.
14. Toh, C.K. (1997), "Associativity-based routing for ad hoc mobile networks," *Wireless Personal Communications*, Vol. 4, No. 2, pp. 103-139.
15. Walstrom, K.A., and Leonard, L. (2000), "Citation classics from the information systems literature," *Information & Management*, Vol. 38, pp. 59-72.
16. Wang, C.H., McLee, Y. and Kuo, J.H. (2011), "Mapping the intellectual structure of digital divide," *International Journal of Social Science Humanity*, Vol. 1, No. 1, pp. 49-54.
17. White, D.H. and McCain, K.W. (1995), "Visualizing a discipline: An author co-citation analysis of information science," *Journal of the American Society for Information Science*, Vol. 49, pp. 327-355.
18. White, H. and Griffith, B. (1981), "Author co-citation: A literature measure of intellectual structure," *Journal of the American Society for Information Science*, Vol. 32, No. 3, pp. 163-171.
19. Zang, J., Chen, C.M. and Li, J.X. (2009), "Visualizing the intellectual structure with paper reference matrices," *IEEE Transactions on Visualization and Computer Graphics*, Vol. 15, No. 6, pp. 1153-1160.
20. Zhang, Y. and Lee, W. (2000): "Intrusion detection in wireless ad hoc networks" Proceedings of the 6th Annual International Conference of Mobile Computing and Networking, 275-284.
21. Zhao, R.Y. and Wang, J. (2011), "Visualizing the research on pervasive and ubiquitous computing," *Scientometrics*, Vol. 86, No. 3, pp. 593-612.
22. Zhou, L. and Haas, Z.J. (1999), "Securing ad hoc networks," *IEEE Network Magazine*, Vol. 13, No. 6, pp. 24-3.

REQUEST FOR FEEDBACK

Dear Readers

At the very outset, International Journal of Research in Computer Application and Management (IJRCM) acknowledges & appreciates your efforts in showing interest in our present issue under your kind perusal.

I would like to request you to supply your critical comments and suggestions about the material published in this issue as well as on the journal as a whole, on our E-mail infoijrcm@gmail.com for further improvements in the interest of research.

If you have any queries please feel free to contact us on our E-mail infoijrcm@gmail.com.

I am sure that your feedback and deliberations would make future issues better – a result of our joint effort.

Looking forward an appropriate consideration.

With sincere regards

Thanking you profoundly

Academically yours

Sd/-

Co-ordinator

ABOUT THE JOURNAL

In this age of Commerce, Economics, Computer, I.T. & Management and cut throat competition, a group of intellectuals felt the need to have some platform, where young and budding managers and academicians could express their views and discuss the problems among their peers. This journal was conceived with this noble intention in view. This journal has been introduced to give an opportunity for expressing refined and innovative ideas in this field. It is our humble endeavour to provide a springboard to the upcoming specialists and give a chance to know about the latest in the sphere of research and knowledge. We have taken a small step and we hope that with the active co-operation of like-minded scholars, we shall be able to serve the society with our humble efforts.

Our Other Journals

