STRATEGIC PLAN

2022-2025

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Institut Català de Paleontologia
Miquel Crusafont

STRATEGIC PLAN 2022-2025

INSTITUT CATALÀ DE PALEONTOLOGIA MIQUEL CRUSAFONT

Institut Català de Paleontologia
Miquel Crusafont

HR EXCELLENCE IN RESEARCH

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FOREWORD

The Director's preamble

The Institut Català de Paleontologia Miquel Crusafont (ICP) is the heir of a longstanding tradition of vertebrate paleontology in Catalonia. It owns its origins to the tremendous efforts of Miquel Crusafont and subsequent generations of paleontologists, who devoted their professional careers to decipher the intricacies of the Catalan fossil record. The predecessor of the ICP was established in Sabadell in 1969 and renamed in honor of Crusafont following his decease in 1983. After a couple of successful decades, by the early 2000s the institution was in peril of becoming a local museum due to lack of proper funding and isolation from the university. Its refoundation in 2006 within the framework of CERCA (Research Centers of Catalonia)—with the Generalitat de Catalunya and the Universitat Autònoma de Barcelona (UAB) as its patrons—allowed the ICP to grow and consolidate. Soon thereafter, however, the ICP suffered the consequences of the global economical crisis since 2012. Despite budget downsizing and truncated expectations, the ICP managed to resist, and even succeed in terms of research, despite the fact that, for many years, the consequences of the aforementioned crisis restrained its growth. In 2018, a a new Strategic Plan (2018-2021) was issued by the new Director appointed the year before with the explict aim of reverting the situation.

Therefore, while 2017 had been a year of turnover and intense planning, 2018 was a year of very intense work to start implementing not only the new Strategic Plan but also the HRS4R Action Plan (following the Human Resources Excellence Award of the EU granted to the ICP early that year) and the CERCA recommendations (provided by the Evaluation Committee assembled by I-CERCA in late 2018). During 2019, the ICP continued implementing the Strategic Plan and the HRS4R Action Plan, and further devised a plan to implement the multiple recommendations provided by I-CERCA. Furthermore, the new the recruitment protocol elaborated in 2018 was put into practice, and important documents (such as the manual of best practices in research and the strategy for the professional development of researchers) were issued. The results of 2020 confirmed an improvement trend initiated in 2018 in terms of scientific outputs and service provision, despite the complicated situation generated by the COVID-19 pandemic. Furthermore, the implementation of the HRS4R progressed at a good pace and led to the elaboration of a new equality plan, while the Scientific Advisory Board (SAB) was renewed and research groups were restructured following I-CERCA recommendations. In 2021, renewed efforts were devoted to the elaboration of the present Strategic Plan (with the inestimable advice of the SAB and the joint effort of the ICP staff), in parellel to the improvement and implementation of the HRS4R action plan and pending I-CERCA recommendations.

The last four years have passed by in the blink of an eye, and yet when one pauses for a minute and looks at the road behind, a long path has already been traveled. The previous

Strategic Plan was conceived both as an in-depth reflection of the future prospects of the ICP and as a managerial tool to rescue the ICP from the 'survival mode' in which it was immersed during the previous years. Although not all the aims set forth in 2018 have been fulfilled, we have succeeded in the main objective. The ICP is no longer along the brink of the abyss, and although the road ahead still looks steep, the landscape looks more pleasant than ever before. In this regard, I would like to thank all the ICP personnel, the Board of Trustees, and the SAB members for all their efforts during these years. And yet, it is my duty to call upon them all again to help in this collective enterprise that the ICP is, because the time has come to plan new and more ambitious objectives. We need to continue marching together uphill, slowly but surely, and with renewed energies, in order to face new challenges—with the reassurance that, even though "always in motion the future is", at least we now have a clearer idea of where are we heading to: toward the the progressive consolidation of the ICP as one of the benchmark and leading research institutions in vertebrate and human paleobiology worldwide.

May the Force be with us!

David M. Alba
Director

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PART 1

INTRODUCTION

1. INTRODUCTION

Overview, organization, and research

1.1. Overview

History The ICP is the successor of the former Instituto Provincial de Paleontología de Sabadell (IPS), founded in 1969 under the auspices of the Diputació de Barcelona thanks to the efforts and charisma of paleontologist Miquel Crusafont—the 'father' of the Catalan school of vertebrate paleontology. After being renamed in his honor after Crusafont's decease in 1983, and coinciding with the incorporation of a new generation of researchers, the Institut de Paleontologia M. Crusafont witnessed a couple of successful decades. Nonetheless, by the early 2000s it was in peril of becoming a local museum and its prospects were most uncertain.The situation of the IPS was reverted in 2006, thanks to the refoundation of the ICP within the framework of CERCA (Research Centers of Catalonia) under the auspices of I-CERCA (Generalitat de Catalunya).

Mission The mission of the ICP is focused on research, conservation and dissemination of vertebrate and human paleontology at the highest international level. We perform research based on the following premises:

- Fieldwork and collection-based research, focused on the extraordinarily rich fossil vertebrate record from Catalonia.
- Adherence to a paleobiological approach that departs from the classical descriptive paleontology (oriented toward stratigraphy), and instead aims to test evolutionary and macroecological hypotheses within the framework of life sciences.
- The use of modern visualization and analytical techniques (from CT to paleohistology).
- The distinction of different research groups, each one with clear research aims and scope.

Other important aspects of our mission include:

- The conservation of the paleontological heritage of Catalonia.
- The communication of the research results to the general public by means of scientific dissemination.
- The transfer of paleontological knowledge to the benefit of society as a whole by means of training and outreach activities, as well as the provision of services.

Scientific policy The ICP scientific policy in regard to paleontological research is based on the following premises:

- A modern approach to paleontological research must be grounded on the paleobiological approach, which envisions paleontology as deeply entrenched among life sciences.

- Among life sciences, paleobiology has a voice of its own by uniquely providing direct access to life in the past, thereby adding a deep-time perspective that is essential for testing hypotheses on a geological timescale.
- Paleobiology is not only an idiographic (descriptive) discipline that contributes to the progress in the knowledge of the history of life on Earth, but also a nomothetic discipline based on a rigorous and quantitative hypothesis-testing framework.
- Paleobiological research must be therefore guided by clear research aims and specific hypotheses to be tested.
- Vertebrates have the greatest potential among continental animals and therefore the study of their fossil record is most promising for investigating the evolution of terrestrial ecosystems in relation to paleoenvironmental changes through time.
- Although paleobiology is mostly devoted to basic (fundamental) research, it has important implications for other disciplines among life sciences, such as evolutionary biology, ecology and conservation (paleo)biology.
- Furthermore, paleobiological research is not devoid of applicability and has a great potential with regard to knowledge transfer related to cultural heritage.
- Finally, human origins and evolution need to be approached following the same scientific methods as that for any other group of animals, as regularly done in the subdisciplines of paleoprimatology and paleoanthropology.

Vision The ICP vision includes the following challenges:

- Perform high-impact paleobiological research at the international level.
- Promote the international visibility of the ICP as a worldwide renowned and benchmark center in vertebrate paleontology and paleoanthropology research.
- Contribute to the recuperation, conservation and dissemination of the paleontological heritage of Catalonia, including its valorization through research and the promotion of paleontological tourism based on it.
- Contribute to solving current societal challenges, with emphasis on the development of more efficient environmental policies to face climatic change, by means of providing data on a geological timescale as well as by testing macroecological and evolutionary hypotheses.
- Make paleontological knowledge and its evolutionary implications accessible to the society as a whole, by means of scientific dissemination, outreach, and training activities, with emphasis on humankind's origins and place in nature.
- Perform knowledge transfer activities by providing specialized paleontological services to research and educational institutions, public administrations, and private companies.
- Promote safe workspaces and working relationships based on freedom and respect among people.

- Adhere to a zero tolerance policy regarding any type of sexual harassment (due to sexual orientation, gender identity, or gender expression) and unambiguously reject offensive, discriminatory and/or abusive behaviors and attitudes.

1.2. Organization

Legal structure The ICP is a public research institute established as a non-profit foundation endowed with public funds, with the Generalitat de Catalunya and the Universitat Autònoma de Barcelona as patrons. The staff is composed of ca. 50 people (researchers, technicians and administrative staff), including a Director and a General Manager with executive powers delegated by the Board of Trustees. As currently conceived, the ICP is an autonomous research institute from CERCA (Research Centers of Catalonia), which has scientific excellence as its main objective. It is supervised by the Board of Trustees under the auspices of CERCA Institution, and guided by a Director (who plans the scientific policy and strategic goals) with the aid of an external Scientific Advisory Board.

Organization chart The current structure of the ICP Organization Chart is outlined below. The Board of Trustees (BoT) is the highest governing, administrative, and representative organ organ, without prejudice that some of its functions may be delegated. The BoT can designate a Delegated Commission to delegate some of its functions, and it also appoints the members of the Scientific Advisory Board (SAB), which has advisory functions. The BoT further designates the Director, as well as the General Manager upon proposal by the Director.

The Director has chief executive officer functions, including the direction, organization management, execution and inspection of our research activities, as well as the determination of the strategic aims of the ICP. The General Manager has chief administrative officer functions, including the financial, accounting and treasury management, as well as administrative contracting and preparation of the documentation required to elaborate the annual accounts and balance sheet.

Coordination meetings of the Director, the General Manager, the Research Group Leaders, the Heads of Departments and Areas, and the persons in charge of remaining Areas take place on a quarterly basis. Some staff members also have specific functions (information systems security, university teaching coordination, and ombudspersons). The The ICP also has several committees and commissions, aimed to boost the internal coordination as well as to promote the participation of the ICP staff in decision-making:

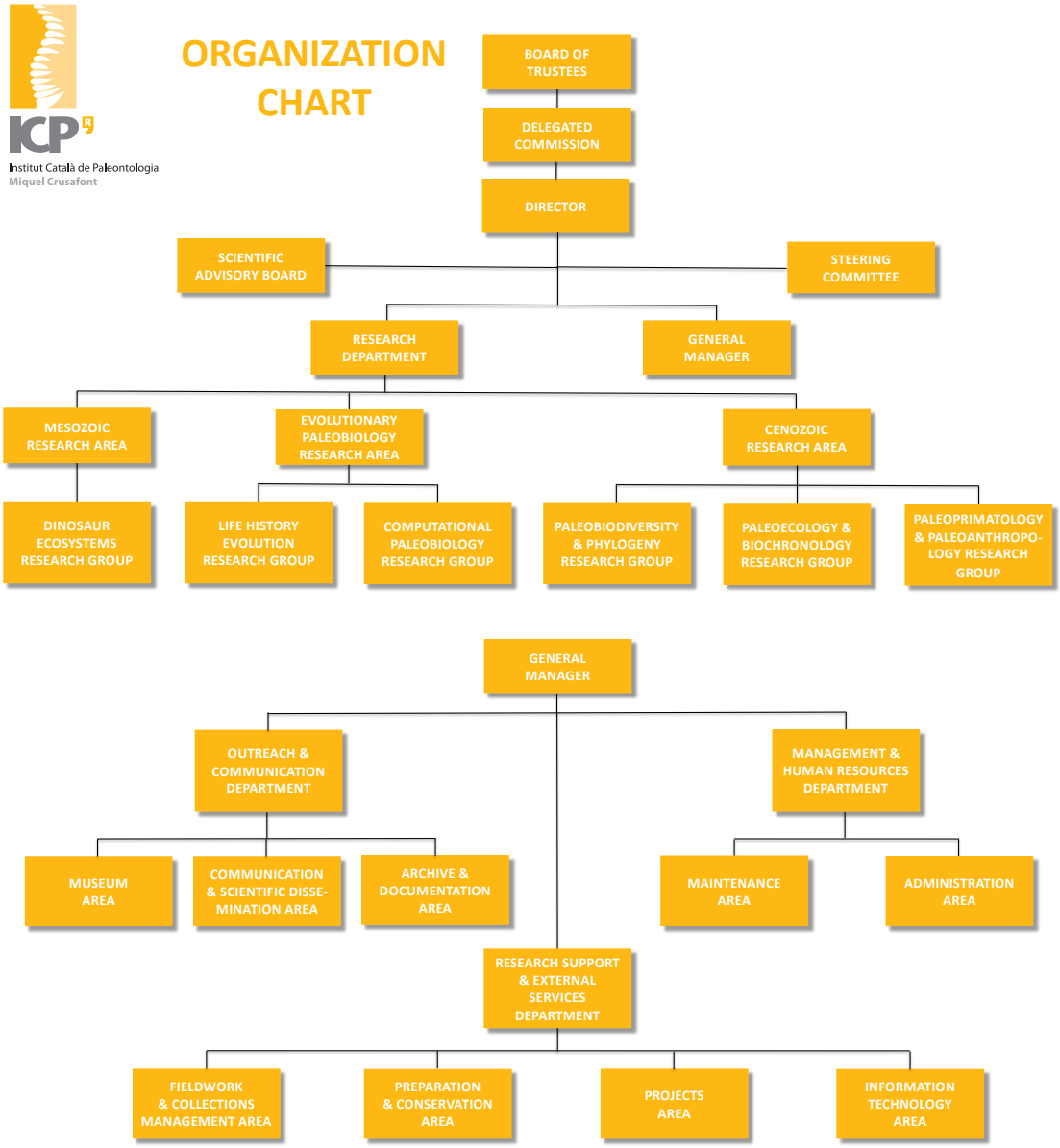
- **Steering Committee:** It is involved in planning, organizational, foresight, strategic, decision-making and advisory functions. Besides the Director, it includes the General Manager and the remaining two Heads of Department.
- **Information Systems Security Committee:** It is involved in guaranteeing the security of information systems, the safeguard of data, and the fulfillment of personal data protection laws.

- **HRS4R Implementation Committee & Working Group:** It is involved in the implementation of the Human Resources Strategy for Researchers (HRS4R) of the European Union.
- **Non-Discrimination Committee:** It is involved in the improvement and implementation of the Equality Plan.
- **Researchers Commission:** It is involved in providing advice to the Director, the Steering Committee, and other committees on HRS4R implementation and other aspects related to researchers.
- **Fieldwork Commission:** It is involved in the internal coordination of resources for paleontological fieldwork performed and provision of external services to third parties.
- **Responsible Research & Innovation (RRI) Commission:** Aimed to provide advice and coordinate various aspects (governance, project management, knowledge transfer, outreach and public engagement, research and publishing ethics, open access and open data…) to ensure that R+D is optimally aligned with societal values, needs, and expectations.

Personnel The ICP personnel can be divided into staff sensu stricto and other personnel. The former includes tenured (with a permanent contract), temporary (with a fixed-term contract), and tenure-track (with a fixed-term contract that may become permanent) personnel. Staff sensu stricto includes people with a contractual employment relationship with the ICP as well as people with a contractual relationship with other institutions (civil servants from the Generalitat de Catalunya, research professors from the Institució Catalana de Recerca i Estudis Avançats) that are ascribed to the ICP. The remaining personnel lacks a contractual relationship or formal ascription to the ICP. It includes research associates (who have a written agreement that implies ICP affiliation), research collaborations (who have a verbal agreement that implies ICP affiliation, including some PhD grantees and students), and other categories (trainees, visiting researchers, master and bachelor students, and volunteers).

Several professional categories of researchers are distinguished at the ICP based on the EU researcher profiles (R1–R4) specified on the European Framework for Research Careers of the European Union. They are divided into early-stage researchers (R1 & R2) and experienced researchers (R3 & R4): R1 (Predoctoral Researchers) are first stage researchers up to the point of PhD; R2 (Postdoctoral Researchers) are recognized researchers that hold a PhD holders but are not yet fully independent; R3 (Researchers) are established researchers with a certain level of independence; and R4 (Senior Researchers) are leading researchers in their area or field.

In turn, the professional categories for non-academic staff (technicians and administration personnel) are subsumed into three different profiles, depending on academic background, experience, and type of contract: T1 are lower-level technicians up to the point of vocational training; T2 are middle-level technicians that normally hold a university degree; and T3 are higher-level technicians that normally hold a master or PhD degree.



Departmental organization The ICP has a Research Department and three technical departments (Outreach & Communication, Management & Human Resources, and Research Support & External Services). The Head of the Research Department is established as the current Director of the ICP, whereas the technical departments have a Head of Department each, and are supervised by (and formally depend upon) the General Manager. Each department includes several areas.

The various areas of the Research Department are led by a Head of Area, who is a senior researcher (R4). Each area includes one or more research groups, each led by a group leader, who may be a senior researcher (R4) or another (experienced) permanent researcher (R3). Each group may include other researchers (R3) and/or postdoctoral researchers (R2), predoctoral researchers (R1), as well as research associates, collaborators and technicians. Currently, the ICP has six research groups organized in three research areas. The Mesozoic

Research Area is focused on dinosaurs and associated faunas, and currently includes a single research group (Dinosaur Ecosystems), although it has possibilities to grow on the mid-term. The Cenozoic Research Area, in turn, is focused on primates and associated faunas, and currently includes three different groups: Paleobiodiversity & Phylogeny, Paleoecology & Biochronology, and Paleoprimatology & Paleoanthropology. Finally, the Evolutionary Paleobiology Research Area includes two different groups: Life History Evolution and Computational Paleobiology.

Each technical department also includes several areas, which may have a Head of Area when an intermediate hierarchical level is required to coordinate the personnel included within. The Outreach & Communication Department has the aim to improve internal communication as well as to better coordinate external communication, scientific dissemination, and outreach activities. It includes the areas of Communication & Scientific Dissemination, Museum, and Archiva & Documentation. This Management & Human Resources Department has the aim to improve and give visibility to human resources policies within the context of the implementation of HRS4R. It includes the areas of Maintenance and of Administration. Finally, the Research Support & External Services Department has the aim to boost remunerated external services provided to third parties, as well as to improve the coordination between the various areas involved in research support. It includes the areas of Fieldwork & Collections Management, Preparation & Conservation, Projects, and Information Technology.

1.3. Research

Main guiding principles The research performed at the ICP pivots on the following three main guiding principles:

- Collection- and fieldwork-based research focused on the study of fossils as the main source of raw data, with emphasis on the rich and varied vertebrate fossil record from Catalonia—especially for the Permo-Trias, the Late Cretaceous, the Eocene, the Miocene, and the Pleistocene—and with particular relevance of the paleoichnological record of the latest dinosaurs from Europe and the extraordinary record of Miocene apes.
- A paleobiological approach that clearly situates paleontology well within the framework of life sciences in general, and of evolutionary biology in particular, and which emphasizes a quantitative and nomothetic approach based on hypothesis testing—thereby far from the more classical descriptive approach to paleontology (largely oriented toward its stratigraphic implications).
- The application of modern techniques and methodological approaches to paleontological research, such as paleohistological analysis to infer the life-history of extinct organisms, computer-assisted imaging techniques that enable the non-invasive study of internal anatomy, or theoretical approaches to quantitatively analyze the dynamics of paleobiodiversity through time.

Mesozoic Research Area The Mesozoic Research Area focuses on the paleobiodiversity and paleoecology of terrestrial ecosystems during the Mesozoic era (252-66 Ma), with emphasis on those time intervals best represented in the fossil record of Catalonia, which include the Permo-Trias and the latest Cretaceous. Both the Permian-Triassic and the Cretaceous-Tertiary boundaries reflect important mass extinction events that took place, respectively, at 252 Ma (end-Permian extinction or 'Great Dying') and 66 Ma (K-T extinction). These mass extinctions wiped out a large proportion of terrestrial vertebrates (including the disappearance of non-avian dinosaurs at the K-T extinction), and therefore the study of the associated paleoecological changes at the community level is of utmost relevance. The Dinosaur Ecosystems Research Group builds on the extraordinary fossil record from the Catalan Pyrenees of the latest dinosaurs from Europe and the associated fauna. Besides bony remains, the former also consists of an exceptional paleoichnological record (including eggs, tracks and even skin impressions), which overall provides a unique window to dinosaur paleobiology. Furthermore, the group takes a multidisciplinary approach that, besides paleontologists specializing in several groups and ichnological remains, also involves paleobotanists, geologists and ecologists, in order to provide with accurate datings and paleoenvironmental reconstructions, as well as to apply trophic network modeling techniques.

Cenozoic Research Area The Cenozoic Research Area focuses on the paleobiodiversity, evolution and and paleobiology of continental vertebrates from the Cenozoic era (66 Ma to present, incuding the Paleogene, Neogene and Quaternary periods), with emphasis on the rich fossil record of mammals from Catalonia and nearby areas.

The Paleobiodiversity & Phylogeny Research Group is devoted to the reconstruction of the evolutionary history of continental vertebrates during this time interval, with emphasis on the rich Miocene and Pleistocene record from the Vallès-Penedès Basin. Besides investigating the phylogenetic relationships and adaptations of various vertebrate taxa, the group further takes a more holistic approach by focusing on the dynamics of paleobiodiversity in relation to global climate change and local paleoenvironmental indicators through time. In relation to the latter, both the Miocene and the Pleistocene record important faunal turnover events—such as the Vallesian Crisis and the Mid-Pleistocene Revolution, respectively. Therefore, the extraordinarily complete, abundantly sampled and accurately dated vertebrate record from these periods in the Vallès-Penedès Basin provides a unique opportunity to test evolutionary hypotheses on the mechanisms and interactions between biotic and abiotic factors that drive the course of evolution on a geological timescale—with significant implications to predict the future and future viability of extant terrestrial ecosystems in the light of current global climate change.

The Paleoecology & Biochronology Research Group emphasizes the study of fossils in time and space. It provides the necessary temporal background for the fossil record and one of its main goals is the precise dating of main biological and environmental events. In this regard it takes a multidisciplinary approach, using index fossils to correlate sites and rock units in

combination with various geological techniques. Concerning paleoecology, it considers two different approaches. On the one hand, it studies the interrelationships between ancient organisms and the environments in which they lived to unravel not only the function of single organisms but also the structure of fossil communities. In addition, it also analyzes ecological phenomena through protracted intervals of geological time. This approach, termed evolutionary paleoecology, makes use of biochronological information and provides an approach not available to ecologists working in the present day. In both cases multidisciplinary techniques, including for example geochemical methods, are applied to the fossil record. This research group mostly—but not exclusively—focuses on the rich and continuous Miocene small mammal record of Europe, which is ideal for addressing these ecological questions. In addition, small mammals are key elements in Cenozoic continental chronology.

