ISSN
INTERNATIONAL
CENTRE
ACTIVITY
REPORT
FOR 2019

2187-5375

2211-1263

2095-5022

2255-3398

2049-9442

0547-2695

0851-1160

2009-5929

2063-949X

2244-5188

1752-6019

2007-5588

1319-447X

1025-3688

2241-5017

2227-2526

2305-896X

2228-3552

0254-5969

0035-0222

1512-0384

1503-0733

1607-6516

0379-2943

0258-6444

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0075-1448

0019-3623
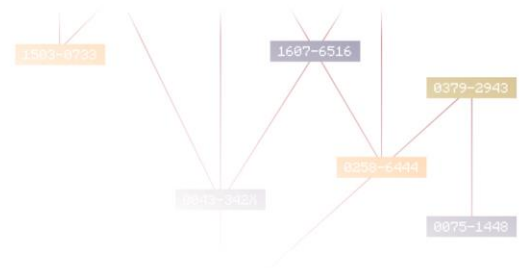
Introduction

The ISSN Portal (https://portal.issn.org) launched in January 2018 providing our user community, e.g. publishers, librarians, researchers, Open Access platforms, repositories, content providers, abstracting and indexing services, with free access to a subset of ISSN metadata. Since 2018, the ISSN Portal has proved to be a vital service to identify and track all types of continuing resources. It relies on the expertise of the ISSN Network and its 90 ISSN National Centres to supply metadata updates. It also benefits from the commitment of our community of users and subscribers who suggest modifications that are assessed and processed by ISSN Network professional teams.

Since September 2019 and the implementation of sitemap files, the ISSN Portal has been better indexed by search engines and usage statistics have soared with 6,000 daily unique visitors and 33 million page views. These statistics are indeed comforting because they show that the ISSN Portal and its services are worth the time and money the ISSN International Centre team has dedicated to their implementation. The ISSN Portal does also serve many serial publishers that request ISSN identification as well as libraries that subscribe to the full ISSN services including its API.

The technology underlying the ISSN Portal gives the ISSN International Centre many opportunities to interact with partners to cross-check ISSN data and upgrade it. A decisive move in 2019 was to take over the Keepers Registry from our long-standing partner EDINA and host it on the ISSN Portal. The Keepers Registry is the service that aggregates information about collections of digital serials provided by a score of partner archiving agencies. As of January 2020, about 45,000 digital serial titles were preserved by these partners that guarantee the long-term availability of these resources. To accommodate this service on the ISSN Portal, the ISSN International Centre and the ISSN Network proceeded with amendments to ISSN metadata notably by creating ISSN records for digitized material.

Another highlight of our activities in 2019 was the revision of the ISO standard 3297 that resulted in a final draft international standard that should be submitted to ballot in 2020. The sixth version of the standard will serve as a basis to update the ISSN Manual which provides technical guidance to the ISSN Network regarding the identification and description of continuing publications. The ISSN International Centre is involved in various international standardization working groups and monitors closely the evolution of practices in the library field and the publishing industry.
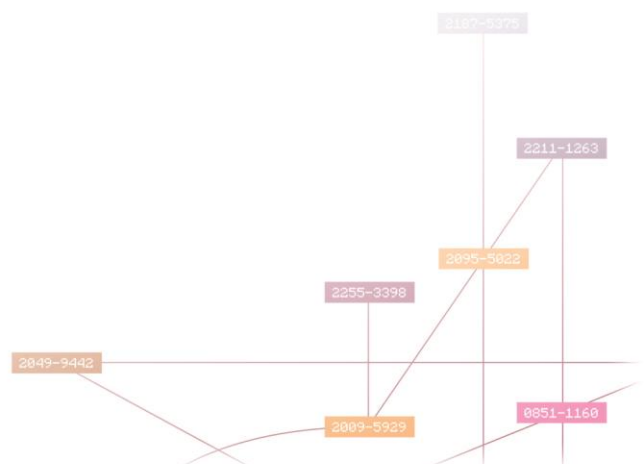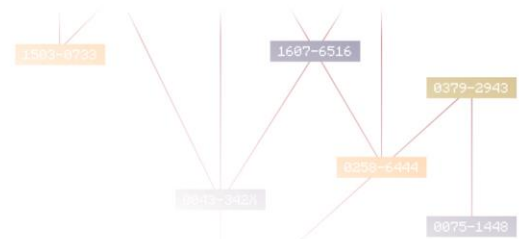
1. The ISSN Network

1.1 Coverage and extension of the ISSN Network

In 2019, the ISSN Network comprised 90 member states. Official accession letters were sent in 2019 to UNESCO's Director General by Peru and Ukraine. In 2020, the ISSN International Centre will sign working agreements with the appointed organisations in these countries. The government of Austria has also expressed interest in the country joining the ISSN Network and this should eventually happen in 2020.

The review and update of all working agreements between the ISSN International Centre and the organisations hosting the ISSN National Centres started in 2017. A new template working agreement was approved by a vote of Member states during the 2018 General Assembly Meeting. As of February 2020, 38 ISSN National Centres signed the new working agreement.

1.2 Activities of the ISSN Network

1.2.1 Governance bodies

Ten representatives of member states sit at the Governing Board beside the representatives for France and UNESCO. Four meetings of the Governing Board were organised in 2019. The 78th meeting (distant) was held on January 25th, 2019. The 79th meeting was held in Paris on 15-16 April 2019. The 80th meeting (distant) was summoned on July 9th, 2019. The 81th meeting (distant) convened on November 4th, 2019.
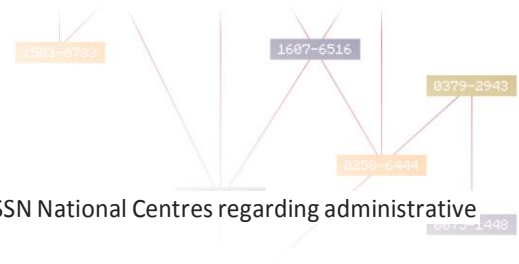
1.2.2 ISSN National Centres

The 44th ISSN Directors' Meeting was kindly hosted by ISSN India at CSIR-NISCAIR in New Delhi (12-16 November 2019). Attendance was average with 38 participants. The ISSN International Centre and the Directors of ISSN National Centres extend their gratitude to Dr. Ranjana Aggarwal, Director, CSIR-NISCAIR, Dr. Manoj Kumar Patairiya, Former Director, CSIR-NISCAIR, Dr. G. Mahesh, Head, National Science Library, Director of ISSN India, CSIR-NISCAIR, and all staff at CSIR-NISCAIR.

As per a resolution of the ISSN International Centre Governing Board voted in April 2016, the ISSN Award Program ended in December 2016. It was replaced by a programme which supports the organisation of face-to-face regional information and training sessions for existing ISSN Centres and potential new ISSN Centres. One participant per country receives a grant that covers travel and accommodation expenses. Further to the three annual sessions held respectively in Brazil (2016), Kazakhstan (2017), and Malaysia (2018), the fourth session took place 22-24 October 2019 in Maribor, Slovenia, at the kind invitation of the Institut informacijskih znanosti (IZUM). Representatives from Bosnia, Bulgaria, Croatia, Hungary, Latvia, Montenegro, Serbia, Slovenia, and Albania and Ukraine – which are not yet members of the ISSN Network – attended the meetings and gave presentations about their organisations and activities. Four ISSN IC staff gave presentations about the ISSN Portal, ISSN+ and the ISSN IC future strategy.

In this period of change, it is of uttermost importance to communicate with ISSN National Centres about the current strategic objectives of the ISSN International Centre. Since 2014, the ISSN IC Director has had meetings with ISSN Colleagues from the following ISSN National Centres: Argentina, Bosnia, Brazil, Bulgaria, Burkina Faso, Canada, China, Colombia, Croatia, France, Ghana, Germany, Hungary, Ireland, Japan, Korea, Kyrgyzstan, Latvia, Lesotho, Malaysia, Montenegro, Morocco, New Zealand, Nigeria, Russia, Serbia, South Korea, Spain, Sri Lanka, Turkey, U.K., U.S.A., and Uzbekistan.

In July 2019, the Project Officer started working with the ISSN International Centre to manage relations with ISSN National Centres, including the renewal of working agreements, and collect information about their activities in line with ISSN IC

policy and ISO regulations. The Project Officer will be the contact person for ISSN National Centres regarding administrative and cooperation issues.

1.3 Progress made on Strategic Objectives 2015-2019

The first strategic goal of the ISSN International Centre is to **improve the operations of the ISSN Network** by supporting existing ISSN National Centres through communication, advising and training.

The foremost objective is to turn the ISSN Network into a more inclusive community by increasing cooperation and direct interactions between ISSN National Centres. Regional training and information sessions held annually since 2016 in Brazil, Kazakhstan, Malaysia and Slovenia have been instrumental in achieving this objective. This program will carry on over the coming years.

A 2017 decision of the Governing Board established travel grants to Governors to participate in the face-to-face meeting held in Paris every year with the objective to increase diversity and foster representatives from various member states to apply for governor positions. As a result, the ISSN International Centre Governing Board elected in 2018 to serve for two years is more diverse and applications for Governing Board membership are more numerous.

Inclusiveness is also achieved by providing online information in the six official languages of the United Nations. The ISSN International Centre is an intergovernmental organization and, as such, shall disseminate information about its activities to as many interested parties as possible around the globe. The ISSN IC official website (www.issn.org) is already available in six languages. The ISSN Portal interface (portal.issn.org) has been translated into the 6 UN languages..

The Metadata and Technical Coordination of the Network set up several training sessions throughout year 2019 to support ISSN National Centres striving to enhance their professional practice and get hands-on experience on the metadata production tool provided to them by the ISSN International Centre.

The ISSN International Centre promotes the ISSN brand as an evolving and global portfolio of **quality data and services** specialising in continuing resources throughout their lifetime, i.e. from their inception to their long-term preservation. In 2018, the ISSN International Centre worked with NISO-Transfer Group and Transfer-compliant publishers to take over the **Enhanced Transfer Alerting Service** (journaltransfer.org). As of January 2020, 74 Transfer-compliant publishers, including most multinational publishing companies, actually use ISSN services to notify changes in ownership of journal titles. As a benefit, the serial supply chain can browse free ETAS statistics about title transfers and ISSN metadata is updated more regularly thanks to information provided by publishers and checked by ISSN National Centres. In 2019, the ISSN International Centre added a new service to its portfolio by taking over the **Keepers' Registry**. The latter aggregates preservation metadata for digital serials supplied by 13 archiving agencies all around the globe. This metadata is matched with ISSN records thus providing an insight on the archiving effort of digital serials at large. As of March 2020, **44,596** titles are ingested and archived by the Keepers and **17,462** titles are being 'kept safe' by 3 or more Keepers. The ISSN International Centre has plans to cooperate with more archiving agencies in the years to come.

Data quality is indeed paramount for effective information services. The partnerships that the ISSN International Centre has entered into with information sector organizations are critical to actually cross-check metadata and render better services to the library and publishing communities. Thanks to Keepers' Registry archiving agencies, the ISSN International Centre has been able to update several provisional ISSN records and upgrade them to validated. The Memorandum of Understanding signed with **ProQuest** regarding information exchanges between the ISSN Register and UlrichswebTM allows the two parties to substantially complete and enhance their metadata about serial titles. Our partnership with **Latindex** is stronger than ever and the ISSN International Centre is proud to contribute to the identification of Latin American serial titles and thus foster research dissemination in this region of the world. The ISSN International Centre also supports the **Directory of Open Access Journals** (DOAJ) thanks to a specific agreement regarding data sharing. ISSN National Centres are also called upon to work on specific data-cleaning and ISSN assignment operations, such as the **CIDEMIS** program.

The adherence to international standards promoted notably by ISO, IFLA, RSC/RDA and the contribution to the development of these standards are crucial for the ISSN International Centre and the ISSN Network, which are acknowledged as centres of expertise for the identification and description of serials and continuing resources. The
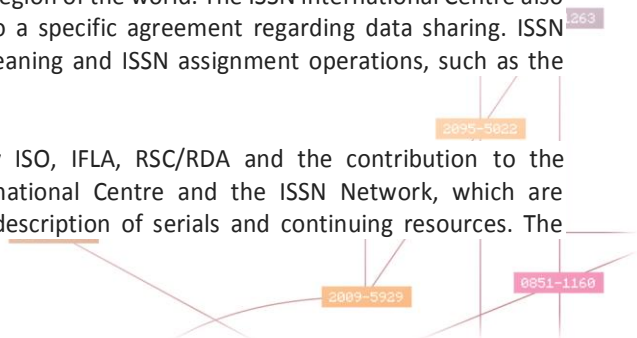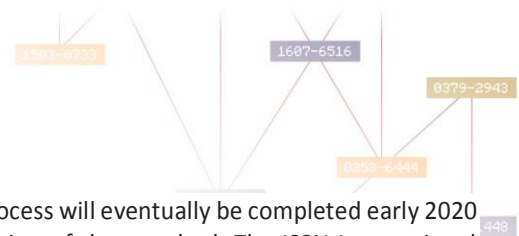
revision of the **ISO 3297** ISSN standard started in September 2017 and the process will eventually be completed early 2020 further to a vote from ISO member organisations to approve the new version of the standard. The ISSN International Centre staff is involved in various working groups supervised **by IFLA's Serials and Other Continuing Resources Section, Cataloguing Section and Committee on Standards**. The ISSN International Centre is also a liaison to the **Program for Cooperative Cataloguing Policy Committee** (PoCo), the US-based cooperative cataloguing venture wherein members contribute bibliographic records and related data under a common set of standards and conventions.

The third goal of our current strategy is to **enhance the ISSN International Centre's IT infrastructure**. The Information Systems Department issued a call for tenders in December 2018 for the new ISSN + production system. The IT company Anybox was eventually selected to develop **ISSN+** under agile methods with the objective to implement the new tool and train users by the end of 2020. In 2019, our work schedule was somewhat disrupted by the announcement of the termination of Jisc's support to the **Keepers Registry** service. In May 2019, the ISSN IC Governing Board approved of the ISSN International Centre taking over the service as from December 2019. ISSN IC staff worked with the company Progilone and a graphic designer to update the ISSN Portal so as to include the archival status of serial titles based on information supplied by the 13 contributing archiving agencies. Keepers Registry is now a service of the ISSN Portal.

Setting up new Partnerships is the fourth goal mentioned in the current ISSN International Centre's strategy. As stated above, the ISSN International Centre has eagerly sought to develop since 2015 joint projects with a variety of partners, i.e. libraries, universities, standardization bodies, information providers, publishers, open access platforms. The objective is to raise the profile of the ISSN International Centre and the ISSN Network as major contributors to the serial publication value chain. This activity is backed by an active cross-media communication campaign, via professional journals such as Against the Grain and Research Information, social media such as Facebook and Twitter. The ISSN International Centre newsletter has recently surpassed 9,000 subscribers.

