ISSI Newsletter

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CONTENTS

XAVIER POLANCO
(1940—2020)

OBITUARY BY

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One of the most recognized scientometricians from Latin America, Xavier Polanco, died on June 6, 2020 in Laguna de Aculeo, Paine, Maipo province in Chile, near to his 80's birthday. He was born on 23 June, 1940 in Viña del Mar, Chile. He studied agronomics and philosophy at Pontificia Universidad Católica de Chile. In 1972 he received a grant to study a Master of Philosophy at Université d'Aix-Marseille 3 in France. He obtained the Diplôme d'Etudes Approfondies (DEA) at École Nationale Supérieure des Mines de Paris in 1986, starting his works in the field of the studies in Science, Technology and Innovation (STI) with Michell Callon and Bruno Latour. One year later he began his professional career as a consultant, working for the Ministry of Science in France (see Latour and Polanco, 1987) and as a researcher at the Centre de sociologie de l'innovation (CSI) at the École.

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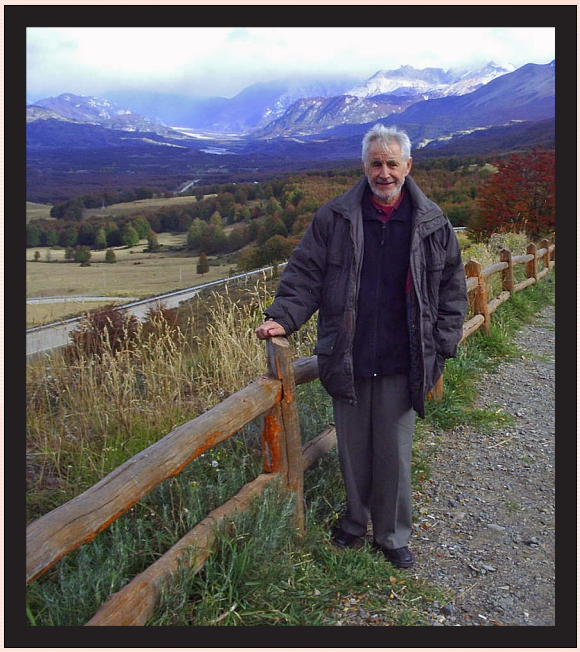
Contributors to the newsletter should contact the editorial board by e-mail.

In 1990 he was engaged at the Centre National de la Recherche Scientifique (CNRS), serving for 17 years. In 1992 he directed the Research and Innovation Unit at the Institut de l'Information Scientifique et Technique (INIST)–CNRS. One of his main achievements was the development of STANALYST, a software for scientific information mining, clustering and mapping analysis, initially for the French Pascal database and later, as an open platform, for the Scientific Electronic Library Online (SciELO) database in Latin America. This development started a new way to perform scientometrics using computational and mathematical advancement to create knowledge specially for policy design that can be accessed in various publications and conferences. He played an important part in the development of scientometrics in the frame of The Network for Science and Technology Indicators – Ibero-American and Inter-American – (RICYT) and contributed to the software Intelligo (funded by the Organization of Ibero-American States) for processing natural language in the field of scientometrics.

Polanco served as a consultant in many countries with an important footprint in the STI policy. In Colombia, for example, his ideas about laboratories as a center of research collaboration in the early 1990s was the cornerstone of a new wave of policies towards the modernization of the country. Twenty years later, he returned to Colombia with the idea to evaluate the STI policies in research groups as can be seen in this paper in which he leaded an interdisciplinary team. In Chile, he collaborated with the Institute of Local and Regional Development at Universidad de la Frontera in postgraduate training in Science, Technology and Innovation and supported and inspired the doctoral thesis on science as a Complex Adaptive System of Professor Ronald Cancino at Universidad de Chile.



As one of the preeminent Latin American researchers in scientometrics, Xavier was a key player in the development of informetrics, natural language processing, neural networks, cybermetric indicators and knowledge representation in mapping STI data. We acknowledge his life and contributions hoping that his legacy keeps growing new generations of researchers in our field.

