Information Technology Research Trends in Transition Economies

by

Narcyz Roztocki, State University of New York at New Paltz, roztockn@newpaltz.edu
Heinz Roland Weistroffer, Virginia Commonwealth University, hrweistr@vcu.edu

ABSTRACT

In this paper we assess the publication base and the research trends in information technology specifically in transition economies. A transition economy is an economy that is in the long-term process of moving from a centrally planned to a market driven system. Although information technology is the principal enabler for global connectedness and critical for firms in transition economies to maintain competitiveness, only relatively little research is being reported that addresses the issues specific to effectively employing information technology in transition economies. By reviewing current publications and identifying the research trends we try to point to existing gaps and the needs and opportunities for further research.

Keywords:

Information and Communication Technologies, Transition Economy, Research Trends

INTRODUCTION

A transition economy is an economy that is in the process of moving or has recently moved from a centrally planned economic system to a market driven system (Roztocki and Weistroffer 2008, 2009; Roztocki and Weistroffer 2011). This includes primarily the countries that resulted from the dissolution of the Soviet Union as well as its former satellite countries—the countries of the former Eastern (or Soviet) Bloc. In addition, it includes the countries that resulted from the break-up of Yugoslavia, which though politically neutral during the cold war, had retained a communist political and economic system. Furthermore, it includes Albania, which had aligned itself with communist China after the Chinese-Soviet split in 1960. The People's Republic of China and the Socialist Republic of Vietnam, which still retain communist political systems, are also considered transition economies, as they are gradually liberalizing regulations and allowing for increased private sector business activities.

Sometimes, the terms transition economy, emerging economy, and developing countries are

use interchangeably. However in spite of similarities and the fact that most transition economies could also be classified as either emerging or developing, there are specific characteristics that distinguish transition economies from other emerging or developing countries. The long history of a centrally planned economy has had a substantial impact on business and organizational culture in transition economies.

The research questions we ask in the current study are: (1) What is the current status of the research on IT in transition economies, and (2) what are the main topics of investigation in current IT research in transition economies? The answers to these questions will provide guidance to other researchers as to what the important issues are that need further investigation and thus where to focus their attention.

Our paper is organized as follows. After describing the background of transition economies, we present the methodology of our research. Description of inclusion and exclusion criteria guiding our literature search is followed by the description of our sample. Discussion of our results provides ideas for future research and leads to concluding remarks.

BACKGROUND

A transition (or transitional) economy is an economy that is in a long-term transition process from a centrally planned economic systems to a market driven system (Roztocki and Weistroffer 2008, 2009). This process may take place within three dimensions of transformations (Offe 1991): territorial transition, political transition and economic transition.

Territorial transition (Offe 1991) includes redefinition of borders, establishment of new political entities, and clarification of citizenship. Examples include the transitions that took place in the countries that resulted from the break-ups of the Soviet Union, Yugoslavia, and Czechoslovakia.

Political transition (Offe 1991) includes the dissolution of the power monopoly of a single, usually communist or socialist, political party and the move to democracy. An example is Poland, where the socialist party monopoly was broken in 1989 by the Solidarnosc movement, starting the democratic transformation.

Economic transformation (Offe 1991) includes the abolishment or downsizing of economic central planning and allowing market forces to drive economic development. Examples include China and Vietnam that are gradually liberalizing economic regulations while

allowing and even encouraging business activities in the private sector (Roztocki and Weistroffer 2011).

Thus, transition economies or countries can be classified as single-transition, double-transition or triple transition as depicted in Table 1.