Improving ISSN International Centre's governance and awareness is the fifth strategic objective. The Governors are regularly updated on ISSN IC activities through interim reports and the annual report with its new layout published online every year. It is also disseminated to ISSN National Centres and their host institutions. In 2019, an executive summary of the 2018 activity report was translated into the 6 UN languages and widely circulated. The 2019 international marketing campaign was instrumental in the promotion of ISSN IC services with presentations delivered at IFLA 2019 WLIC in Athens, Greece, iPRES 2019, Amsterdam, Netherlands, CNI Fall 2019 Membership Meeting, Washington D.C., U.S.A.

The sixth goal of the current strategy is to **share ISSN data with a wider community** while reconciling Open Access and Linked Data principles with financial revenues drawn from products and services. Since January 2018, **the new ISSN portal** has been operating and expanding steadily its user base. Since mid-2019, sitemap files, i.e. files containing the URLs of all ISSN records in a standardized format, have been produced on a daily basis and harvested by major search engines, including Google. In 2019, the annual number of unique visitors surpassed **800,000** and the number of page views **33,000,000**. This is a great achievement for the ISSN International Centre and the ISSN Network and it proves that the decision of the Governing Board to release a subset of ISSN data was the right one. It is also important to emphasize that the financial situation of the ISSN International Centre has not suffered from this strategic move and subscribers to the fee-based services of the ISSN Portal have voiced their support by renewing their subscriptions.

# 2. Activities of the ISSN International Centre

2.1. The development of the ISSN International Portal

At the end of 2019, the ISSN International Register contained **2,121,389 records** in the "Confirmed" category (so-called "Register" records in Virtua).

58,275 new records were added to the ISSN Register in 2019, showing some stability compared to 2018 figures **(58,497)** and 2016 figures **(58,696).**

Furthermore, ISSN assignments to digital resources continued to grow. **22,705**
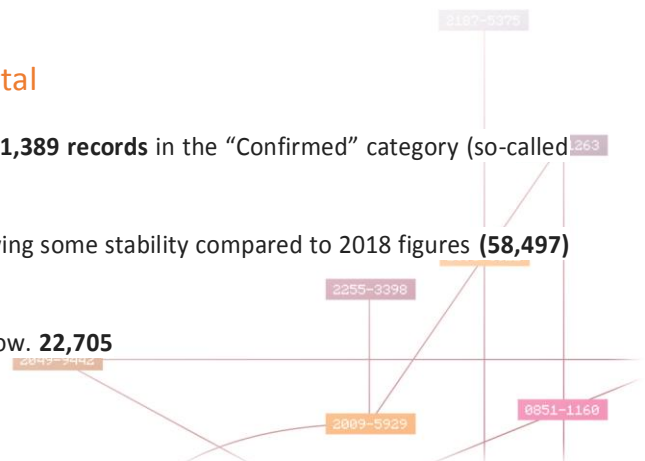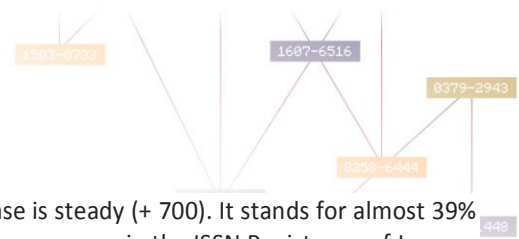
new online resources were identified in 2019: compared to 2018, the increase is steady (+ 700). It stands for almost 39% of the total of ISSN assignments in 2019. Globally, there were **269,868** online resources in the ISSN Register as of January 2020.

37 countries used the Virtua client in 2019, the Nigerian centre having adopted Virtua. Globally, 28,144 records (Confirmed and Provisional) were produced with Virtua, out of which 25,946 Confirmed records, representing 44% of all new Confirmed records produced in 2019.

The number of files **received from ISSN National Centres** and ingested into the ISSN Register increased in 2019: 1,159 files were provided by 46 centres; they contained a total of 175,880 new or modified records (compared to 1,085 files provided by 45 centres and containing a total of 213,807 records in 2018; and 1,011 files provided by 43 centres and containing 197,563 records in 2017). These files are loaded on a daily basis and this workload is shared between two members of staff at ISSN IC. This increase is the result of a more careful monitoring of ISSN National Centres with a view to get fresher metadata at a quicker pace **(see Annex 1 for details).**

2.2. Department of Metadata and Technical Coordination of the ISSN Network (MTCIN)

2.2.1. ISSN Assignment

The assignment activity of the department continued to be very active, with a total number of 3,236 new ISSN assigned (2,982 Confirmed records and 254 Provisional records).
These figures are steady compared to 2018, showing even a slight increase in the number of Provisional records.

The figures below do not include the modification of existing records.

Table 1: Number of ISSN assigned by the ISSN International Centre in 2017, 2018 and 2019, sorted by status and medium

	Confirmed records				**Provisional records**				**Total**
	Print	Online	Other*	**Total confirmed records**	Print	Online	Other*	**Total provisional records**	
2016	2,111	1,306	35	**3,452**	433	143	8	**584**	**4,036**
2017	2,139	1,424	26	**3,589**	254	73	4	**331**	**3,920**
2018	1,917	1,019	21	**2,957**	142	46	5	**193**	**3,150**
2019	1,455	1,496	31	**2,982**	163	88	3	**254**	**3,236**

*Any other type of media: CD, DVD, USB sticks, etc…

The general decrease compared to 2016 and 2017 may be explained by the fact that since January 2018, ISSN assignments by the ISSN International Centre are subject to a fee. The number of provisional records confirmed a decrease compared with 2016. This is the result of follow-up actions with publishers, which were undertaken in 2017 and further automated in 2018, leading to a higher rate of validation for provisional ISSNs.
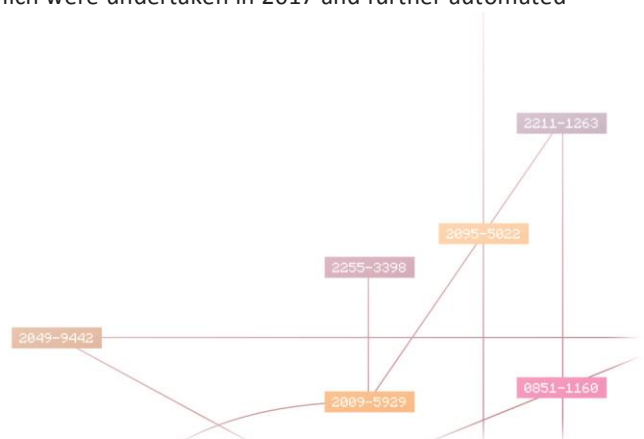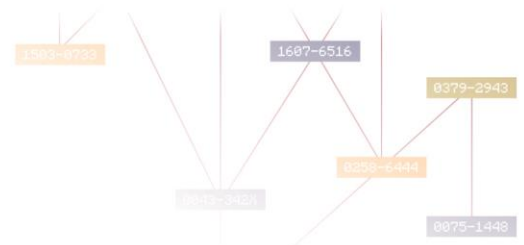
Table 2: Number of ISSN assigned by the ISSN International Centre in 2016, 2017, 2018 and 2019, sorted by countries (over 100 ISSN / year) totalling confirmed and provisional records

COUNTRY	Number of records 2016	Number of records 2017	Number of records 2018	Number of records 2019
International organisations	623	534	308	532
Ukraine	715	571	468	464
Bangladesh	125	145	105	408
Hong Kong, SAR	312	351	424	346
Pakistan	303	396	162	205
Peru	224	193	105	108
South Africa	222	203	83	117
Taiwan, POC	218	209	106	91

*Fig. 1: Number of ISSN assigned by ISSN IC*
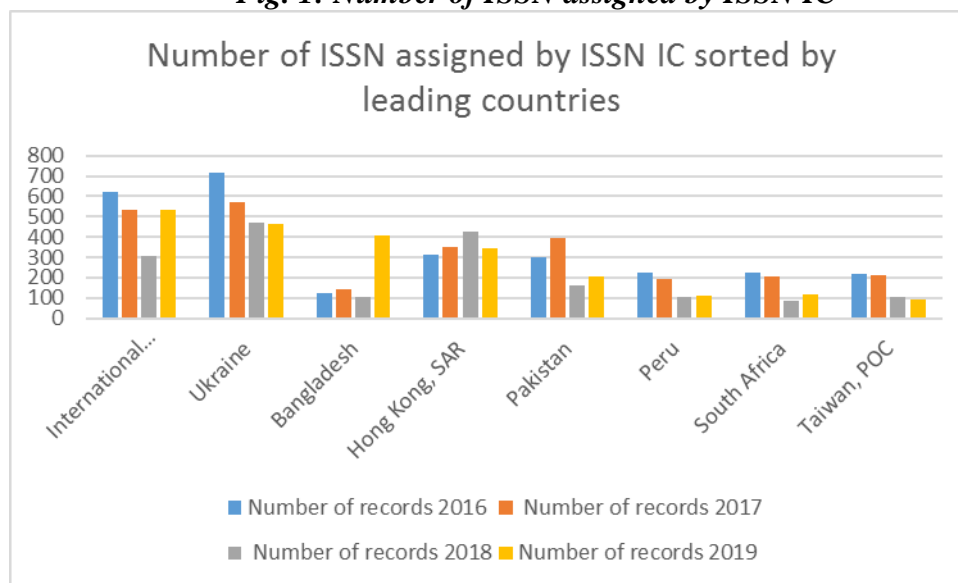
There has been a significant increase in ISSN assignments to publications by international organizations, up to a level equivalent to that of 2017. However, the number is steady for ISSN assigned to publishers based in Ukraine, Peru and Taiwan.

Austria and United Arab Emirates are not listed among the leading countries due to the decrease of ISSN assigned to publications from these countries since 2017.

2.2.2. Serving Publishers

Since 4 January 2018, i.e. the date the ISSN Portal Publishers Extranet launched, a total number of **5,557 ISSN requests** have been received by the ISSN International Centre, out of which **4,931** have been fully processed.
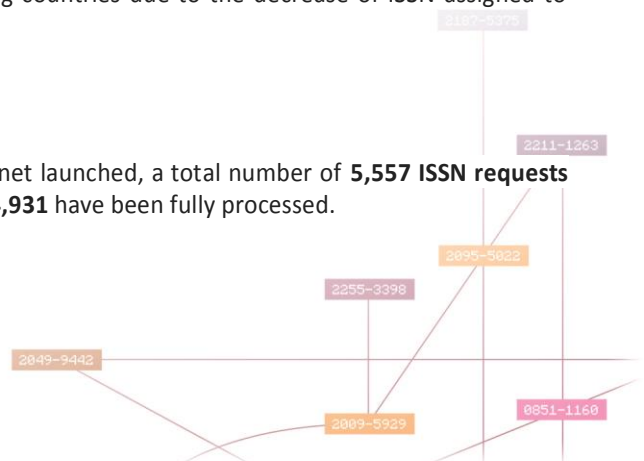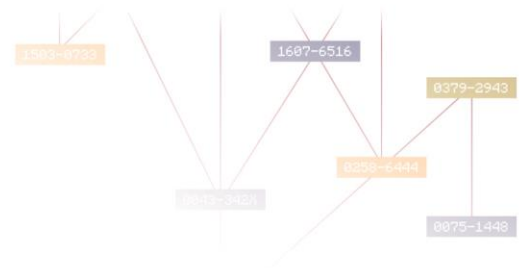
Table 3: Cumulative number of ISSN requests by type of request and status (as of 2 January 2020)

Cumulative since January 2018	Processed	Provisional	Total
Assignment	3447	490	3937
Modification	315	0	315
Claim	1111	0	1111
Transfer	58	136	194
Total	4931	626	5557

In 2019, **1,936** ISSN assignment requests were handled by the ISSN International Centre, out of which 192 requests were provisional. Compared to 2018, the number of assignments is steady, while the number of modifications submitted and processed has doubled (from 110 to 204).

Table 4: Number of ISSN requests handled by the ISSN International Centre in 2019, by type of request and status (as of 2 January 2020)

2019	Processed	Provisional	Sub total	Other: incomplete, rejected	Total requests handled
Assignment	1744	192	1936	241	2177
Modification	204	0	204	88	292
Total	1948	192	2140	329	2469

As of 2 January 2020, the number of publishers registered on the ISSN Portal has doubled, from 1,557 to **2,953**.

Ukraine remains well ahead of the ranking with **1,059** ISSNs assigned and **404** publishers registered in the ISSN extranet. The number of ISSNs allocated to the publishers in the top 10 countries has doubled. A notable fact is that the number of ISSNs assigned has tripled for Pakistan and even quintupled for Bangladesh.
The number of publishers applying for ISSNs has doubled for all countries compared to 2018, with the exception of publishers from Taiwan, Hong Kong and international organizations.
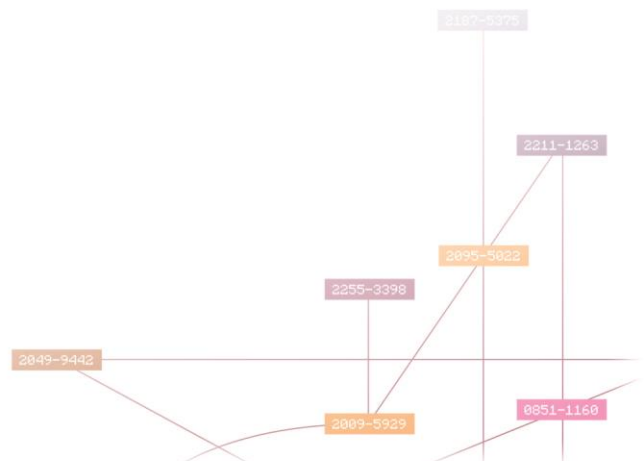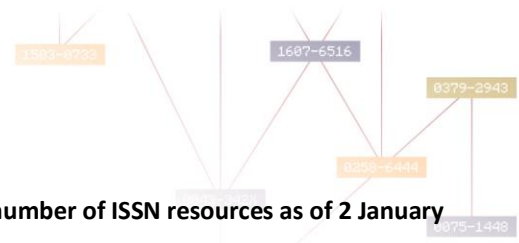
Table 5: Most represented countries in the ISSN Publishers Extranet (by number of ISSN resources as of 2 January 2020)

	Country	UNESCO area	Cumulative number of publishers	Cumulative number of processed requests	Cumulative nb of ISSN resources
1	**Ukraine**	Europe and North America	404	1037	1059
2	**Hong Kong S.A.R., China**	Asia and Pacific	159	792	822
3	**International organizations**		106	614	747
4	**Bangladesh**	Asia and Pacific	141	379	542
5	**Pakistan**	Asia and Pacific	267	386	417
6	**South Africa**	Africa	124	340	304
7	**Iraq**	Arabic States	248	274	216
8	**Peru**	Latin America and Caribbean	172	228	213
9	**Taiwan, Province of China**	Asia and Pacific	153	160	189
10	**Kenya**	Africa	70	160	182

As each publisher within each country is associated with a UNESCO region (except international organizations), it is possible to have a distribution of registered publishers by region.