The Paleoprimatology & Paleoanthropology Research Group, in turns, covers the entire evolutionary history of primates throughout the Cenozoic, with three main lines of research focused on the exceptionally rich primate fossil record from Catalonia and other nearby areas: Eocene primates; Miocene catarrhines, with emphasis on apes; and the Plio-Pleistocene record of monkeys and humans. The group studies the paleobiodiversity and phylogenetic relationships of these groups, as well as their paleobiology (diet, locomotion, etc.). Associated faunas are also investigated to contextualize the primate finds from a paleoenvironmental and chronological viewpoint, in collaboration with researchers from other groups within the Cenozoic area. Of particular relevance is the line of research focused on the evolution of hominoids—the group that includes lesser apes, great apes, and humans—with emphasis on the hotly debated phylogenetic and paleobiogeographic hypotheses on the origin and evolution of the great-ape-and-human clade, with further implications for deciphering the origin of gibbons, reconstructing the last common ancestor of apes and humans, and evaluating the importance of homoplasy in hominoid evolution.

Evolutionary Paleobiology Research Area The Evolutionary Biology Research Area is not restricted to a particular time span, but rather focused on the study of the patterns and causes of evolutionary change and extinction by combining fossil evidence with the biology of extant organisms.

The Life History Evolution Research Group is mostly devoted to the evolution of mammalian life-histories under changing ecological conditions. The group takes advantage of the unique deep-time perspective that only paleontology can provide to test hypotheses on the evolution of life-history strategies from the viewpoint of adaptation. To do so, this group takes a methodological approach that mostly relies on the paleohistological study of hard tissues (bone and teeth) of extinct mammals within the analytical framework provided by life history theory of biological evolution—which combines ecology, demography, physiology and adaptation, and further has significant implications for conservation biology (extinction) as well as evolutionary developmental biology (aging). By means of the study of skeletochronological markers and body mass estimation, the group can reconstruct the growth

and developmental trajectories of extinct mammals and test the correlation of key life-history traits with environmental indicators, in order to test the evolutionary hypotheses of interest. Particularly relevant for this group is the study of the differential responses provided by large and small mammals to the peculiar ecological conditions provided by insular ecosystems, with emphasis on the study of extinct mammals from the fossil Mediterranean islands of the Mio-Pliocene.

Finally, the Computational Paleobiology Research Group encompasses computational approaches that aim to digitally obtain paleobiological and evolutionary data of extinct organisms based on a wide range of techniques from imaging to functional approaches. To pursue these goals, the research group combines fossil evidence (particularly from Iberian fossil record, but also taking advantage of digital techniques to analyze fossil samples from all over the world) and biological samples. The researchers of this group are devoted to different groups of extant and extinct vertebrates, mainly (but not exclusively) amphibians and reptiles, with their efforts focused on the functional morphology, ontogeny, and evolutionary history of these groups—and, when applicable, implications for conservation (paleo)biology. Of particular interest for the lines of research of this group are feeding ecology studies based on 3D masticatory mechanic models using finite element analysis (FEA) and multibody dynamic analysis (MDA), as well as inferences on past environmental conditions (given the great potential of ectothermic vertebrates in this regard).

1.4. Aims of this document

The ICP Strategic Plan for the quadrennium 2018–2021 is intended to be a management tool that seeks to identify the current situation of the institution, including its risks and opportunities, as well as to define its main strategic aims, in order to guarantee on the midterm the successful accomplishment of its mission with regard to paleontological research, knowledge transfer, and conservation of the paleontological heritage of Catalonia.

This document consists of four main parts:

- An Introduction to the ICP.
- A summary of the activities performed in 2018-2021, during the validity of the previous Strategic Plan.
- An analysis of the current situation of the ICP, including the internal and external factors identified by a SWOT analysis.
- The strategic goals and proposed actions of the present Strategic Plan, based on the aforementioned analyses.

The analysis of the ICP provided in this document is mostly based on the following:

- The external evaluation provided by the CERCA Evaluation Committee (2018).
- The degreee of fulfillment of the HRS4R Action Plan (2018-2021).

- The degreee of fulfillment of the Equal Opportunities & Diversity Management Plan.
- The comparison with three top paleontological institutions from abroad (2018-2021), as reported in the 2021 annual report of the ICP.
- The degree of fulfillment of the previous Strategic Plan (2018-2021), as reported in the 2021 annual report of the ICP.
- A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of the ICP performed in 2017.

PART 2

ICP ACTIVITIES 2018-2021

2. ICP ACTIVITIES 2018-2021

Research, fundraising, knowledge transfer, communication, and personnel

2.1. Research outputs

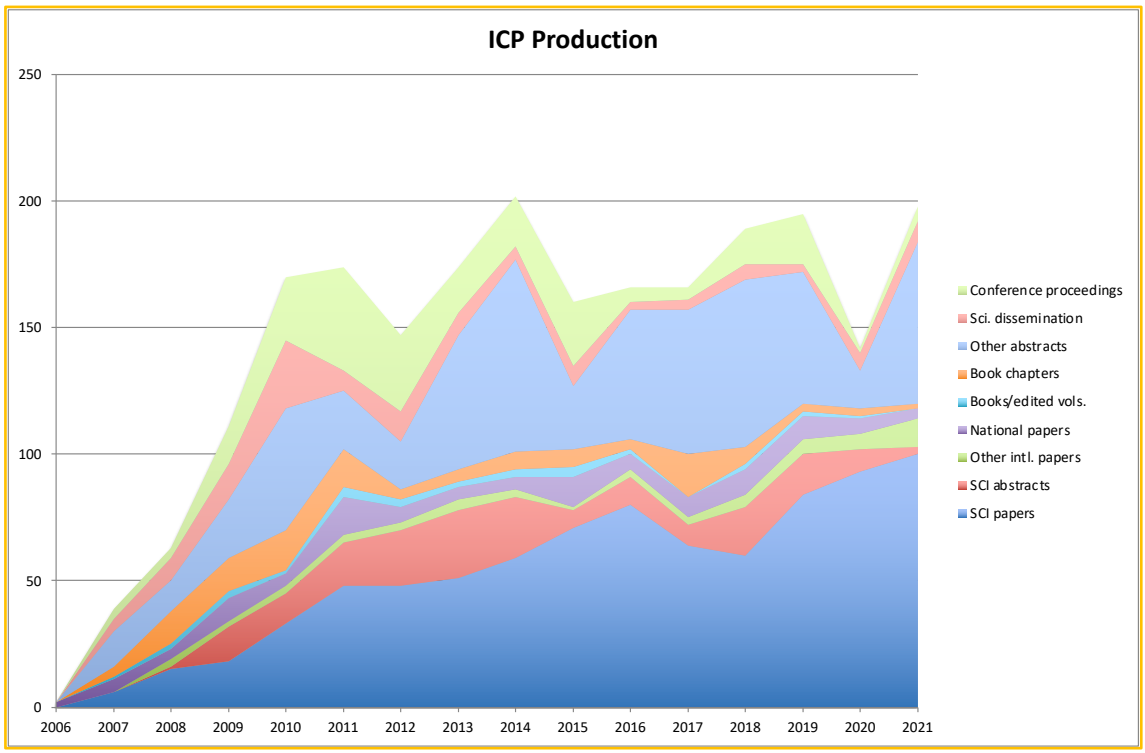
Detailed data are reported below in table format for the preceding four years (2018-2021) because they represent the period of application of the previous Strategic Plan and their average will represent the baseline to which future results shall be compared. Nevertheless, in the plots we have provided all the historical data available, to better contextualized the results for 2018-2021.

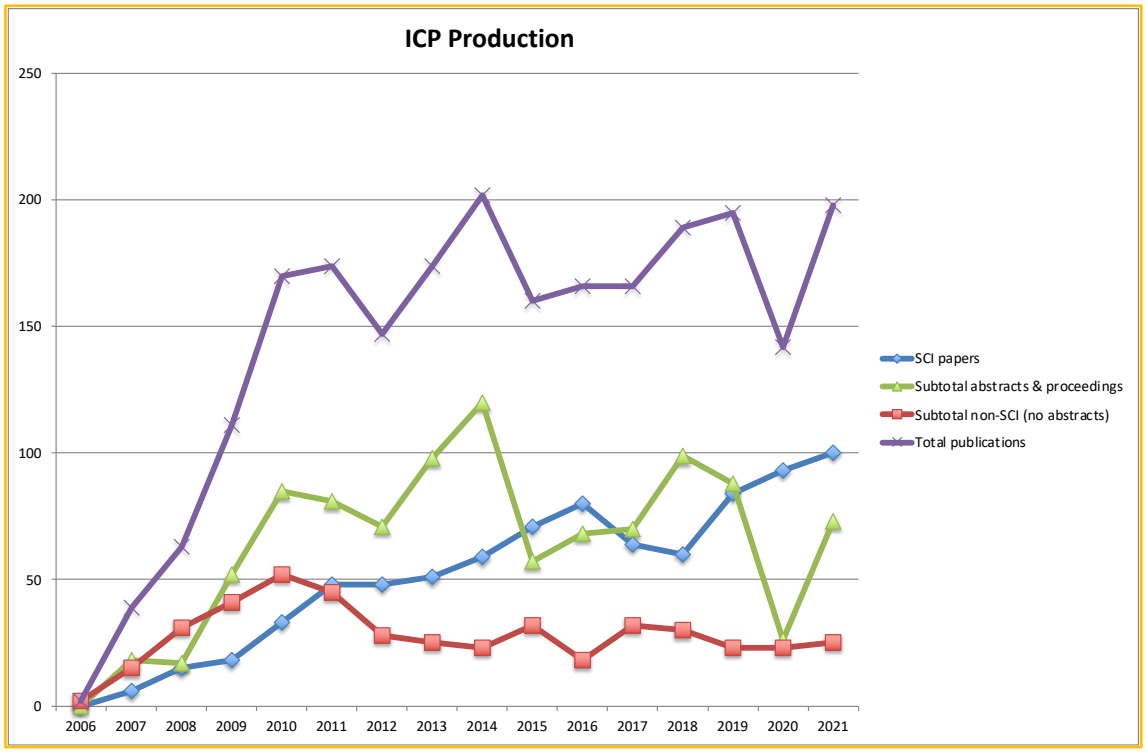
Publications The publications of the ICP in 2018-2021 are divided into the following categories (SCI refers to journals from the Science Citation Index, i.e., indexed by the Journal Citation Reports, JCR):

- SCI papers.
- SCI abstracts.
- Papers in other international journals.
- Papers in national journals.
- Books and edited volumes.
- Book chapters.
- Conference proceedings.
- Other abstracts.
- Scientific dissemination papers.

ICP PUBLICATIONS (2018–2021)					
PUBLICATION CATEGORIES	2018	2019	2020	2021	AVERAGE
SCI papers	60	84	93	100	**84.3**
SCI abstracts	19	16	9	3	**11.8**
Papers in other international journals	5	6	6	11	**7.0**
Papers in national journals	10	9	6	4	**7.3**
Books and edited volumes	2	2	1	0	**1.3**
Book chapters	7	3	3	2	**3.8**
Conference proceedings	14	20	2	6	**10.5**
Other abstracts	66	52	15	64	**49.3**
Scientific dissemination papers	6	3	7	8	**6.0**
TOTAL	189	195	142	198	**181.0**

It is noteworthy that only the number of abstract and conference proceedings (resulting from contributions to meetings) were importantly affected by the restrictions associated to the COVID-19 pandemic in 2020, whereas in contrast SCI papers steadily increased during 2019-2021, after the decrease experienced in 2017-2018.





Several metrics are computed below to analyze ICP publications. 'Production' refers to the number of scientific outputs published, whereas 'productivity' refers to the ratio between production and the total number of authors that have coauthored these publications with ICP affiliation. To compare the production, productivity, and quality/impact of ICP research outputs we focus on SCI 'papers', which include all publications (articles, technical notes, etc.) except abstracts in journals indexed by the JCR. Bibliometric indicators for these journals have been taken from the JCR of the year of definitive publication, except for 2021, which were taken from 2020 (since the 2021 edition of JCR has not been published yet).

The following aspects and metrics were considered for each journal:

- Journal category (if several, the most favorable with respect to journal ranking).
- Journal impact factor (IF).
- Journal quartile (Q1 = first quartile, Q2 = second quartile, etc.).
- Journal impact factor percentile (JIF%).
- Open access (excluding green open access).

The following metrics of production, productivity and impact were computed:

- SCI = total number of SCI papers (excluding abstracts) coauthored by ICP authors.
- SCI productivity = SCI / number of ICP authors (those with ICP affiliation in SCI papers).
- Q1 = total number of Q1 papers coauthored by ICP authors.
- OA = total number of open access SCI papers coauthored by ICP authors.
- Q1 productivity = Q1 / number of ICP authors.
- Q1 ratio = Q1 / Production x 100 (in %).
- OA ratio = OA / Production x 100 (in %).
- Median JIF%.
- IF geometric mean (IFGM).

To measure leadership in publication, we focus on corresponding authors with ICP affiliation in SCI papers. The following metrics were computed:

- SCI leadership = total number of SCI papers with ICP corresponding author.
- Q1 leadership = total number of Q1 papers with ICP corresponding author.
- SCI leadership ratio = SCI leadership / SCI x 100 (in %).
- Q1 leadership ratio = Q1 leadership / SCI x 100 (in %).

In turn, to measure collaborations (with emphasis on international ones), SCI papers are divided into three categories based on the affiliations of the coauthors from other institutions (i.e., excluding other affiliations of ICP researchers or research associates with more than a single affiliation):

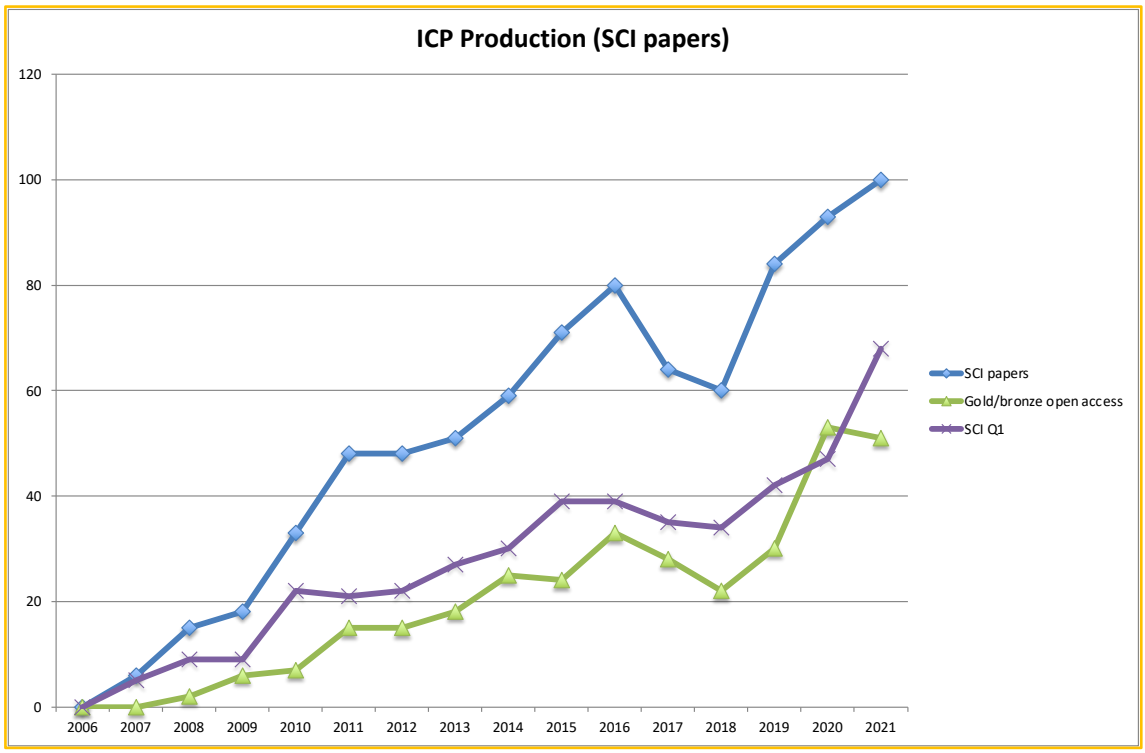
- ICP only: without other affiliations.
- Non-international collaborations: with other national affiliations.

- International collaborations: with foreign affiliations (irrespective of whether there are also other national affiliations or not).

Production As noted above, the production of the ICP in terms of total SCI papers has increased from 2018 to 2021, reaching levels higher than ever before in ICP history. The same applies to SCI papers from the first quartile and, to a lesser extent, to gold/bronze open-acess papers (except that the latter reached their peak in 2020).

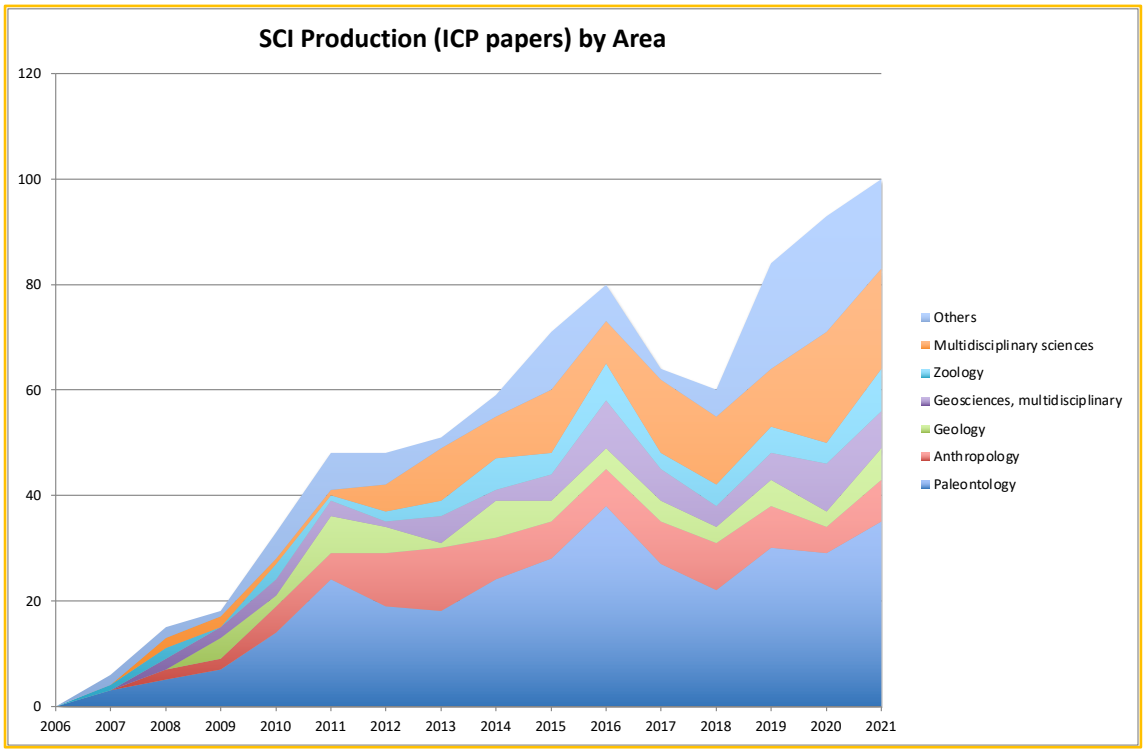
SCI PRODUCTION (2018–2021)					
METRICS	2018	2019	2020	2021	AVERAGE
SCI	60	84	93	100	**84.3**
Q1	34	42	47	68	**39.4**
OA*	22	30	53	51	**33.2**

*Green open-access excluded.



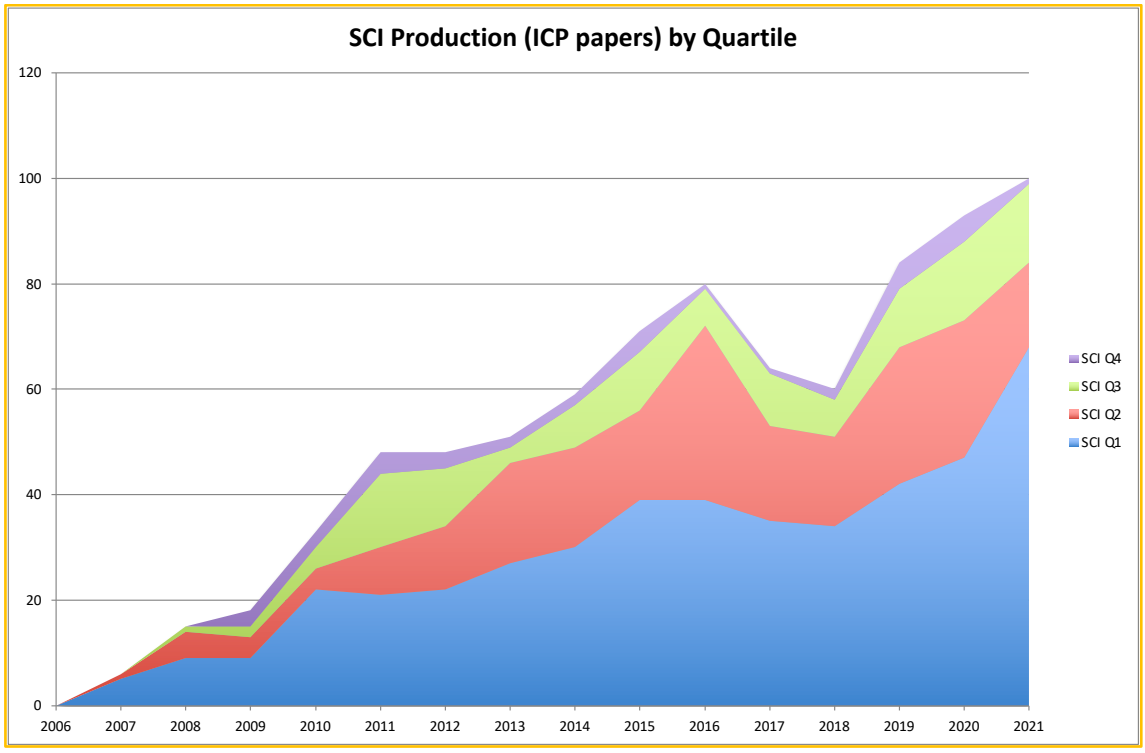
By areas distinguished by the JCR, papers published in paleontological journals represent the major bulk of ICP production with more than one-third, followed by publications in multidisciplinary journals (19%) and, to a lesser extent, journals devoted to anthropology, geology, zoology, and others.