Transition Level	Characteristics	Example Countries
Single	Gradual abolishment of centrally planned economic system. Gradual increase of private sector business activity and creation of a class of entrepreneurs.	China, Vietnam
Double	Abrupt abolishment of centrally planned economic system and one-party controlled political system. Simultaneous creation of a new class of entrepreneurs and replacement of political elites.	Bulgaria, Hungary, Poland, Romania
Triple	Abrupt abolishment of centrally planned economic system and political system. Simultaneous creation of new class of entrepreneurs and establishment of political elites. Dramatic changes in political entities and redefinition of borders.	Russia, Slovakia, Ukraine

Table 1. Classification of Transition Economies by their Level of Transformation

RESEARCH METHODOLOGY

The main research methodology in this study is literature search. We use the framework discussed in the following section in our review and analysis of the identified literature.

Analytical Framework

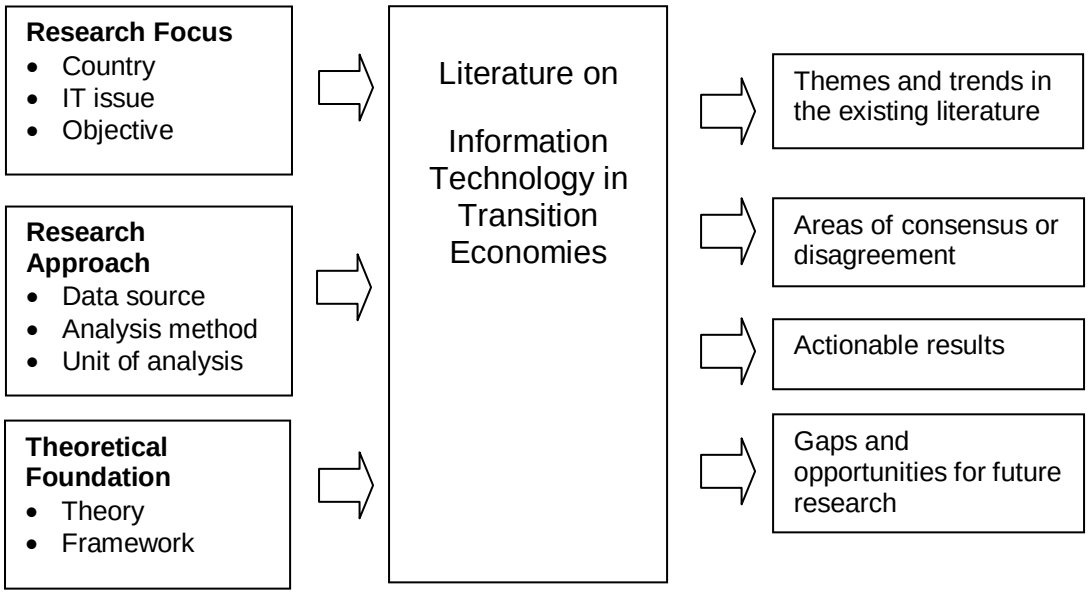

Figure 1. Analytical Framework – Perspectives and Outcomes

Review Procedure

As research procedure, we used key word search in library databases for titles of papers that include keywords such as information technology, information systems, transition economy, or specific country names (e.g. Czech Republic, Russia, Ukraine).

To be included in our study, the publication needed to fulfill the following criteria:

(1) It had to be an academic paper (e.g. research paper, editorial, review) published in an academic journal.

(2) It had to deal with information technology in a double or triple transition economy (i.e. we excluded China and Vietnam).

In our investigation, we excluded single-transformation economies, such as China and Vietnam, because unlike publications on IT in other transition economies, there is quite an abundance of literature dealing with IT specifically in China and related regions, and China and Vietnam have characteristics that differ substantially from the other transition economies that have experienced a greater magnitude of transformation (see Table 1).

In our literature search, whenever we came across a dissertation, working paper, or conference proceedings that seemed relevant from the topic area, we searched for publications by the same authors in journals, to see if some of their work had migrated into an academic journal.

SAMPLE DESCRIPTION

We were able to collect 33 papers published in the years 1993 to 2012. The papers in our sample are listed in Table 2.

