A Statistic Study for the ADBIS Period 1994-2006

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Abstract. The Conference on Advances in Databases and Information Systems (ADBIS) was initiated by the Moscow ACM SIGMOD chapter, and started in 1993 as a mainly Russian national event. Since then, it has been morphed into a high-quality internationally visible scientific forum in the area of the databases and information systems. The key aim of ADBIS is to diffuse state-of-the-art research results into the research communities of Central and East Europe and to increase their opportunities for international scientific collaboration. This report summarizes statistic measures on historic data since 1994, which relate to several criteria such as acceptance ratios and academic impact as well as other criteria related to the ADBIS penetration into European and other geographical communities or its role as a catalyst for international collaboration. The raw data have been collected from the ADBIS proceedings (Springer Verlag WiC and LNCS series, as well as local ones), the SIGMOD Anthology, the Database and Logic Programming (DBLP) website and the google.scholar.com website. Several interesting outcomes have been derived and some thoughts for future evolution of the ADBIS success are being reported.

1. Introduction

Database management systems and information systems are permanently a hot research field of information technologies. The advances in these areas are very rapid. To ensure the right quality of research and to promote the implementation of research results into industry, it is necessary to discuss derived results in research communities, to increase international collaboration, and to present new ideas to representatives of industry. This wide and continuously expanding area is supported by international conferences, which are typically quite expensive to afford attending. This makes the collaboration difficult for researchers from Central and East European countries (from now on, for brevity we refer to these countries under the characterization "East"). To resolve this difficulty, the series of East European Conferences in Advances of Databases and Information Systems (ADBIS) was launched in 1997. Actually, the for-runner of ADBIS conferences were the homonym annual International Workshops that were organized during 1993-96 in Russia by the Moscow ACM SIGMOD Chapter in collaboration with the Russian Foundation for Basic Research (RFBR). ADBIS conferences intend to promote interaction and collaboration between European database research communities, especially from East Europe, and the rest of the world.

Year	Status	Venue	PC Co-chairs	Proceedings	Cooperation
1993	Kiev&Moscow SIGMOD Chapters	Moscow	L.Kalinichenko A. Stogny	Local	---
1994	1st International Workshop	Moscow	L.Kalinichenko Y. Zhuravlev	Local	RFBR
1995	2nd International Workshop	Moscow	J. Bubenko J.Eder L.Kalinichenko Y. Zhuravlev	Springer WiC + Local	RFBR
1996	3rd International Workshop	Moscow	B. Novikov J.W. Schmidt	Springer WiC + Local	SIGMOD, RFBR
1997	1st East-European Symposium	St. Petersburg	R. Manthey V.Wolfengagen	Springer WiC + Local	SIGMOD, RFBR
1998	2nd East-European Symposium	Poznan	W. Litwin G. Vossen	Springer LNCS	SIGMOD, KBN
1999	3rd East-European Conference	Maribor	T. Welzer J. Eder	Springer LNCS + Local	SIGMOD, Informatika
2000	4th East-European Conference	Prague	B. Thalheim J.Stuller Y.Masunaga	Springer LNCS + Local	SIGMOD, DASFAA
2001	5th East-European Conference	Vilnius	A. Caplinskas J. Eder	Springer LNCS + Local	SIGMOD
2002	6th East-European Conference	Bratislava	Y.Manolopoulos P. Navrat	Springer LNCS + Local	SIGMOD
2003	7th East-European Conference	Dresden (collocated with VLDB)	L. Kalinichenko R. Manthey	Springer LNCS + Local	SIGMOD
2004	8th East-European Conference	Budapest	J. Demetrovics G. Gottlob	Springer LNCS + Local	SIGMOD
2005	9th East-European Conference	Tallinn	J. Eder H.-M. Haav	Springer LNCS + Local	SIGMOD
2006	10th East-European Conference	Thessaloniki	T. Sellis Y.Pokorny	Springer LNCS + Local	SIGMOD

Table 1. The history of status, venue, PC chairs, publisher and cooperation.

Table 1 gives a summary of ADBIS conferences in terms of status, venue, PC Co-chairs, type of proceedings and international cooperation. Basically, from this table we observe two rather distinct periods. The first period, which for simplicity we call "Russian", was necessary for founding and stabilizing the ADBIS concept. In particular, (a) proceedings were published by Springer Verlag in the "Workshop in Computing" (WiC) series and later included in the ACM SIGMOD Anthology, and (b) all ADBIS conferences are initiated by an international Steering Committee (SC) formed by leading scientists in the field of information systems and databases. At present (i.e. 2005) the members of the SC represent research communities of Austria, Bulgaria, Czech Republic, Estonia, Germany, Greece, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Serbia and Montenegro, Slovakia, Slovenia, and Ukraine.

Since the first event at Moscow, several changes have transformed the ADBIS event into a matured widely recognized scientific colloquium. Next to the "Russian" period, we observe a second period beginning in 1998, during which the main proceedings were published by Springer Verlag in the Lecture Notes in Computer Science (LNCS) series. This fact was important for the further maturing of the ADBIS forum, its world-wide visibility and acceptance, as well as its penetration into diverse geographical communities although the venues were selected always in the greater area of East Europe. It should also be noted that since 1999, local proceedings with ISBN are being published in addition to the LNCS proceedings, giving thus floor for extra works to be presented at the conference without sacrificing the high LNCS standards. It is also notable that two special issues with papers selected from the 1999 and 2003 events have been published by the Information Systems journal.