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PHYSICIST GIACOMO LIVAN OF UNIVERSITY COLLEGE LONDON RECEIVES THE 2020 EUGENE GARFIELD AWARD FOR INNOVATION IN CITATION ANALYSIS

DAVID A. PENDLEBURY
Institute for Scientific Information, Clarivate

In October, Clarivate named Giacomo Livan, Senior Research Fellow, Department of Computer Science, University College London, U.K., as the recipient of the 2020 Eugene Garfield Award for Innovation in Citation Analysis.

Launched in 2017, the Eugene Garfield Award recognizes early-career scientists proposing novel approaches in the study of citation networks, the dimensions and dynamics of scientific and scholarly communication, and the concept of research impact.

Livan proposed a framework to quantify the academic impact of researchers relative to their specific circumstances, resulting in a suggested author-level metric he calls "citations above replacement." This project is directly inspired by modern sports analytics and aims to allow for fairer comparisons among researchers.

"The sports approach which inspires me — first introduced systematically in baseball and popularised by the book and film Moneyball — leveled the playing field by allowing less rich teams to discover unnoticed players with high potential through sophisticated metrics and statistics," Livan says. "Modern academia shares several similarities with professional sports: It makes progress through teamwork, it is highly

competitive, and it is stratified into multiple competitive levels. Yet the impact of academic researchers is too often quantified in absolute terms, rather than relative terms. If the contribution of a researcher could be quantified by comparing the researcher's performance to that of others in the same role and at the same competitive level, as it is in sports analytics, it would give a much more realistic view of their work and also reveal their potential impact in the research world."

Livan will receive $25,000 of unrestricted prize money and access to the Web of Science™ for research purposes. He is also invited to collaborate with citation analysts and data scientists within Clarivate's Institute for Scientific Information, established in 1960 by Garfield.

More information on Livan and his research may be found at https://clarivate.com/webofsciencegroup/eugene-garfield-award-2020/

Livan is the fourth recipient of the Garfield Award. Past recipients include

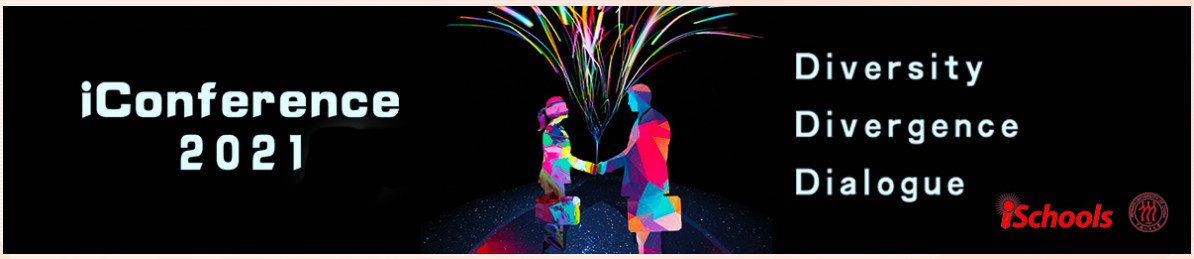
- Erjia Yan,
  Associate Professor of
  Information Science,
  Drexel University (2019);

- Orion Penner,
  Ambizione Fellow,
  École polytechnique fédérale de
  Lausanne (2018);

and

- Jian Wang,
  Assistant Professor of Technological
  Innovation, Entrepreneurship, and Strategic Management,
  Leiden University (2017).

An invitation to apply for the next Eugene Garfield Award for Innovation in Citation Analysis will be announced in Spring 2021.