Table 6: Number of registered publishers by UNESCO region within the scope of ISSN International Centre

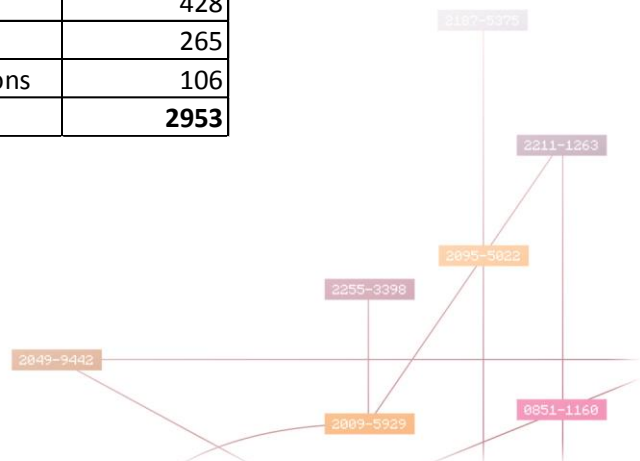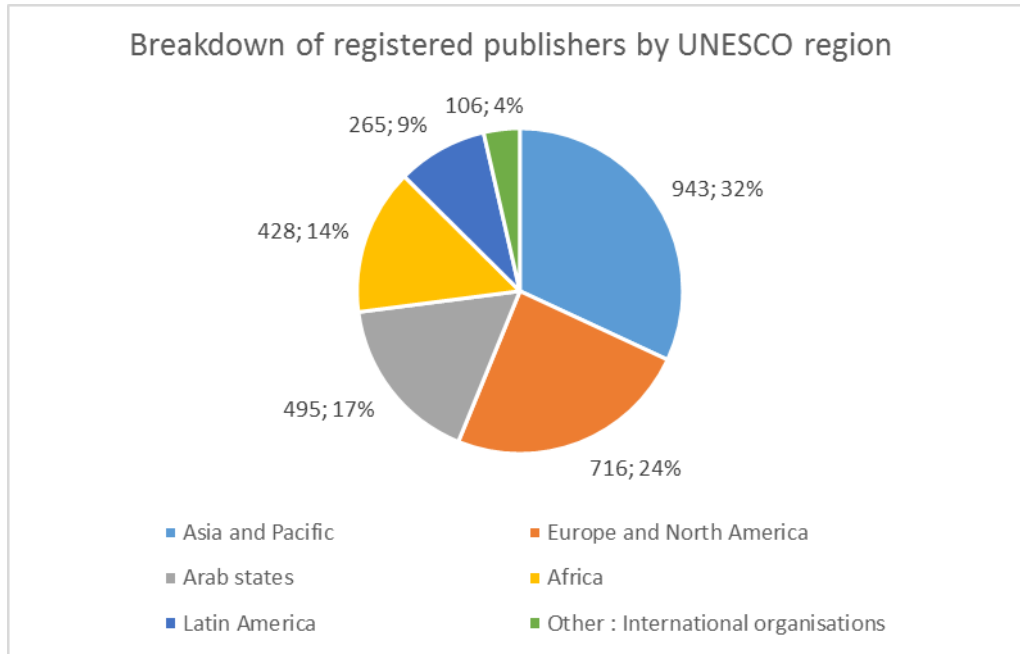| UNESCO region	Breakdown of registered publishers
Asia and Pacific	943
Europe and North America	716
Arab states	495
Africa	428
Latin America	265
Other : International organisations	106
	2953

Fig. 2: Breakdown of registered publishers by UNESCO region within the scope of ISSN International Centre


The semi-automated assignment workflow with Springer-Nature

The semi-automated provisional ISSN assignments have continued in 2019 with a slightly lower volume of assignments compared to previous years. A total of 651 ISSN assignments were made in 2019.

Table 7: ISSN assignments to Springer-Nature publications from 2017 to February 2020

	2017		2018		2019		2020	
	Book series	**Journals**	**Book series**	**Journals**	**Book series**	**Journals**	**Book series**	**Journals**
Jan	24	9	25	9	50	16	18	2
Feb	26	4	20	11	70	16	14	3
Mar	14	2	64	9	24	7		
Apr	0	1	63	11	54	5		
May	26	17	47	17	74	13		
June	23	11	58	17	50	9		
July	20	18	52	8	57	3		
Aug	67	15	102	8	102	6		
Sept	218	19	37	15	16	8		
Oct	41	6	48	19	40	4		
Nov	36	10	47	5	19	5		
Dec	184	5	50	4	0	3		
Total	**679**	**117**	**613**	**133**	**556**	**95**	**32**	**5**
	Total 2017:	796	**Total 2018:**	746	**Total 2019:**	651	**Total 2020:**	37
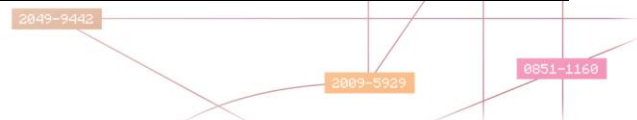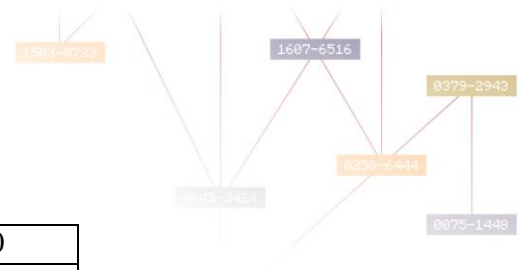
| Total (2017-Feb 2020)	2230
Book series	1880
Journals	350

Confirming the provisional ISSN assignments to Springer-Nature publications

Out of the total of 2,230 provisional assignments since 2017, 538, or ca 24%, have been confirmed. In order to improve this confirmation rate, discussions were held with Springer concerning the next step in the project. In November 2019, Springer sent a file listing titles published in Singapore to the ISSN IC in order to test if the submitted data could be processed in an automated or semi-automated way to confirm provisional assignments.

When verifying the data submitted by Springer and comparing it with the data displayed on the publications, there were some discrepancies suggesting that it would be difficult to automate the process. Despite this, Springer's file will be very useful as an alert of which ISSNs need confirming after the public release of publications. Nevertheless, it will still be necessary to catalogue ISSN records and complete the missing information after verification. Once the test with publications from Singapore is completed, the scope will be extended to publications from Germany and Switzerland.
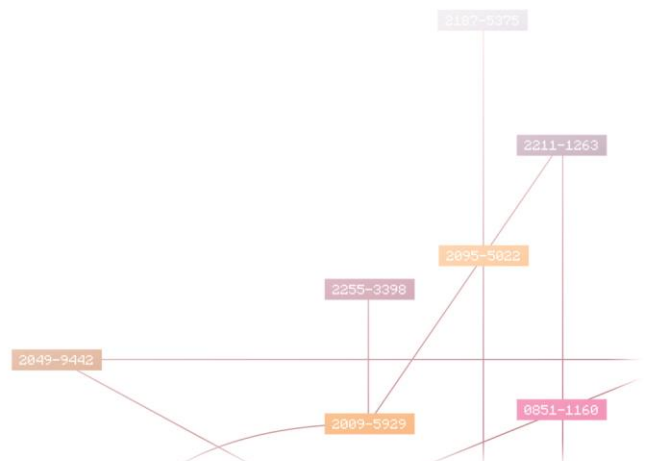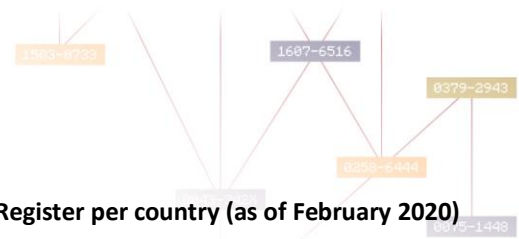
Table 8: Provisional records for Springer-Nature publications in the ISSN Register per country (as of February 2020)

Countries	Number of provisional records
SWITZERLAND	753
GERMANY	421
SINGAPORE	380
UNITED KINGDOM	118
NETHERLANDS	10
UNITED STATES	7
AUSTRIA	4
INDIA	2
KOREA (REPUBLIC OF)	2
JAPAN	1
TOTAL:	**1,698**

Table 9: Outcomes of ISSN assignments to Springer-Nature publications (as of February 2020)

ISSN Assignments (2017-February 2020)	Number of ISSN records
Book series	1,880
Journals	350
Total	**2,230**
Number of provisional ISSN records (as of Feb. 2020)	1,698
Number of confirmed ISSN records since 2017	538

**Enhancing the list of multinational publishers**

The list of multinational publishers needs to be overhauled to make it scalable and cooperative. Following the collection of information from external sources (STM association's Publishers' imprint lists), this list has been checked, augmented and enriched, in particular by associating the publishers' ISNIs and the national centres potentially responsible for ISSN assignment to these publishers' resources. This list, available since Autumn 2019 through an internal wiki tool, will serve as a basis for discussion with the national centres for distributing responsibilities. The wiki is a transitional tool to prepare for ISSN+ to include this functionality.

2.2.3. Relationships with ISSN National Centres

Provision of of bibliographic expertise

The flow of bibliographic questions from the National Centres using the bibquestions@issn.org inbox remains steady. About 3,000 emails were exchanged with ISSN National Centres in 2019.
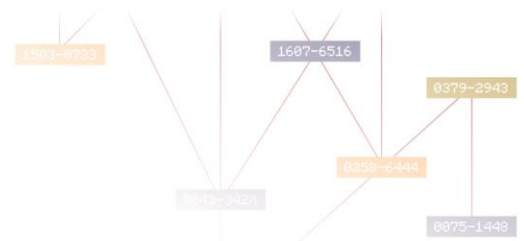
Training sessions

One Specialist in bibliographic metadata production delivered a tailor-made, complete training in French and Spanish for the following National Centres: Morocco, Panama and Uruguay, and brought them an attentive help throughout the year. As a result, the bibliographic production has much improved for these centres. Another specialised staff has been accompanying the Russian national centre since its creation in January 2016, and has also helped the Kyrgyz centre. One Specialist in Automated Processing of Bibliographic Data trained the Nigerian centre to use Virtua, as this centre produces a large amount of records.

A webinar in French dedicated to the ISSN network was set up by the Head of the Department of Metadata and Technical Coordination of the ISSN Network (MTCIN) to present the functionalities of the ISSN portal and how ISSN national centres can interact with publishers to manage their Modification and Transfer requests. Like all other webinars, it is available to the ISSN Network on the ISSN Community Extranet, together with the slide presentation.

In 2019, 16 ISSN National Centres staff participated in a training session. Beside formal training sessions, the MTCIN staff advise on a regular basis 23 NC staff.

2.2.4. Training sessions for the MTCIN team

A new staff started working at the ISSN IC in June 2019 as a specialist in automated bibliographic data processing. This person was trained internally in cataloguing ISSN records and in the process of importing records from ISSN National Centres. To help this staff define automated processes to enhance data quality, notably automated record enrichment operations, a training in the creation of Perl scripts and the advanced use of OpenRefine was set up in 2019.

2.2.5. Participation in the development of a prototype for the new ISSN production tool

ISSN + is the future ISSN production tool that will eventually replace Virtua. It is developed by the Information Systems Department with the cooperation of the Metadata and Technical Coordination Department. Since September 2019, staff of the latter are regularly asked to test modules developed by Anybox, the contracting company responsible for the development of ISSN+. The Head of the MTCIN department is responsible for leading the ISSN+ User Group, consisting of 17 representatives of ISSN National Centres (Argentina, Brazil, Bulgaria, Canada, Chile, Colombia, France, Croatia, Hungary, India, Italy, Korea, Mexico, Russia, Serbia, Spain, United Kingdom, United States) that use the Virtua system for cataloguing and / or correction purposes. This User Group is regularly requested to participate in tests. These tests are an opportunity for the National Centres to take ownership of their future cataloguing tool and express their needs in terms of functionalities.

2.2.6. Standardization activities

ISSN Review Group (ISSN RG)
The ISSN Review Group met twice in 2019:
-Online (September 5th),
-The day before the Directors Meeting in New Delhi (November 11th).

Among many different topics, the ISSN RG and ISSN liaisons have been working on:
-the harmonization between RDA, ISBD and ISSN;
-the review process, best practices and appropriate collaboration tools, and the reviews of the ISO standard 3297, the ISSN Manual, ISBD, FRBRoo, and the IFLA Standards Procedure Manual;
-the relationships between ISSN National Centres and multinational publishers (notably through the creation of -the Multinational Publisher Wiki);
-the addition of external metadata in ISSN records (notably links to National Centres' host catalogue records);
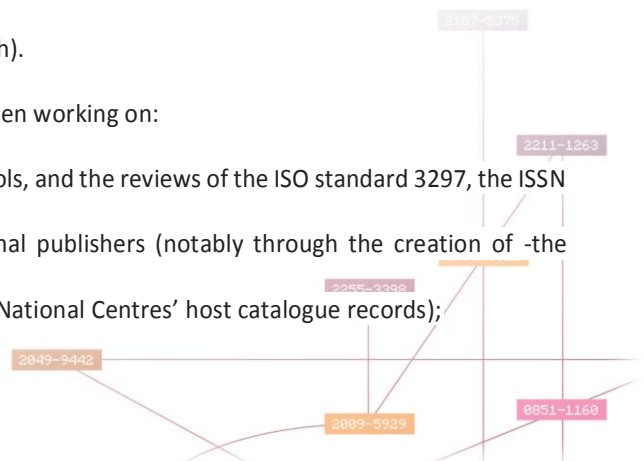
-several other bibliographic issues, either during the meetings or by email (please refer to the ISSN RG meeting minutes for more details).

ISSN Manual

The ISSN Manual is available in English, French, Spanish and Russian. It has not been reviewed lately but Supplementary guidelines have been regularly posted on the ISSN Community extranet. The project plan to update the ISSN Manual was discussed by the ISSN Review Group and then presented at the Directors' Meeting in New Delhi. The ISSN Manual Review will start in 2020 further to the revision of ISO 3297 standard and in response to changes in related bibliographic standards, i.e. ISBD, LRM and RDA.