This report summarizes statistic measures on historic data since 1994, which relate to several criteria such as acceptance ratios and academic impact as well as other criteria related to the ADBIS penetration into European and other geographical communities or its role as a catalyst for international collaboration. The raw data have been collected from the ADBIS proceedings (Springer Verlag WiC and LNCS series, as well as local ones), the SIGMOD Anthology, the Database and Logic Programming (DBLP) website and the google.scholar.com website. Such bibliometrics studies are being conducted occasionally for several paper outlets; among others we note the case of SIGMOD, VLDB, DEXA conferences or JASIS, TODS and VLDB journals (see the bibliography).

Six sections follow in the sequel. Based on our sources, in the next section we first focus in the period 1994-1997 as the data for the specific period are extracted from the SIGMOD Anthology (available in CDs or via the DBLP website). Sections 3 and 4 pay attention to the second period of the ADBIS series and examine data collected from the ADBIS LNCS and local proceedings, respectively. Subsequently, in Section 5 we focus on the notion of the impact. Accepting that the impact of a scientific conference is based on the number of citations received by its accepted papers, we counted the number of citations each paper has received until the time of publication of the present article by browsing the scholar.google.com website. In Section 6, we draw our attention into the issue of invited speakers and tutorial deliverers. Finally, the main findings are summarized in Section 7, and some thoughts and ideas are reported aiming at a further evolution of the ADBIS conference.

2.   **Statistics Based on the SIGMOD Anthology**

The first ADBIS event took place in 1993, initiated by the Moscow and Kiev ACM SIGMOD chapters. Data about this specific event are not included in our sources and thus we can not examine closer the specific forum. However, in the next year the ADBIS event took the status of "International Workshop" and succeeded to have proceedings in the Springer WiC series, thus gaining a greater visibility. The same status was holding in the case of the 1995 and 1996 events (i.e. "International Workshop" with WiC proceedings). Later, it was in 1997 that the status transformed into "East European Symposium", with WiC proceedings as well. All these organizations during this period took place in Russia (four times in Moscow, once in St. Petersburg). A major change happened in 1998, when the ADBIS event took place at Poznan and the proceedings were published in the Springer LNCS series.

Retrospectively, the SIGMOD Anthology included the papers of the years 1994-98 in its Vol.2, No.5 disc. Thus, we base the findings of this section in data extracted from the SIGMOD Anthology; however, we reserve the examination of the 1998 event for the next sections, to handle it uniformly in accordance with the subsequent events that had also proceedings published in the LNCS series. The next table depicts the number of papers, the number of authors and the number of countries per each year during the period 1994-97. By the term "country", we do not mean the nationality of the author but rather the nationality of the paper (i.e. based on the affiliation of the author). Also, it is noticed that the poster papers of the years 1994 and 1997 have been excluded for the construction of this table. We remark a rather gradual increasing number of participating countries with a peak observed in the St. Petersburg organization (1997).

Year	Number of papers	Number of authors	Number of countries
1994	23	42	9
1995	29	58	16
1996	25	46	12
1997	48	102	22
Total	133	209	29

Table 2. Number of papers, authors and countries for the period 1994-97.

Table 3 increases the resolution to study the specific distribution of the presence of countries in these organizations. We observe in a three years period the AD-BIS concept succeeded to become known in a significant number of countries and attract papers for all continents (except Africa). The dominance of some countries is apparent, and such dominance will continue to exist in the subsequent years, although the presence of the specific countries changed with time.

Another metric interesting to compute, is the change of percentage of papers from the East Europe over these years. We assume that the category of East Europe includes the following countries from the above list: Armenia, Croatia, Czech Republic, Estonia, Latvia, Poland, Romania, Russia, Slovakia, and Ukraine. Thus, we reach the results of Table 4, which depicts the ratio of the number of papers from these countries by the total number of papers. We remark a high initial starting value which soon stabilizes and remains close even in the recent years.

Country	1994	1995	1996	1997	Total
Russia	13,5	8,5	4,5	3	29,5
Germany	3	4	4,5	11,33	22, 83
France		2	6	6,33	14,33
UK	1	1,8	2	3	7,8
Poland		2		3	5
USA	1	0,2	1	2,67	4,87
Austria	1	1,5	1	1	4,5
Italy			1	3	4
Australia	1		1	1,5	3,5
Switzerland		1		2	3
Turkey		1	1	1	3
Ukraine	1	1	1		3
Greece			1	1	2
Japan	1	1			2
Israel		2			2
Latvia		1		1	2
Armenia, Croatia, Czech, Finland, Norway, Romania. Spain,				1	1
Canada			1		1
Estonia		1			1
Malaysia	0,5			0,5	1
Slovakia				0,67	0,67
Argentina, Brazil		0,5			0,5

Table 3. Distribution of papers per country for the period 1994-97.

1994	1995	1996	1997
48,3%	46,6%	22%	24,3%

Table 4. Percentage of papers from East Europe.

Author	Number of papers	Number of years
Altus	1,33	2
Basarab	1	3
Brass	2	2
Briukhov	1,5	2
Eder	1,83	3
Gubsky	1	3
Kalinichenko	4,25	4
Kutschera	1,5	2
Martynov	1,5	2
Morzy	1,5	2
Nikitchenko	1	3
Novikov	2,5	3
Wolfengagen	4	4

Table 5. Most active authors during the period 1994-97.

Despite the fact that the proceedings of these events were included in the ACM SIGMOD Anthology, and thus accessible via the DBLP website, in general this era is not completely documented. For example, it is not possible to derive the number of submitted papers and the number of submitting countries.