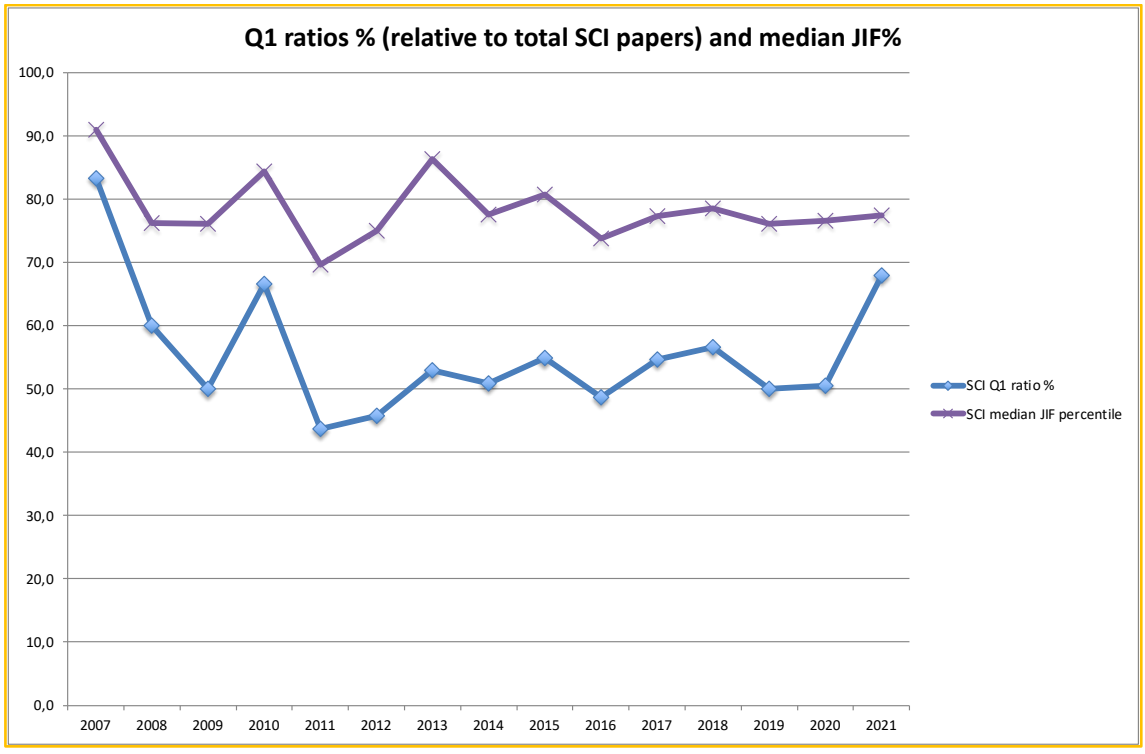
SCI PRODUCTION BY AREAS (2018–2021)					
JCR Areas	2018	2019	2020	2021	Average
Paleontology	22	30	29	35	**29.0**
Anthropology	9	8	5	8	**7.5**
Geology	3	5	3	6	**4.3**
Geosciences, multidisciplinary	4	5	9	7	**6.3**
Zoology	4	5	4	8	**5.3**
Multidisciplinary sciences	13	11	21	19	**16.0**
Others	5	20	22	17	**16.0**
%Paleontology	36.7	35.7	31.2	35.0	**34.6**
%Anthropology	15.0	9.5	5.4	8.0	**9.5**
%Geology	5.0	6.0	3.2	6.0	**5.0**
%Geosciences, multidisciplinary	6.7	6.0	9.7	7.0	**7.3**
%Zoology	6.7	6.0	4.3	8.0	**6.2**
%Multidisciplinary sciences	21.7	13.1	22.6	19.0	**19.1**
%Others	8.3	23.8	23.7	17.0	**18.2**



Quality and impact When quartiles are considered, it can be seen that more than half of the SCI production during the last four years has been published in first quartile journals, with this figure even surpassing two-thirds in 2021 (although this figure is still subject to change when the the JCR for 2021 is published later in 2022). In agreement with these figures, the median JIF percentile has been above 75% throughout 2018-2021 (given that this percentile represents the threshold for the first quartile, it is expected that when more than 50% papers are published in the first quartile, the median percentile should be above 75%).

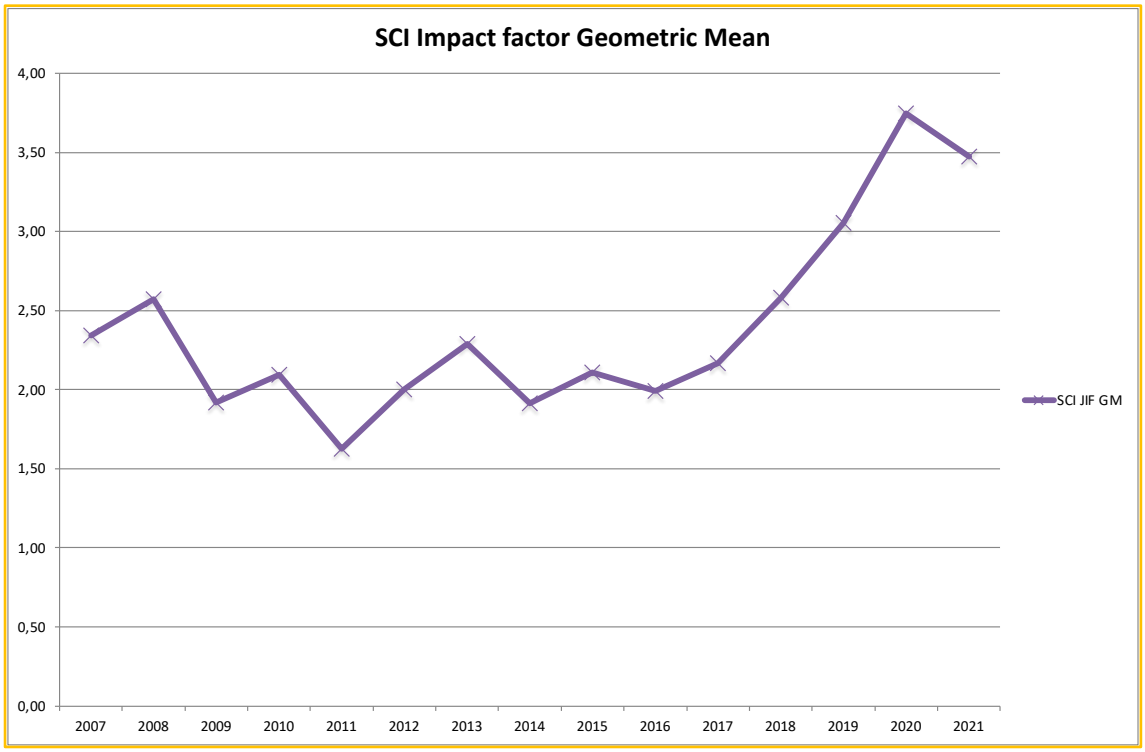
SCI PRODUCTION BY QUARTILES (2018–2021)					
QUARTILE	2018	2019	2020	2021	AVERAGE
Q1	34	42	47	68	**47.8**
Q2	17	26	26	16	**21.3**
Q3	7	11	15	15	**12.0**
Q4	2	5	5	1	**3.3**





In contrast, the geometric mean of the impact factor has steadily increased between 2016 and 2020 (from 2 to more than 3.5), only slightly decreasing in 2021. This probably stems from a greater commitment to publishing in journals that are multidisciplinary or from areas that have on average a higher citation impact than paleontological journals.

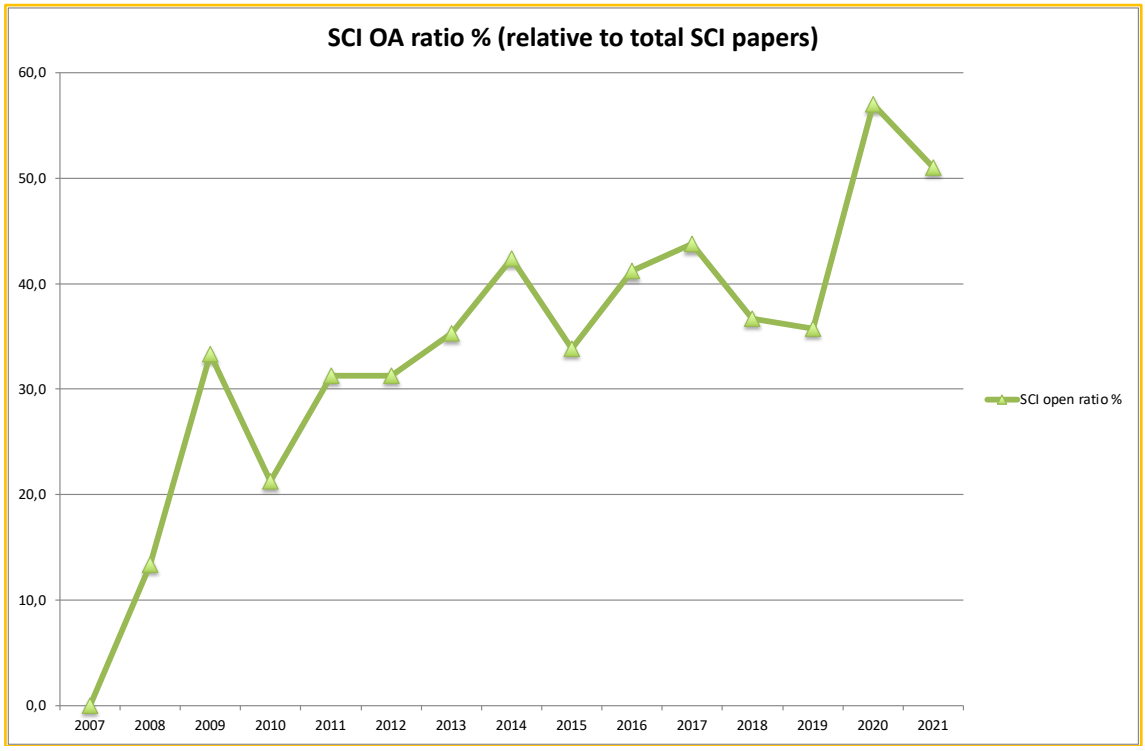
SCI PRODUCTION IMPACT & QUALITY (2018–2021)					
METRICS	2018	2019	2020	2021	AVERAGE
Q1 ratio	56.7	50.0	50.5	68.0	**56.7**
Median JIF%	78.5	76.1	76.6	77.4	**77.4**
IFGM	2.58	3.05	3.75	3.47	**3.26**



With regard to the ratio of open-access SCI papers, it has been above one-third throughout 2018-2021, and even above 50% in the last couple of years, overall resulting in an average of 44% for the last four years. It is noteworthy that these figures correspond only to gold and bronze open-acess publications. The overall percentage of ICP papers available in open acess is much higher thanks to the promotion of green-open acess options during the last years (i.e., the posting of preprints in an institutional digital repository after the embargo period prescribed by each journal).

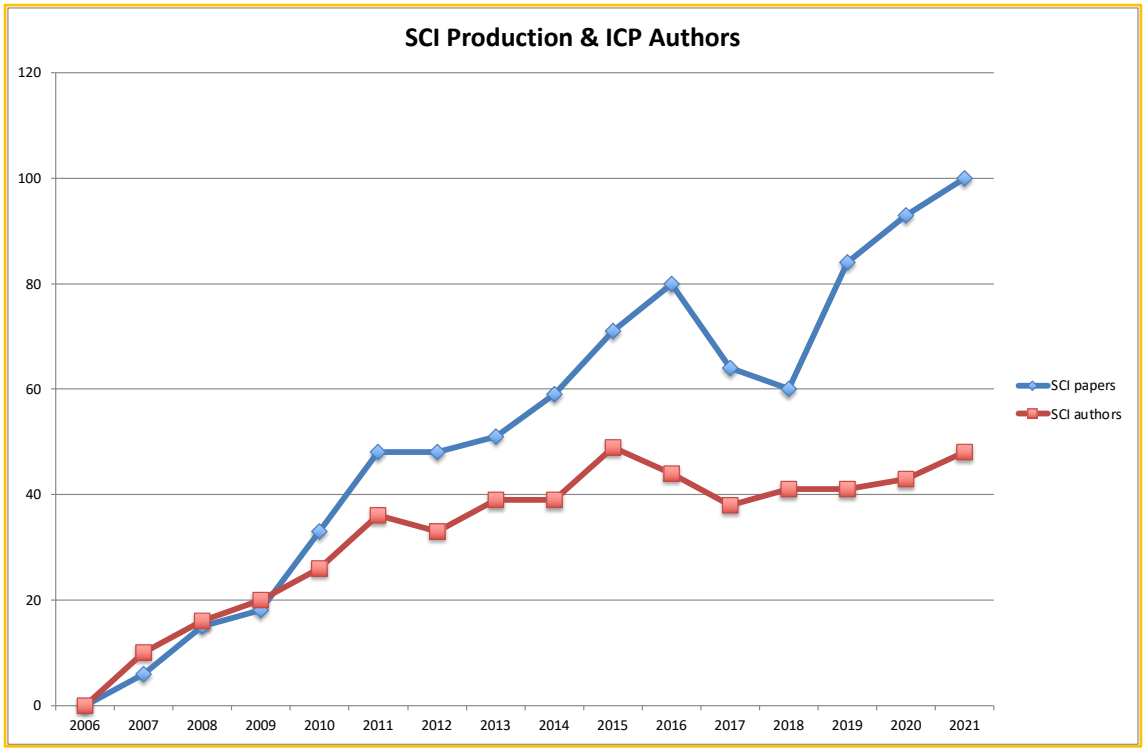
OPEN ACCESS (2018–2021)					
METRICS	2018	2019	2020	2021	AVERAGE
OA ratio*	36.7	35.7	57.0	51.0	**43.6**

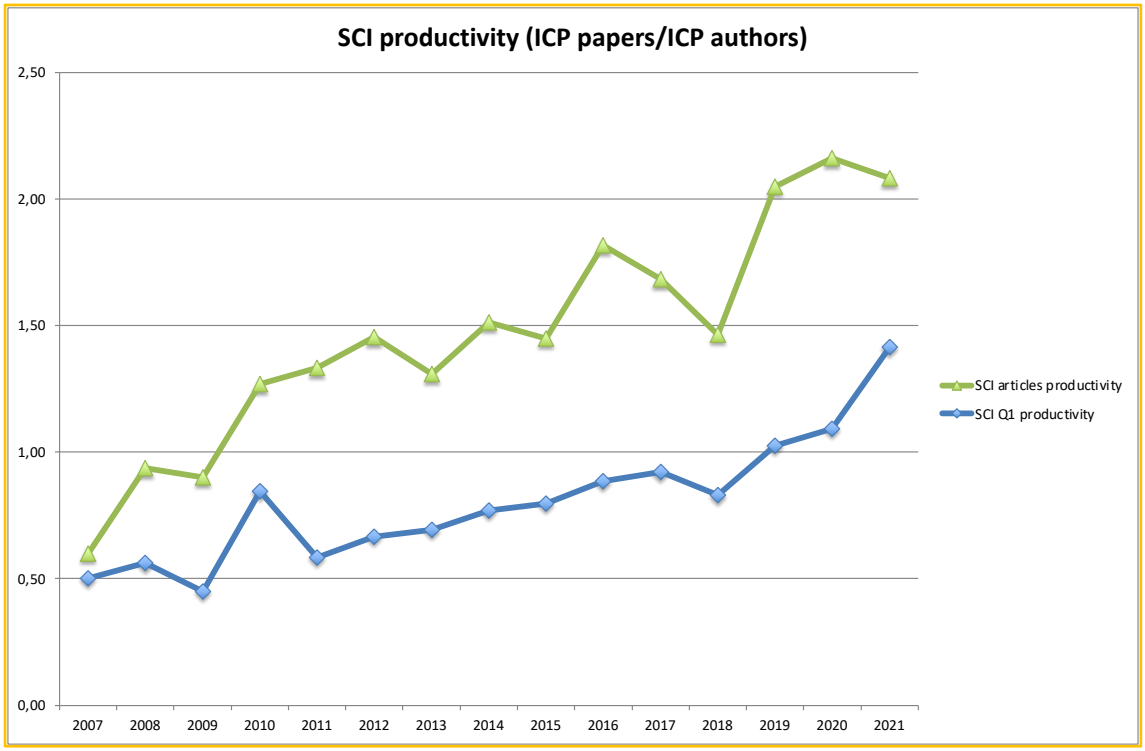
*Green open-access excluded.



Productivity There is generally a good correlation between the number of papers published by an institution and the number of authors, but the ratio between both figures (which measures productivity) may change over time. In the case of the ICP, it can be seen that both SCI papers and authors have more or less progressively increased over time, except for a decreased in the number of authors in 2016-2017 and a delayed decrease in productivity in 2017-2018. The increase in SCI production after 2018 is related to an increase in the number of authors, but it can be ascertained that the increase in published papers is proportionally might higher, thereby indicating that an increase in productivity has also taken place. This applies to SCI productivity as a whole (above 2 papers/author in 2018-2021), as well as to first-quartile SCI productivity (with a most marked increase in 2021). Overall, these indicators confirm that the increase in SCI production during the application of the previous Strategic Plan is not merely due to an increase in personnel, but especially to a higher efficiency in publication. Even more importantly, the figures for Q1 productivity (together with those reported above for impact metrics) indicate that such an increase in productivity has not been at the expense of quality, but rather the contrary.

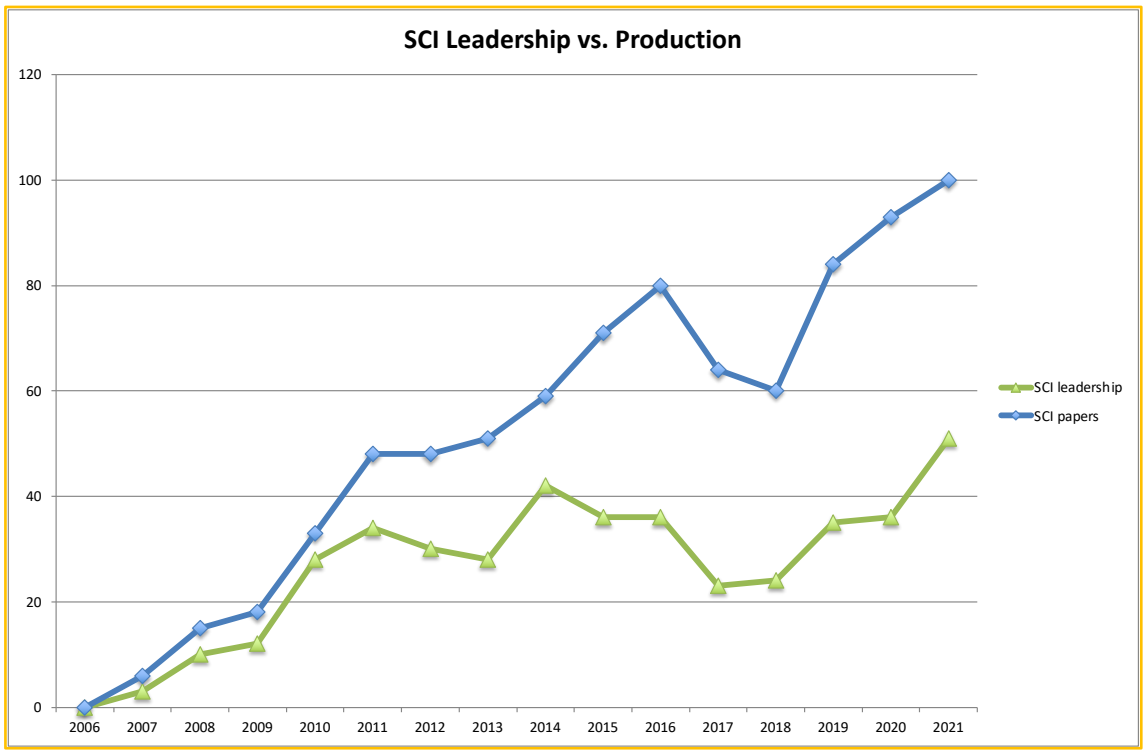
SCI PRODUCTIVITY (2018–2021)					
METRICS	2018	2019	2020	2021	AVERAGE
ICP SCI authors	41	41	43	48	**43.3**
SCI productivity	1.46	2.05	2.16	2.08	**1.95**
Q1 productivity	0.83	1.02	1.09	1.42	**1.10**