As can be seen from Table 2, the majority of the papers (22 out of 33) were published in 2008 or later. To some extent, this may be attributed to two special issues published in 2008 and 2011 respectively. The papers in our sample were published in 24 different journals. The journals that published the most papers were the *Journal of Global Information Technology Management (JGITM)* and *Information Systems Management (ISM)* (5 papers each). These two journals are also the journals that published the special issues, JGITM in 2008 and ISM in 2011. The distribution of the papers by journal is depicted in Table 3 while the distribution of the papers by year of publication is shown in Figure 1.

Authors	Focus of investigation	Countries	Source/method of data collection
Adelman (2001)	IT certification	Australia, France, Germany, Russia, Spain, UK	Multiple
Arogyaswamy and Nowak (2009)	Level of innovation	Poland	Secondary data sources
Batagan, Marasescu and Pocovnicu (2010)	E-commerce usage and consumer rights	Romania	Survey, questionnaire
Bernroider, Sudzina and Pucihar (2011)	ERP absorption	Austria, Slovakia, Slovenia	Survey
Cecez-Kecmanovic, Janson and Zupancic (2008)	Organizational Learning	Slovenia	Case study, secondary data
Dexter, Janson, Kiudorf and Laast-Lass (1993)	Issues encountered in IT environment	Estonia	Delphi method, round of questionnaires
Ghibutiu (2003)	E-commerce adoption	Romania	Secondary data, databases
Griffith (1998)	Implantation of new technology	Bulgaria, USA	US/Bulgarian students
Gurau (2002a)	On-line banking	Romania	Multiple (interviews, reports review)
Gurau (2002b)	On-line banking	Romania	Multiple (secondary data, questionnaire)
Hawk and McHenry (2005)	Offshore Software Industry	Russia	Case studies and literature analysis
Horvathova and Davidova (2011)	Talent management in IT companies	Czech Republic	Survey, phone interview
Harindranath (2008)	ICT industry	Hungary	Field research
Hovelja (2009)	IT deployment	Slovenia	Questionnaire
Ifinedo (2006)	IS management issues	Estonia, Norway	Delphi method
Ifinedo (2011)	E-government maturity	Multiple (16 transition economies)	Databases
Janson, Cecez-Kecmanovic and Zupancic (2007)	IT supported organizational learning	Slovenia	Multiple (interviews, document reviews, observation)
Luckman, Hackney, Popovic, Jaklic and Irani (2011)	Business intelligence	Slovenia	Questionnaire
Lonkila (2006)	Social networks of IT professionals	Russia	Web questionnaire
Lonkila and Gladarev (2008)	Cell phone use	Russia	Interviews
Piatkowski (2006)	IT for development	Multiple	Databases
Roztocki and Weistroffer (2008)	Research reports on IT in transition economies	Multiple	N/A
Roztocki and Weistroffer (2009)	Status of research on IT in developing, emerging, and transition economies	Multiple	Literature review
Roztocki and Weistroffer (2011)	Research on IT in transition economies	Multiple	N/A
Samoilenko (2008)	ICT investments	Multiple (18 transition economies)	Databases
Samoilenko and Osei-Bryson (2008a)	ICT investments	Multiple (18 transition economies)	Databases
Samoilenko and Osei-Bryson (2008b)	ICT investments	Multiple (18 transition economies)	Databases
Soja (2008)	Difficulties in enterprise systems implementation projects	Poland	Questionnaire responses
Soja and Paliwoda-Pekosz (2009)	Problems in Enterprise System adoption	Poland	Interviews
Soja (2011)	Enterprise System adoption	Poland	Interviews, semi-structured questionnaire
Themistocleous, Soja and Rupino da Cunha (2011)	Enterprise Systems life cycles	Poland, UK	Interviews
Weerakkody, El-Haddadeh, Sabol, Ghoneim and Dzupka (2012)	E-government implementation	Slovakia, UK	Case study a country level, secondary sources
Zoroja (2011)	Internet usage, e-commerce and e-government	Multiple	Databases