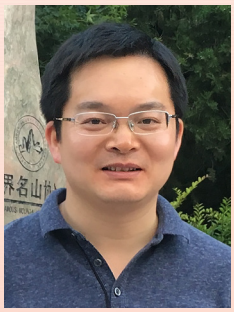


AI + INFORMETRICS: MULTI-DISCIPLINARY INTERACTIONS IN THE ERA OF BIG DATA

18–31 MARCH 2021, BEIJING, CHINA

CALL FOR PAPER

YI ZHANG



CHENGZHI ZHANG

PHILIPP MAYR

ARHO SUOMINEN

You are invited to participate in the 1st Workshop on AI + Informetrics (AII2021) to be held as a virtual event as part of the iConference 2021 in Beijing, China on March 18-31, 2021. See https://ischools.org/Program

PURPOSE OF THE WORKSHOP

Driven by the big data boom, *informetrics*, known as the study of quantitative aspects of information, has gained great benefits from *artificial intelligence* (Nilsson 1998) – including a wide range of intelligent agents through techniques such as neural networks, genetic programming, computer vision, heuristic search, knowledge representation and reasoning, Bayes network, planning and language understanding. With its capacities in analyzing unstructured scalable data and streams, understanding uncertain semantics, and developing ro-

bust and repeatable models, *"Artificial Intelligence + Informetrics"* has demonstrated enormous success in turning big data into big value and impact by handling diverse challenges raised from multiple disciplines and research areas. For example, bibliometric-enhanced information retrieval (Mayr et al., 2014), science mapping with topic models (Suominen and Toivanen, 2016), streaming data analytics for tracking technological change (Zhang et al., 2017), and entity extraction with unsupervised machine learning techniques (Zhang et al., 2019). Such endeavours with broadened perspectives from machine intelligence would portend far-reaching implications for science (Fortunato et al., 2018), but how to effectively cohere the power of AI and informetrics to create cross-disciplinary solutions is still elusive from neither theoretical nor practical perspectives.

This workshop is to gather researchers and practical users to open a collaborative platform for exchanging ideas, sharing pilot studies, and scoping future directions on this cutting-edge venue. We highlight ***"AI + Informetrics"*** as endeavors in constructing fundamental theories, developing novel methodologies, bridging conceptual knowledge with practical uses, and creating real-word solutions.

Interests to this workshop include, but not limited to the following topics:

- Informetrics with machine learning (including deep learning)
- Informetrics with natural language processing or computational linguistics
- Informetrics with computer vision
- Informetrics with other related AI techniques (e.g., information retrieval)
- AI for science of science
- AI for science, technology, & innovation
- AI for research policy and strategic management
- Applications of AI-enhanced informetrics

SUBMISSION GUIDELINES

All papers must be original and not simultaneously submitted to another journal or conference. The following paper categories are welcome:

REGULAR PAPERS

All submissions must be written in English, following Springer's prescribed LNCS template and should be submitted as PDF files to EasyChair.

We accept two types Regular Papers:

- Full Research Papers: Up to 6,000 words, excluding references.
- Short Research Papers: Up to 3,000 words, excluding references.

POSTERS/DEMO

We welcome submissions detailing original, early findings, works in progress and industrial applications of "artificial intelligence + informetrics" for a special poster session, possibly with a 3-minute presentation in the main session. Poster submissions should be vivid, with brief textual descriptions.

All poster abstracts must follow Springer's prescribed LNCS format. Abstracts can be up to 2,500 words in length (excluding references). Abstracts must be fully anonymized.

IMPORTANT DATES

Submission deadline: ..... *01 Feb*
Notification date: ..... *28 Feb*
Final camera-ready versions due: ..... *7 March*

REVIEW PROCESS

All submissions will be reviewed by at least two independent reviewers. Please be aware of the fact that once the paper is accepted, at least one author per paper needs to register for the workshop and attend the workshop to present the work. In light of the recent events regarding the Coronavirus, AII2021 will be an all-virtual workshop as iConference will be online only.

Workshop proceedings will be deposited online in the CEUR workshop proceedings publication service. This way the proceedings will be permanently available and citable (digital persistent identifiers and long-term preservation).

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CONTACT

All questions about submissions should be emailed to Organizing Committee.