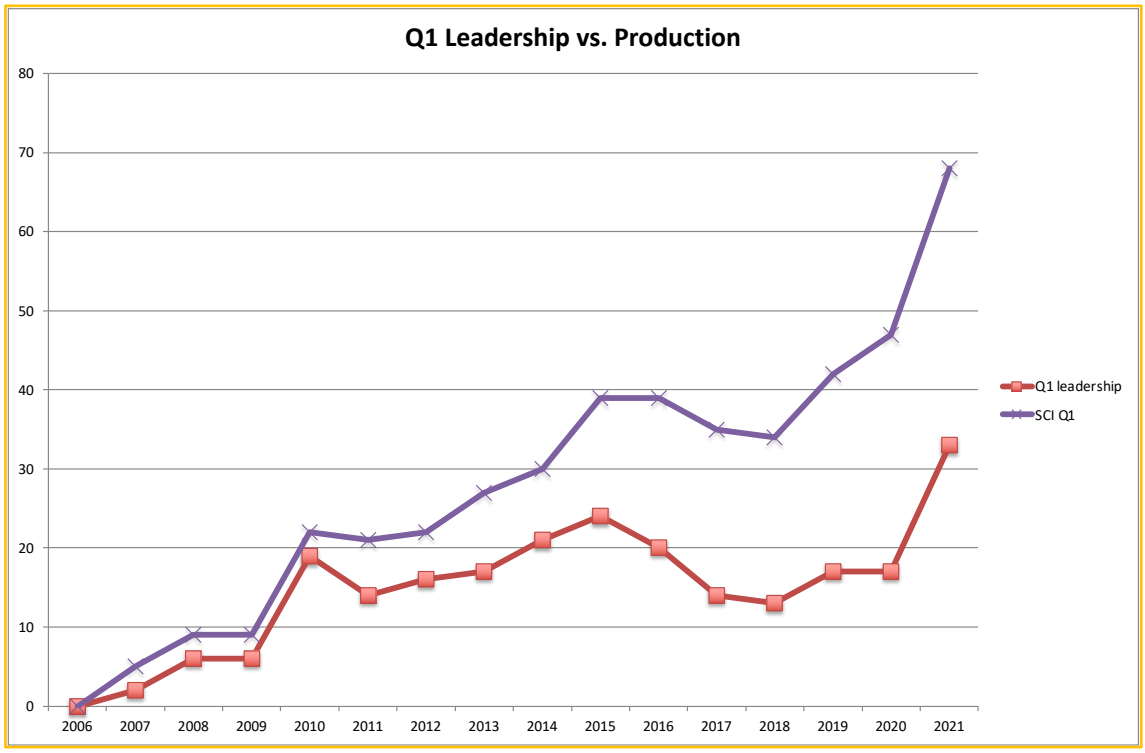


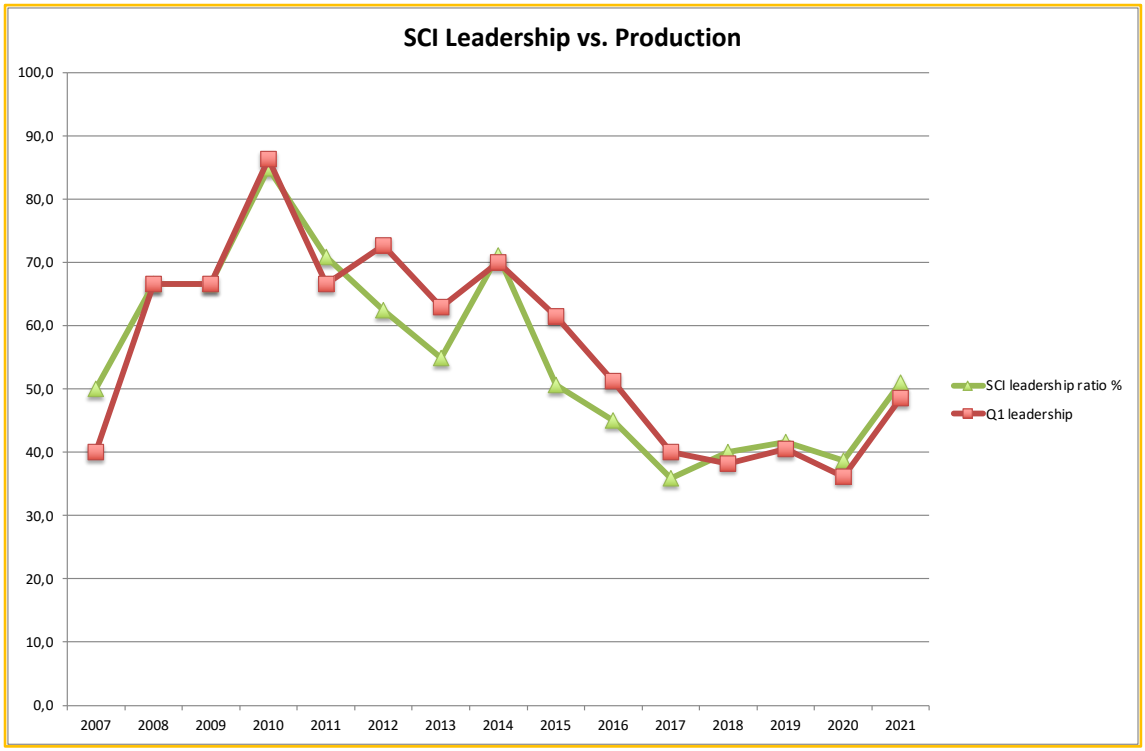


Leadership With regard to leadership of the published SCI papers (as measured by the corresponding author), the percentages for first-quartile papers and SCI papers as a whole are remarkably similar. Both ratios markedly dropped between 2014 and 2017, but remaind stable during 2018-2020 and even improved to some extent in 2021, overall resulting in average ratios above 40% for both Q1 and all SCI papers.

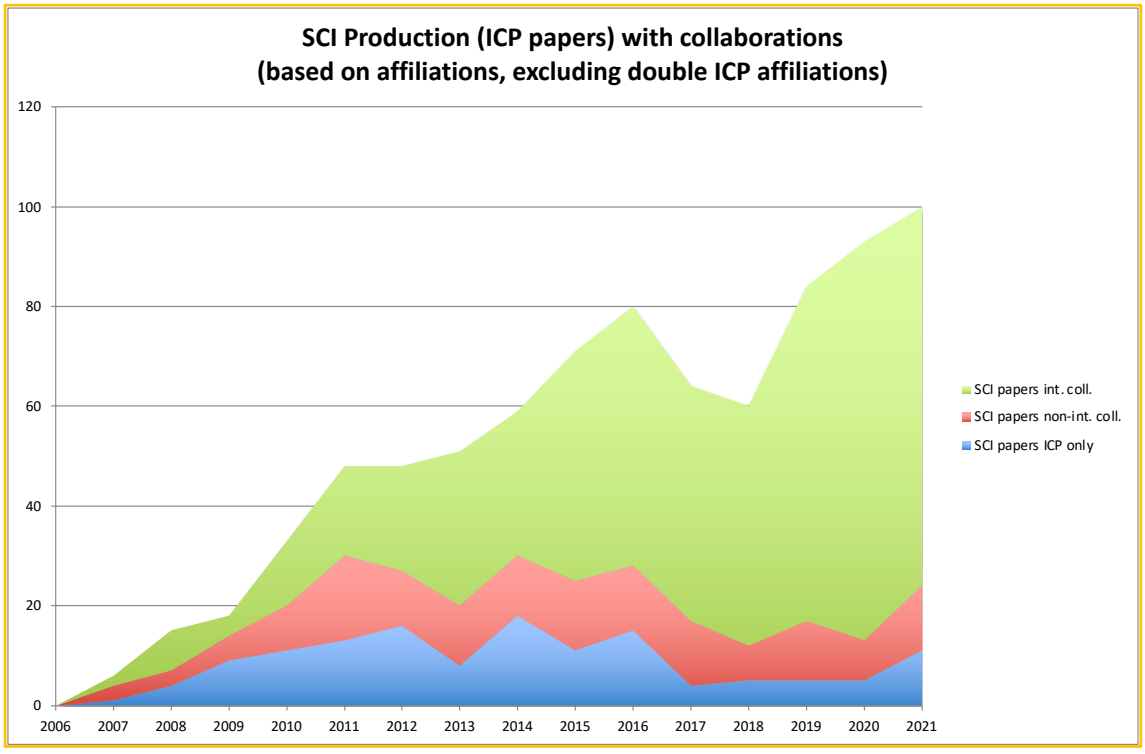
SCI LEADERSHIP (2018–2021)					
LEADERSHIP	2018	2019	2020	2021	AVERAGE
SCI leadership	24	35	36	51	**36.5**
Q1 leadership	13	17	17	33	**20.0**
SCI leadership ratio (%)	40.0	41.7	38.7	51.0	**42.8**
Q1 leadership ratio (%)	38.2	40.5	36.2	48.5	**40.9**



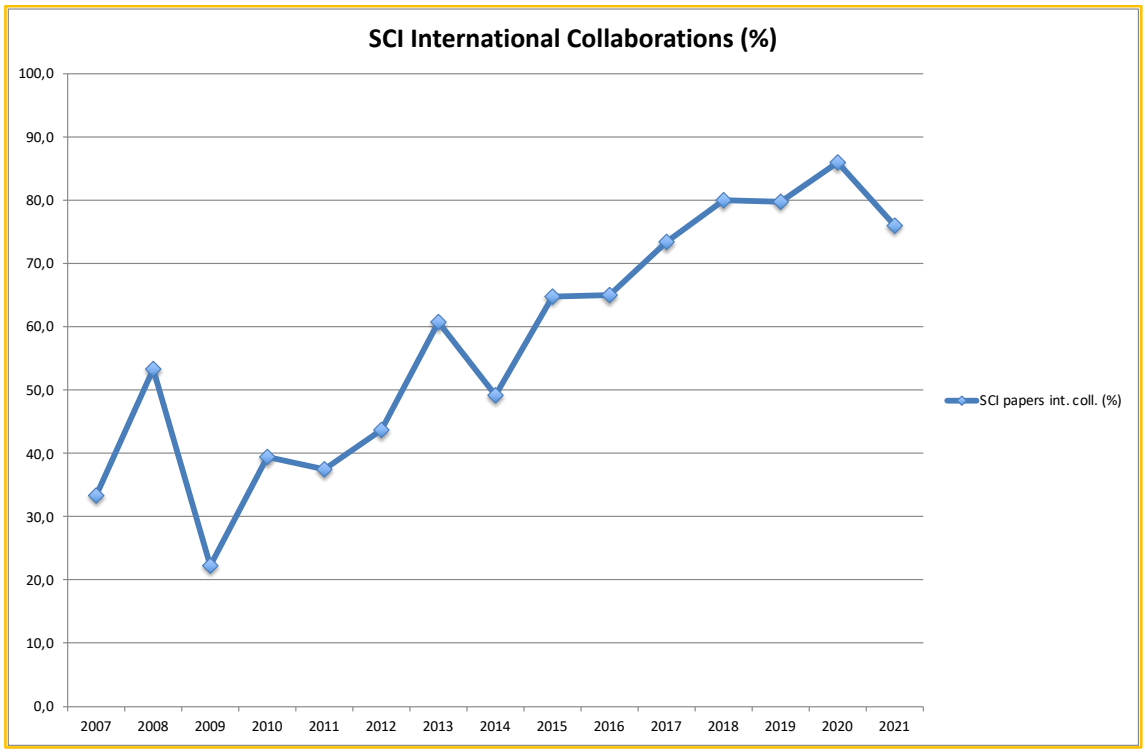




Collaborations The number of SCI papers with international collaborations published by the ICP has increased over time, being above 75% in 2018-2021 (with a peak of 8&% in 2020), overall resulting in an average above 80% for the last four years.



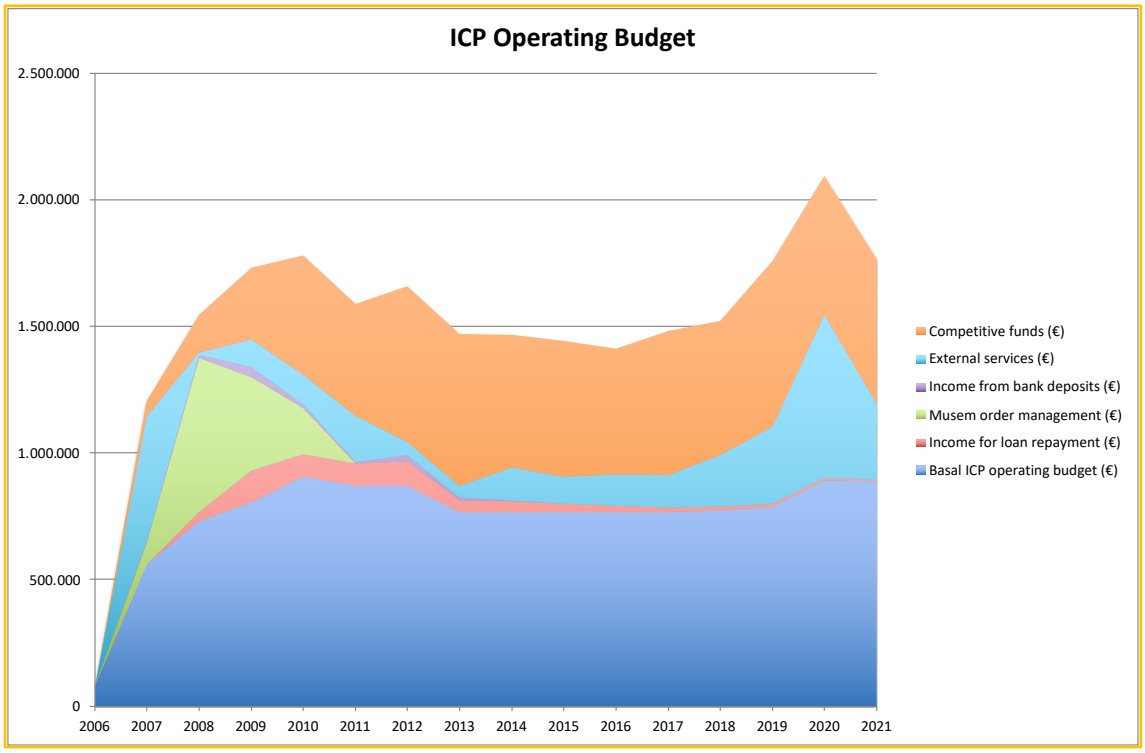
SCI PRODUCTION WITH COLLABORATIONS (2018–2021)					
PRODUCTION ACCORDING TO COLLABORATIONS	2018	2019	2020	2021	AVERAGE
SCI papers – ICP only	5	5	5	11	**6.5**
SCI papers – non-international collaboration	7	12	8	13	**10.0**
SCI papers – international collaboration	48	67	80	76	**67.8**
SCI papers – ICP only (%)	8.3	6.0	5.4	11.0	**7.7**
SCI papers – non-international collaboration (%)	11.7	14.3	8.6	13.0	**11.9**
SCI papers – international collaboration (%)	80.0	79.8	86.0	76.0	**80.4**

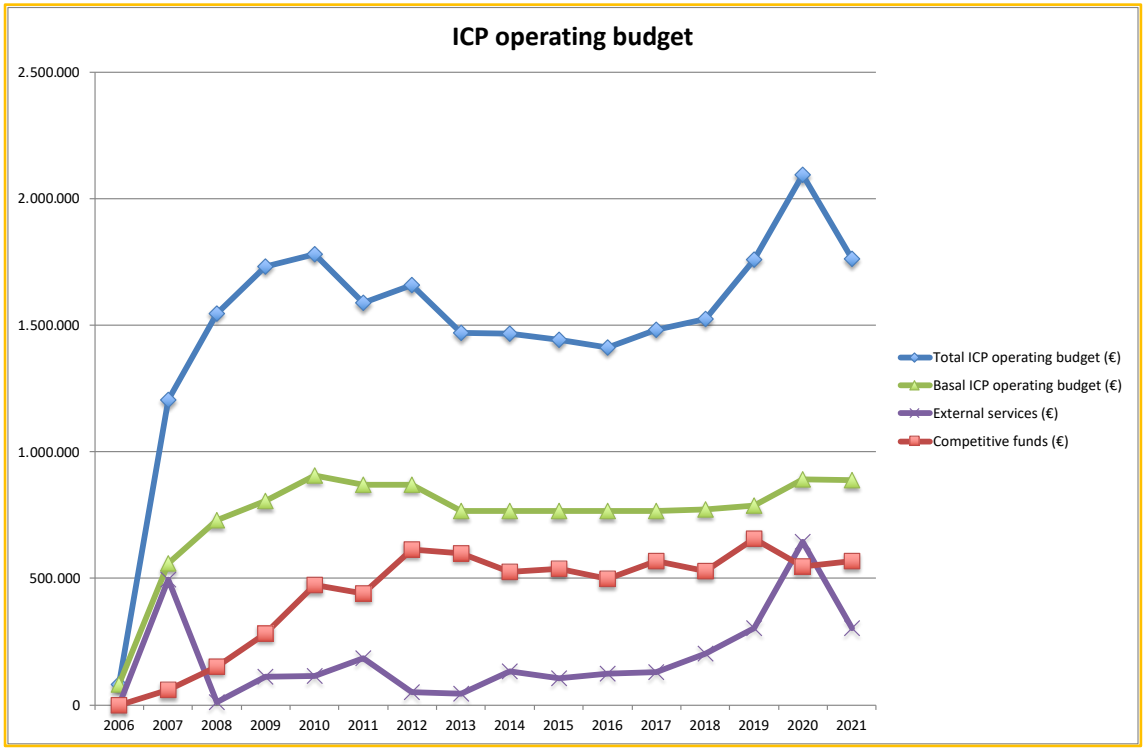


2.2. Fundraising

Total operating budget The ICP operating budget (i.e., excluding investments) includes the basal budget endowed by the Generalitat de Catalunya as well as the monetary income obtained by the ICP from other sources. The latter can be divided into several categories, such as competitive funds, revenues generated by the provision of external services, or income from bank deposits (although the latter is negligible). The two main sources of income for the ICP (other than its basal budget) consist of competitive funds and the provision of external services. Competitive funds refer to projects and grant applications that are evaluated on a competitive basis by external funding agencies, either public or private. A vast majority of competitive funds are associated with research activity, although sometimes they are associated to other activities performed at the ICP, such as research support or scientific dissemination and outreach. Revenues provided by the provision of external services to third parties (either public or private) are not competitive in this sense, although they imply competition with other institutions as well as private companies in the framework of market

rules. These activities are mostly related to knowledge transfer. Taken together, competitive funds and external services ultimately reflect the fundraising capacity of the ICP.



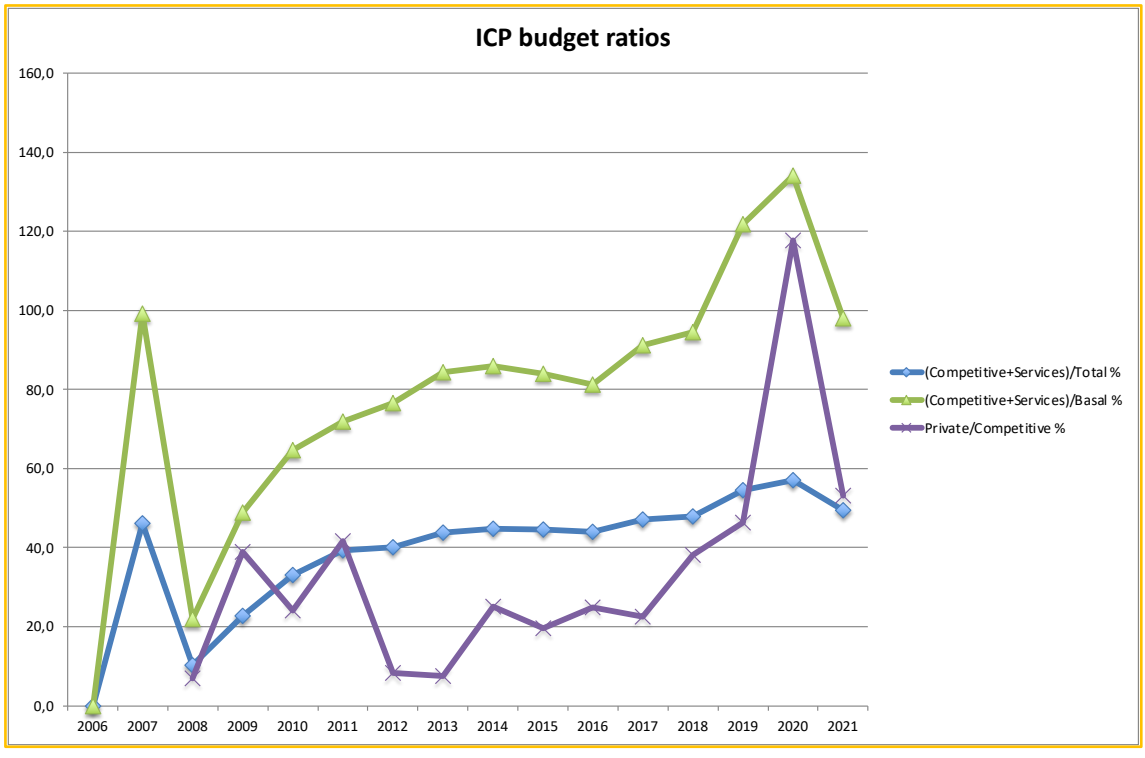


Since the budgetary decrease between 2010 and 2013, associated to the harsh financial crisis of about a decade ago, the ICP total operating budget remained stationary for many

years, with only minor fluctuations mostly attributable to variations in competitive funds. In contrast, the total operating budget increased during the last three years, with a peak in 2020. This is mostly attributable to the increase in service provision, and only to a much lower extent to progressive (even if very modest) increases in the basal budget.

OPERATING BUDGET (2018–2021)					
BUDGETARY INCOMES	2018	2019	2020	2021	AVERAGE
Total operating budget (€)	1,526,060	1,759,511	2,095,010	1,762,531	**1,785,778**
Basal operating budget (€)	774,070	787,470	890,206	889,332	**835,270**
Income for loan repayment (€)	15,091	12,576	10,309	5,176	**10,778**
Other incomes (€)	4,676	111	878	17,716	**5845**
Income from bank deposits (€)	0	0	7	75	**1,5**
Provision of external services (€)	202,317	303,574	645,465	302,086	**363,360**
Competitive funds (€)	529,905	655,780	548,146	569,062	**575,723**

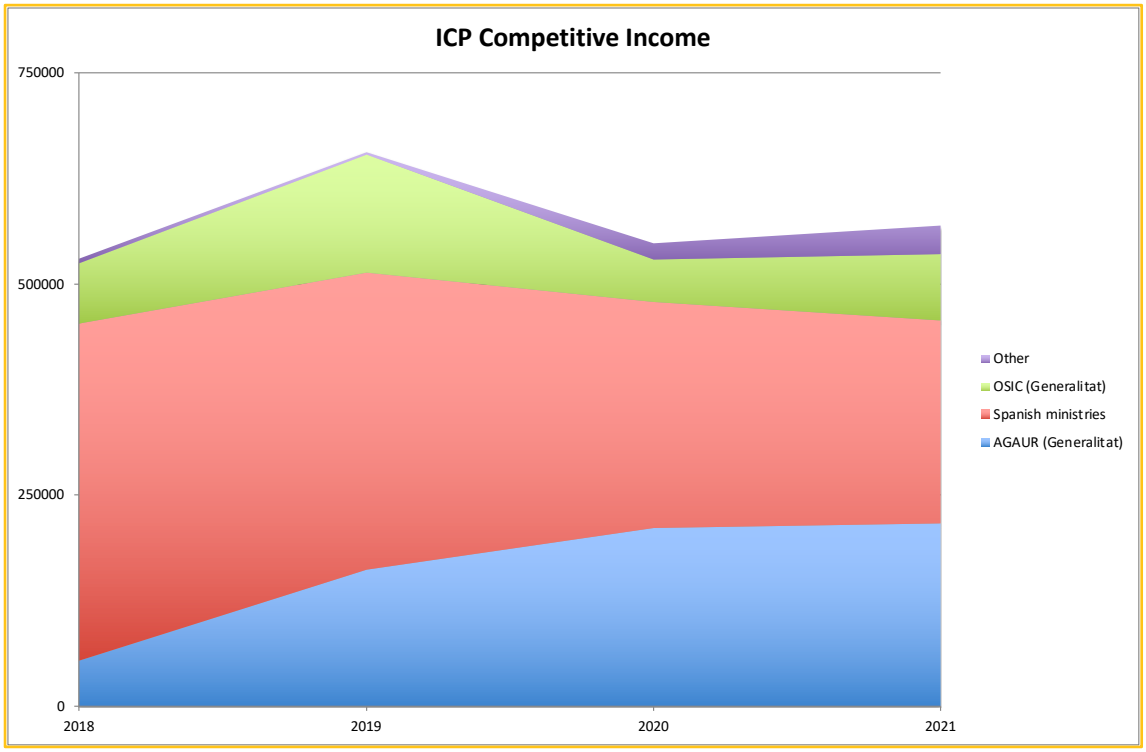
Competitive funds and external service provision can be considered together relative to the total and basal budgets by means of percentual ratios, to better grasp their relative contribution to the total ooperating budget. With some fluctuations, the contribution of competitive+external services funds to the total budget of the ICP have more or less steadily increased, reaching a peak in 2019-2020 (when they surpassed the basal budget). This was due to a spectacular increase in service provision income, which for the first time in the last decade was higher than competitive funds—an exceptional situation attributable to a peak in the provision of fieldwork services that is unlikely to be repeated at least in the next couple years.