Table 2. List of the Papers in Sample

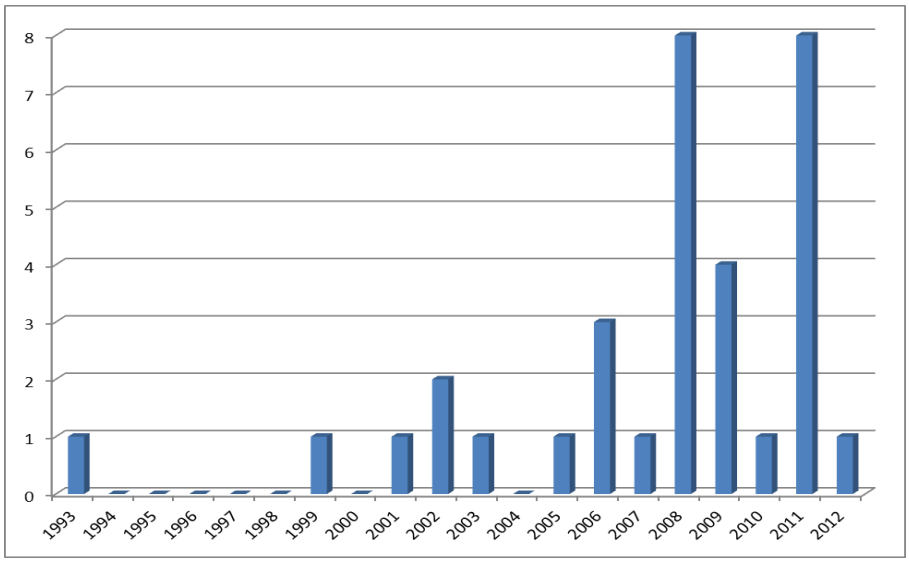

Figure 1. Papers by Year

	Journal	**# of Papers**
1	Digest of Electronic Commerce Policy and Regulation	1
2	Economic Annals	1
3	Electronic Journal of e-Government	1
4	Industrial Management & Data Systems	1
5	Information Systems Journal	1
6	Information Systems Management	5
7	Information Technologies & International Development	1
8	Information Technology for Development	2
9	Interacting with Computers	1
10	Interdisciplinary Description of Complex Systems	1
11	International Journal of Information Management	1
12	International Journal of Production Economics	1
13	Journal of Economics and Business	1
14	Journal of Financial Services Marketing	1
15	Journal of Global Information Technology Management	5
16	Journal of Information Technology for Development	1
17	Journal of Strategic Information Systems	1
18	New Media & Society	1
19	Post-Communist Economies	1
20	Roczniki Kolegium Analiz Ekonomicznych (Annals of the Collegium of Economic Analysis)	1
21	Tertiary Education and Management	1
22	The International Journal of Bank Marketing	1
23	Theoretical and Applied Economics	1
24	World Academy of Science, Engineering and Technology	1
	Total	**33**

Table 3. Papers by Journal

FINDINGS AND IMPLICATIONS

Our analysis of 33 papers reveals several interesting findings. First, there seem to be only relatively few key topics of investigation: adoption of enterprise systems, e-commerce, e-government, and payoffs from IT/ICT investments. Second, there are many authors who co-authored multiple papers in our sample. Third, while the 33 papers are distributed over 24 journals, with the exception of *JGITM* and *ISM* that published special issues on the topic, most journals published only a single paper. Fourth, as can be gleaned from Figure 1, only a few papers on the topic appeared in the 1990s while the majority of the papers in our sample appeared in the second half of 2000s. Fifth, most papers in our sample focus on transition economies that are now members of the European Union (EU) (Russia is the one transition economy not part of the EU that is the context of investigation in several of the publications). Sixth, the prevalent sources of data are surveys and databases. This stands in contrast to much of the published research on IT in developing countries, where the most common methodology used is case studies.