Website: https://ai-informetrics.github.io/

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NWB2020 OSLO | OCT 14-16

THE 25th NORDIC WORKSHOP ON BIBLIOMETRICS AND RESEARCH POLICY

CONFERENCE REPORT BY

GUNNAR SIVERTSEN

The Nordic Workshop on Bibliometrics and Research Policy has developed into the size of an international conference since it was started in Helsinki in 1996 as a small doctoral forum led by Professor Olle Persson (Sweden) and Professor Peter Ingwersen (Denmark). Since then, the location has been alternating annually between the five Nordic countries. In the 25th year, we were prepared to welcome all participants to Oslo, Norway on 14th-16th October 2020.* No one came. Instead we reached a new record of 280 participants from 37 different countries, all of them attending on Zoom with no need to spend a Friday evening at Oslo Airport before returning home.

This short conference report will concentrate on our experiences with organizing the conference online. The programme and presentations can be found here: https://www.nwb2020.no/program/

THE ORGANIZERS

NWB2020 was organized in collaboration between Oslo Metropolitan University (OsloMet), represented by Professor Nils Pharo and Senior Advisor Tanja Strøm, and Nordic Institute for Studies in Innovation, Research and Education (NIFU), represented by Senior Advisor Kristoffer Rørstad and Research Professor Gunnar Sivertsen. OsloMet is Norway's main higher education institution in Library and Information Science.

* As announced in ISSI NEWSLETTER in December 2019: https://www.issi-society.org/media/1404/newsletter60.pdf



Roughly 25 years ago the Nordic Workshop on Bibliometrics and Research Policy (NWBRP) was initiated by Peter Ingwersen (DNK), Terttu Luukkonen (FIN) and Olle Persson (SWE)

25th anniversary

NORDIC WORKSHOP ON BIBLIOMETRICS AND RESEARCH POLICY

One of the earliest workshops. The 4th NWBRP in Copenhagen in 1999.

Workshop dinner of the 10th NWBRP in Stockholm, 2005. Here the workshop still had the family-like atmosphere.

By every year the once-tiny workshop have become more and more popular. Tampere 2008 and Copenhagen 2016.

25th anniversary

NORDIC WORKSHOP ON BIBLIOMETRICS AND RESEARCH POLICY

Photo: courtesy of © Balázs Schlemmer

It is a workshop tradition that the dinner is always in a restaurant close to a waterfront. Tammerkoski, Tampere, FIN

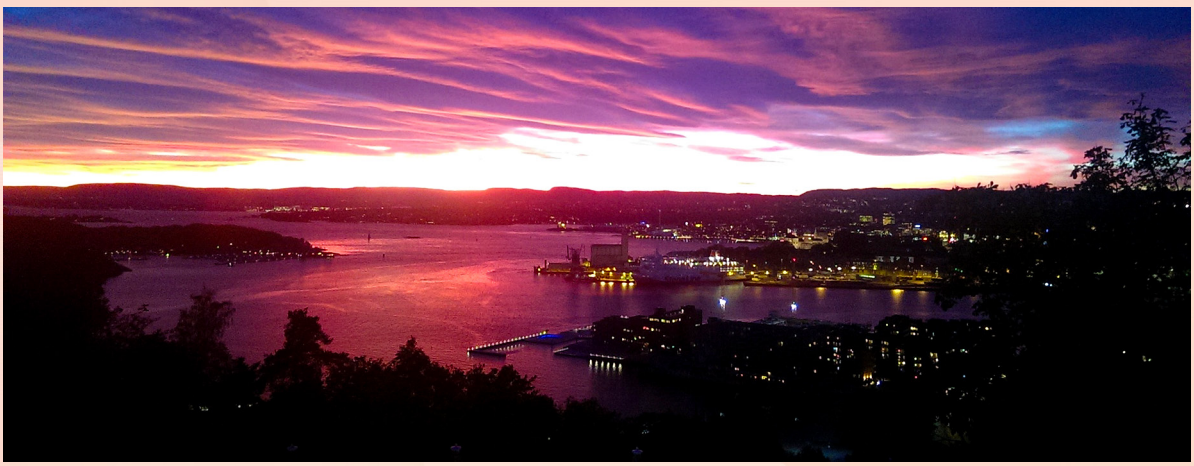

Photo: courtesy of © Birger Larsen

Workshop dinner, Oslo 2015. Photo taken from the place Edvard Munch chose to stand when painting The Scream

NIFU is the main research organization performing bibliometric research in Norway.