BUDGET RATIOS (2018–2021)					
Ratios	2018	2019	2020	2021	Average
(Competitive+External services)/Total %	48.0	54.5	57.0	49.4	**52.2**
(Competitive+External services)/Basal %	94.6	121.8	134.1	98.0	**112.1**
Private/Competitive %	38.2	46.3	117.8	53.1	**63.8**

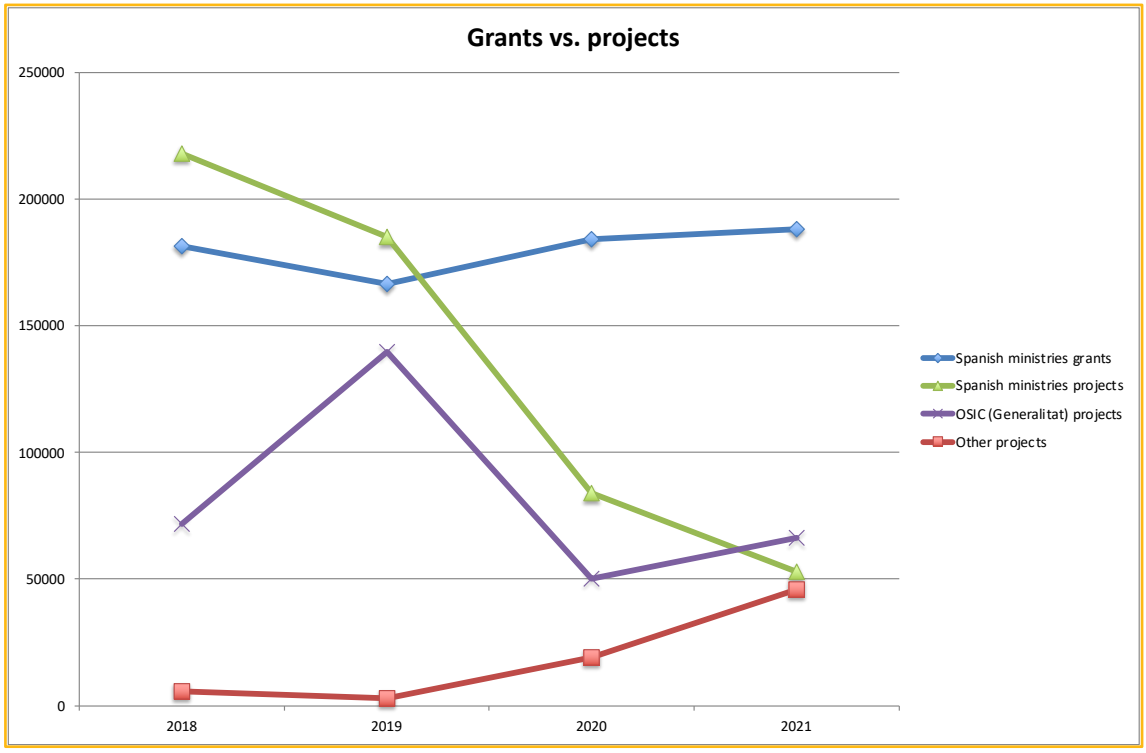
Competitive funds When all types of grants (research projects and contracts) are considered together, it can be seen that funding from the Spanish government has represented more than half the competitive income of the ICP during 2018-2021, the rest mostly corresponding to several agencies of the Generalitat de Catalunya.

COMPETITIVE FUNDS (2018-2021)					
Funding Agencies	2018 (€)	2019 (€)	2020 (€)	2021 (€)	Average
AGAUR (Generalitat)	53,292	161,442	210,600	216,010	**141,778**
Spanish ministries	399,307	351,642	268,061	240,900	**339,670**
OSIC (Generalitat)	71,720	139,697	50,285	78,811	**87,234**
Other	5586	3,000	19,200	33,341	**9,262**
TOTAL	529,905	655,780	548,146	569,062	**577,944**
Funding Agencies	**2018 (%)**	**2019 (%)**	**2020 (%)**	**2021 (%)**	**Average**
AGAUR (Generalitat)	10.1	24.6	38.4	38.0	**24.5**
Spanish ministries	75.4	53.6	48.9	42.3	**58.8**
OSIC (Generalitat)	13.5	21.3	9.2	13.8	**15.1**
Other	1.1	0.5	3.5	5.9	**1.6**



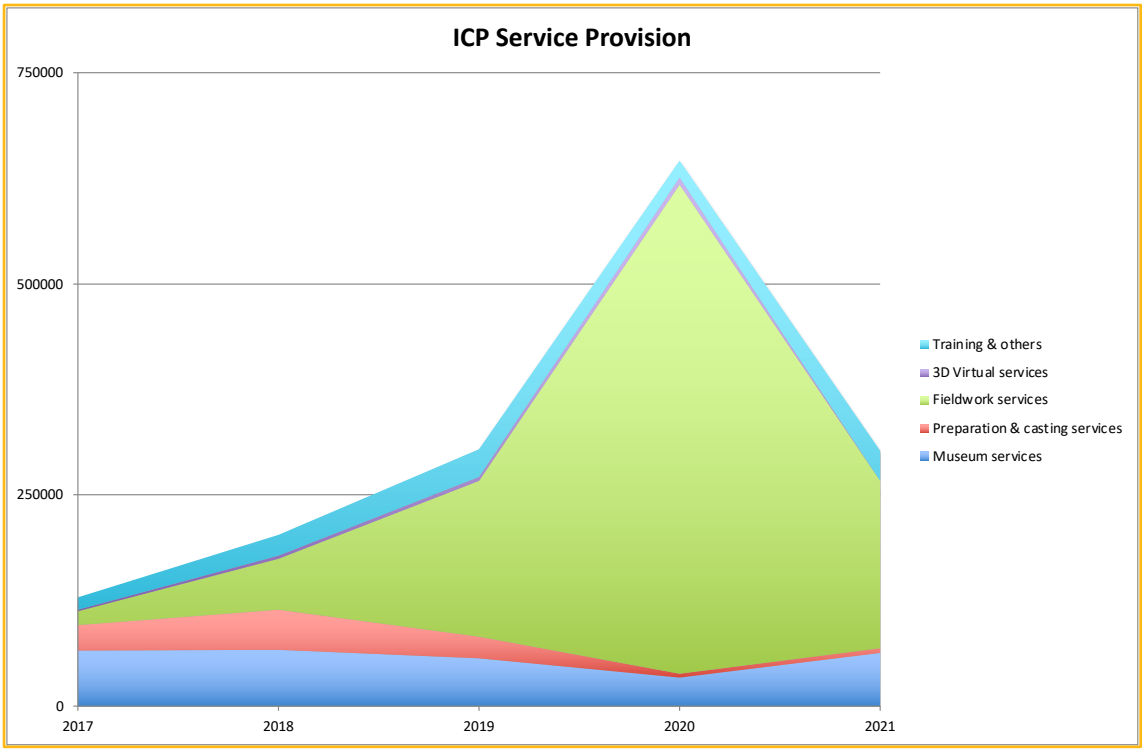
A progressive growing trend can be appreciated due to a greater success in AGAUR calls, which is likely to be consolidated in years to come. In particular, most of the competitive income from AGAUR corresponded to research grants (Beatriu de Pinós postdoc and FI predoctoral contracts), excep for a small proportion corresponding to support to consolidated research groups, while that from OSIC corresponded exclusively to projects. In contrast, the competitive income from the Spanish government corresponds to both individual (predoctoral and postdoctoral) grans and R+D projects. In the latter regard, the slight shrinking of competitive funds from the Spanish ministry during the last years is attributable to the fact that ongoing projects ended in 2019 or 2020, while new ones did not start until September 2021—such that this situation is likely to self-correct itself in the next three years.

GRANTS AND PROJECTS (2018-2021)					
FUNDING AGENCIES	2018 (€)	2019 (€)	2020 (€)	AVERAGE	2021 (€)
AGAUR (Generalitat) grants	53,292	161,442	210,600	**141,778**	**216,010**
Spanish ministries grants	181,388	166,584	184,178	**177,383**	**188,105**
Spanish ministries projects	217,919	185,058	83,883	**162,287**	**52,795**
OSIC (Generalitat) projects	71,720	139,697	50,285	**87,234**	**66,240**
Other projects	5,586	3,000	19,200	**9,262**	**45,912**
SUBTOTAL grants	234,680	328,025	394,778	**319,161**	**404,115**
SUBTOTAL projects	295,225	327,755	153,367	**258,783**	**164,947**
% grants	44.3%	50.0%	72.0%	**55.2**	**71.0%**
% projects	55.7%	50.0%	28.0%	**44.8**	**29.0%**
TOTAL	529,905	655,780	548,146	**577,944**	**569,062**



Service provision Almost two-thirds of service provision in 2018-2021 corresponded to fieldwork services, which experienced a marked increase in the last three years (especially in 2020). Among the rest, only museum services and, to a lesser extent, preparation/casting and training services are noteworthy. The marked reduction of museum services in 2020 is attributable to the pandemic, but they soon recovered in 2021.

SERVICE PROVISION (2018-2021)					
SERVICES	2018 (€)	2019 (€)	2020 (€)	2021 (€)	AVERAGE
Museum services	66,209	56,614	33,163	62,427	**54,603**
Preparation & casting services	47,794	25,529	5,002	6,061	**21,096**
Fieldwork services	59,808	184,726	579,462	197,681	**255,419**
3D virtual services	4,000	4,037	7,837	0	**3,968**
Training and others	24,506	32,669	20,000	35,917	**28,773**
TOTAL	202,317	303,574	645,464	302,086	**363,360**
Museum services %	32.7	18.6	5.1	20.7	**19.3**
Preparation & casting services %	23.6	8.4	0.8	2.0	**8.7**
Fieldwork services %	29.6	60.9	89.8	65.4	**61.4**
3D virtual services %	2.0	1.3	1.2	0.0	**1.1**
Training and others %	12.1	10.8	3.1	11.9	**9.5**



2.3. Research support and knowledge transfer

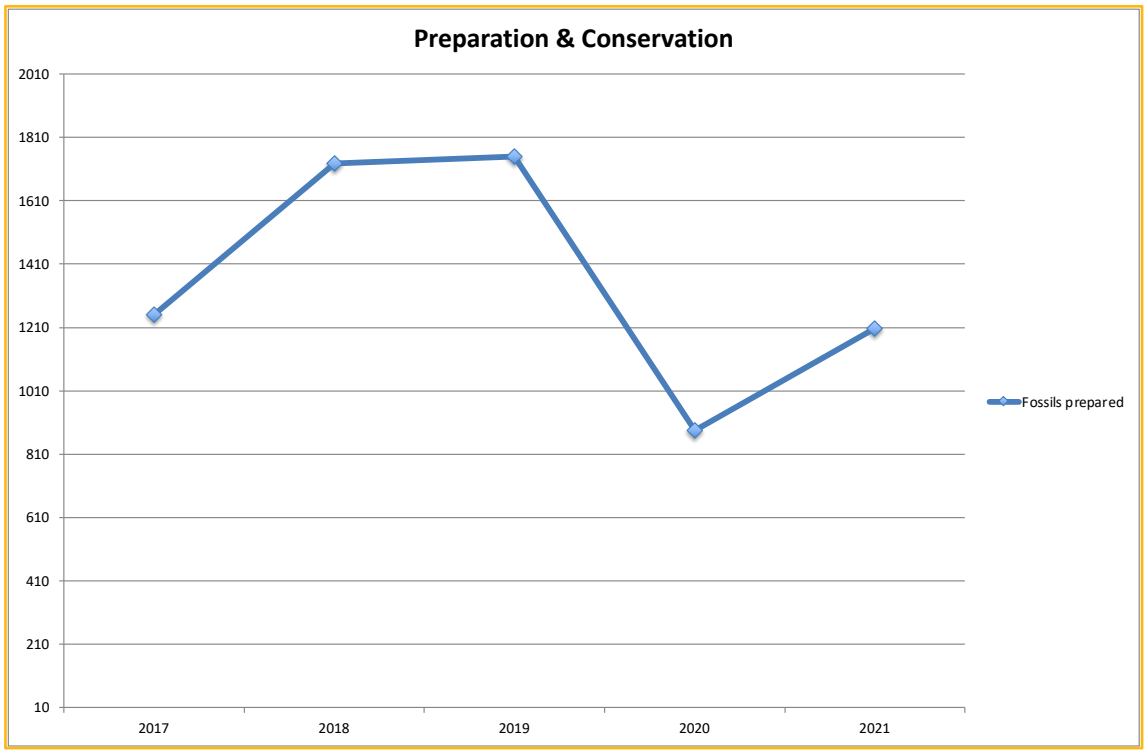
The paleontological services provided by various areas of the Research Support & External Services Department, as well as the Virtual Lab of the Computational Paleobiology Research Group, are fundamental for accomplishment of the research aims of the research groups of

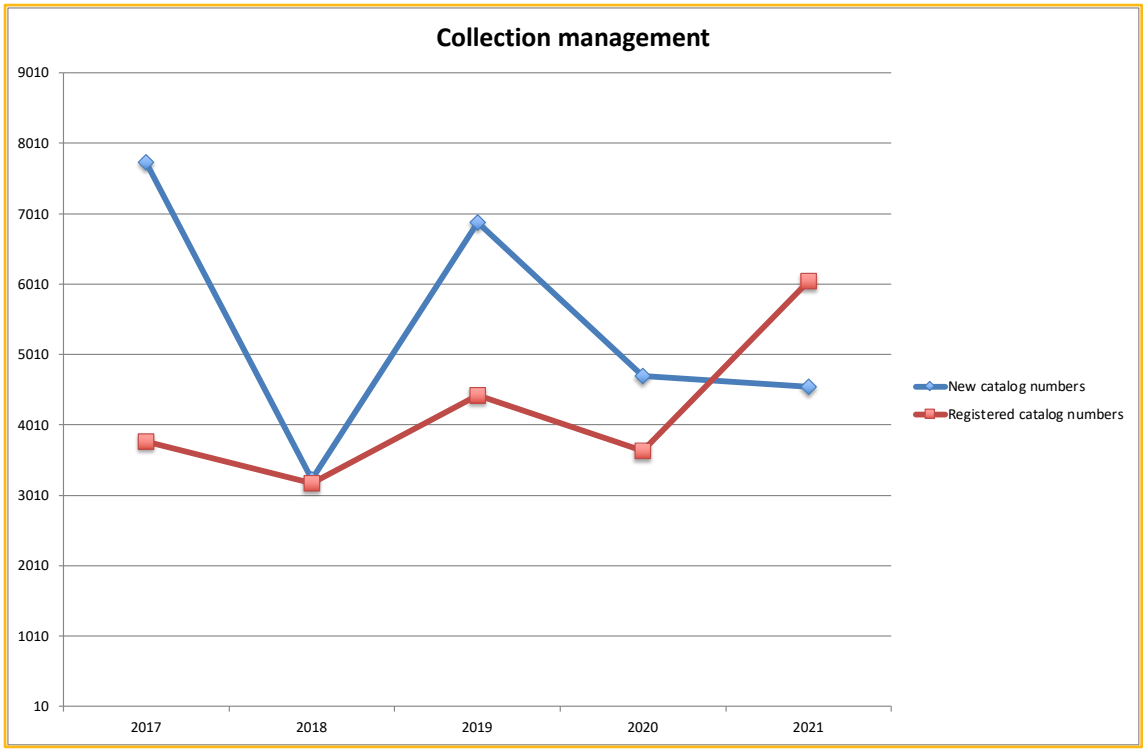
the ICP. Some of these areas are also very important from the viewpoint of knowledge transfer as well, by means of the provision of external services. Knowledge transfer activities, however, are not restricted to external services that result in monetary revenues, since they further include a series of other activities that are mostly related to training as well as outreach activities performed at the ICP Museum and beyond.

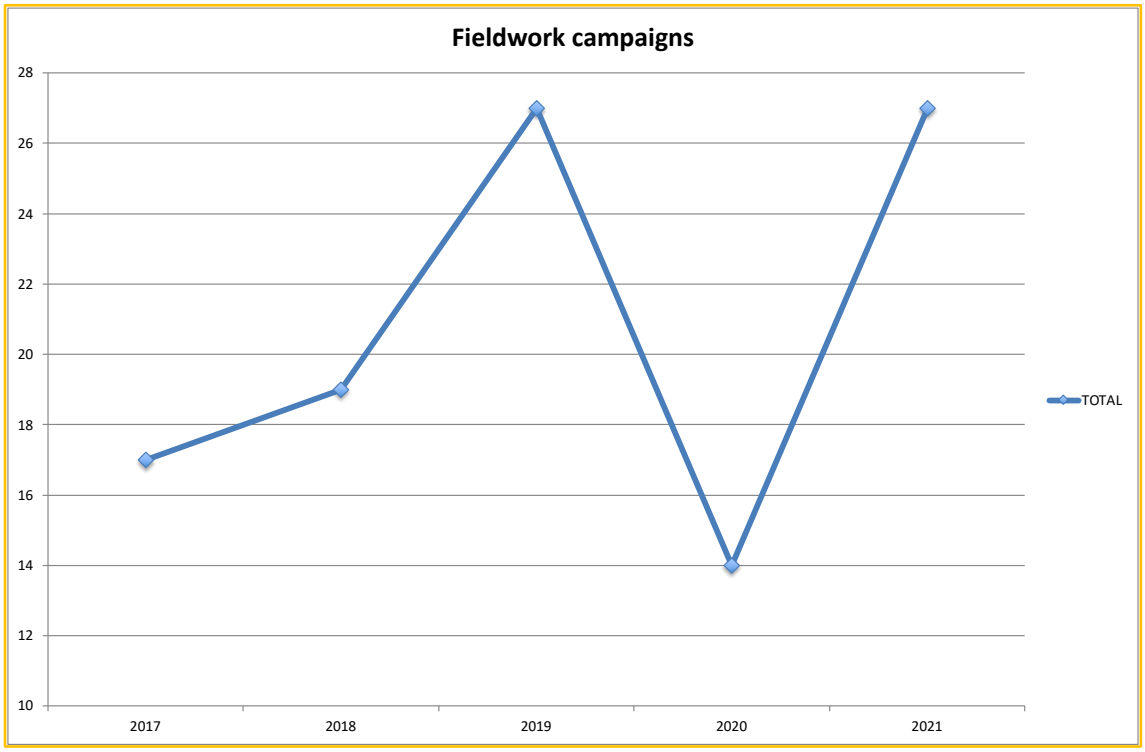
Research support The research support activities performed at the ICP include the following:

- Preparation, conservation and casting of fossil remains performed by the Preparation & Conservation Area.
- Cataloging and inventory of fossil remains by the Fieldwork & Collections Management Area of the ICP.
- Assistance to programmed paleontological interventions by the Fieldwork & Collections Management Area of the ICP.
- Assistance to scanning, visualization and 3D model processing of fossil remains by the 3D Virtual Lab of the Computational Paleobiology Research Group.

Some figures are provided below to illustrate such activitites, including the number of fossil specimens prepared, the amount of cataloged and inventoried fossils (the former corresponding to new catalog numbers, and the latter to catalog numbers digitized by means of the collection management software of the ICP), and the number of programmed fieldwork campaigns.







RESEARCH SUPPORT (2018-2021)					
ITEMS	2018	2019	2020	2021	AVERAGE (€)
Prepared fossil specimens	1,727	1,749	885	1,207	1,392.0
Cataloged fossil specimens	3,240	6,880	4,708	4,550	4844.5
Inventoried (registered) fossil specimens	3,181	4,429	3,641	6,050	4325.3
Programmed paleontologial interventions	16	21	8	22	14.5

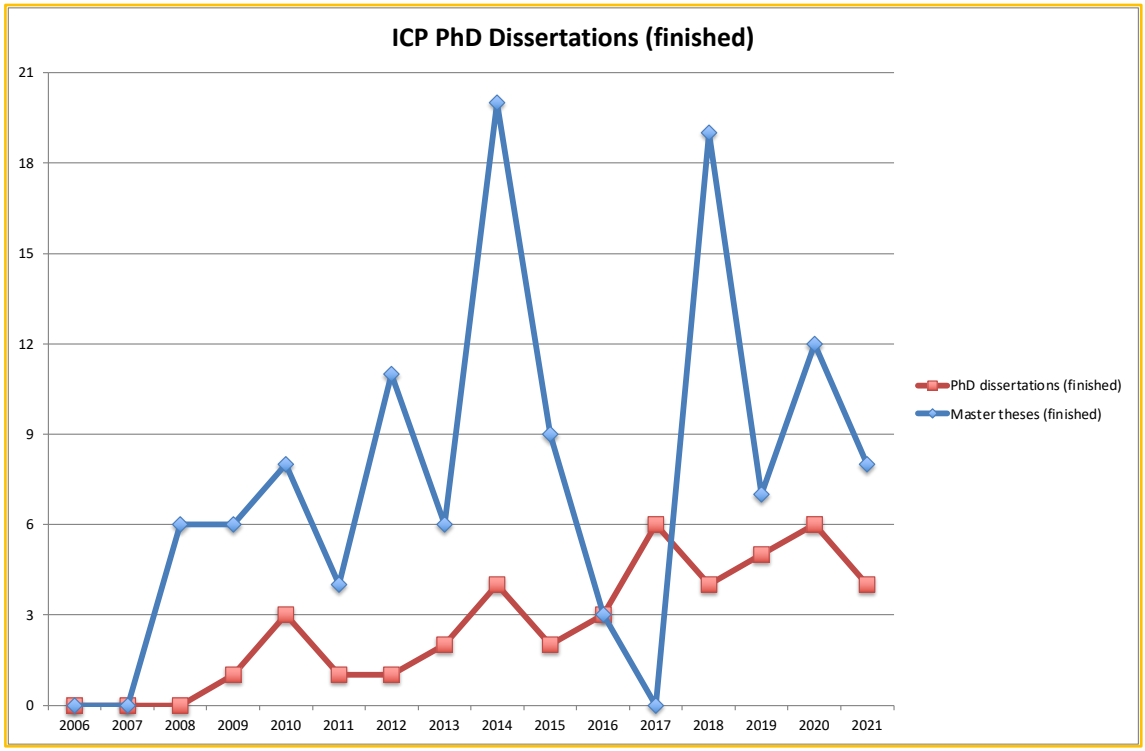
Paleontological services The paleontological services provided to third parties by the ICP are outlined below (the income obtained from these services during 2018-2021 has been reported below, so they will not be commented further):

- Museum services.
- Preparation and casting services.
- Paleontological fieldwork services.
- Virtual paleontology services.
- Paleontological and geological consultation services.