3.   Statistics Based on the LNCS Proceedings

Here, we focus on the LNCS proceedings and examine some high-level statistics. In particular, we record for each year the number of submitted papers, the number of counties of origin of these papers, the number of accepted papers (data extracted from the proceeding prefaces), and the number of counties of origin of the latter papers (data indexed throughout the proceeding). All these data are depicted in the second up to the fifth column of the following table. The last two columns depict two derived measures. That is, the column named "Paper acceptance" is the ratio of "Accepted papers" (fourth column) by "Submitted papers" (second column), whereas the last column "Country acceptance" is produced analogously from the fifth and third columns. Also, it is noticed that invited and industrial papers have not been taken into consideration for the construction of this table.

Year	Submitted papers	Submitted countries	Accepted papers	Accepted countries	Paper % acceptance	Country % acceptance
1998	90		31	18	34,44	
1999	94	33	25	17	26,60	51,52
2000	115	22	32	17	27,83	77,27
2001	82	30	25	20	30,49	66,67
2002	115	35	29	18	25,22	51,43
2003	86		29	20	33,72	
2004	130		27	18	20,77	
2005	144	40	27	17	18,75	42,50
2006	126	36	29	17	23,02	47,22
Aver	109	33	28	18	26,76	56,10

Table 6. Basic statistic measures extracted from LNCS proceedings.

From this table we remark that:

- The number of submitted papers fluctuates over the years. We observe two clusters: one with 82-94 submissions (Poznan, Maribor, Vilnius, and Dresden), a second with 115-130 submissions (Prague, Bratislava, Budapest, Thessaloniki), plus an outlier with 144 submissions (Tallinn). Possible explanations regarding the two clusters may be: the centrality of venues from the tourist point of view, the fact that they represent rather early events in the 10-years period or other organizational factors. The explanation behind the Tallinn absolute record may be the recent phenomenon of overwhelming submission rates from Far East countries to European conferences (even in national ones!) with established proceedings. Disregarding the quality of these papers, this phenomenon is negative taken into consideration the numerous no-shows by Far East authors of accepted papers in many European conferences during the last years.

- The number of countries of origin of the submitted papers also fluctuates over the years. Ignoring the absolute minimum of 22 countries in 2000 (Prague) and the maximum of 40 countries in 2005 (Tallinn), the remaining numbers are close to the average. The maximum number is explained in the previous paragraph; however, the minimum number remains unexplained as someone would expect the opposite phenomenon since forces from two separate communities had been joined.
- The number of accepted papers is rather stable (i.e. 25-31), a figure dictated by the conference standard capacities, e.g. one plenary session or at most two parallel sessions during a four days event with a social program.
- The number of countries of origin of the accepted papers is strongly stable (i.e. 17-20), a result that is easily explained by the slightly larger number (upper bound) of accepted papers. From another point of view, a second thought is that ADBIS may have reached a ceiling regarding its geographic penetration under the current SC policies and the advertisement practice.
- The acceptance ratio, i.e. the number of accepted papers over the number of submitted papers, is a crucial factor indicating the competitiveness of the event. Apparently, the smaller the ratio, the higher the quality and the prestige of the conference. For example, top conferences (such as SIGMOD, VLDB and a few others) demonstrate an acceptance ratio in the area of 1:6 or 1:7. The constrained imposed by Springer Verlag (i.e. 1:3 at maximum) is always satisfied. The Tallinn case is a pleasant exception as the competition proved to be higher than ever (1 selected paper out of 5.33 submitted).
- The acceptance ratio with respect to the countries of origin of the accepted papers has an average value of 56.1%. Ignoring the middle cases, the minimum (Tallinn) and maximum (Prague) ones are easily explained by recalling the above explanations about the number of countries of origin of the submitted countries.

The following graph comprises of two curves depicting the most important measures from the above list. The upper (blue) one shows the absolute number of submissions, whereas the lower (pink) one shows the acceptance ratio (%). Apparently, a larger number of submissions is related to a lower acceptance ratio.
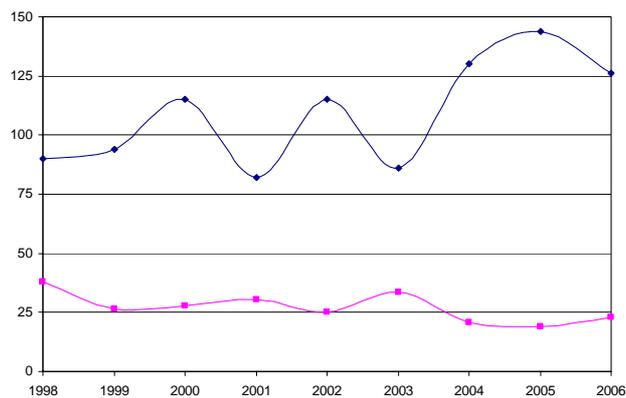

Figure 1. Number of submissions and acceptance ratios per year.

1998	1999	2000	2001	2002	2003	2004	2005	2006
60	59	77	59	65	74	61	76	77

Table 7. Distribution of authors per year.

Another measure that we have studied is the number of authors. Table 7 shows the number of authors per year. Apparently, several persons have contributed in more that one paper during the specific period, or even further, in more that one paper per year. The total number of authors in LNCS proceedings is 479. The majority of these 479 authors have appeared in a small number of years. On the other hand, there are a few authors that have honored ADBIS for several years. Thus, Table 8 lists the authors that have published in LNCS proceedings for at least 4 years, along with the respective number of papers authored by them. Finally, the subsequent graph shows a rather expected result, i.e. that the distribution of the appearances of the authors follows an exponential distribution.