ONLINE ONLY

As we reached mid-October and went online with the conference, the pandemic had already resulted in several months of experience at OsloMet with online teaching of students, and both of our organizations were accustomed to participating in and organizing virtual events. We profited from this experience and established a mission control room for the four of us at OsloMet, where we trained ourselves and the speakers in the online medium in the days before the conference opened on a Thursday morning at 9am.

At that moment, we were happy that we had discarded the idea of hosting a 'hybrid' conference for both physical and virtual attendance, which we had optimistically announced before summer. Hosting both would have been too complicated. It takes minute by minute focus and concentration to manage an online conference. We were attentive as each other's assistants as we took shifting roles in opening and closing the days and as session chairs, always alert to avoid time lags in the programme. To stay on time is particularly important in online conferences because attendants may pick from the programme as from a menu. Also to serve the need of the presenters, we provided a detailed programme with the exact hour and minute of the start and ending of each presentation: https://www.nwb2020.no/wp-content/uploads/2020/10/Programme-NWB-2020-_final-version.pdf

BROADER ATTENDANCE

NWB2020 had participants from all over the world, as in earlier years, but with much higher numbers, which we attribute to the fact that there was no need to travel. NWB also has the ambition of having a broader audience in another sense, namely, to interact with research policy. This ambition is shown in the title Nordic Workshop on Bibliometrics and Research Policy. Some research administrators, research funders and policy makers from the country of the location will usually attend the NWB. This time, we had more attendants than ever from such groups, perhaps because we had reached out to them and advertised our policy-relevant keynotes and the option of attending them online. The three keynotes spoke directly from the United Kingdom, the Netherlands and China:

- Elisabeth Gadd, Loughborough University, spoke about The Research Evaluation Food Chain and how to fix it
- Johan Rooryck, Leiden University, gave An Update on Plan S as Open Access Champion for cOAlition S
- Lin Zhang, Wuhan University, introduced and discussed The new reform of research evaluation in China.

NO POSTERS, ONLY SHORTER PRESENTATIONS

Although it has grown into an international conference, NWB tries to adhere to the values of the original doctoral forum. This is expressed by the four 'rules' of NWB which are announced at the opening every year:

1. Present new ideas or work in progress if you want to
2. Be policy-oriented if you can
3. All presentations are followed by questions, suggestions and discussion
4. Be friendly

The 'rules' are meant to give young researchers a valuable event and widen their

networks. Allowing for poster presentations is important to achieve this purpose. In addition to giving work in progress visible space, the tradition is to have a Poster-minute-madness plenary session chaired by Professor Birger Larsen in which all authors of posters are on stage together to advertise their topic within one minute each. The result is more active participation and stimulating dialogues in the poster session itself.

This year, we decided to not invite posters since it would be difficult to provide a good online medium for dialogues about them. Instead, all accepted abstracts would have to be presented orally. This was a challenge because NWB has a tradition of having plenary sessions only. We want to avoid parallel sessions. Hence, we wrote to the authors of accepted abstracts:

> *Due to the CORONA situation, in which we chose not to have a poster session this time, we had to make space for all valuable contributions as oral presentations. We therefore decided to have four presentations per hour, leaving 15 minutes including discussion for all contributions. We know that this can be demanding for you. We suggest you think of your presentation as information and less as a full scientific paper, and that you focus on your research questions and results and only shortly indicate your methods. If you have a methods paper, provide the why and how without going into too many details.*

All presenters successfully adapted to our request. In almost all cases, we were even able to include a plenary discussion of 2-5 minutes after the presentation (following 'rule' number 3 above), and we were on time. This 'rhythm' worked particularly well on the second day as all participants had got used to it. We felt that the traditional friendly and encouraging atmosphere of the NWB was there even if we could see each other on screens only. But, of course, communicating online can never replace the value of seeing each other and spending time together for real, and it is almost impossible to make new acquaintances, which is a core value of a conference.