Training Knowledge transfer activities at the ICP are also related to academic teaching and supervision, to a large extent (but not exclusively) within the framework of the university. These activities include the following:

- Scientific courses.
- University teaching.
- Supervision.

Revenues are only obtained from university teaching by ICP researchers as a direct proportion of the fees paid by students of the paleontology master. However, supervision of master's theses is of utmost importance from the viewpoint of research, and especially young talent attraction, as some of these students choose to pursue an academic career and therefore apply to competitive predoctoral grants to perform their PhD at the ICP.

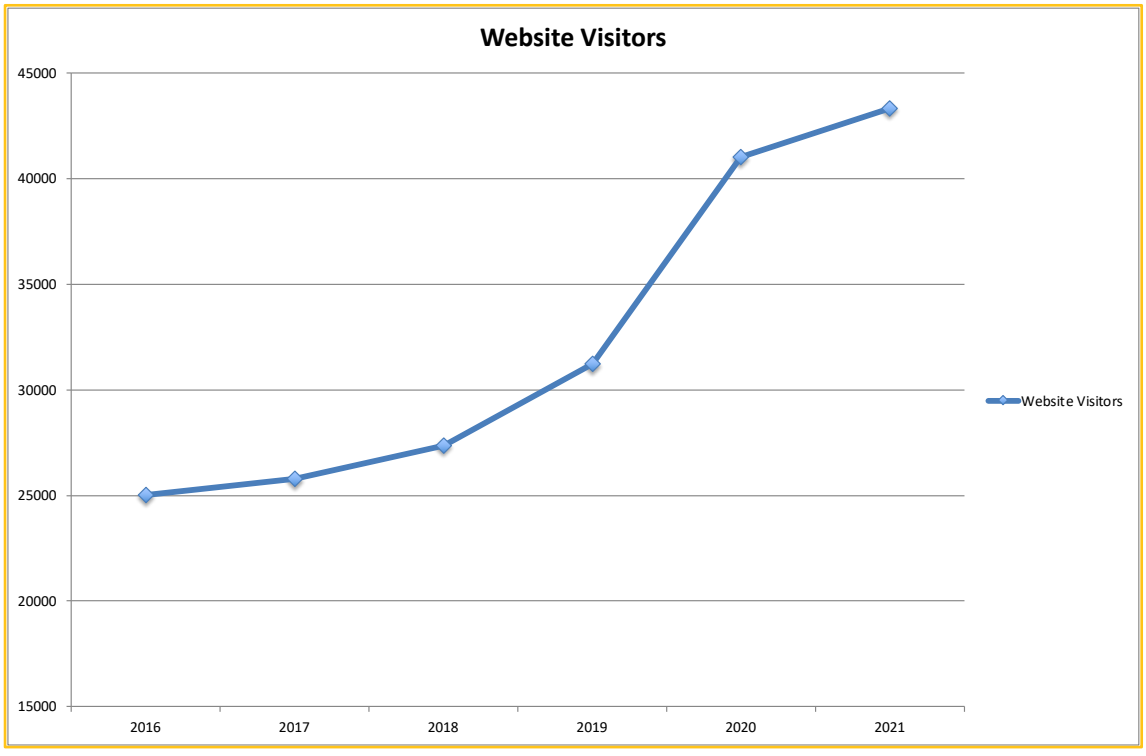


SUPERVISED THESES & DISSERTATIONS (2018–2021)					
CATEGORY	2018	2019	2020	2021	AVERAGE
PhD dissertations (finished)	4	5	6	4	**4.8**
Master's theses (finished)	19	7	12	8	**11.5**
Bachelor's theses (finished)	5	5	3	3	**5.3**

2.4. Outreach and communication

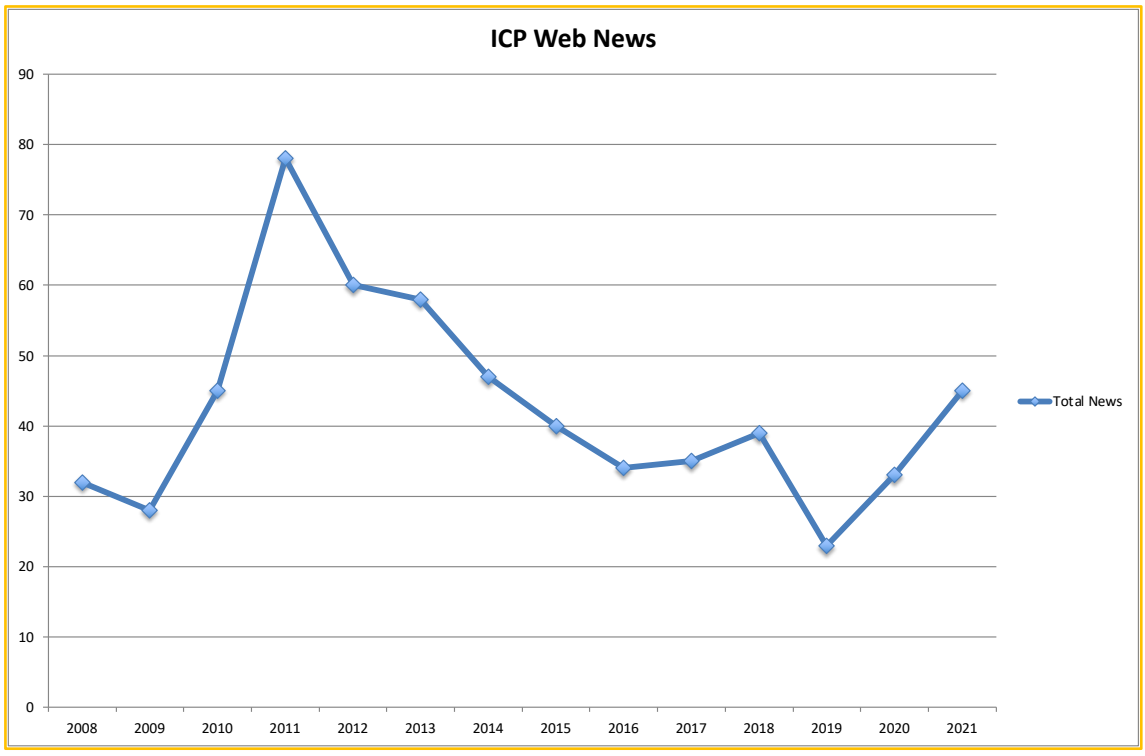
Website The ICP website (http://www.icp.cat) constitutes an essential tool to disseminate the work performed at the ICP to the general public, with particular emphasis on transmitting the knowledge that derives from the research performed by ICP researchers and research associates, but further including the most significant actions of knowledge transfer as well as scientific dissemination and outreach, among other relevant news. The number of visitors (as measured by Google Analytics) has steadily increased throughout 2018-2021 (with a particularly marked increase in 2020).

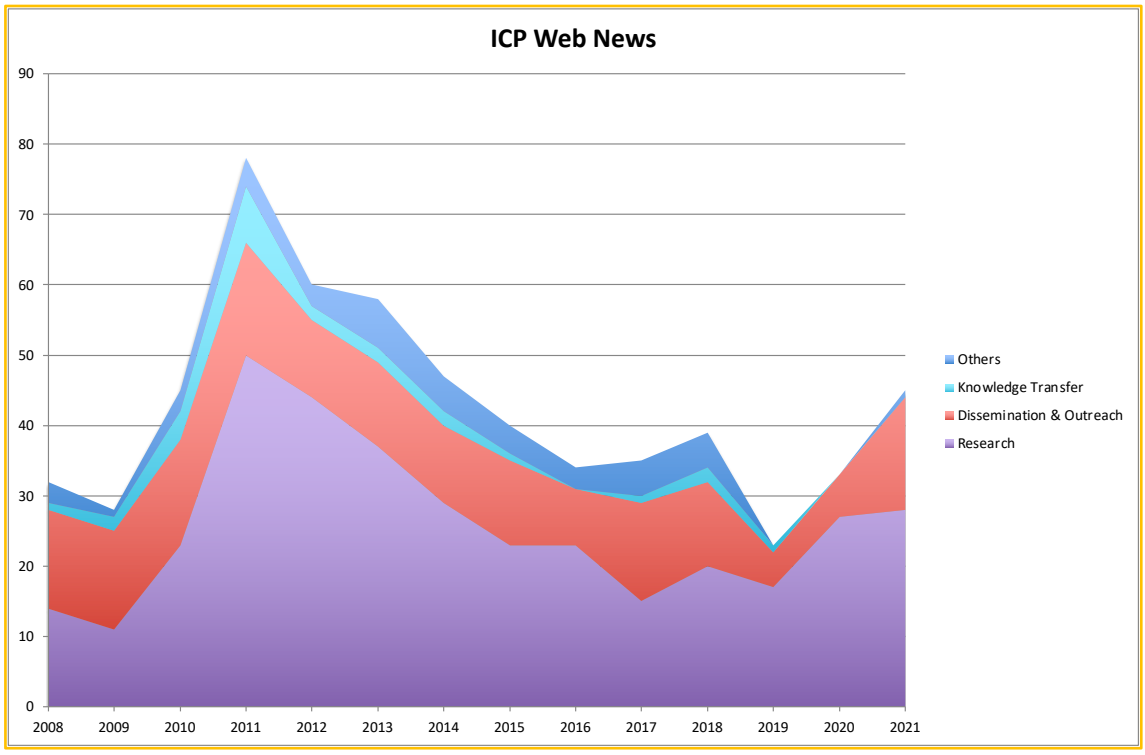
WEBSITE VISITORS (2018–2021)					
DATA SOURCE	2018	2019	2020	2021	AVERAGE
Website Visitors (Google Analytics)	27,376	31,243	41,029	43,340	**35,747**



The ICP website has a section devoted to paleontological news, which are regularly posted and subsequently disseminated through the ICP social networks. The news posted by the ICP can be divided into four main categories depending on their content: research; dissemination and outreach; knowledge transfer; and others. As it can be seen from the historical plot below,

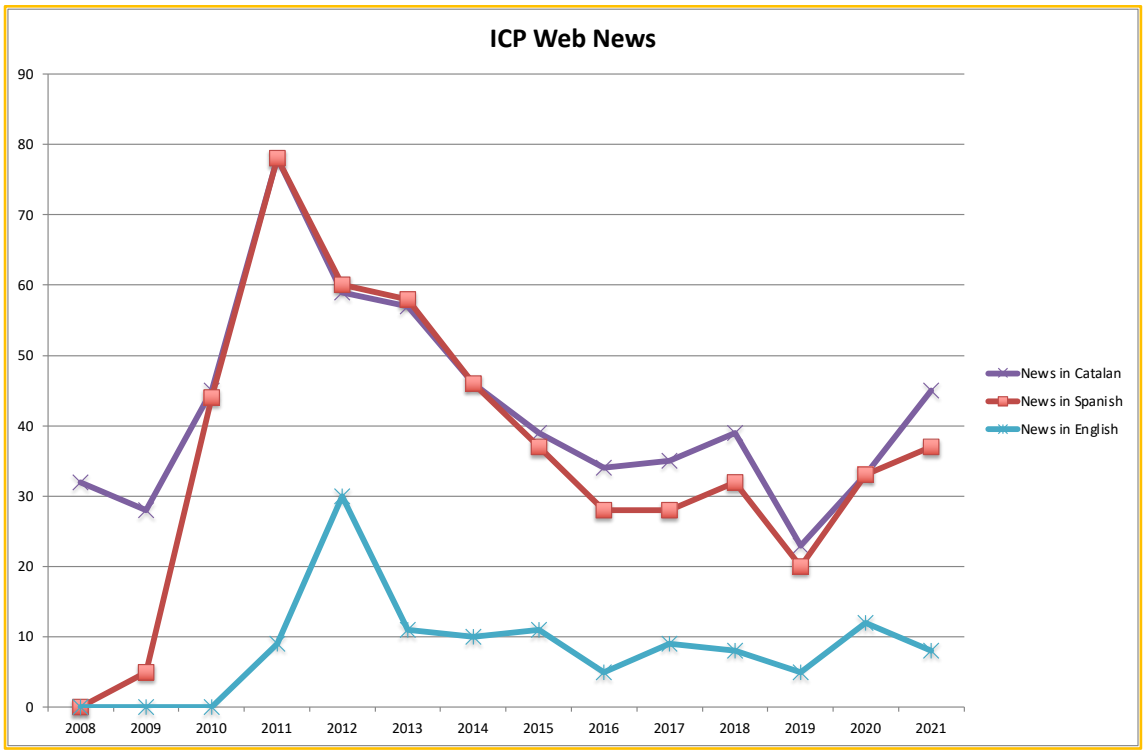
the number of news published on the ICP website attained its peak a decade ago (in 2011), and subsequently decreased until 2016, and then again in 2019. This was related to the fact that the head of the Outreach & Communication Department of the ICP had to prioritize other tasks. However, the number of news recovered during 2020-2021 until reaching a figure higher than in 2015, and hence it may be expected that these figure will improve in years to come.





WEB NEWS (2018–2021)					
CATEGORY	2018	2019	2020	2021	AVERAGE
Research	20	17	27	28	**23.0**
Dissemination & Outreach	12	5	6	16	**9.8**
Knowledge Transfer	2	1	0	0	**0.8**
Others	5	0	0	1	**1.5**
Total News	39	23	33	45	**35.0**

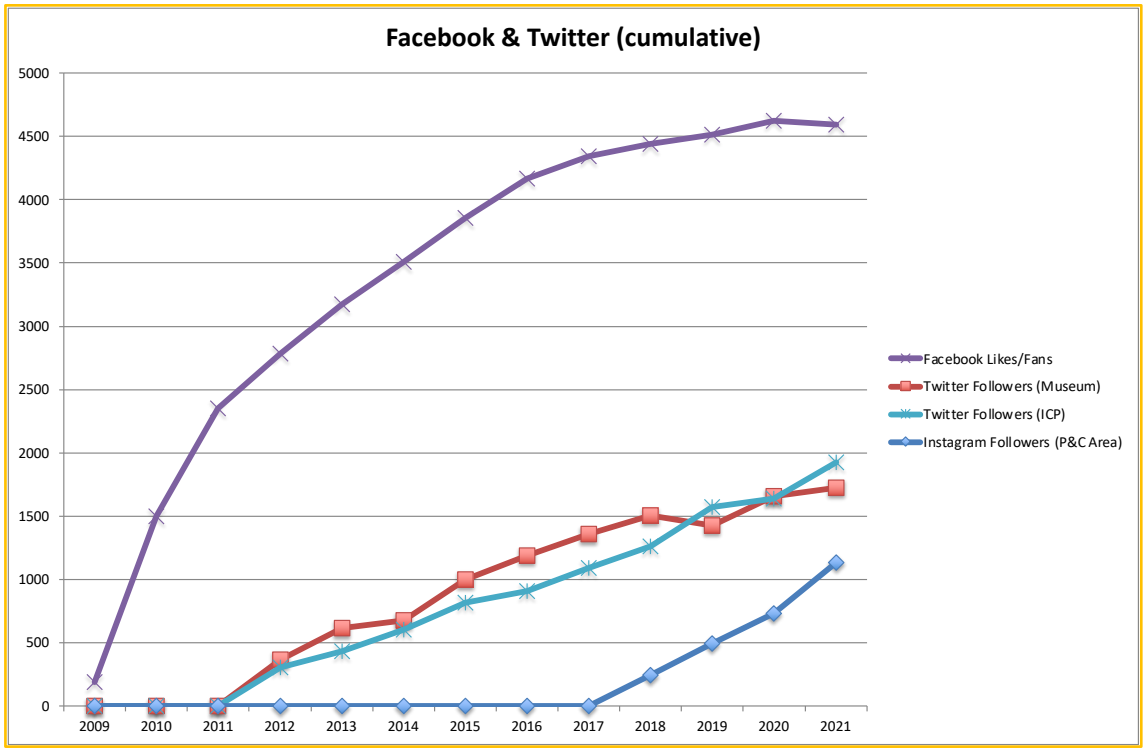
The major bulk of ICP news are related to research and, to a lesser extent, dissemination and outreach. All the news are published in Catalan and most in Spanish also, whereas news translated into English represent on average about a quarter of total ICP news.



WEB NEWS (2018–2021)					
CATEGORY	2018	2019	2020	2021	AVERAGE
News in Catalan (CAT)	39	23	33	45	**34.0**
News in Spanish (ES)	32	20	33	37	**29.0**
News in English (EN)	8	5	12	8	**7.6**
News in Catalan (CAT) %	100.0	100.0	100.0	100.0	**100.0**
News in Spanish (ES) %	82.1	87.0	100.0	82.2	**87.8**
News in English (EN) %	20.5	21.7	36.4	17.8	**24.1**

Social networks The ICP has a Facebook fan page, two Twitter accounts (one for the ICP as a whole, and the other for the ICP Museum), and an Instagram channel (for the Preparation & Conservation Area). These social networks can be monitored on the basis of 'fans' (formerly 'likes') in the case of Facebook, and based on the number of followers for Twitter and

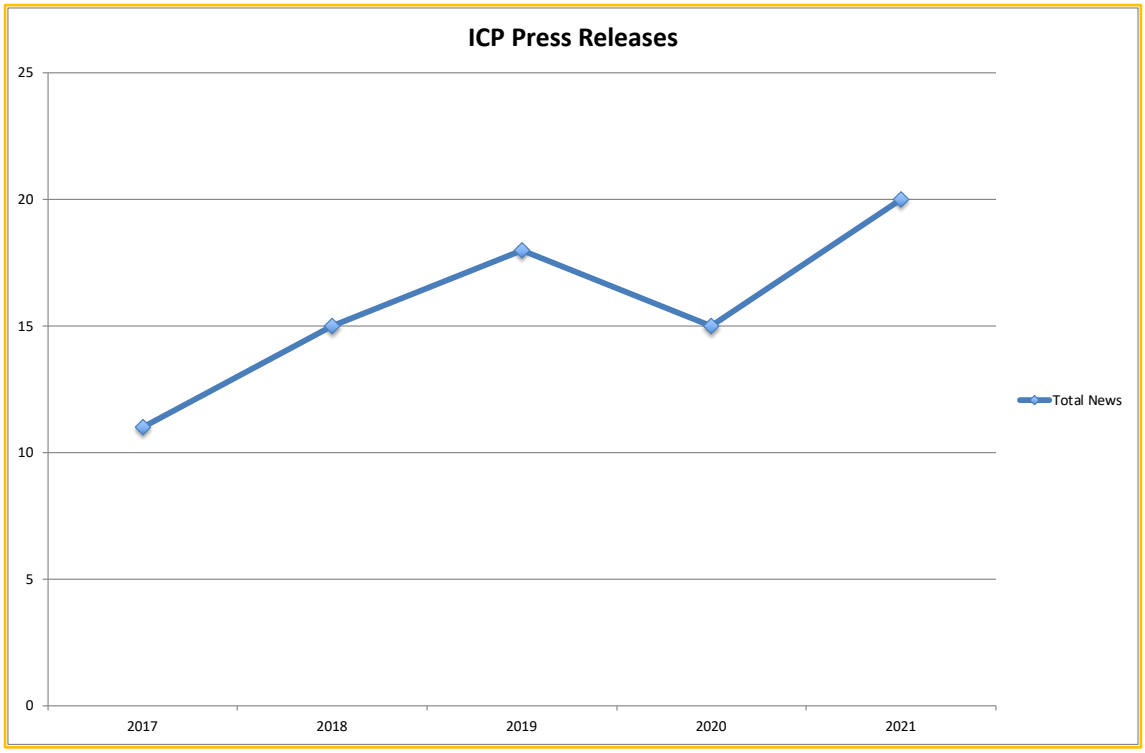
Instagram. During the last couple of years, Facebook fans seem to have reached an asymptotic plateau, whereas Twitter followers are still increasing in an approximately linear fashion, and Instagram followers have risen much faster since the implementation of this account in 2018.



SOCIAL NETWORKS (2018–2021)					
LIKES OR FOLLOWERS	2018	2019	2020	2021	AVERAGE
Facebook Likes/Fans (new)	99	74	109	-32	**62.5**
Twitter Followers – Museum (new)	144	-78	233	63	**90.5**
Twitter Followers – ICP (new)	175	306	71	286	**209.5**
Instagram Followers – P&C Area (new)	248	244	238	402	**283.0**
Facebook Likes/Fans (cumulative)	4442	4516	4625	4593	—
Twitter Followers – Museum (cumulative)	1504	1426	1659	1722	—
Twitter Followers – ICP (cumulative)	1264	1570	1641	1927	—
Instagram Followers – P&C Area (cumulative)	248	492	730	1132	—

Press releases The Scientific Dissemination and Communication Area of the ICP regularly issues press releases to highlight the most important news related to the ICP, with emphasis on new research outputs, but further including dissemination activities and other noticeable events. The number of press releases in 2018-2021 has slightly fluctuated around an average value of 17 press releases each year.