Authors	Number of years	Number of papers
Corral	4	1,17
Kalinichenko	7	3,17
Manolopoulos	7	4,25
Morzy T.	5	1,92
Pokorny	4	2,08
Subieta	5	2,00
Tsymbal	4	1,92
Vassilakopoulos	7	2,17
Wojciechowski	5	3,17
Zakrzewicz	5	2,17
Zamulin	5	3,50

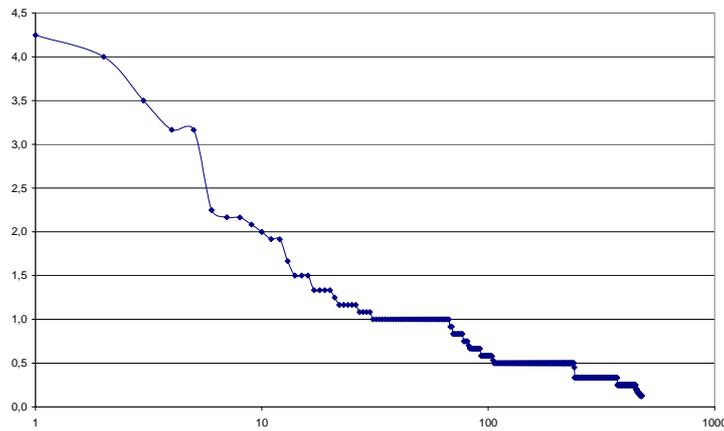Table 8. Frequent ADBIS authors in LNCS proceedings.

Figure 2. Statistical distribution of the number of papers per author.

We have accumulated the statistics about authors to come up with statistics about the countries of origin of the accepted papers. The number of countries per year is known from Table 6, whereas the total number of countries in LNCS proceedings

over the certain period is 42, which only marginally will increase in the future. The following table depicts the top-11 countries in this respect. Although, the ADBIS conference is supposed to be based in East Europe and attract researchers from neighboring countries (i.e., West Europe), we pleasantly prove its globally international nature by the presence of USA, Korea and Australia in this top list.

Country	Number of papers	Number of years
Germany	38,75	9
Greece	25,33	9
Poland	20,17	9
Russia	20,17	9
USA	14,33	8
Korea	13,00	7
France	11,25	7
Spain	9,50	6
Italy	8,67	5
Australia	8,17	7
UK	7,92	7

Table 9. Frequent countries of origin of accepted papers.

In Table 10, we proceed in finer granularity with respect to the countries of the East Europe. Except the top-2 countries, four countries (Czech Republic, Slovakia, Hungary and Lithuania) show a consistent presence, whereas the remaining countries appear less often. Finally, the next graph shows another expected result: the distribution of the presences of countries obeys an exponential distribution again.

Country	Number of papers	Number of years
Poland, Russia	20,17	9
Czech	5,50	5
Slovakia	4,50	3
Hungary	3,67	3
Lithuania	4,00	4
Estonia	1,50	2
Romania, Slovenia, Serbia-Montenegro	1,00	1
Ukraine	0,33	1

Table 10. East European countries of origin of accepted papers.

An interesting observation on the above data is the following. ADBIS Conference is guided by its international SC, which is rather settled. SC members are often members of the Program Committee (PC). In addition, several PC members have taken this position for several years (i.e. also PC lists rather settled). One could speculate that these persons exploit their positions to promote their own research, thus turning the ADBIS event into a closed family affair with no space for outsiders.

To better understand the presence of SC/PC persons in the author list, for each year we have categorized the papers into three groups: the first group consists of papers that are authored by at least one SC/PC member, the second group consists of papers with no author in the SC/PC list, whereas in addition their authors that have

never published before in the LNCS proceedings (we call them "newcomers"). The third group consists of papers with no author in the SC/PC list, however there may be an author that has published at least once in a previous LNCS volume (call them "back strikers"). These three categories are depicted in the following bar chart with white, navy and purple colors. The important and safe result is that the ADBIS conference series reflects a healthy open community, where the majority of papers are authored by persons that have not appeared in the past. This outcome is also documented by the fact that the statistical distribution of the number of papers per author (see Figure 2) is exponential with a long tail. Had the ADBIS event been a closed affair, this statistical distribution should be rather smooth with a short tail of authors appearing once or less.
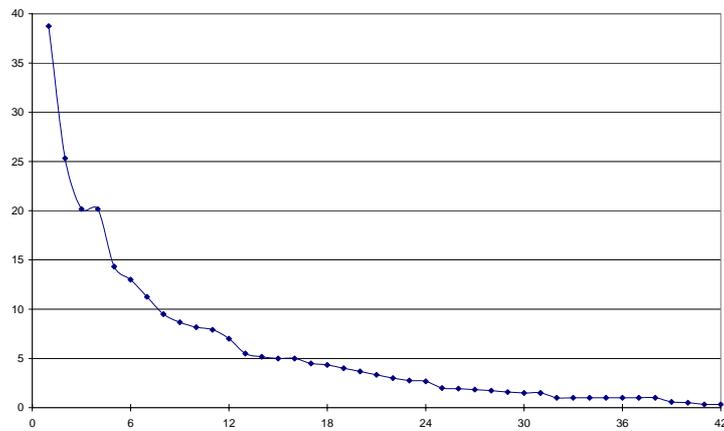

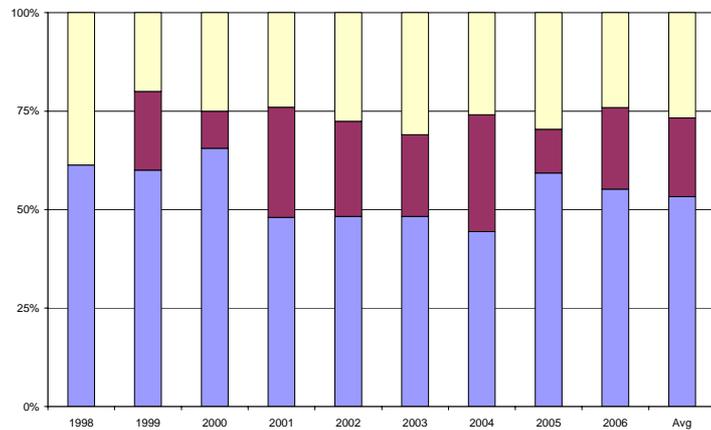Figure 3. Statistical distribution of the number of papers per country.