SPONSORS IN THE MIDDLE

The sponsors are important to NWB because it is held without conference fees and without any other support than the hosting institutions provide. The conference participants, particularly the research administrators and library representatives, value the presence of sponsors because they provide useful tools, demonstrations, guidance and contacts. This opportunity disappears in conferences that are held online only. This year's sponsors to NWB were Clarivate, Digital Science and Elsevier. Instead of organizing a pre-conference event as usual, we placed them in the middle of the programme, in the afternoon of the first day, where they shared two hours between them in a session named Useful tools, innovations and studies. The studies and methods presented matched the general profile of the programme very well.

NEXT TIME IN ODENSE

The NWB brought people to Helsinki in 2017, Borås in 2018, and Reykjavik in 2019, but no one came to Oslo in 2020. Hopefully, we can meet next year for real in Odense, the birthplace of Hans Christian Andersen, as the University of Southern Denmark is hosting the conference on November 3-5: https://www.sdu.dk/en/bibliotek/kurser+og+events/aktiviteter/nwb2021

THE AVERAGE CITATION h_a-INDEX

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The h-index proposed by Hirsch (2005) has been widely adopted as an indicator for assessment of scientific achievement (Ball 2005; Zhang, Thijs and Glänzel, 2011). This success is due to its easiness of calculation included in its definition, namely: *the highest number of papers, denoted as h, a scientist has that have each received at least that number of citations* (Hirsch 2005).

The application of the h-index has been extended to other datasets: from the individual researchers to teams, departments, universities, fields and also to journals (Braun, Glänzel and Schubert, 2006). Many bibliometrics scholars have pointed to imperfections and drawbacks of the h-index (Costas & Bordons, 2007; Bouyssou and Marchant, 2011; Waltman and Van Eck, 2012; Rousseau, Egghe and Guns, 2018). As a consequence, a considerable number of h-type variants have been proposed (Bormann, Mutz, Hug and Daniel, 2011), such as the g-index (Egghe, 2006) and the h^2-index (Kosmulski, 2006).

The growth in the number of publications and journals since the launch of the h-index in 2005, has led to an inflation of the h-index values of all researchers and all journals. This phenomenon has diminished the significance and differentiation power of the h-index. Other criticisms refer to the need for normalization to allow fairer comparison (Harzing, Alakangas and Adams, 2014). Several attempts for normalization have been proposed, especially towards adjustments for age or career length.

Besides the h-index, Hirsch (2005) also defined the m-quotient as h/n, where n equals the number of years since the researcher's first publication. Whereas the h-index executes the ranking according to the article citations, without any normalization, the m-quotient corrects the h-index for age after ranking. In fact, the calculation includes two successive operations: the ranking and the correction for age, which is the division of the h-index by the number of years of

research activity. Curiously, the alternative with the two operations performed in different order has not been proposed yet. The correction for age could precede the ranking. This could lead to an h-index variant. The principle applied to define the h-index – the ranking of a dataset in declining order of total citations – can then be applied to the ranking of that dataset in declining order of the publications' average citation per year. An average citation h-index can be defined: the h_a-index of a given dataset is *the largest number of papers in this dataset that have obtained at least ha citations per year on average.*

Despite numerous h-type variants, this simple alternative has not been proposed yet. It is probably because the h-index has always been presented as an integer, while the average citations per paper are not integer numbers. An average applied at the level of the individual publication confers more precision and avoid possible distorting effects of the overall average.

Table 1 presents the data and h- and h_a-indexes of ten scholars in entrepreneurship research with different profile and years of activity, with the ranking according to their h-, m- and h_a-indexes.

The analysis of the comparative table presents some indications with a few changes of the order, especially for the middle category, While the m-quotient heavily penalizes some older researchers, the h_a-index improves the position of mid-career and younger researchers compared to their h-index ranking. The h_a-index ranking mitigates the h-index ranking. The selection of the articles in the h_a-core of a dataset is different from the selection in the h-core or in the h^2-core. The h_a-core can include younger articles that are not in the h^2-core and vice versa. This new indicator acknowledges potential, yet also recognizes experience.