PRESS RELEASES (2018–2021)					
DATA SOURCE	2018	2019	2020	2021	AVERAGE
Press releases issued by the ICP	15	18	15	20	**14.8**

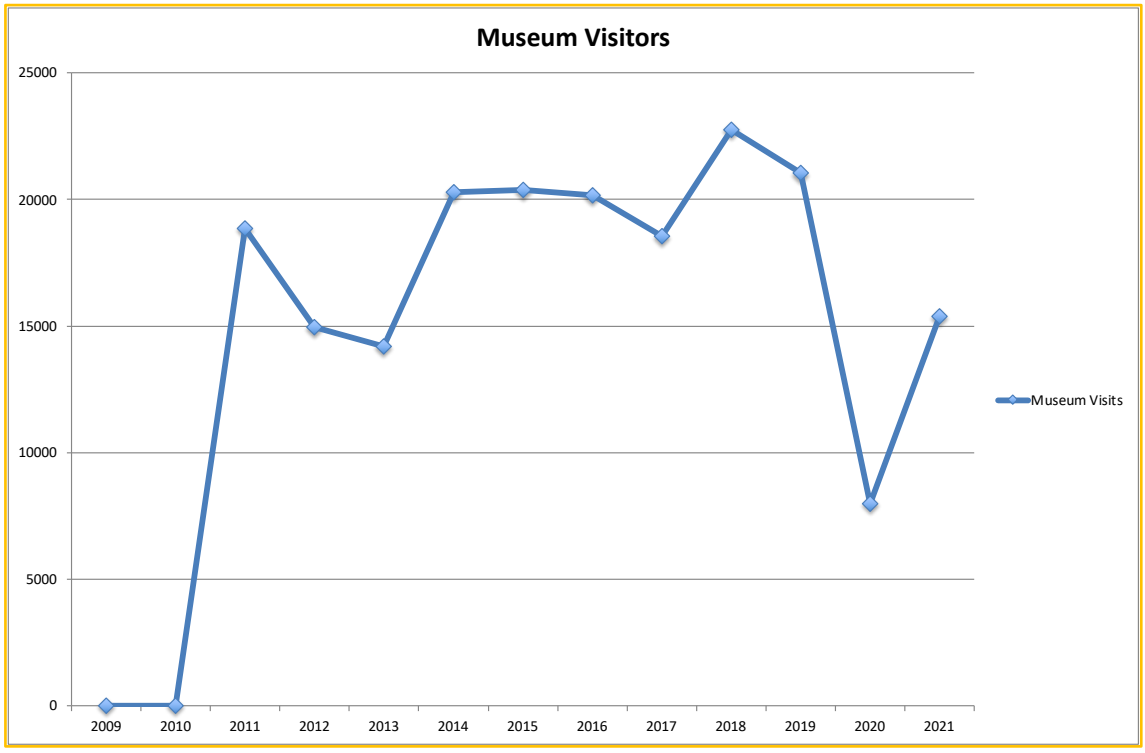


Museum visits and activities The ICP Museum in Sabadell, besides being an indispensable requirement for the research performed at the ICP, is also a very powerful tool from the viewpoint of scientific dissemination and outreach when transmitting paleontological knowledge to a general public. Visits to the Museum include individual visitors and, to a greater extent, organized groups (including schools and families) that attend guided visits and/or various workshops that are organized regularly throughout the year with the aid of external monitors.

Other activities performed by the ICP Museum include the following:

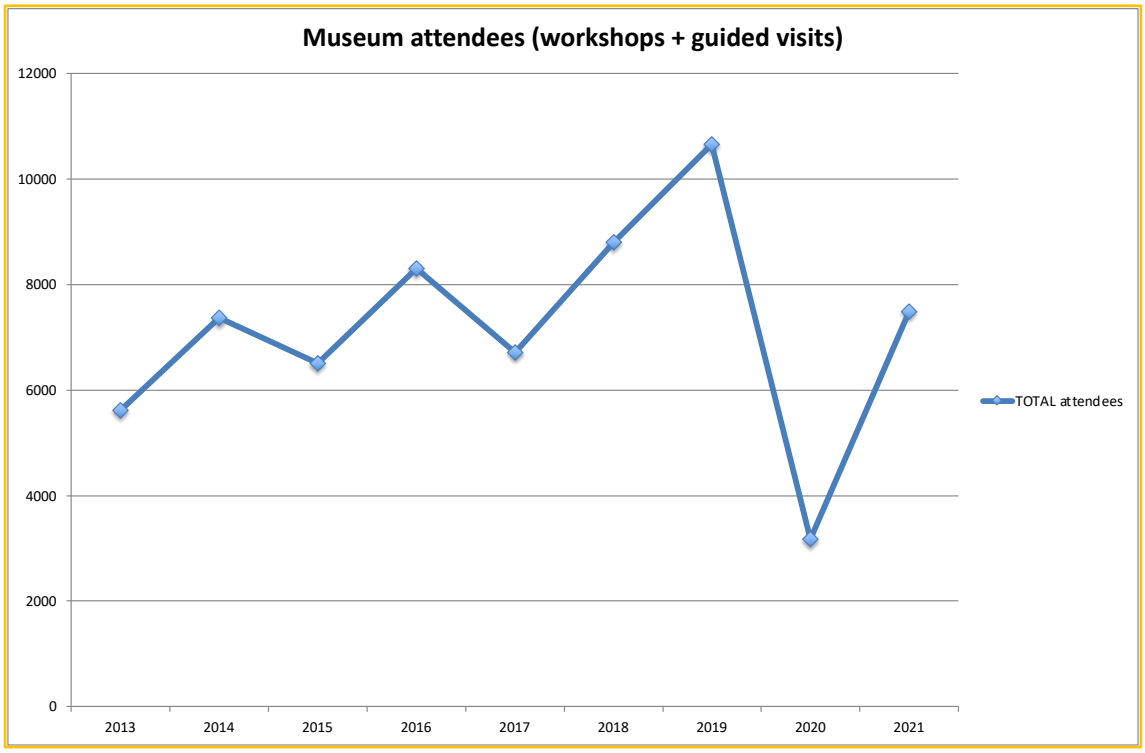
- Distribution of a Museum Bulletin.
- Permanent and temporary exhibits.
- Guided visits and workshops.
- Other (free) outreach activities.

MUSEUM ACTIVITIES (2015–2019 vs. 2020)					
Museum Activities	2018	2019	2020	2021	Average
Visitors	20,739	21,042	7,988	15,391	**16,790**
School sessions (workshops/guided visits)	326	354	109	274	**265.8**
Family workshops	37	46	34	56	**43.3**
Gudied visits	11	13	7	12	**10.8**
TOTAL sessions	374	413	150	342	**319.8**
School attendees	7,761	9,489	2,564	6,659	**6,618.3**
Family attendees	786	909	505	626	**706.5**
Guided visit attendees	257	264	105	204	**207.5**
TOTAL attendees	8,804	10,662	3,174	7,489	**7,532.3**



The number of museum visits and activities drastically decreased in 2020 because of the restrictions associated with the COVID-19 pandemic, but indeed it must be considered a success that such activities were not completely eliminated during that year. Fortunately, both museum visits and activities importantly recovered in 2021, although visits and some activities

have yet to reach normal (prepandemic) levels, especially as compared with 2018-2019, which were the most successful years in ICP history in these regards.



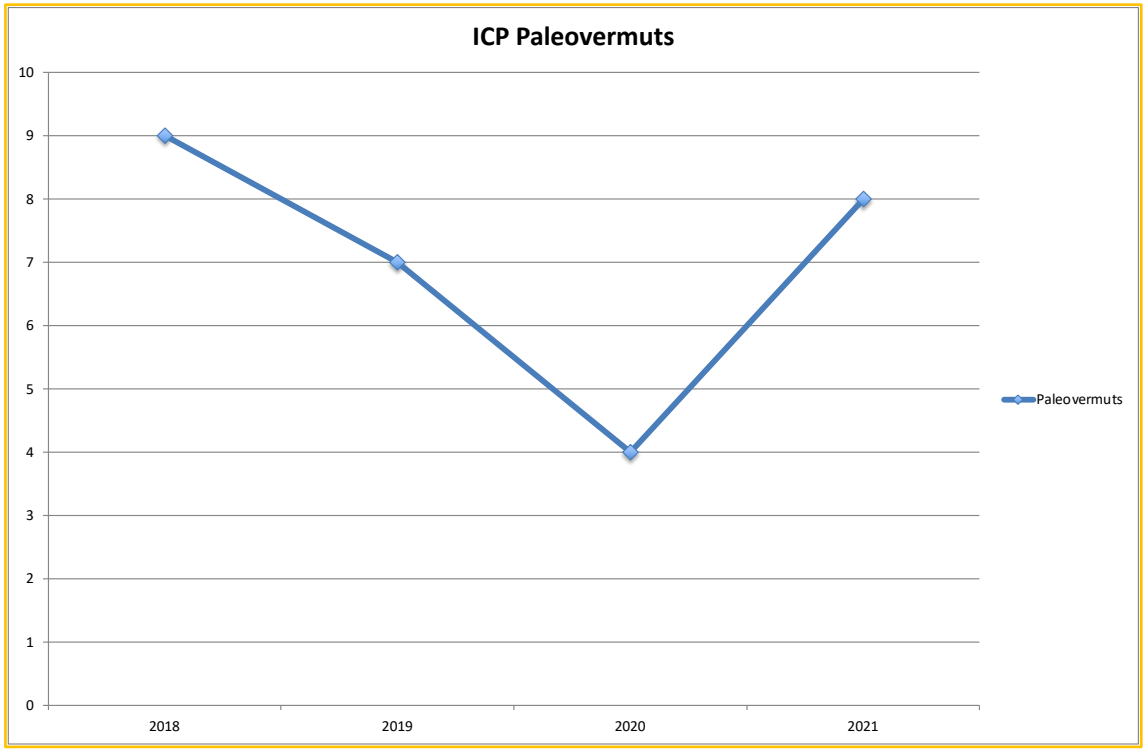
Outreach activities outside the Museum There are other outreach activities regularly performed by the ICP that are not directly linked to the Museum or that considerably extend its territorial scope (by means of agreements with other museums and interpretation centers). They include the following:

- Presence in the mass media.
- International Day and Night of Museums.
- Science Café.
- Various activities in the framework of the Dinosaurs from the Pyrenees project.
- Collaborations with CosmoCaixa exhibits.
- Collaborations with the Centre d'Interpretació i Restauración Paleontològica (CRIP) in els Hostalets de Pierola.

Internal communication The main internal communication initiatives undertaken by the ICP include the following:

- Internal talks with discussion ('paleovermuts') organized by the Outreach & Communication Department.
- Internal bulletin sent to ICP personnel by the Outreach & Communication Department.
- Various communication actions led by the Non-Discrimination Committee.

ICP PALEOVERMUTS (2018–2021)					
PALEOVERMUTS	2018	2019	2020	2021	AVERAGE
Paleovermuts	9	7	4	8	**7.0**



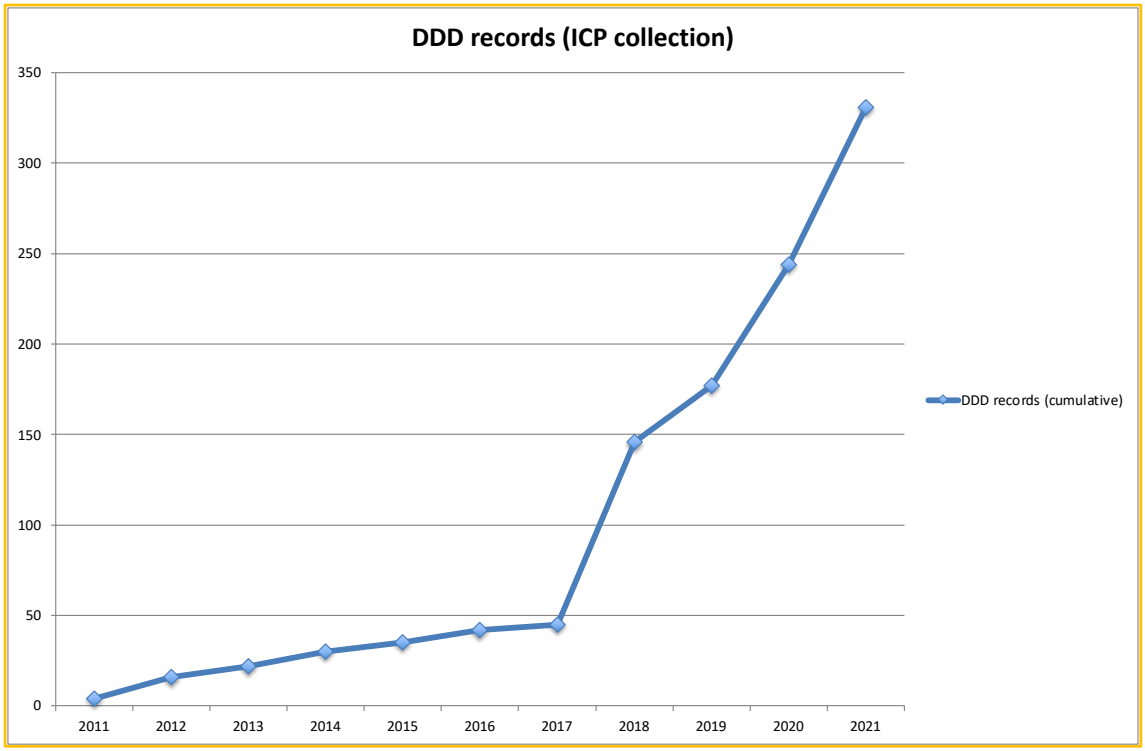
The organization of 'paleovermuts' was affected by the pandemic restrictions, but subsequently it was decided to organize them online until such restrictions were waived, which enabled the recovery of normal (prepandemic) levels.

Digital repositories and platforms for research outputs The scientific production of the ICP is periodically updated at the ICP website. In particular, the references of SCI papers with the corresponding DOI (digital object identifier, which enables to access the paper on the journal's website) are listed here: http://www.icp.cat/index.php/ca/publicacions1/publicacions-sci. In turn, the whole scientific production for the ICP can be downloaded in PDF format from the following link: http://www.icp.cat/attachments/publicacions/ICP_Publications.pdf.

Accessing the full version of the papers depends on the subscription to the various journals from the network of origin, except for papers published in open access (OA). Publishing in OA is not a measure of research quality per se, but provides higher visibility to the research output and rapidly becoming a common requirement from funding agencies such as the ERC. To increase the visibility of its publications, the ICP makes use of green OA possibilities by posting postprints to the digital repository of the UAB (the Dipòsit Digital de Documents, DDD: https://ddd.uab.cat). The ICP has a section of its own within the DDD repository (https://ddd.uab.cat/collection/icp), and the Outreach & Communication Department of the ICP is in charge of implementing the upload of additional documents. Although some ICP

research outputs were already available from DDD since 2011, the number has spectacularly increased steadily during the last four years, thanks to the aforementioned strategy related to green open access implemented by the ICP since 2018.

UAB DDD RECORDS – ICP COLLECTION (2018–2021)					
DDD RECORDS	2018	2019	2020	2021	AVERAGE
ICP collection records (cumulative)	146	177	244	331	—
ICP collection records (new)	100	31	67	87	**41.8**

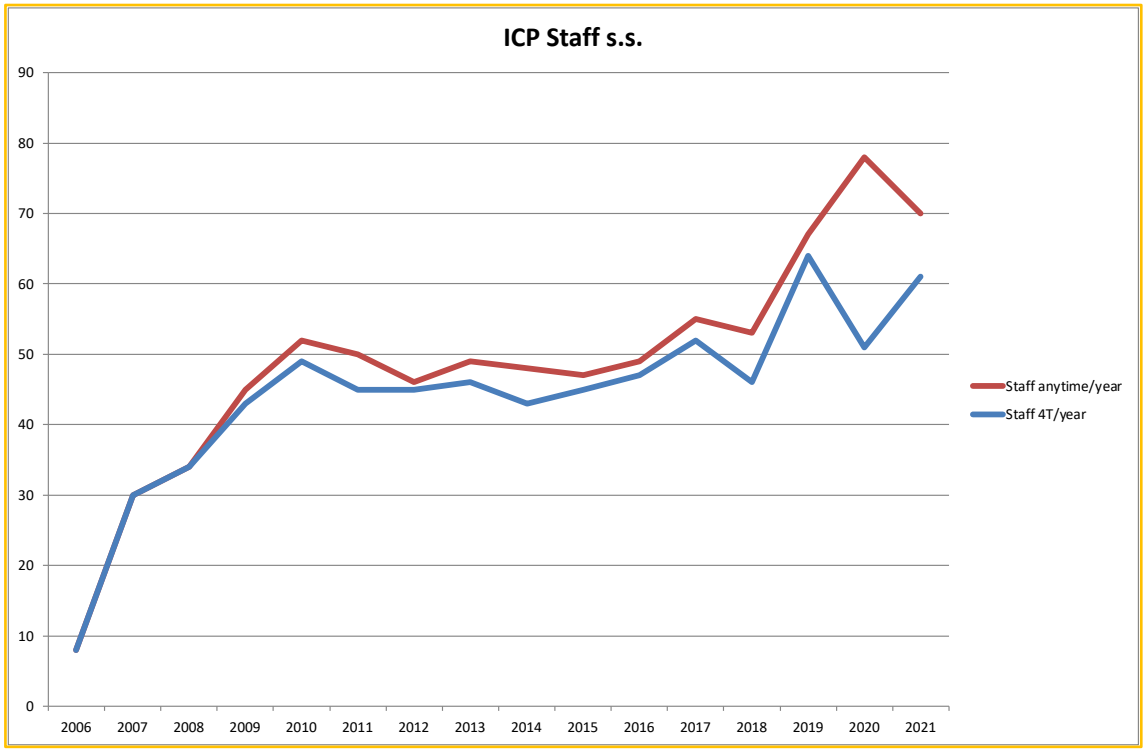


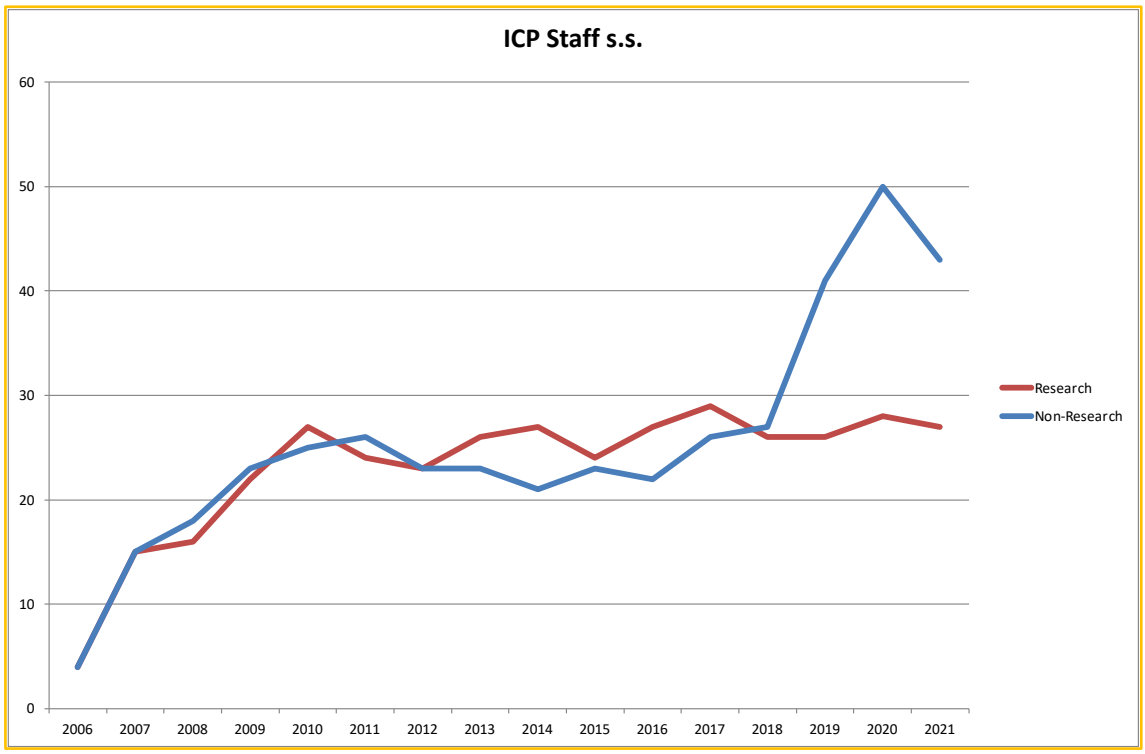
The ICP also has an agreement with the Consorci de Serveis Universitaris de Catalunya (CSUC), which shares academic, scientific, library, knowledge transfer and management services, and is integrated by the Generalitat de Catalunya and ten Catalan universities, including the UAB. Such an agreement regulates the participation of the ICP in the Portal de la Recerca de Catalunya (PRC, https://portalrecerca.csuc.cat/), which currently hosts the data on the scientific production of Catalan universities and research centers. The ICP regularly provides the CSUC with data about its researchers, projects and scientific outputs.