Figure 4. Papers by SC/PC members (yellow upper), newcomers (blue bottom) and none of the above (purple middle part).

The attraction of newcomers is important for the future evolution of the event. This ay, it can be anticipated that always new topics will be discussed resulting in a better exchange of ideas on the new trends of the field. It would be interesting to

study the statistical distributions of other established conferences and derive similar results by understanding how these conferences behave: as closed families or as open societies.

To conclude the section, close to the issue of openness of the ADBIS conference is also the question whether ADBIS fulfils its role as a catalyst for international collaboration, firstly between researchers of East Europe countries, and secondly between these researchers and researchers of the rest of the world. For the period under examination, the following table presents the joint papers with authors from at least two countries (country names abbreviated for the compactness of the table). Although this table verifies that an international collaboration does exist, a first observation is that this collaboration is not very strong. For example, we find out that on the average only 12% approximately of the accepted papers are joint ones (i.e. 31 papers divided by 254, the sum the 4th column of Table 6).

1998	1999	2000	2001	2002	2003	2004	2005	2006
Ita-Pol	Fin-Ukr	Gre-USA	Fra-Rus	Ire-Pol	Hun-Ger	Cze-Ger	Net-UK	Rus-Sin
Pol-USA	India-USA	Bel-Ger-Isr	Austra-Jap	Gree-Spa	NZea-Ger	Fin-Ire-UK	Cyp-USA	Austri-Swi
Spa-USA		Ger-USA	Cze-Slova	Gre-USA	SAra-USA	Fra-Swi	Ger-USA	Ger-Hun
			Gre-Spa			Gre-Pol	Gre-Spa	
						Gre-Spa		
						Sin-USA		

Table 11. Joint papers authored by at least two countries.

Further, we index the countries of the Table 11 and derive the following table, where countries are sorted according to the number of appearances. More or less, the specific order of the countries obeys the order of the countries as they appear in Table 9 and the subsumed data. One could say that the only great exception is USA as the percentage of joint papers from USA is 10/31=32% approximately. This fact means that ADBIS conference does not attract as many papers from US scientists; however, scientists from the rest of the world collaborate with the leading institutions from USA. A final remark from Tables 11 and 12 is that there are only a few joint papers from East countries, i.e. 10 papers with one country from East Europe and only 1 paper with two countries from East Europe.

Country	Number of joint papers
USA	10
Greece, Germany	7
Spain	5
Poland	4
Czech, Finland, Hungary, Ireland, Russia, Singapore, UK	2
Australia, Austria, Belgium, Cyprus, France, India, Israel, Italy, Japan, Netherlands, New Zealand, Saudi Arabia, Slovakia, Switzerland, Ukraine	1

Table 12. Distribution of countries in joint papers.

4.   Statistics Based on the Local Proceedings

Local proceedings are being published in addition to the LNCS proceedings since 1999. The local proceedings contain 160 papers in total. We have also indexed these proceedings with respect to the contributing authors and their countries of origin. The following table depicts the top-10 authors in terms of papers contributed. Interestingly enough, we remark that a few persons exist in both Tables 8 and 13 (e.g. Pokorny, Subieta, Wojciechowski).

Author	Number of papers	Number of years
Alhajj	1,53	3
Ivanovic	1,33	1
Pokorny	1,66	3
Polcicova	1,33	2
Snasel	1,53	3
Subieta	1,50	2
Teste	1,50	2
Torres	1,50	2
Wojciechowski	3,00	3
Wrembel	1,53	3

Table 13. Frequent ADBIS authors in Local proceedings.

Similarly to the previous section, we have calculated the respective aggregate results per country for the papers that appeared in the local proceedings. The total number of countries is 46, four more than before; however, the two lists are interestingly different. The top line of the following table gives the list of the countries that have appeared in the LNCS proceedings but not in the local proceedings. The bottom line of the same table gives the opposite group.

Only in LNCS	Belgium, Saudi Arabia, Turkey, Ukraine, Uruguay
Only in local	Armenia, Bosnia-Herzegovina, Brazil, Bulgaria, Latvia, Lebanon, Mexico, Tunisia, UAE

Table 14. List of countries that have appeared only in one type of proceedings.

Country	Number of papers	Number of years
Czech	14,58	5
Poland	11,60	5
Russia	9,17	7
Lithuania	9,00	5
Slovenia	5,50	3
Slovakia	5,17	4
Estonia	3,00	2
Serbia-Montenegro	2,67	1
Bulgaria, Hungary	2,00	2
Romania, Latvia	1,00	1
Armenia, Bosnia-Herzegovina	0,50	1

Table 15. East European countries of origin of accepted papers in local proceedings.

Narrowing down into the East European countries, we reach Table 15, where we remark roughly the same results as in the case of the LNCS proceedings (e.g. the three clusters). In addition, we remark that a few countries not represented in the LNCS proceedings are included in the lower cluster of this case (e.g. Armenia, Bosnia-Herzegovina, Latvia, Romania).