The average citation h_a-index has other advantages compared to the classic h-index. It renders a better selectivity and more stability. The h_a-index is lower in value than the high levels of the classic h-index. The number of articles in the h_a-core lies in the same range as the h^2-index, maybe somewhat higher. Only those publications that sustain a high growth rate over a longer period of time will maintain their presence in the h_a-core. In this way, the h_a-index is a truly dynamic index. The increase of citations by one unit per year of existence is indeed a severe criterion. The stricter measure also prevents manipulation of the h-index through self-citations.

The greater stability of the h_a-index makes the application and comparison of

Table 1: Comparative data and h- and h_a-indexes of ten scholars in entrepreneurship research

Author	n	TC	y	h	m	h_a	rank h	rank m	rank h_a
A1	125	24147	29	66	2.28	19	1	1	1
A2	225	12438	29	62	2.14	19	2	3	1
A3	82	15626	41	46	1.12	14	3	7	3
A4	74	2812	13	29	2.23	13	4	2	4
A5	33	2497	14	22	1.57	11	5	5	5
A6	85	7915	45	38	0.84	10	6	10	6
A7	38	867	8	17	2.13	6	7	4	7
A8	25	347	13	12	0.92	5	8	9	8
A9	19	406	8	11	1.38	5	9	6	8
A10	8	96	6	6	1.00	3	10	8	10

Legend: Author, n number of papers in WoS, TC total citations in WoS, y the number of years the scholar has been active (since their first publications), h-index, m-quotient (h/y), the new h_a, rank corresponding ranking of the basis of h, m and h_a-indexes.

Table 2: data and h-type indexes of library and information sciences journals

	n	avg cit	h	h^2	h_a
JASIS - JASIST	6797	21.9	144	21	27
Scientometrics	6318	18.1	117	18	21
Journal of Informetrics	1038	22.0	66	14	18
Information Processing and Management	3694	15.6	93	15	16
Journal of Documentation	4141	8.4	75	16	13
Journal of Information Science	2349	11.2	32	12	11
Journal of Data and Information Science	91	3.6	8	3	3
Malaysian Journal of Library and Information Science	275	4.4	15	5	3
Journal of Scientometric Research	199	0.6	4	2	2
Research Policy	3702	68.5	231	27	42
Technological Forecasting and Social Change	5687	16.3	106	16	26
Research Evaluation	642	14.8	45	10	10

** retrieved from WoS on 12th November 2020*

h_a-indexes even more useful for academic journals, or other datasets such as scientific fields with much larger numbers of articles and a smoother citation distribution curve. Table 2 displays the data and h-type indexes for a few journals in library and information sciences and in research policy. For academic journals also, the h_a-index ranking mitigates the h-index ranking.

The evolution of the h- and h_a-index over the years presents evidence of a greater stability. Whereas the h-index tends to progress linearly, the h_a-index manifests smaller increases in a parabolic form to reach a plateau in the phase of maturity. The h_a-index of *Scientometrics* advanced from 15 in 2010 towards 21 by the end of 2020, while its h-index nearly doubled from 60 to 117. Its h-index continues to rise by more than 5% a year, or 5 to 9 units a year. The rise of the h_a-index is somewhat slighter, but in absolute values it increases only by one every one and a half year.

The h_a-index offers more stability over time and provides a response to the inflation of levels of h-indexes. It has the same ease of calculation as the h-index and can easily be incorporated in databases.

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ANNEX

Table 3 exhibits the analysis of the evolution of the h- and ha-index over the years for the journal *Scientometrics*.

Table 3: The evolution of various h-type indexes of Scientometrics over the years

	1985	1990	1995	2000	2005	2010	2015	2020*	2015	2016	2017	2018	2019	2020
n	297	626	1032	1530	2041	2886	4369	6318	4369	4748	5144	5542	5874	6318
tot cit	620	2000	3500	5500	8500	25000	55000	120000						
h	10	17	23	28	36	60	87	117	87	92	96	102	108	117
h^2	3	5	6	7	8	10	14	18	14	15	16	17	17	18
h_a	4	4	4	4	6	15	17	21	17	18	19	19	20	21

* *retrieved 11th November 2020*