FUTURE RESEARCH AND CONCLUSIONS

The results presented in this paper are preliminary. We plan to continue with our research and expand our sample of papers and extend the scope of our analysis to more factors. By the time of the conference, we hope to provide a more complete picture on the topic. In summary, our intention is to assess the current state of the research on IT in double or triple transition economies and we believe that our paper will provide a solid foundation to guide scholars interested in this topic with their future research agendas.

REFERENCES

1. Offe, C. (1991) Capitalism by Democratic Design? Facing the Triple Transition in East Cental Europe, *Social Research*, 58, 4, 865-892.
2. Roztocki, N. and Weistroffer, H.R. (2008) Information Technology in Transition Economies, *Journal of Global Information Technology Management*, 11, 4, 2-9.
3. Roztocki, N. and Weistroffer, H.R. (2009) Research Trends in Information and Communications Technology in Developing, Emerging and Transition Economies, *Roczniki Kolegium Analiz Ekonomicznych (Annals of the Collegium of Economic Analysis)*, 20, 113-127.
4. Roztocki, N. and Weistroffer, H.R. (2011) From the Special Issue Editors: Information Technology in Transition Economies, *Information Systems Management*, 28, 3, 188-191.

FULL REFERENCES FOR PAPERS IN OUR SAMPLE

1. Adelman, C. (2001) The Medieval Guild in Cyberclothes: International Dimensions of Industry Certification in Information Technology, *Tertiary Education and Management*, 7, 3, 277-292.
2. Arogyaswamy, B. and Nowak, A. (2009) High Tech and Societal Innovation in Poland: Prospects and Strategies, *Journal of Economics and Business*, 12, 1, 47-73.
3. Batagan, L., Marasescu, A. and Pocovnicu, A. (2010) Consumer Rights in Digital Economy. Case Study of Romanian e-commerce Usage, *Theoretical and Applied Economics*, 9 (550), 9 (550), 79-96
4. Bernroider, E.W.N., Sudzina, F. and Pucihar, A. (2011) Contrasting ERP Absorption Between Transition and Developed Economies From Central and Eastern Europe (CEE), *Information Systems Management*, 28, 3, 240-257.
5. Cecez-Kecmanovic, D., Janson, M. and Zupancic, J. (2008) Transition to Market Economy through Information Systems and Organizational Learning: A Case of Sava Company, *Journal of Global Information Technology Management*, 11, 4, 10-32.
6. Dexter, A.S., Janson, M.A., Kiudorf, E. and Laast-Laas, J. (1993) Key Information Technology Issues in Estonia, *Journal of Strategic Information Systems*, 2, 2, 139-152.
7. Ghibutiu, A. (2003) E-Commerce and the Romanian Economy, *The Journal of E-Government Policy and Regulation*, 26, 3, 61-71.
8. Griffith, T.L. (1998) Cross-cultural and cognitive issues in the implementation of new technology: focus on group support systems and Bulgaria, *Interacting with Computers*, 9, 4, 431-447.
9. Gurau, C. (2002a) E-banking in transition economies: The case of Romania, *Journal of Financial Services Marketing*, 6, 4, 362–378.
10. Gurau, C. (2002b) Online banking in transition economies: the implementation and development of online banking systems in Romania, *International Journal of Bank Marketing*, 20, 6, 285 - 296.
11. Harindranath, G. (2008) ICT in a Transition Economy: The Case of Hungary, *Journal of Global Information Technology Management*, 11, 4, 33-55.
12. Hawk, S. and McHenry, W. (2005) The maturation of the Russian offshore software industry, *Information Technology for Development*, 11, 1, 31-57.
13. Horvathova, P. and Davidova, M. (2011) Application of Talent Management with the use of Information and Communications Technology in the Czech Republic and Other Developing, Emerging and Transitions Economies, *World Academy of Science, Engineering and Technology*, 80, 458-465.
14. Hovelja, T. (2009) Information technology deployment in a transition economy: Results from Slovenia *Economic Annals*, 54, 183, 56-88.
15. Ifinedo, P. (2006) Key Information Systems Management Issues in Estonia for the 2000s and a Comparative Analysis, *Journal of Global Information Technology Management*, 9, 2, 22-44.