The next graph depicts for each country the total number of appearances (i.e. for all years) in LNCS (line with triangles) and local (line with squares) proceedings, whereas the line with stars representing the sum of the previous figures. We remark that only for Poland, Russia and Hungary the number of presences in the LNCS proceedings is greater than the number of presences in the local proceedings. The Hungary case is not statistically strong, however, for Poland and Russia the safe result is that the respective communities are more competitive at an international level.
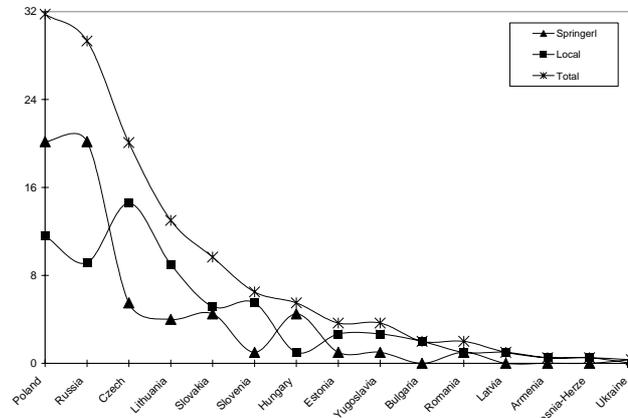

Figure 5. Per country appearance in LNCS (blue line) or local (pink line) proceedings.

Proceed	1998	1999	2000	2001	2002	2003	2004	2005	2006	Aver
LNCS	27,4	25,3	9,4	26,0	29,9	27,6	26,5	37,0	18,4	25,3
Local		49,2	41,7	34,2	58,3	33,3	38,9	63,2	5,9	40,6
Total	27,4	38,5	24,2	29,5	41,5	28,9	31,5	47,8	11,7	31,2

Table 16. Percentage deviations in the representation of East Europe countries.

Finally, we focus on the presence of the countries of the East Europe. Table 16 depicts per year and for the two series of proceedings (LNCS vs. local) the percentage of papers from the respective countries. Roughly, we remark that on the average in the LNCS proceedings 1 out of 4 papers originates from East Europe, in local proceedings 2 out of 5, thus making a total average 1 out of 3 taking into consideration both kinds of proceedings. East Europe has been underrepresented in the 2000, 2003 and 2006 events (Prague, Dresden and Thessaloniki, results depicted in yellow color). Also, note that the 2006 case is the only one where the representation of East countries in Springer proceedings is higher than the representation in the local proceedings. On the other hand, with blue color we depict the substantially positive deviations for these countries. Thus, it comes out that 1999, 2002 and 2005 (Maribor, Bratislava and Tallinn) were "productive" years for the countries of East Europe. The case of Prague has been explained, other cases remain to be explained.

To conclude this section, we indexed again the local proceedings to form tables along the spirit of Tables 11 and 12, i.e. to evaluate the international collaboration in-between countries of East Europe on one hand, and countries of East Europe and the rest of the world on the other hand. From Table 17 we count 15 joint papers in a total of 160 papers, which gives an average 9,4% per year, a figure smaller than the respective figure (12% from Table 11) calculated for the case of LNCS proceedings.

1999	2000	2001	2002	2003	2004	2005	2006
BosErz-Ire	Austri-Pol	Arm-Rus	Austra-UK		Ger-Spa	Can-Leb	Ita-Swi
	Net-Yug	Ire-UK	Chi-Ger			Fin-Ger	
		Fin-Slove	Cze-Slova			Chin-UK	
			Rus-Sin				

Table 17. Joint papers in local proceedings authored by two countries.

In Table 18 we index and sort descendingly the countries of the accepted joint papers of the local proceedings according to the number of appearances. It is interesting to note that there is no joint paper from USA, the exactly opposite remark drawn from Table 12. A second qualitative observation is that 7 out of these 15 joint papers have been authored by at least a country from East Europe, thus making a percentage equal to 46,7%, which is significantly higher than the percentage of 11/31=35,5% for the case of LNCS proceedings.

Country	Number of joint papers
Germany, UK	3
China, Finland, Ireland, Russia	2
Armenia, Australia, Austria, Bosnia/Herzegovina, Canada, Czech, Italy, Lebanon, Netherlands, Poland, Singapore, Slovakia, Slovenia, Spain, Switzerland, Yugoslavia	1

Table 18. Distribution of countries in joint papers in local proceedings.

When comparing the Tables 11-12 vs. Tables 17-18 and study closer the countries that have joint papers only in LNCS, only in local, and in both kinds of proceedings, we come to other interesting outcomes about the competitive qualifications of the communities of these countries (see for example Table 19).

Only in LNCS	Belgium, Cyprus, France, Greece, Hungary, India, Israel, Japan, New Zealand, Saudi Arabia, Ukraine, USA
Only in local	Armenia, Bosnia/Herzegovina, Canada, China, Lebanon, Slovenia, Yugoslavia
In both	Australia, Austria, Czech, Finland, Germany, Ireland, Italy, Netherlands, Poland, Russia, Singapore, Slovakia, Spain, Yugoslavia, UK

Table 19. Categorization of countries with joint papers and type of proceedings.

5.   Statistics on the Impact

The impact of a scientific event could be assessed with several qualitative measures each year, such as the attraction of the local scientific and professional communities for participation or/and their subsequent elevation for more numerous paper submissions and greater participation in general. Also, despite the above limited statistics on the collaboration in-between countries of East Europe and/or between East Europe and the rest of the world, we can not come to safe results. Such a "political" measures are difficult to assess.