Activities in the framework of the International Standard Organisation

Since September 2017, the ISSN International Centre has been involved with the revision of ISO 3297 -- International Standard Serial Number and has organized monthly meetings with the experts appointed to the working group in charge of the revision (ISO TC46/SC9/WG5).

The ISSN IC Director chaired the 2019 ISO TC46 Plenary meeting held in Ottawa, Canada (May 6-10, 2019) at the kind invitation of Library and Archives Canada. A meeting of ISO TC46/SC9/WG5 took place during this event to start addressing comments shared by standardization bodies on the draft standard. The final ballot for ISO 3297 will be launched early 2020 and the sixth version of the standard should be available publicly by mid-2020.

The expertise of the ISSN International Centre staff has been sought to provide comments on draft ISO standards, i.e. ISO/DIS 690 Information and documentation — Guidelines for bibliographic references and citations to information resources, and ISO/PWI 24138 – Information and Documentation – International Standard Content Code (ISCC).

International Federation of Library Associations (IFLA)
At IFLA, the ISSN International Centre is represented in various sections and working groups:
- the Serials and Other Continuing Resources Section (SOCRS),
- the Standing Committee of the Cataloguing section,
- the ISBD Review Group,
- the Bibliographic Conceptual Models Review Group,
- the PRESSOO Review Group
- the IFLA Standards Procedure Manual Revision Working Group
- the Bibliographic Standards in Linked Data Study Group, which aims to support the publication of any documentation regarding the diffusion of IFLA bibliographic standards onto the Semantic Web.

The ISSN International Centre has been involved for many years with IFLA Serials and Other Continuing Resources Section whose professional scope has been expanded to include scholarly communication. In 2019, the ISSN IC Director was re-elected as Secretary to SOCRS. The SOCRS 2019 Open Program was held jointly with the Committee on Standards. The ISSN IC Director gave a presentation (http://library.ifla.org/id/eprint/2470) about the review of ISO standard 3297 – ISSN.

The IFLA Library Reference Model (IFLA-LRM, https://www.ifla.org/publications/node/11412), was published and officially endorsed by IFLA in 2017. It replaced the FRBR, FRSAD and FRAD models. In 2019, alignment work between LRM and the two main cataloguing standards, ISBD and RDA, continued. FRBROO, the object-oriented version of FRBR, i.e. the linked-data oriented version, is being replaced by LRMOO. The LRMoo Working Group together with the CIDOC CRM Special Interest Group (part of ICOM) started replacing FRBRoo at the same time as harmonizing it with the CIDOC CRM, by mapping all entities, attributes and relationships in IFLA LRM to OO classes and properties. Once this streamlining is completed in 2020, minor editorial work can be done on PRESSOO which is an extension FRBROO. It was agreed at the Bibliographic Conceptual Models Review Group meetings at IFLA that no major update is necessary for PRESSOO.

Further to the work done by the "ISBD Editorial Group", launched in 2018 to work on the ISBD review, the bibliographic expert of the MTCIN Department participated as a liaison officer in three ISBD meetings at IFLA WLIC 2019. This staff will be involved with the working group "ISBD for manifestation" (manifestation entity mapped with LRM) created in November 2019. The work of this group will result in a first version of the "ISBD for Manifestation" document, which will be presented at IFLA WLIC 2020.
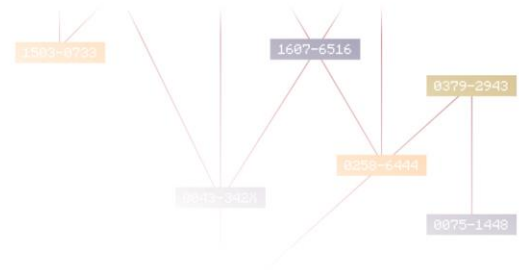
RDA

In June 2015, the ISSN International Centre signed an agreement with the RDA Steering Committee (RSC) in order to "support the maintenance and development of functional interoperability between data created using the RDA and ISSN instructions and element sets". Since then RDA has become a global standard and in 2019, it is now aligned with the IFLA LRM.

The beta version of the RDA toolkit that was launched in June 2018 now has a hard date of December 15, 2020 for the switchover to official RDA status. ISSN IC staff attended several presentations and meetings at IFLA 2019 satellite meetings and online to learn more about the Beta Toolkit. It looks different, has an updated infrastructure, and its accessibility matches W3C guidelines (WCAG). It is more web, and less book-like: policy statements and instructions are aligned together on the same screen. The design has a data dictionary approach. It has instructions for data values, elements and entities for data recording, and offers a choice of granularity and recording methods, and can be customized at the organization-level. The most salient question for the ISSN Review Group is: can the next revision of the ISSN Manual be added as an RDA Toolkit Application Profile? Answering this question will be undertaken in 2020.

Also under ongoing discussion at ISSN Review Group meetings, and in the Library of Congress' Program for Cooperative Cataloging (LC-PCC) Task Group on Diachronic Works in Beta RDA Toolkit are the possible conflicts in cataloguing practice caused by the Beta RDA Toolkit's implementation of the "WEM lock" principle of the LRM model. Recommendations are being made in particular to ensure RDA recommendations for title changes and treatment of translations do not conflict with the ISSN Manual.

Other standardization activities
The ISSN International Centre is a member of EDItEUR, the UK-based organization in charge of developing and maintaining standards for the publishing industry, such as ONIX and ICEDIS (ONIX for serials).

2.2.7 Quality Plan for ISSN Data

Launched in 2017, the Quality Plan identified the various domains where quality should be improved: quality of the bibliographic data (i.e. the ISSN records themselves), enhancing the ISSN coverage (developing the ISSN Register with more identified resources), quality of the processes and workflows (within the Network and with users of ISSN services), and adding more links with other identifiers.

**Quality of the bibliographic data**
Projects with partners are opportunities to correct mistakes and check the structural validity of the ISSN records in their databases. In 2019, in cooperation with **Latindex**, one MTCIN staff corrected 2,040 records, and contributed to identify 4,800 titles of the Latindex catalogue that missed an ISSN. 460 invalid ISSN in the **Latindex** catalogue were also corrected. Moreover, still at the request of Latindex, an enrichment process was implemented.

The completion of MARC 21 title proper fields from key title information has started with 9,500 Brazilian records, through a semi-automatic process and human verification. 5,600 titles from various Latin American countries are being mass-verified before sending the records to the relevant National Centres. This project will continue in 2020.

Enhancing ISSN coverage
Specific operations were performed in order to improve the ISSN coverage, i.e. the identification of **unreported ISSN**, and the correction of outdated data. The priority was set to resources indexed by the Keepers' Registry (200 records). This project will become an ongoing activity as updates will be delivered by archiving agencies. Moreover, a project initiated in 2018 regarding the validation of 450 provisional ISSN records for international organizations' publications was completed in 2019.

At the request of Cision, a company providing media monitoring, 4,800 press titles in the Argus de la Presse database were checked, and the corresponding ISSNs corrected. New ISSNs were assigned when needed.
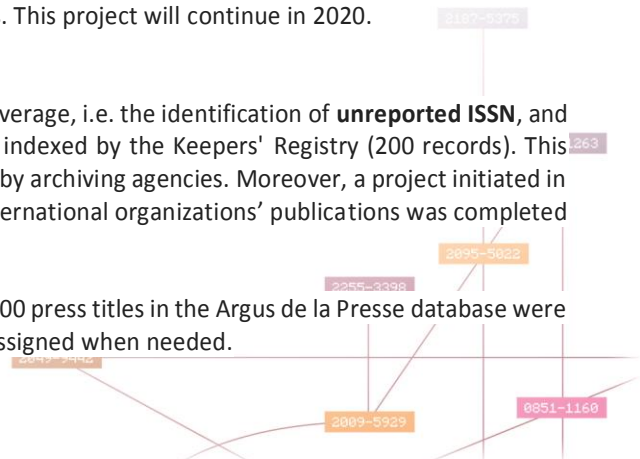
In 2019 within the framework of the quality plan, **9,200 ISSN records** were corrected or enriched, and **9,500 titles proper** were added.

A new project about the standardization of the various forms of publisher names began with the reconciliation of the different forms of names regarding the international organizations subscribing to the portal; this operation remains to be fine-tuned in 2020, and extended to multinational publishers' names and trade names.

Adding links to other identifiers

The alignment with **Geonames** is a work in progress aiming to obtain a refined geolocation. A process was set up to automatically add a geolocation to new ISSN records in the Portal.

Since 2018, **ISNI** are added progressively to ISSN records, thanks to national libraries that include ISNI in their records. As of January 2020, there are 28,000 ISNIs in the ISSN database, most of these ISNI corresponding to issuing bodies.

2.2.8. The development of ROAD in 2019

In June 2018, ROAD web site was embedded into the ISSN Portal and ceased to be a stand-alone web site. Thus it now benefits from a better technical maintenance, an ongoing ingestion workflow and an enhanced metadata enrichment process adapted to the new ISSN Portal infrastructure, as publishers can easily request some updates.

4,884 new ISSN records describing Open Access (OA) resources were added to ROAD in 2019. Globally, as of 2 January 2020, ROAD collected **36,930** OA titles.

The number of scholarly open access publications in the ISSN Register has increased fivefold since ROAD launched in December 2013 (see Annex 2 fig. 1).

Indonesia is still in the lead with 7,400 resources, followed by India, the United States of America, Turkey, the United Kingdom and Iran, each with about 2,000 resources. The top 10 countries together account for 62% of the open access resources in the ISSN Register (22,771 records). (see Annex 2 fig. 2).

When checking how ROAD resources are indexed by other databases (see Annex 2 table 1), one can notice that on a total of 36,930 titles:
-half have title-DOIs (17,945);
-only 18% are archived and reported in The Keepers' Registry;
-25% are indexed in the Directory of Open Access Journals (8848);
-14% are indexed by Scopus.

These results may be due to the fact that Indonesia, India and Iran are territories underrepresented in these mainstream databases. Furthermore, these databases are based on assigned ISSNs, and there is a time lag between the ISSN assignment and the creation of descriptive metadata and when indexing by DOAJ and Scopus occurs. ROAD is thus a more diverse database for the identification of OA resources that complements other services.

Open access resources only represent **1,75% of all ISSN records**, and **13% of online publications** described in the ISSN Register. As a matter of fact, numerous online continuous resources remain unidentified by an ISSN, notably in Africa, the Arab States, and in Latin America. This lack of identification for online resources can be observed as well on regional open access platforms like AJOL for the African continent, and Scielo and Latindex for Latin America.

Therefore, the participation of all ISSN National Centres is all the more crucial to develop the coverage of the ISSN database. ISSN National Centres are strongly encouraged to widen their scope of ISSN assignment and focus on online resources, and notably open access scholarly resources. It is a way of developing the ISSN database in terms of geographic and thematic coverage, as well as in terms of types of resources identified. It is also an excellent opportunity to highlight the work accomplished by the ISSN Network.
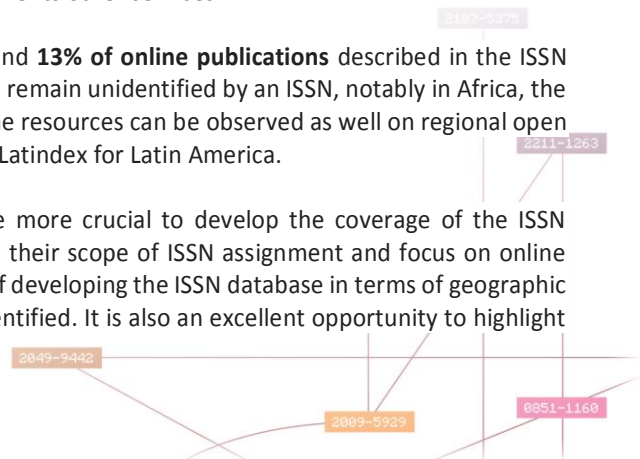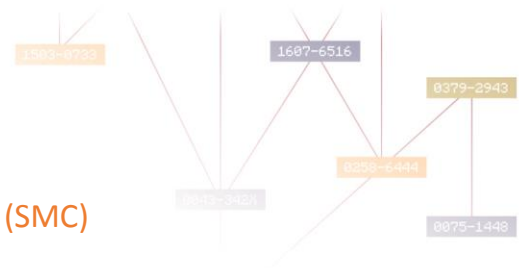
2.3. Department of Sales, Marketing and Communication (SMC)

For 2019, SMC activities were focused on:
-The renewal of ISSN current subscriptions in order to maintain the ISSN turnover;
-New ISSN subscriptions to the ISSN Portal and services associated to ISSN Data;
-Communication about ISSN-L, its usages, functionalities and importance for the publishing community.

2.3.1. Sales

The 2019 sales turnover from ISSN subscriptions increased by 1,3 % compared to 2018.

The main services invoiced remain the access to ISSN Portal (51,11%) and the ISSN Data File (25,32%). The distribution of the turnover slightly changed in 2019:
-       The ISSN Portal turnover increased significantly due to the facts that most customers renewed their current subscriptions in 2019 and the fee for access by login and password has been increasing progressively to align it with the fee for IP access in 2020. 13 customers did not renew their subscriptions to the ISSN Portal due to budget restrictions.

-       The ISSN Data File turnover decreased compared with 2018 figures.

-       In 2019, OAI-PMH turnover increased and represented 11,16 % of the total turnover (7,08 % in 2018).

-       Regarding the new services of the ISSN Portal, the department has been promoting widely the APIs and is in contact with several sales' leads who are testing this new service.

ISSN Credits
The 2019 turnover drawn from sales of ISSN credits amounted is stable compared to 2018. The ten first countries representing 76,58% of total ISSN credits turnover are: Hong Kong S.A.R., China, International organizations, Ukraine, Bangladesh, Peru, Pakistan, Taiwan, Province of China, South Africa, Austria, Kenya.

2.3.2. Contributions from Member countries

In 2019, the actual contributions represented 98 % of the total amount called up. The ISSN International Centre recovered long due contributions from the following countries: Algeria, Bulgaria, Nepal, Nigeria, Saudi Arabia, Senegal. At the end of year 2019, only 9 Member Countries had outstanding invoices and unpaid ISSN contributions.

### 2.3.3. Communication and marketing activities

In 2019, the SMC Department led activities to promote ISSN-L functionalities and ISSN services at various professional exhibitions and focused on the promotion of new ISSN services such as Transfer.