16. Ifinedo, P. and Singh, M. (2011) Determinants of eGovernment Maturity in the Transition Economies of Central and Eastern Europe, *Electronic Journal of e-Government*, 9, 2, 166-182

17. Janson, M.A., Cecez-Kecmanovic, D. and Zupancic, J. (2007) Prospering in a Transition Economy through Information Technology-Supported Organizational Learning, *Information Systems Journal*, 17, 1, 3-36.

18. Lonkila, M. (2006) Social Networks among Russian Information and Communication Technology Professionals, *Post-Communist Economies*, 18, 1, 13—31.

19. Lonkila, M. and Gladarev, B. (2008) Social networks and cellphone use in Russia: local consequences of global communication technology, *New Media & Society*, 10, 2, 273-293.

20. Lukman, T., Hackney, R., Popovic, A., Jaklic, J. and Irani, Z. (2011) Business Intelligence Maturity: The Economic Transitional Context within Slovenia, *Information Systems Management*, 28, 3, 211-222.

21. Piatkowski, M. (2006) Can Information and Communication Technologies Make a Difference in the Development of Transition Economies?, *Information Technologies and International Development*, 3, 1, 39-53.

22. Roztocki, N. and Weistroffer, H.R. (2008) Information Technology in Transition Economies, *Journal of Global Information Technology Management*, 11, 4, 2-9.

23. Roztocki, N. and Weistroffer, H.R. (2009) Research Trends in Information and Communications Technology in Developing, Emerging and Transition Economies, *Roczniki Kolegium Analiz Ekonomicznych (Annals of the Collegium of Economic Analysis)*, 20, 113-127. Available at SSRN: http://ssrn.com/abstract=1577270.

24. Roztocki, N. and Weistroffer, H.R. (2011) From the Special Issue Editors: Information Technology in Transition Economies, *Information Systems Management*, 28, 3, 188-191.

25. Samoilenko, S. (2008) Contributing factors to information technology investment utilization in transition economies: An empirical investigation, *Information Technology for Development*, 14, 1, 52-75.

26. Samoilenko, S. and Osei-Bryson, K.-M. (2008a) An exploration of the effects of the interaction between ICT and labor force on economic growth in transition economies, *International Journal of Production Economics*, 115, 2, 471-481.

27. Samoilenko, S. and Osei-Bryson, K.-M. (2008b) Strategies for Telecoms to Improve Efficiency in the Production of Revenues: An Empirical Investigation in The Context of Transition Economies, *Journal of Global Information Technology Management*, 11, 4, 56-75.

28. Soja, P. (2008) Difficulties in Enterprise System Implementation in Emerging Economies: Insights from an Exploratory Study in Poland, *Information Technology for Development*, 14, 1, 31-51.

29. Soja, P. (2011) Examining Determinants of Enterprise System Adoptions in Transition Economies: Insights From Polish Adopters, *Information Systems Management*, 28, 3, 192-210.

30. Soja, P. and Paliwoda-Pekosz, G. (2009) What are Real Problems in Enterprise System Adoption? *Industrial Management & Data Systems*, 109, 5, 610-627.

31. Themistocleous, M., Soja, P. and da Cunha, P.R. (2011) The Same, but Different: Enterprise Systems Adoption Lifecycles in Transition Economies, *Information Systems Management*, 28, 3, 223-239.

32. Weerakkody, V., El-Haddadeh, R., Sabol, T., Ghoneim, A. and Dzupka, P. (2012) E-government implementation strategies in developed and transition economies: A comparative study, *International Journal of Information Management*, 32, 1, 66-74.

33. Zoroja, J. (2011) Internet, E-commerce and E-government: Measuring the Gap between European Developed and Post-Communist Countries, *Interdisciplinary Description of Complex Systems*, 9, 2, 119-133.