The standard "academic" practice is to count the number of citations. Recently, Hirsch proposed the h-index as a metric to assess the broadness of the impact of a scientist's contribution, whereas several variations of h-index have been proposed by the author's team. By means of the google.scholar.com website we have indexed all the citations to papers that appeared during the years 1994-2004 and published in the WiC and LNCS proceedings. Papers published in local proceedings proved to attract small numbers of citations and, thus, we do not examine closer this source of data. Also, we have not browsed additional sources of such information (e.g. ISI Science Citation Index, NEC Citeseer) assuming that the final figures would be close to the reported ones. As citing sources we accept papers from journals, conference proceedings, technical reports and dissertations (excluding self-citations). The following table has three data lines. The first data line (the second line of the table) depicts the total number of citations to all the papers (except invited papers) of each specific year. The next line repeats the number of accepted papers per year, whereas the last line gives for each year the ratio of total number of citations over the number of accepted papers. Apparently, these data are very dynamic and constantly change.

1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
42	36	22	87	36	45	116	51	39	46	13
23	29	25	48	31	25	32	25	29	29	27
1,8	1,2	0,9	1,8	1,2	1,8	3,6	2,0	1,3	1,6	0,5

Table 17. Total number of citations per LNCS volume of proceedings (as of 6/2006).

The above table is quite informative. Initially, we remark that the papers of ADBIS'94 attract relatively many citations. However, if we go deeper we find that these citations have been given to a few papers from established persons from "West" countries. If we first take into consideration the absolute number of citations, then we remark a rather stable performance during the years 1994-2003 with a number of citations lying in the interval [22..51] with the exceptions of year 1997 (87 citations) and 2000 (116 citations). After 2002 we remark a reasonable descending trend. It is true that time is necessary for a paper to get citations, and it is not fair to expect recent papers to have received many citations. If we take into consideration the number of citations per accepted paper, then we reach the same conclusion, i.e. that during the period 1994-2003, this ratio lies in the in the interval [0,9..2,0] with the exception of year 2000 (on the average 3,6 citations per paper). It is apparent that the Prague event is clearly the top event in terms of impact. It should be also noticed that ADBIS'2000 was unique in the sense that it was a joint organization with the DASFAA community. However, notably it was the European scientists that authored the papers that

received more citations. As a credit, we give the list of top papers per year with respect to the number of received citations.

1994	Huck, Frankhauser, Busse, Klas	IRO-DB an object-oriented approach towards federated and interoperable DBMS	26
1995	Biskup, Menzel, Polle	Transforming an entity-relationship schema into object-oriented database schemas	12
1996	Brass	SLDMagic – an improved magic set technique	4
	Kappel, Rausch-Schott, Retschitzegger	A transaction model for handling composite events	4
1997	Pozewaunig, Eder, Liebhart	ePERT: Extending PERT for workflow management system	28
1998	Dobrovnik, Eder	Partial replication of object-oriented databases	5
1999	Morzy, Wojciechowski, Zakrzewicz	Pattern-oriented hierarchical clustering	8
2000	Nanopoulos, Manolopoulos	Finding generalized path patterns for web log data mining	22
2001	Pfoser, Tryfona	Capturing fuzziness and uncertainty of spatio-temporal objects	14
2002	Samaras, Panayiotou	A Flexible Personalization Architecture for Wireless Internet Based on Mobile Agents	7
2003	Kozankiewicz, Leszczy-lowski, Subieta	Updatable XML views	10
2004	Wijsen	Making more out of an inconsistent database	3

Table 18. Top papers per year in terms of the number of the received citations.

Thus far in this section, we have examined the impact of the ADBIS series in terms of the impact of its contents: i.e. the citations received by its accepted papers. Another measure that could be interesting to examine is the variance of the ADBIS visibility by the wider scientific community of Databases and Information Systems over the years. Could the visibility be greater, papers from stronger research teams and established researchers could be attracted. At the same time, the opposite is true; if ADBIS attracts papers from strong research teams and established researchers, then its visibility will be greater in a spiral way.

The notions of "strong" and "established" have to be based on a specific measure. One safe measure is to count the total number of citations of all the authors (or the most senior author, or the average number of citations per author) of the accepted papers at the time of acceptance. This metric is extremely time-consuming to calculate. Thus, we resort to another metric to examine the above notions. Instead of evaluating the citation record of the authors, we focus in the publication record of the authors. For example, assume a specific paper that has been authored by a number of persons. Among these persons we could isolate a key person in terms of academic seniority and stronger publication record (e.g. a professor as opposed to a graduate student). We can extract the total number of papers authored by this key person in the previous years (i.e. until the publication of the specific paper). Such an indexing can be easily performed by browsing the DBLP digital library. Having calculated this number for each paper, we can then calculate the average number for all the papers

for each specific year. Apparently, the higher this latter number, the greater is the expected visibility and influence of the ADBIS event due to the reputation of these established researchers/authors. The following table reports the results of this calculation. From this table we remark that (a) during the Russian period, e.g. until 1997 inclusively, there is an increasing trend as the ADBIS event was gradually more visible to the global scientific community, (b) along the results of Table 15, the Prague case corresponds to a local peak, and (b) it seems that during the last three years (2003-2006) more established researchers publish their work in the LNCS proceedings. Therefore, it is anticipated that the impact of the papers of these years will be shown in the future.

1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1,8	13,3	17,6	25,4	25,9	30,3	29,4	23,4	39,2	43,8	40,4	45,8

Table 19. Average of the number of papers authored by the established author.