Professional events
In 2019, the SMC Department sent representatives to the following professional events:
-       UKSG (April 2019, Telford): The ISSN IC rented a booth during this event and discussed with various professional contacts;

-       IFLA (August 2019, Athens, Greece): The ISSN IC rented a booth and an ad was published in IFLA booklet; A demo of the new ISSN services was given at IFLA Expo Pavilion Lab (Aug. 26th, 2019);
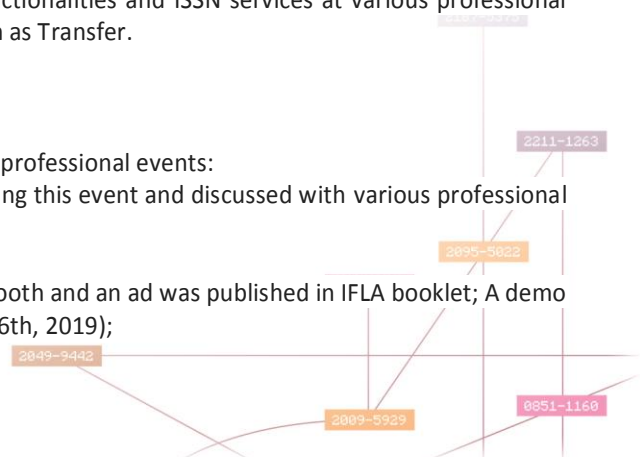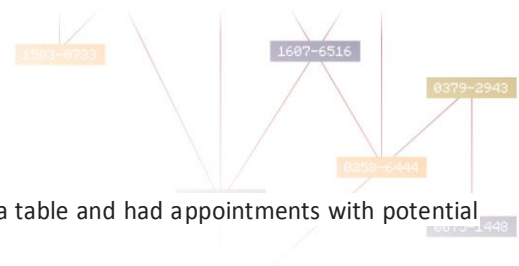
-        Frankfurt Book Fair (October 2019, Germany): The ISSN IC rented a table and had appointments with potential customers and partners.

Communication about ISSN services

The ISSN IC continued to focus its main communication on the ISSN Portal with a special focus on ISSN-L. The SMC targeted professional publications and newsletters in different geographical areas.

The SMC issued a communication campaign and published it in different media:

-Research Information, June-July 2019, issue 102 (viewpoints)
-Online Searcher, July-August 2019, vol. 43
-IFLA WLIC 19, Congress Programme,
-Computer in Libraries, June 19, vol. 39,
-Information Today, June 19, vol. 36,
-Against the Grain, April 19, vol. 31,
-Research Information, Oct/Nov 2019, Issue 104
-Dialog mit Bibliotheken, the journal of the Deutsche National Bibliothek, 2019/2,
-Echodoc: http://www.echosdoc.net/2019/05/issn-l-pour-les-publications-a-supports-multiples/,
-Newsletter IFLA, June 2019 :
https://www.ifla.org/files/assets/cataloguing/scatn/metadata_newsletter_20190501_june.pdf
-UKSG Newsletter: https://www.uksg.org/newsletter/uksg-enews-445/issn-l,
-The ISSN IC sponsored some professional events such as IFLA WLIC and a satellite meeting by IST Austria,
-NISO Newsletter, June 19,
The ad has also been published on various institutional partners' websites and social networks such as Scielo and Latindex,
-The ad has also been published in Russian publications such as Bibliotekovedenie, Observatoria i kulturi, vestnik Bibliotechnoy Assembley Evrasi.

Designing the ISSN Portal

The ISSN Portal is already available in Arabic, Chinese, English, French, and Spanish and the Russian version is to be implemented in 2020.

In collaboration with Keepers' archiving agencies, the SMC contracted with the graphic designer La Concepterie to realize the homepage and all pages of Keepers Registry before its integration in the portal that was effective in December 2019. Some content adjustments and the translation in Arabic, Chinese, French, Russian and Spanish will be achieved in 2020.

The functional improvement of the ISSN Portal is an ongoing and transversal process that requires the participation of all ISSN IC departments.

ISSN on Social Media

In 2019, the SMC continued to upgrade the institutional ISSN website. News and other information contents are regularly published in the six UN languages.

The SMC kept on feeding the ISSN social networks in order to target a larger community.

The ISSN Facebook page (https://fr-fr.facebook.com/ISSNInternationalCentre) reached **2,505** likes in February 2020 (2,244 likes in February 2019) and 2,669 followers in February 2020 (2,293 followers in February 2019). The ISSN Facebook page is regularly updated with news, photos, and videos.

The Slideshare page (https://www.slideshare.net/ISSNIC40) is also regularly updated with ISSN IC and ISSN Network presentations. There are currently **39** presentations published, and 12 followers.

As of 25 February 2020, ISSN_IC Twitter account (https://twitter.com/issn_ic) had approximately **790** subscribers (606 in January 2019). In 2019, each ISSN tweet triggered in average **542** Twitter impressions, i.e. the number of times a tweet shows up in somebody's timeline, which is a significant figure.
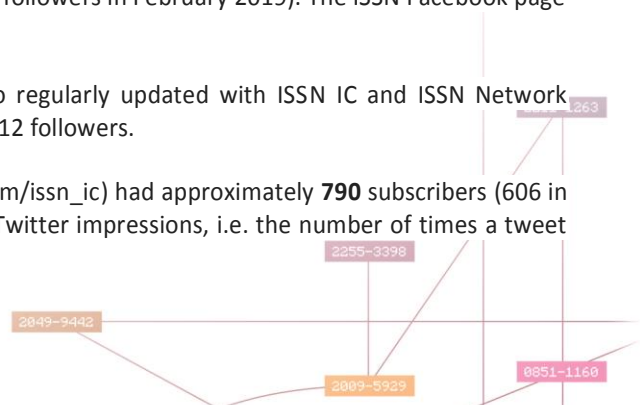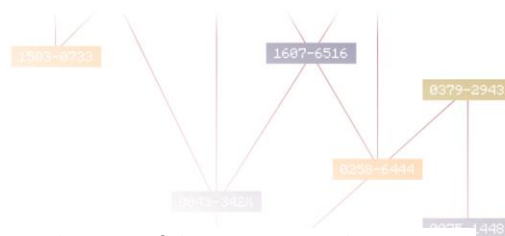
ISSN Newsletter

The ISSN Newsletter is edited by the department of Metadata and Technical Coordination of the ISSN Network. It consists of a press review about the topics relevant to the ISSN community and partners. Further to the move of the ISSN IC to take over Keepers Registry, digital preservation was added as a new newsletter category. As of late January 2020, the newsletter had about 9,000 subscribers --a surplus of 1,059 new subscribers compared to 2018-- representing a monthly increase of 88 subscribers.

2.4. Information Systems Department

The IS Department continued to provide its technical services to ISSN IC staff, the ISSN Network and external customers and partners such as monitoring the web sites and applications, and providing regular data exports. The IS Department also took charge of several "ISSN Premium" activities over the year to check and update external partners' ISSN/Title lists.

2.4.1. Staff

A job description for a developer to be hired by the ISSN IC was published in August 2019. After lengthy interviews with eight different applicants in September/October 2019, a successful candidate was hired and started working beginning of January 2020. After some initial training by Anybox, the contractor for ISSN+, the developer is now fully integrated into the developing team. As of January 2020, the IT team is made up of three staff members.

2.4.2. Technical support to the ISSN International Centre

The cooperation with Normaprint company, in charge since 2016 of the monitoring and management of the local computer system infrastructure at the ISSN IC, has been ongoing in 2019 and allows for a smooth running of our office infrastructure, thanks to bimonthly visits. The major highlights for 2019 were the upgrading of the automated backup system with ArcServe and the setting up of a new WIFI network for guests.

2.4.3. Development of "ISSN Plus"

Following the call for tender and the selection process, the contract regarding the development of ISSN+ was signed between Anybox and the ISSN International Centre in July 2019. « Six et Dix » and « l'Informatique Communicante" are two consulting companies which were contracted to support ISSN IC in monitoring the project.

The work then started on the project using agile methods with the Anybox team of 6 contributing developers and 3 FTE. Developers telework in three-week sprints coordinated by a Scrum Master. The Head of the IS Department is the project owner for the ISSN IC and as such defines and plans "user stories" based on the initial specifications document and submitted to the Anybox team at the beginning of each new sprint. A total of 12 sprints have been accomplished until mid-February 2020.

The Anybox team evaluates the complexity level of the user stories and divides them into tasks which are then taken up by individual developers during the course of the sprint. The team uses "Mattermost" as an open source online chat and alerting service and "Taiga" as the project management system.

The main components of the ISSN+ software are:
- ElasticSearch as the search engine,
- PostgreSQL as the relational database,
- Vue.JS framework for front end development,
- Python language for back end modules and APIs.

In November 2019 the first modules of ISSN+, mainly the search functionality, were presented to ISSN Directors in New Delhi, India. A core set of testing ISSN National Centres has been set up as an ISSN+ User Group.
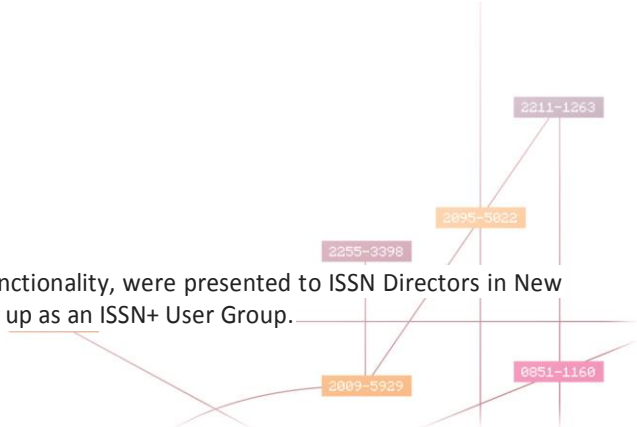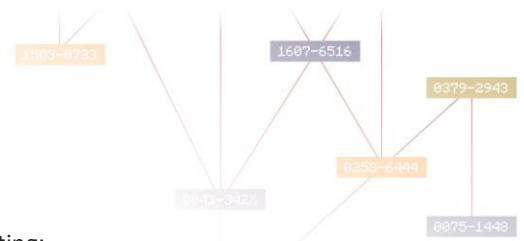
Two versions of the software under development are made available for testing:
- The "qualification" version automatically updated with each new validated chunk of code; this test version only includes a sample of 3000 records so as to have very quick updates,
- The "staging" version updated manually towards the end of each sprint which contains the whole ISSN database. This is the version which is being used by testing ISSN National Centres.

The following functionalities have already been developed for ISSN + as of March 2020:
- Search functions (simple and advanced)
- Display and facets
- ISSN file imports
- Basic export function
- Admin functions
- User management
- Data import mechanisms
- Basic validation rules
- ISSN assignment though API and web form.

The minimum viable product shall be ready by October 2020. By April 2020, the ISSN IC plans to implement the most important functionalities including cataloguing and index browsing but the tool will not yet be ready for use by ISSN National Centres as a number of other functions will still need to be developed: link management, ISSN-L, reporting, labelled display of records, list of serial title word abbreviations.

In the meantime, the MTCIN department regularly uses the local "ISSN+" prototype for diagnostic purposes and "deep drilling". This prototype was developed by the IS department in 2018 using Perl and ElasticSearch and has been updated daily with the same data file used for feeding the ISSN Portal.

### 2.4.4. Maintenance and update of the ISSN Portal

The maintenance contract for the ISSN Portal was signed with Progilone in October 2019 for an annual cost of 12,000 euros corresponding to two man/days per month. The coordinating contact at the ISSN IC is the Head of the Sales, Marketing and Communication department who supervises the bugs filed under the OpenProject tool and corrected by Progilone.

Since December 2019, the ISSN Portal has hosted the Keepers Registry service. Due to the unexpected interruption of the financial support of the Keepers Registry by Jisc, the ISSN International Centre got the support of its Governing Board in July 2019 to take over the service for a switch to a new production environment in the framework of the ISSN Portal.

Thanks to the support of EDINA IT colleagues (mainly through a working session on their premises in July 2019), the IS department designed the specifications for the insertion of the Keepers data into ISSN records ingested by the ISSN Portal, and wrote new scripts for the processing of holding files output in various formats (tabular, ONIX-PH…) by the 13 participating archiving agencies. The data elements are now converted into a dedicated MARC tag and inserted into the ISSN record corresponding to the online version of the resource. As a first step in the switch to production, the last version of the Keepers database was downloaded from EDINA through its API end of November 2019, and converted to the appropriate format for ISSN records, so as to ensure a smooth transition. Direct updates from the various agencies will be performed on a monthly basis in 2020. Archival status information is currently available for free on the ISSN Portal.

2.4.5. Usage of the ISSN Portal

In 2018, work started on the setting up of the framework for a consistent Search Engine Optimization process for the ISSN Portal. Sitemap files containing the URLs of all ISSN records in a standardized format have been produced through a
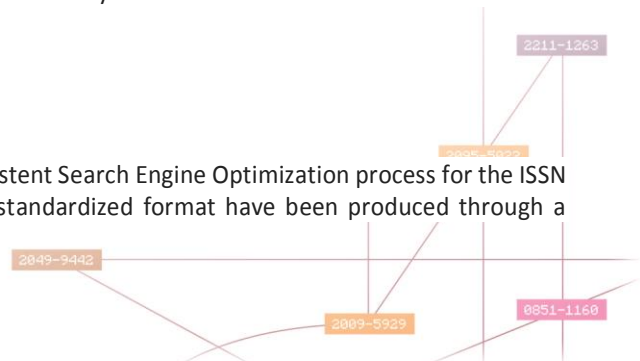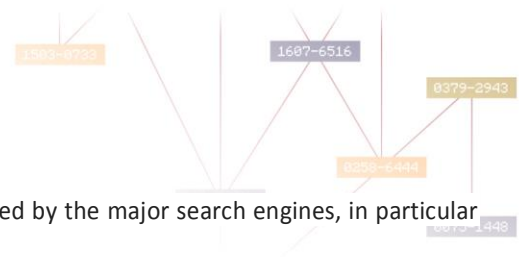
dedicated script on a daily basis since mid-2019. They are regularly harvested by the major search engines, in particular Google.

The indexing of the ISSN pages by Google has been regularly monitored through the "Search Console" which shows a regular progression. As of January 2020, 950,000 ISSN records are indexed, i.e. slightly less than 50% of confirmed records. However, based on a number of randomized checks, it seems that all new assignments are indexed systematically and are thus available through Google searches shortly after being published in the ISSN Portal. The massive indexing by Google, even if not yet systematic, contributes to a significant increase in the visibility of the ISSN Portal and of the corresponding traffic.

ISSN pages from the ISSN Portal are "fed" through sitemap files not only in their default language (English) but also in the other languages available on the server (French, Spanish, Arabic). This choice to include all languages means almost 9,000,000 different web pages have to be indexed in total, and contributes to the relatively slow progression of the indexing of the backlog. This may be revised to speed up the indexing through the default language only.

Work is still ongoing with the support of the company SPARNA on the inclusion of basic structured data (schema.org) inside the web pages of ISSN records, so as to make the metadata directly "readable" by search engines, which should make it hopefully much clearer in search results.

Figure 1: Google search performance analysis as from August 2019 (from Google Search console)
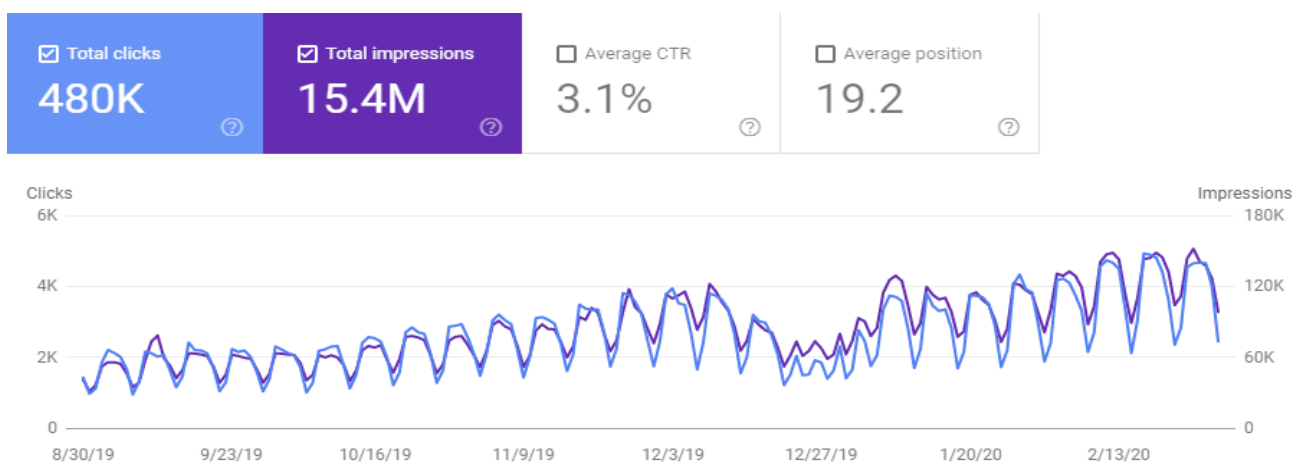
Note: an Impression is the number of times Google users see a link to the ISSN Portal; CTR is the percentage of "impressions" that resulted in a click; Average position is the average position of the ISSN Portal in search results.

Comment: Traffic is significantly lower at the end of 2019 during the "holiday season".

There are on average 4,500 daily clicks on Google search results corresponding to ISSN Portal pages (out of 150,000 "impressions", i.e. "views in search results"). This has obviously an impact on the overall traffic of the ISSN Portal which has been growing steadily over the last months.
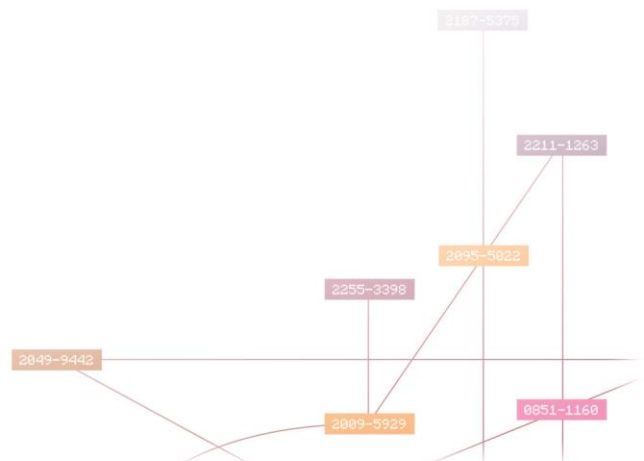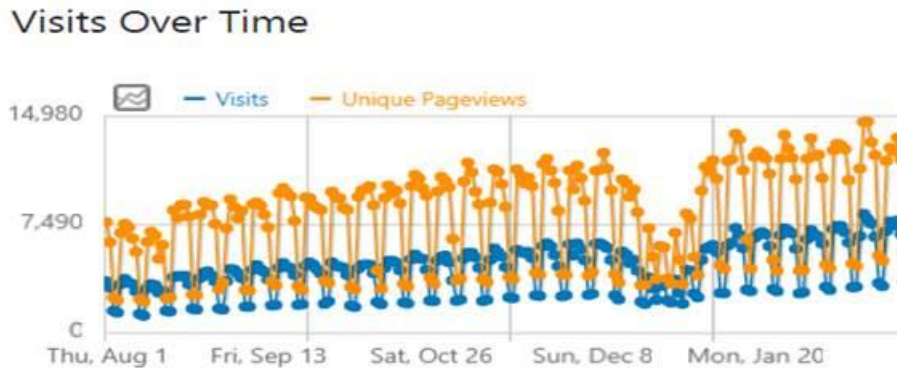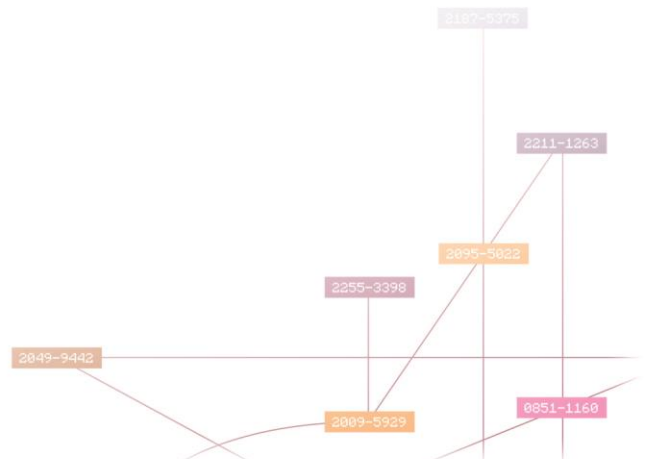
Figure 2: Traffic graph for the ISSN Portal (from Piwik, the log analyzer installed on the server)

There are 6,000 daily unique visitors to the ISSN Portal, i.e. two thirds redirected from search engines, and one third through direct entries and linking from other web sites and pages. The table 3 below shows the relative importance of ten countries in global usage.

Figure 3: ISSN Portal unique visitors per day per country (from Piwik)

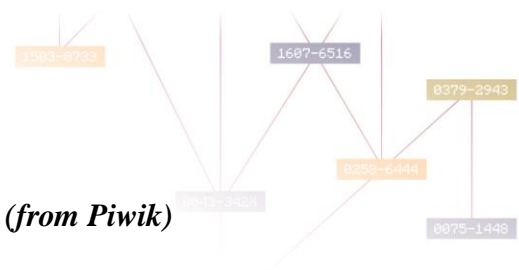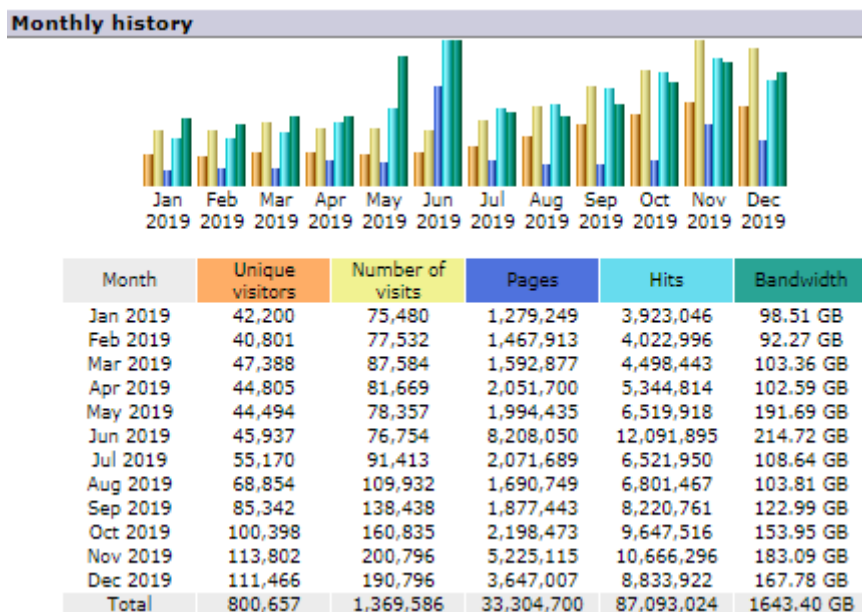| COUNTRY	UNIQUE VISITORS
India	649
United States	635
Brazil	373
Indonesia	262
Mexico	243
Spain	220
United Kingdom	206
France	200
Poland	154
Russia	143

Figure 4: Average day traffic map on the ISSN Portal (from Piwik)

Figure 5: Monthly traffic on the ISSN Portal in 2019 (from Awstats)

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2019	42,200	75,480	1,279,249	3,923,046	98.51 GB
Feb 2019	40,801	77,532	1,467,913	4,022,996	92.27 GB
Mar 2019	47,388	87,584	1,592,877	4,498,443	103.36 GB
Apr 2019	44,805	81,669	2,051,700	5,344,814	102.59 GB
May 2019	44,494	78,357	1,994,435	6,519,918	191.69 GB
Jun 2019	45,937	76,754	8,208,050	12,091,895	214.72 GB
Jul 2019	55,170	91,413	2,071,689	6,521,950	108.64 GB
Aug 2019	68,854	109,932	1,690,749	6,801,467	103.81 GB
Sep 2019	85,342	138,438	1,877,443	8,220,761	122.99 GB
Oct 2019	100,398	160,835	2,198,473	9,647,516	153.95 GB
Nov 2019	113,802	200,796	5,225,115	10,666,296	183.09 GB
Dec 2019	111,466	190,796	3,647,007	8,833,922	167.78 GB
Total	800,657	1,369,586	33,304,700	87,093,024	1643.40 GB

2.4.6. ETAS / TRANSFER Service

The ISSN International Centre took over the practical management of the Enhanced Transfer Alerting System in September 2018 which was implemented through two operations:

- Addition of a "Transfer declaration form" in the ISSN Portal publishers' extranet for registered "Transfer publishers" which triggers a new workflow involving ISSN IC and ISSN National Centres' cataloguers;
- Redevelopment of the Transfer web site (https://journaltranfer.issn.org) in order to cater both for the legacy data from the previous site and the new alerts sent through the new workflow in the ISSN Portal.
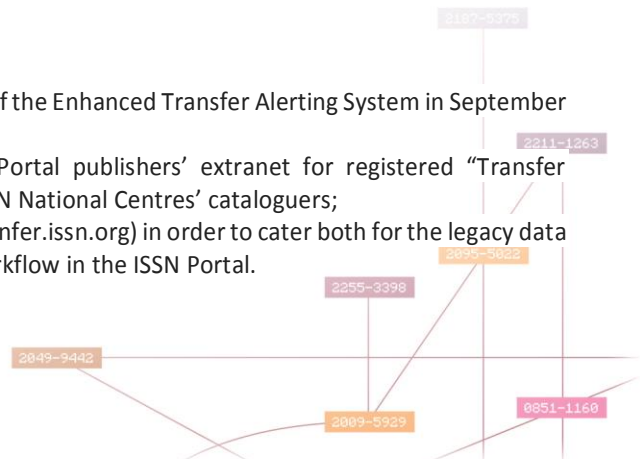
As of January 2020, **51** receiving publishers and **599** transferring publishers were registered in the ISSN Portal. In 2019, **137** title transfers (vs 167 in 2018) were filed by receiving publishers and posted on ETAS. Taylor & Francis (473 titles) and SAGE Publishing (466 titles) have been the most active receiving publishers since the inception of ETAS in 2010.

The table below shows ETAS service has received **246,515** visits since April 2019 with **749,452** pages viewed over the same period.

Table 10: Traffic data for https://journaltransfer.issn.org over the last 12 months

Month	Daily Avg				Monthly Totals					
	Hits	Files	Pages	Visits	Sites	kB F	Visits	Pages	Files	Hits
Mar 2020	3264	3125	2973	732	2530	498008	17576	71361	75000	78340
Feb 2020	2595	2512	2308	756	4891	520699	21944	66940	72855	75257
Jan 2020	2285	2209	1987	795	5396	465380	24672	61606	68498	70837
Dec 2019	2099	2003	1779	736	4397	385111	22828	55151	62109	65093
Nov 2019	3072	2943	2590	804	5408	525155	24122	77715	88292	92176
Oct 2019	2918	2821	2479	669	4192	485639	20761	76849	87468	90468
Sep 2019	2680	2535	2246	631	3738	419327	18954	67392	76052	80422
Aug 2019	1912	1738	1611	607	2847	398646	18829	49959	53885	59277
Jul 2019	2236	2124	1987	584	3043	375242	18126	61597	65857	69330
Jun 2019	3150	2331	2443	563	2586	610476	16903	73318	69955	94511
May 2019	1708	1637	1492	702	2941	403859	21790	46278	50765	52954
Apr 2019	1588	1516	1376	667	2959	322263	20010	41286	45493	47649
Totals						5409804	246515	749452	816229	876314

Note: Hits: requests of any kind received by the server; Files: file requests received by the server (typically html pages + images + css files etc.); Pages: web page requests received by the server (may trigger several file requests); Visits: number of « sessions » (set of requests coming from the same IP identified over a short period of time); Sites: number of uniquely identified « visitors ».

**Table 11 : Number of pages viewed per identified domain/country for https://journaltransfer.issn.org (2019)**

Domains / Countries	Pages viewed
France	131385
USA Educational	32922
Commercial entities	15403
United Kingdom	12029
Sweden	7515
Germany	5842
Canada	4166
Total	**209,262**

2.4.7. Cooperation with Wikidata and Wikicite

Following the participation in the annual Wikicite/Wikidata meeting in Berkeley in November 2018, a feasibility study was launched with the support of the company SPARNA in order to check the possibility of inputting basic validated ISSN metadata in Wikidata.