Year	Invited	Affiliation	Publication Record
1995	Andrew Wade	Objectivity	*2*
1996	Won Kim	UniSQL Inc	*119*
	Joachim Schmidt	Tech. Univ. of Hamburg	67
1997	H. Garcia-Molina	Stanford University	160
1998	Thomas Imielinski	Rutgers University	69
	C. Mohan	IBM Almaden	73
1999	Erich Neuhold	IPSI, Darmstadt	*76*
	Guenther Pernul	University of Essen	27
	Suad Alagic	Wichita State University	23
2000	S. Spaccapietra	EPFL, Lausanne	*56*
	Heinz Schweppe	Free University of Berlin	17
	Shojiro Nishio	Osaka University	52
2001	Franca Garzotto	Politechnico di Milano	31
	L. Kalinichenko	Russian Acad. of Sciences	*29*
	Joachim Schmidt	Tech. Univ. of Hamburg	75
2002	Paolo Atzeni	Universita di Roma Tre	84
	Oliver Guenther	Humbolt Univ. of Berlin	55
	Hans-Jorg Schek	ETH Zurich	130
2003	Christoph Bussler	National Univ. of Ireland	40
	Francois Bry	University of Munich	58
2004	Jim Gray	Microsoft Research	121
	Peter Revesz	Univ. of Nebraska at Lincoln	51
2005	Theo Haerder	University of Kaiserslautern	123
	Nicola Guarino	CNR, Rome	*41*
2006	Serge Abiteboul	INRIA, Paris	*184*
	Yannis Ioannidis	University of Athens	*112*
	Pavel Zezula	Masaryk University, Brno	*44*

Table 20. Invited speakers, affiliations and publication record.

6.   Assorted Statistics

In this section we investigate the influence of invited keynote speakers and invited persons that deliver tutorials. These persons are important to be known well in advance (during the advertisement of the call for papers and the call for participation). Their reputation is important for the visibility of the conference on one hand but on the other hand, it is also important for the general success of the conference and the satisfaction of the participants.

The following table summarizes the keynote speakers, their affiliation and their publication record in a sense similar to that of the previous section, e.g. as an indication of seniority, establishment and impact. To be more specific, the DBLP digital library in some cases registers the invited keynote speech as a normal paper since the text of the speech is included in the proceedings. In this case, we extract the publication record of the invited speaker in a way similar to that of Table 19. However, not always the text of the speech does appear in the proceedings. In the latter case, we approximate the publication record of the invited speaker by taking the average of two numbers: the order of the first and the last paper authored by the invited speaker in the specific year as if the text of the invited speech appeared first or last in the specific list. This "artificial" figure is depicted enclosed in asterisks. The 2006 data have been retrieved on 1 of June 2006.

Year	Invited	Affiliation	Publication Record
1994	M. Rusinkiewicz	University of Houston	41
	D.Georgakopoulos		16
1995	Andrew Wade	Objectivity	*2*
1997	Lionel Brunie	INSA, Lyon	9
	Johann Eder	University of Klagenfurt	18
1998	William Grosky	Wayne State University	29
	Daniela Florescu	INRIA Paris	20
	Alon Levy	University of Washington	49
1999	Matthias Klusch	DFKI, Saarbruecken	11
	Mukesh Mohania	University of South Australia	*17*
	Guenther Pernul	University of Essen	27
2000	Kazimierz Subieta	Polish Academy of Sciences	*21*
	Y. Theodoridis	University of Piraeus	*20*
2001	Leszek Maciaszek	Macquarie University	7
	M. Vazirgiannis	Athens Univ. of Econ.&Business	*32*
2002	Awais Rashid	Lancaster University	*21*
	Timos Sellis	National Tech. Univ. of Athens	*99*
2003	Steffen Staab	University of Koblenz-Landau	*77*
2005	Y. Theodoridis	University of Piraeus	*44*
	K.-D. Schewe	Massey University	*86*
	B. Thalheim	University Kiel	*116*
2006	S. Chakravarthy	University of Texas at Arlington	94
	A. Vakali	Aristotle Univ. of Thessaloniki	43

Table 21. Tutorial speakers, affiliations and publication record.

Apparently, the ADBIS conference owns gratitude to all the invited speakers who honored this organization. On the other hand, it is unavoidable to remark that some invited speakers are more productive and, thus, they are more well-known in the scientific community. In this respect, we should emphasize that the years 1996, 1997, 2002, 2004, 2005 and 2006 had a stronger program in this respect, as their invited speakers had a publication record greater than 100.

The following table lists all the persons that have delivered tutorial. The structure of the table is identical to that of the previous table, as the reasoning is the same in our discussion. With a same method, we conclude that the years 1998, 2002, 2003 and 2005 had a stronger program, as the persons that contributed with a tutorial lecture had a publication record greater than 40.

7.   Final Remarks

Several bibliometric studies have appeared in the past in an effort to assess the quality, or the impact of specific scientific fora or to evaluate the work of scientists for recruitment or promotion. Such studies are important for personnel recruitment or promotion, to ranking of scientific for a, for funding purposes and so on. In this article we focus in the ADBIS case in the occasion of the organization of the 10th event at Thessaloniki. Similar studies are reported in the bibliography. Next, we summarize the major findings of this statistical research.

ADBIS is a globally recognized event as it is proven by the geographical distribution of the accepted papers.

- ADBIS is competitive event as the acceptance ratio is in the area of 1:3 or even less.

- ADBIS is not a closed society but every year about 1/3 of the papers is authored by newcomers. The PC and SC members have a reasonable presence.

- ADBIS has been a catalyst for the collaboration between East-West and East-East in the European context. However, this collaboration is not as great as one would expect.

- ADBIS impact as measured by the number of citations is not the expected one. However, there seem to be a future improvement in this respect.

- ADBIS invites established persons for delivering keynote speeches and tutorials. However, specific attention should be given for a better exploitation of this activity in the future.

Strong points should be further strengthened and weak points should be altered.

Acknowledgments

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