The initial results are now available and show that the very first step will be to validate and update ISSN data already present in Wikidata (100,000 continuing resources approximately). By the same token, it will be possible to enrich the ISSN Portal pages with links to Wikidata and when appropriate to the Wikipedia pages corresponding to already described continuing resources.
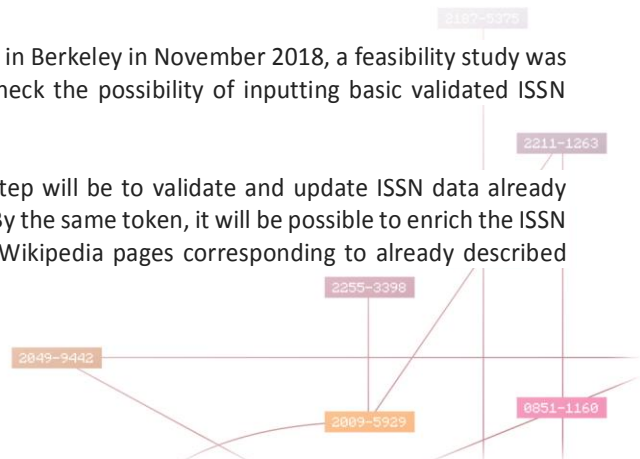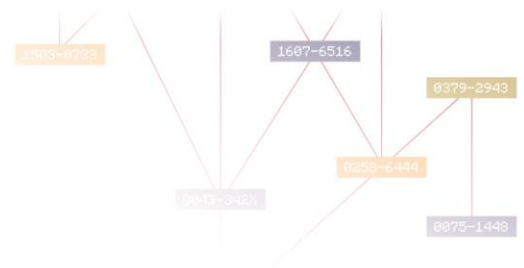
2.4.8. Cooperation with the National Library of Finland

A URN:ISSN resolution server was set up mid-2019, following the working session organized in November 2018 with the person in charge of standardization at the Finnish National Library, who has consistently monitored the inclusion of bibliographic identifiers in the URN framework through the IETF standardization process over the years. The server provides basic URN resolution service for ISSNs and ISSN-Ls. A fully-fledged welcome page will be designed in 2020.

2.4.9. Cooperation with Internet Archive

Following the meeting with the director of web archiving and data services at Internet Archive in San Francisco in December 2018, there is an ongoing cooperation with this institution. Internet Archive harvests ROAD data (ISSNs, ISSN-Ls and URLs) as well as the global ISSN/ISSN-L matching table in order to specifically harvest and archive open access continuing resources of a scholarly nature which are not necessarily covered or identified through their normal process. This is one of the important data feeds for their "Fatcat" scholarly archiving project (https://fatcat.wiki/, to be fully integrated in 2020 this year into the global Internet Archive architecture) which is based on the ISSN-L as an identifier for journal titles. By the same token they also send us diagnostics concerning the ROAD URLs.

3. Cooperation with third parties

3.1 Cooperation with the Agence Bibliographique de l'enseignement supérieur (ABES) and the Bibliothèque nationale de France (BnF)

CIDEMIS is the French acronym for the dematerialized workflow for ISSN requests (CIrcuit dématérialisé des DEMandes ISSN). This system was developed in 2015 by ABES (French Bibliographic Agency for Higher Education), the BnF and the ISSN International Centre. This tool aims to streamline the process of ISSN assignment and facilitate reporting between ABES' union catalogue SUDOC's cataloguing staff, ISSN IC and ISSN National Centres. The objective is to assign more ISSN to serial resources, complete or update ISSN records, and thus improve the overall quality and the coverage of the ISSN Register.

In 2019, **3,916** requests for ISSN assignment have been handled by ISSN National Centres through CIDEMIS (3,467 assignment requests and 449 correction requests). In 2019, a total of **2,521 requests** have been processed whereas **1,395** are still pending, i.e. 64,3% of all requests have been processed. The total amount of pending requests (2015-2019) is **7,370** (including France). There has been an important increase in the processing of requests in 2019, compared to 2018. Six ISSN Centres and the ISSN IC represented 65% of total requests. The French ISSN Centre has its own CIDEMIS workflow with ABES, therefore, statistics regarding ISSN assignments to French publications are not mentioned in this report.

ISSN Germany is the national centre which receives the largest amount of CIDEMIS requests, with 855 requests received, out of which 573 requests were processed as of January 2020. ISSN Italy, ISSN United Kingdom and ISSN United States collected 1,430 requests, out of which 992 were processed as of 2 January 2020.

Regarding requests sent in 2019, there are still 1,395 pending requests, with 75% of total pending requests distributed between Belgium, Canada, Germany, Italy, UK, and USA. Although the processing rate of requests improved in 2019, there is still a backlog to be cleared by ISSN National Centres. See annex 3 for complete statistics.
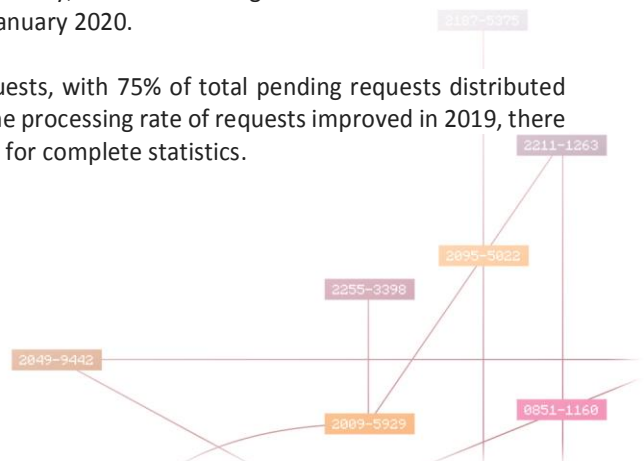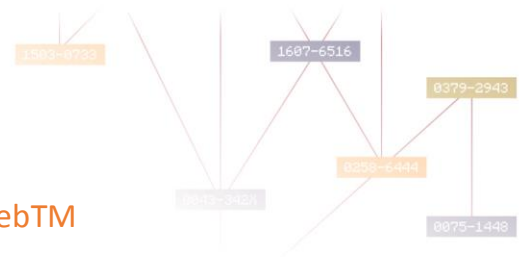
3.2 ProQuest: Enhancement of ISSN coverage in UlrichswebTM

The Memorandum of Understanding between ProQuest and the ISSN International Centre has been regularly renewed. The objective of this project is to enhance ISSN assignment to serial resources described in Ulrichsweb.

The specific workflow is for ProQuest to send files to ISSN IC that checks whether the serial and its ISSN are already recorded in the ISSN Portal. Existing ISSN are added to the title list before circulation to the ISSN National Centres concerned for final completion. In 2019, more than 3,000 serial titles without ISSN were checked by the ISSN IC and ISSN Netherlands, ISSN Sweden and ISSN UK.
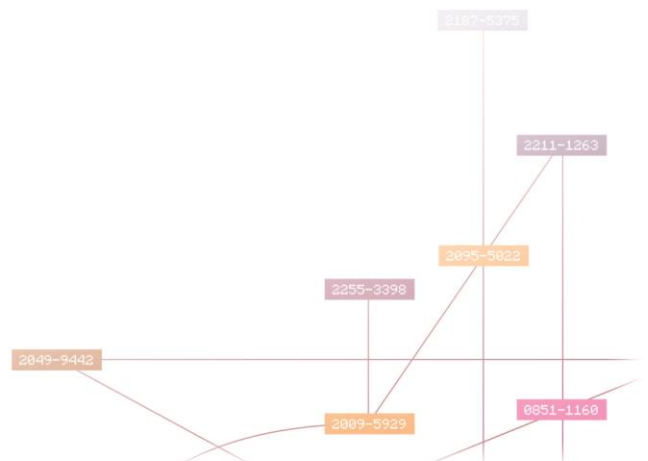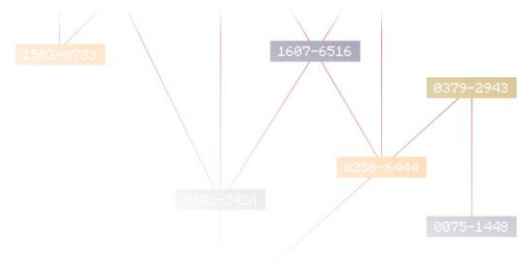
Conclusion

In 2019, the ISSN International Centre was faced with an important deadline regarding the implementation of the Keepers Registry on the ISSN Portal that was completed in less than six months. Thanks to the unfailing commitment of its team, the ISSN International Centre was able to meet the challenge and reassure the participating archiving agencies and the service users that Keepers Registry will carry on and thrive. In the meantime, the ISSN International Centre also started working on the development of its new production database called ISSN+ that will rely on up-to-date and open source technologies.

With the release of ISSN+ that should be operational in 2020, the ISSN International Centre will conclude its current strategic plan. Work has already started on the 2020-2024 ISSN IC Strategy with the submission of a business outlook report drafted by CiberResearch to the ISSN IC Governing Board in April 2019. After studying this report, ISSN IC Governors have issued their comments and selected the most appropriate and worthwhile options the ISSN IC needed to investigate further.

The definitive 2020-2024 ISSN IC Strategy will be debated and eventually voted by the General Assembly of Member Countries in May 2020.
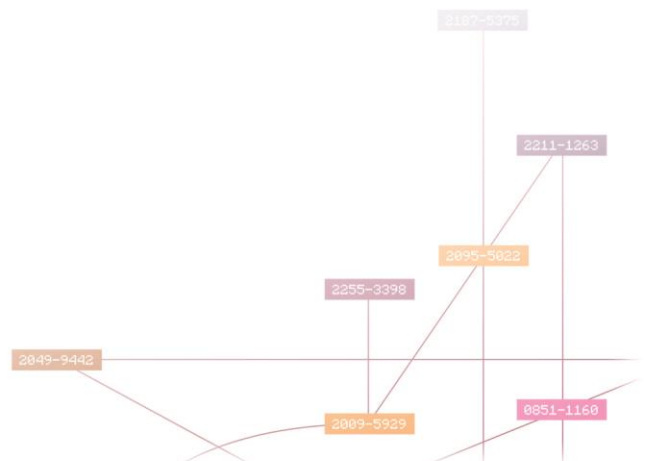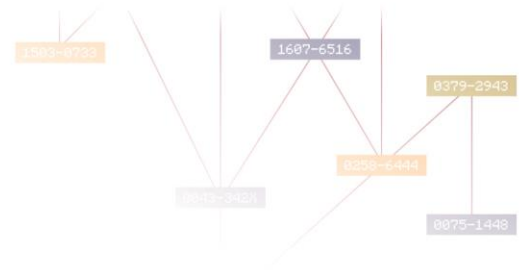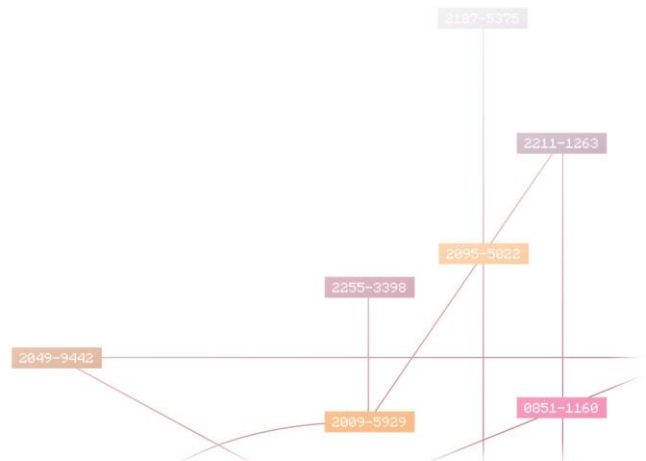
ANNEXES

ANNEX 1: Number of files and records imported into the ISSN Register, 2013-2019
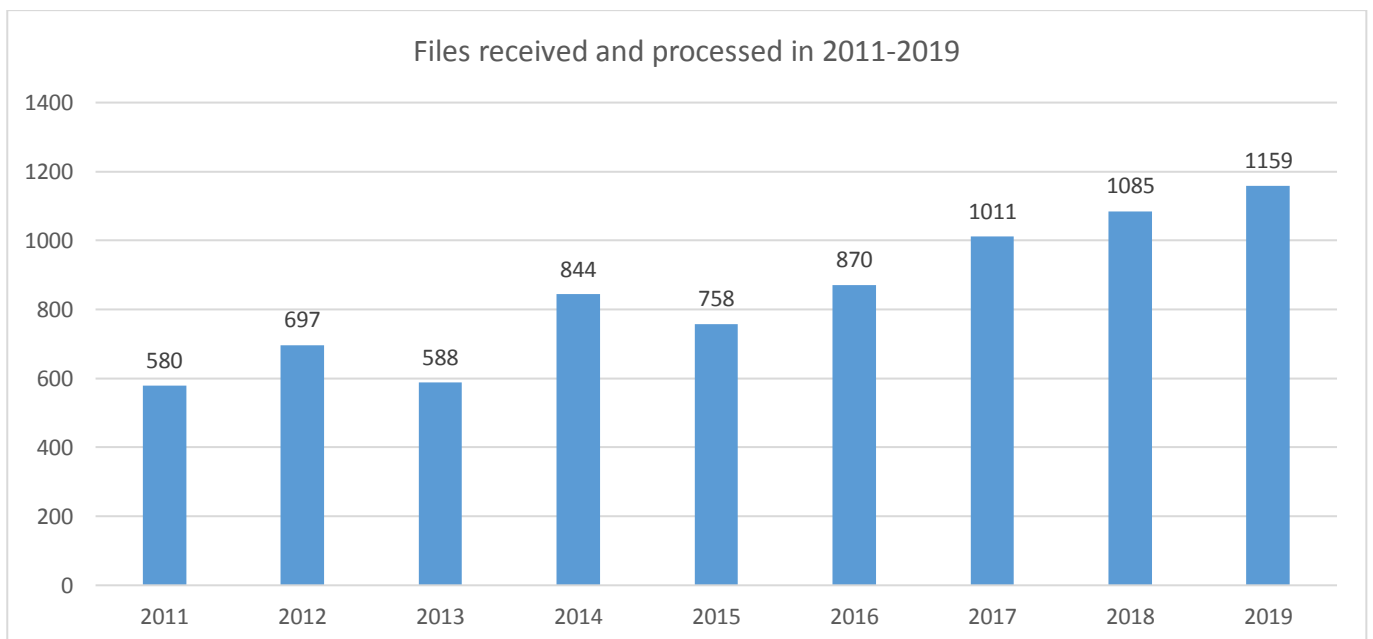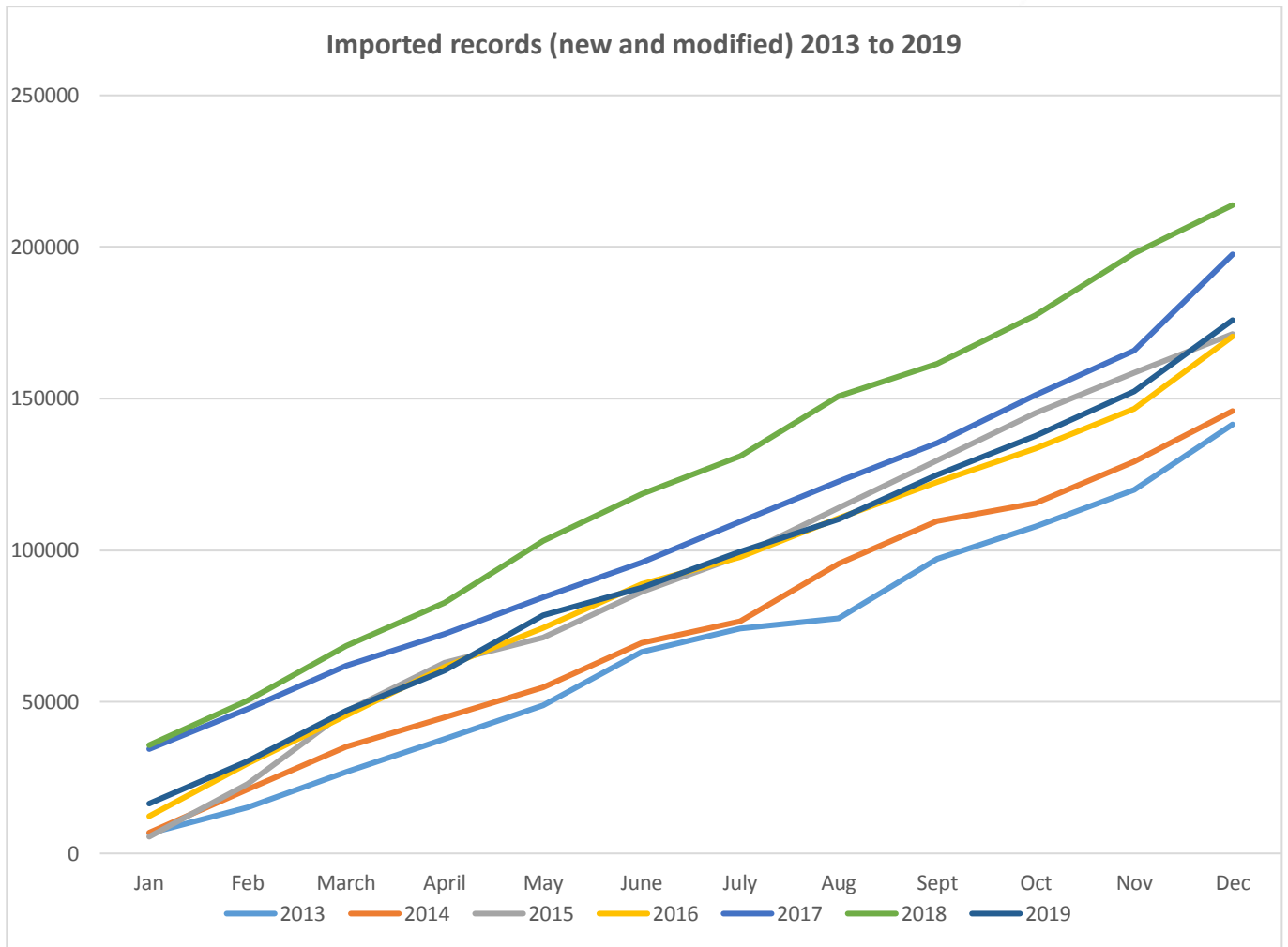
ANNEX 2: Statistics about ROAD (as of January 2020) – Source: ISSN Portal and ISSN+

ANNEX 3: Statistics about CIDEMIS for 2019

ANNEX 1: Number of files and records imported into the ISSN Register, 2013-2019

Imported records (new and modified) 2013 to 2019

Files received and processed in 2011-2019

ANNEX 2: Statistics about ROAD (as of January 2020) – Source: ISSN Portal and ISSN+

Fig. 1 – Evolution of the number of resources

Evolution of the total number of OA resources 2013-2019

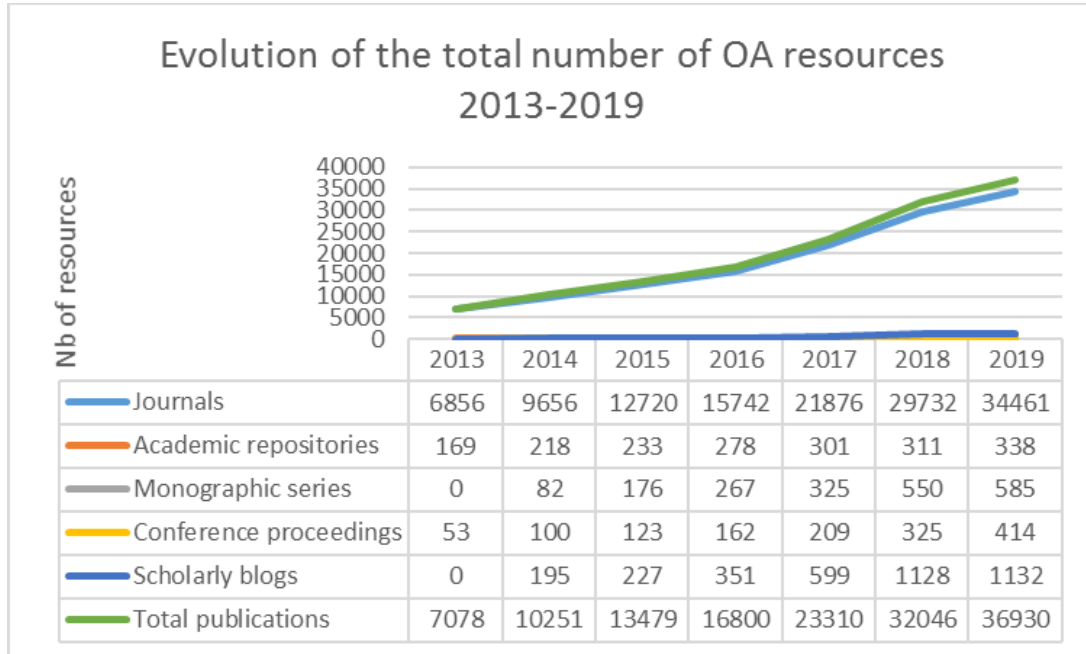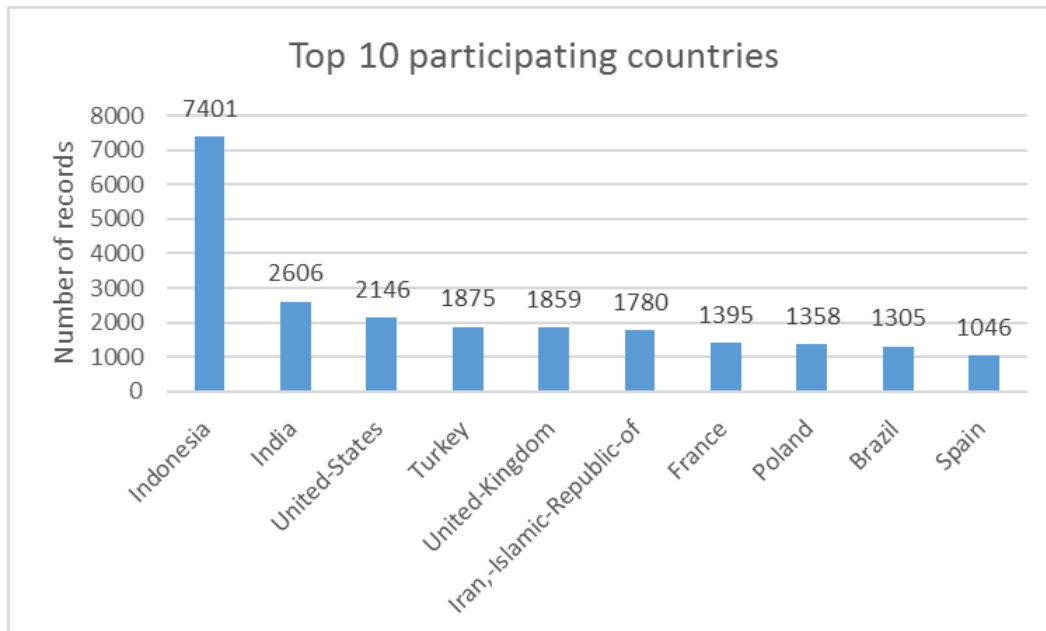|	2013	2014	2015	2016	2017	2018	2019
Journals	6856	9656	12720	15742	21876	29732	34461
Academic repositories	169	218	233	278	301	311	338
Monographic series	0	82	176	267	325	550	585
Conference proceedings	53	100	123	162	209	325	414
Scholarly blogs	0	195	227	351	599	1128	1132
Total publications	7078	10251	13479	16800	23310	32046	36930

Fig. 2 - Top 10 participating countries (ISSN national centres)

Top 10 participating countries

| Country	Number of records
Indonesia	7401
India	2606
United-States	2146
Turkey	1875
United-Kingdom	1859
Iran,-Islamic-Republic-of	1780
France	1395
Poland	1358
Brazil	1305
Spain	1046
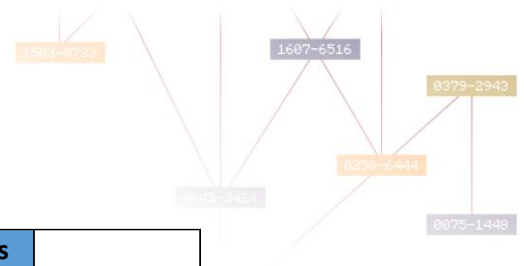
Table 1 – ROAD resources indexed by other databases

ROAD resources indexed by other databases	
CrossRef	17945
DOAJ	8848
The Keepers	6684
Scopus	5298
Latindex (Directorio)	3606
CabAbstracts	1848
GlobalHealth	1699
PubMedCentral	1691
Latindex (Catalogo)	756
Medline	631
CIRAD (Ou publier ?)	555
Econlit	238
PsychInfo	168
Georef	144
Nucleo basico de revistas cientificas argentinas	132
Latindex-catalogo	126
Dialnet	122
Scielo	121
AtlaDB	113
LinguisticsAbstracts	97
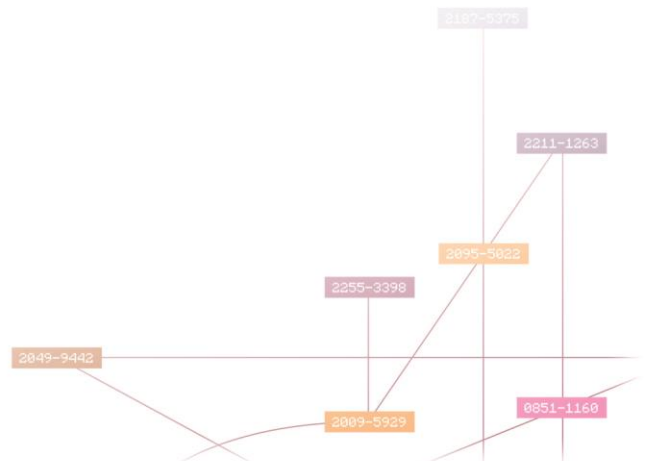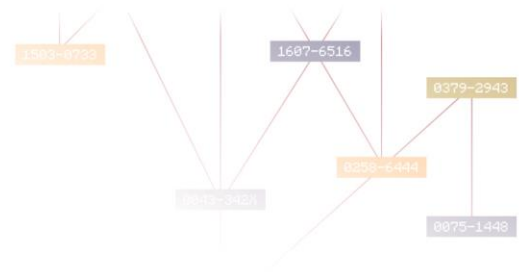
ANNEX 3: Statistics about CIDEMIS for 2019

Typology of requests

Type of publications	Number of requests
Periodicals	2,028
Monographic series	1,733
Newspapers	82
Others or undetermined	73
Total	**3,916**

Type of medium	Number of requests
Print	3,770
Electronic resources	137
Others (audiovisual, maps, audio recordings, partitions)	9
Total	**3,916**

Type of requests	Number of requests
Assignments	3,467
Corrections	449
Total	**3,916**

Processing of requests (in 2019)

Type of requests	Number of requests
Pending requests	1,395
Processed	2,521
[Of which 1,861 accepted; 534 refused]	
Total	**3,916**

The 6 ISSN National Centres receiving the highest number of requests

ISSN Centres	Number of requests
Germany	855
Italy	642
United Kingdom	437
United States	351
Belgium	144
ISSNIC	125
Total	**2,554**

(65,2% of total applications for 2019)
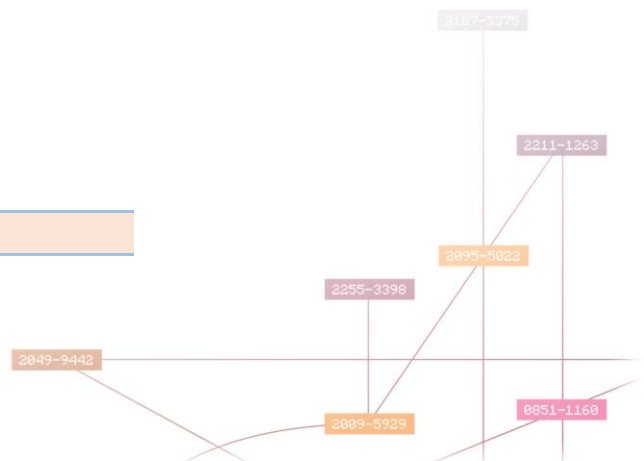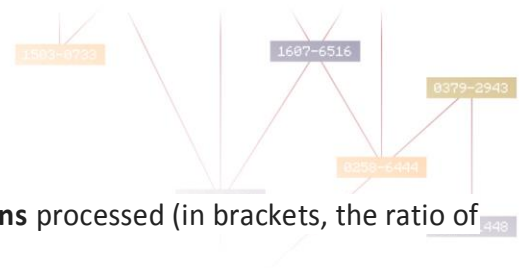
6 ISSN National Centres with the highest number of applications processed (in brackets, the ratio of processed requests over total requests received)

ISSN Centres	Number of requests (% Processed)
Germany	573 (67%)
Italy	492 (76,6%)
United Kingdom	313 (71,6%)
Spain	187 (88,2%)
USA	116 (33%)
Russia	86 (77,4%)
Total	**1,727**

5 ISSN National Centres processing their applications later than one year after reception date

ISSN Centres	Number of requests
Italy	416
Germany	341
United Kingdom	287
Spain	128
USA	84
Total	**1,256**

6 ISSN National Centres with the highest number of pending applications for 2019

ISSN Centres	Number of requests
Germany	404
USA	235
Italy	150
United Kingdom	124
Belgium	87
Canada	51
Total	**1,051**

(75,3% of total 1,395 pending requests)