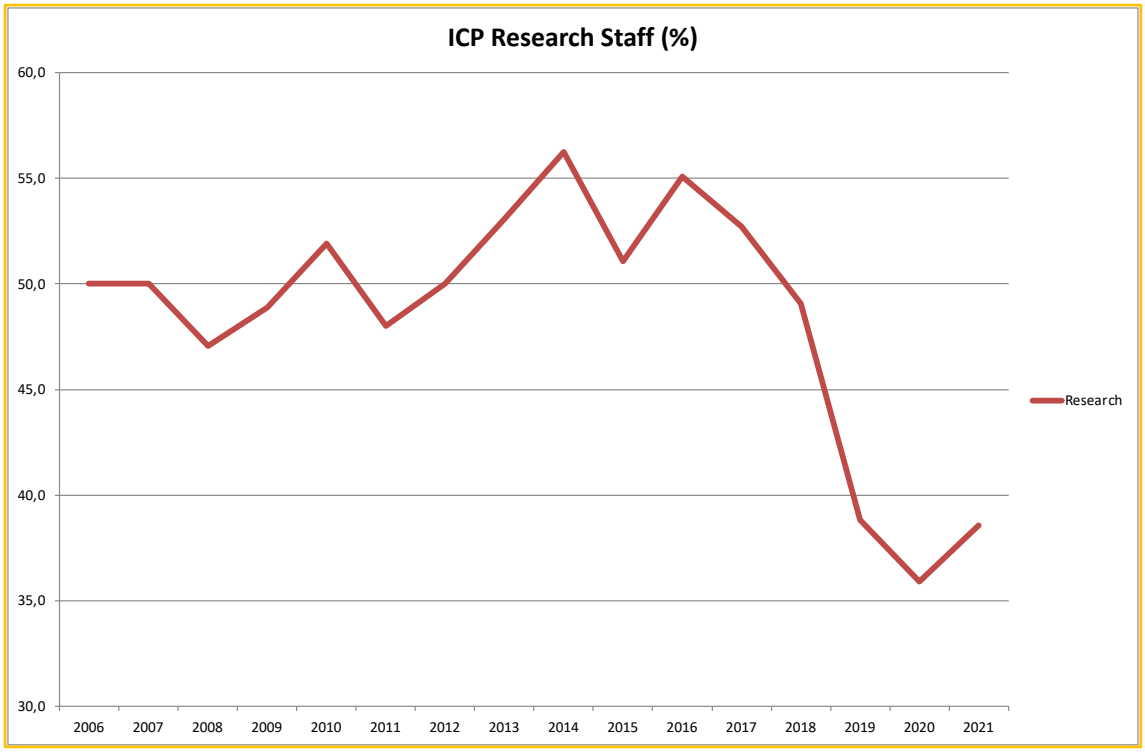
2.5. Human resources

Staff The composition of the staff personnel of the ICP (i.e., people with a contractual relationship with or formally ascribed to the ICP, thereby excluding research associates, collaborators, and people hired occasionally as freelance) is variable through time. Both total counts per year (irrespective of whether a given person worked the whole year or only a

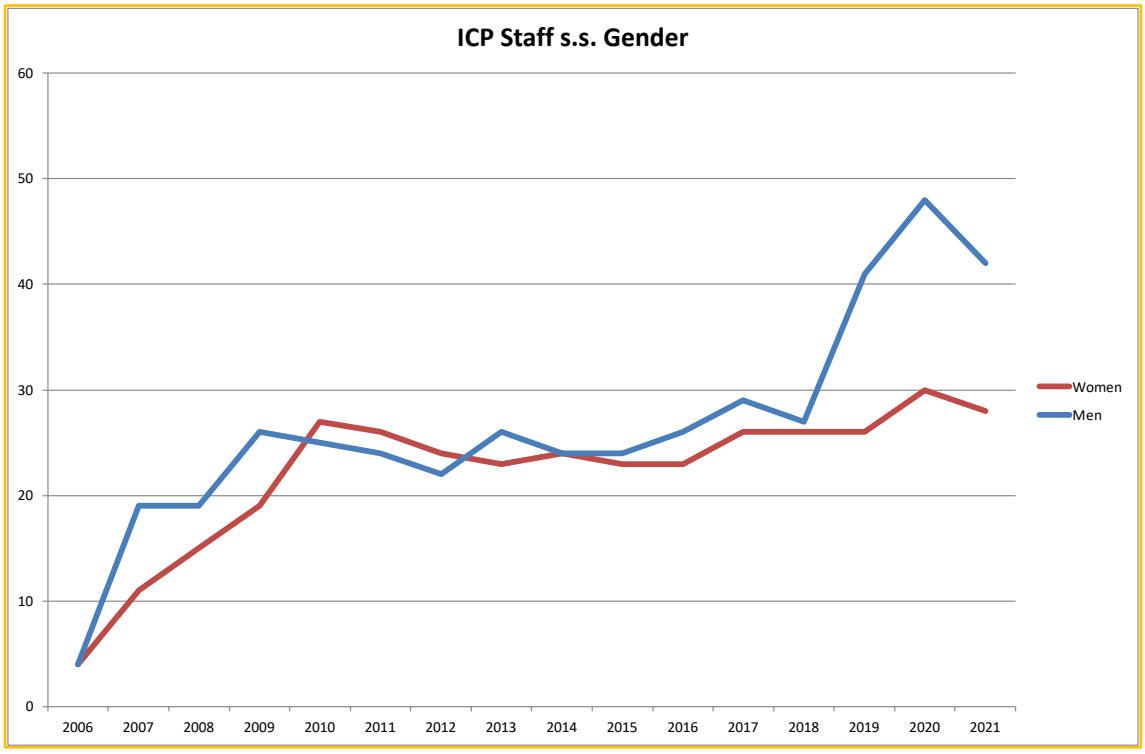
fraction of it) and at the four quarter (4T) are provided below. With some fluctuations, ICP staff has increased since 2018 due to a marked increased of non-academic staff (with a peak in 2020), due to service provision. In contrast, research staff has remained quite stable during 2018-2021 (only with minor fluctuations), being comparable to that of the last decade. As a result, the ratio between research and non-academic staff has drastically drecreased during the last four years.



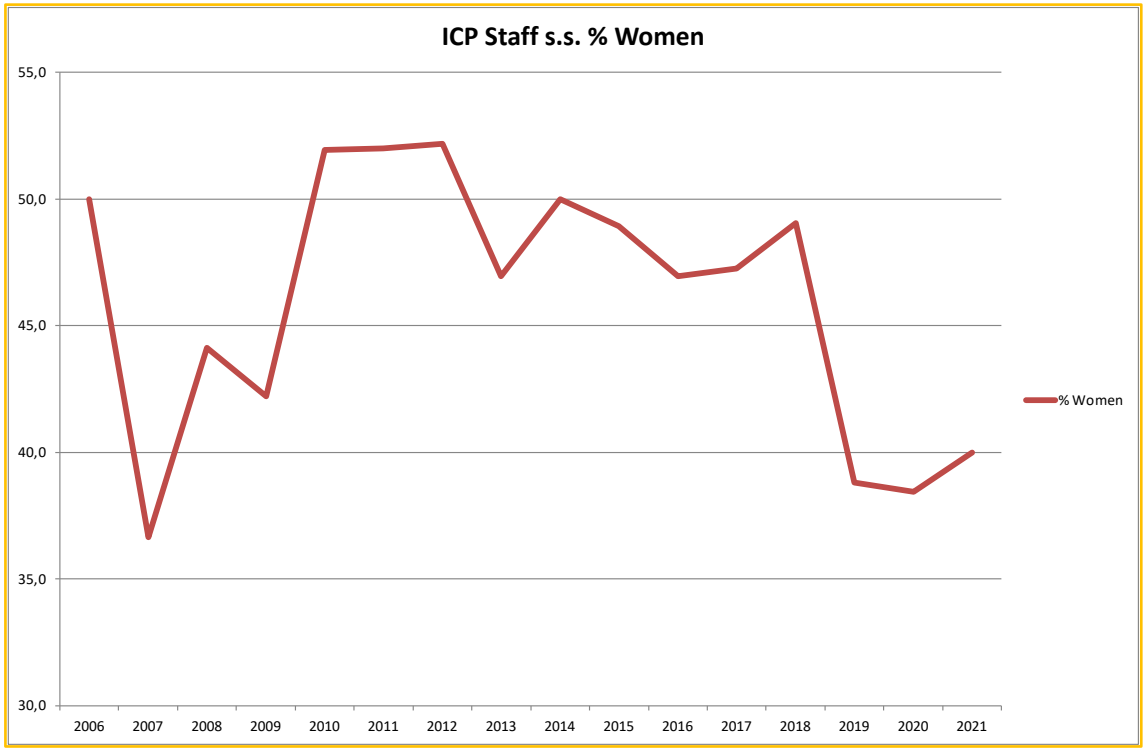


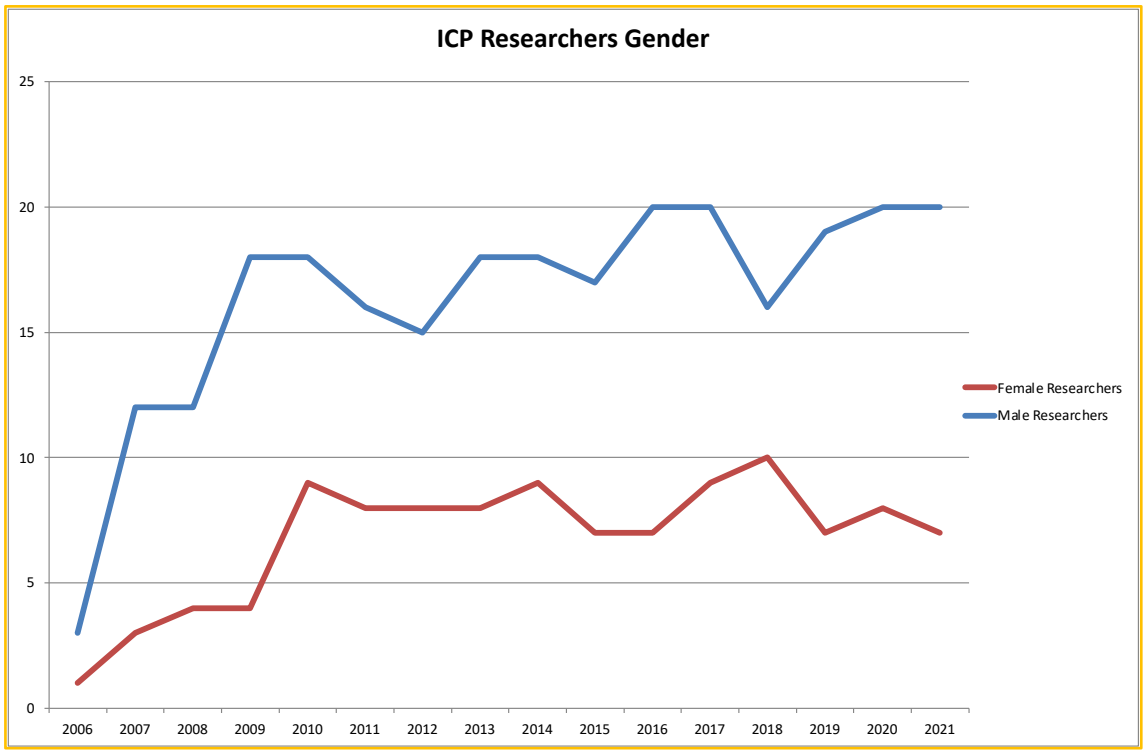


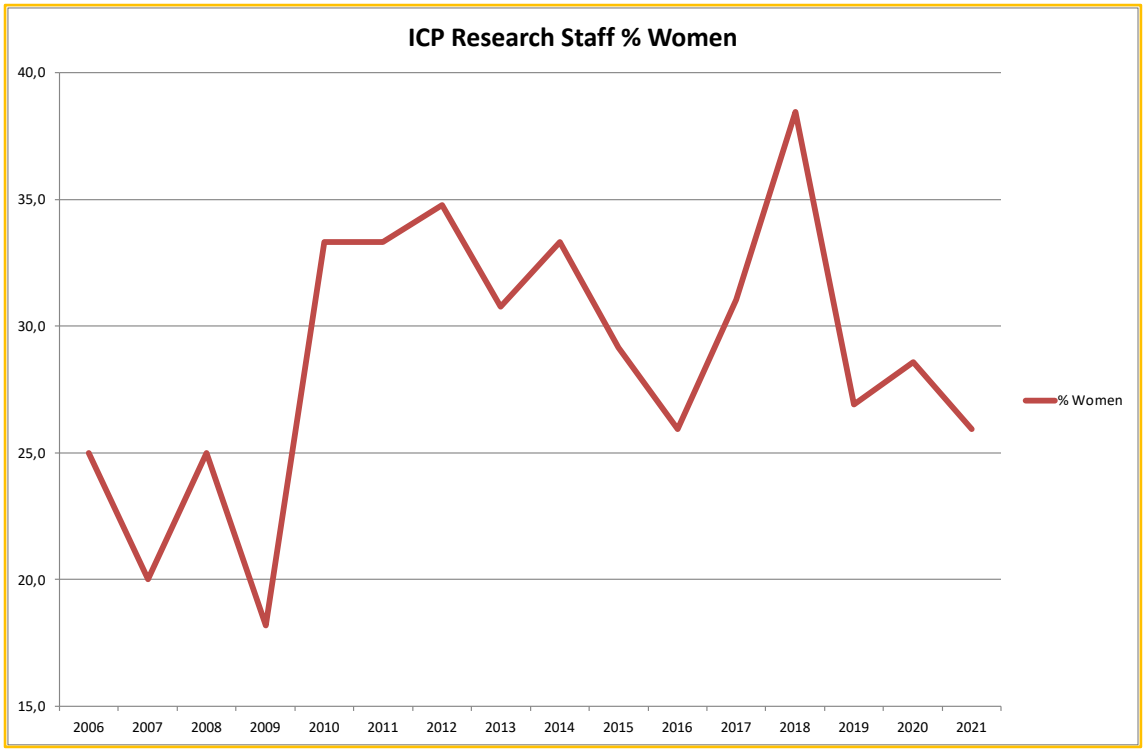
STAFF (2018–2021)					
STAFF COMPOSITION	2018	2019	2020	2021	AVERAGE
Total staff members (total year)	53	67	78	70	**67.0**
Total staff members (4T)	47	64	51	61	**55.5**
Research staff members (total year)	26	26	28	27	**26.8**
Non-Research staff members (total year)	27	41	50	43	**40.3**
% Research/Total (total year)	49.1	38.8	35.9	38.6	**40.6**



In terms of gender composition, during the last decade the number of males and females in ICP staff has been similar (with gender ratios fluctuating between 45% and 55%), except for 2019-2021, when the number of males disproportionately increased, because most technicians hired with work and service contracts for fieldwork provision were males. In contrast, gender ratios have remained stable for research staff, with female researchers representing less than one-third.





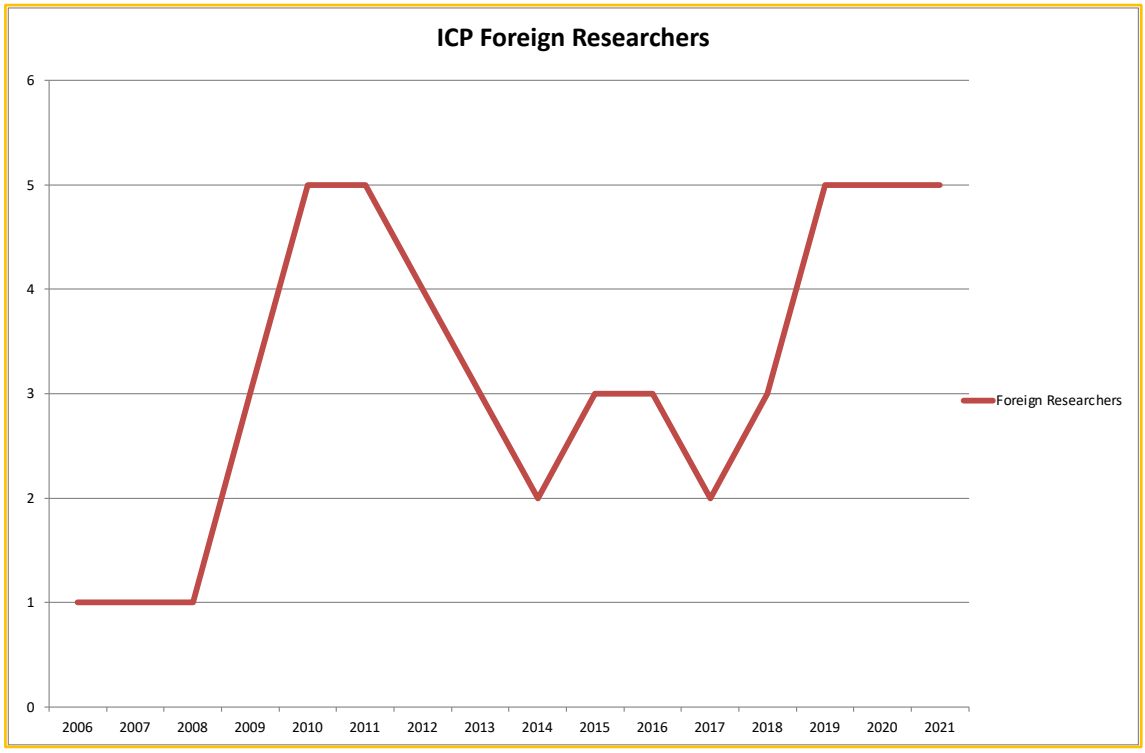


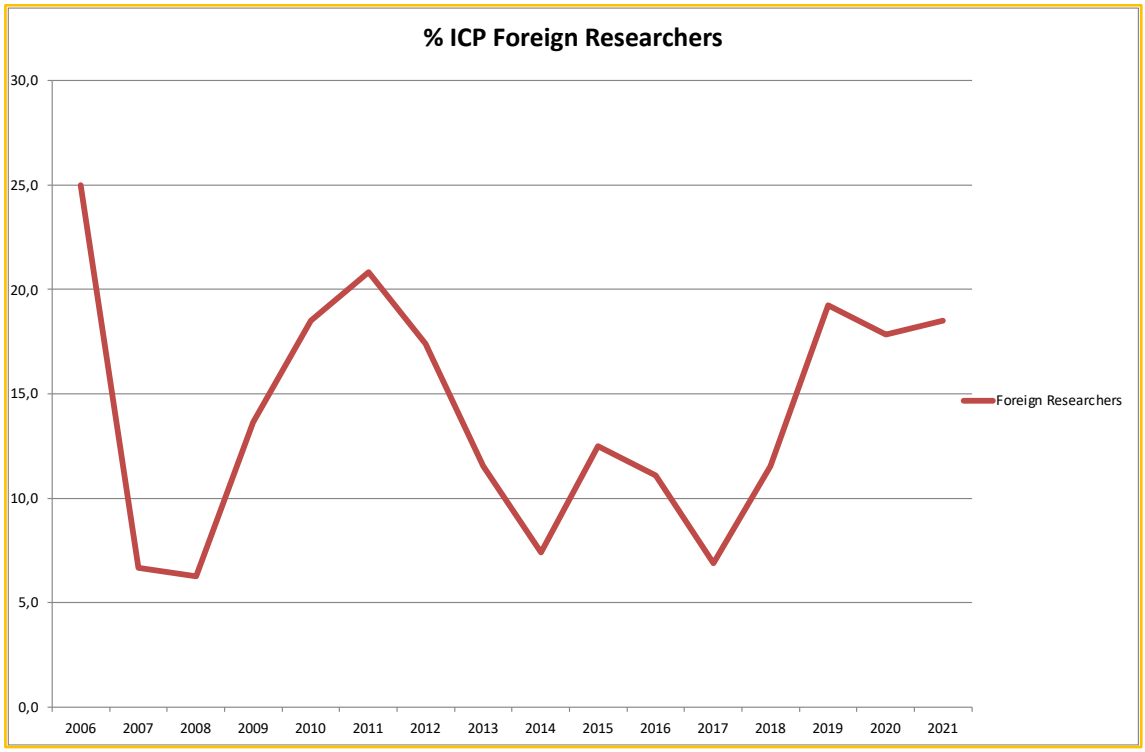
STAFF GENDER (2018–2021)					
GENGER COMPOSITION*	2018	2019	2020	2021	AVERAGE
Women (total staff)	26	26	30	28	**27.5**
Men (total staff)	27	41	48	42	**39.5**
% Women (total staff)	49.1	38.8	38.5	40.0	**2.0**
Female researchers	10	7	8	7	**8.0**
Male researchers	16	19	20	20	**18.8**
% Female researchers	38.5	26.9	28.6	25.9	**30.0**

*Gender attribution to employees is an oversimplification based on their legal sex attribution that does not take into account their actual (and potentially non-binary) gender indentification.

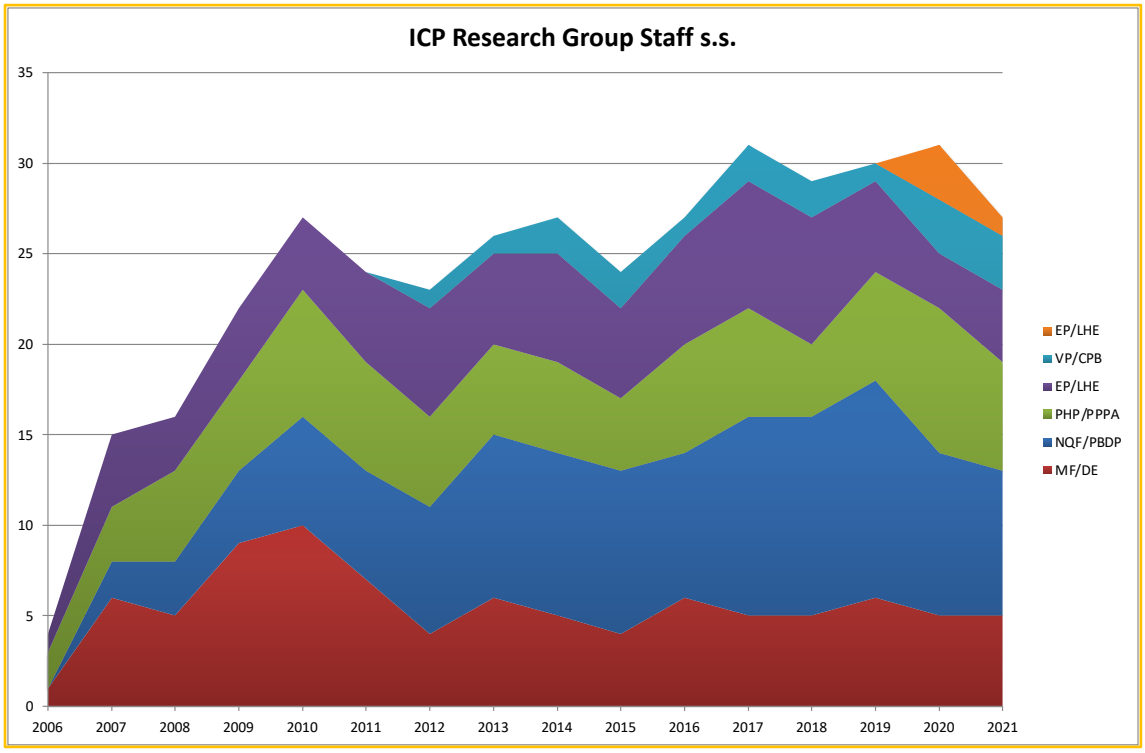
Regarding the nationality of research staff, during the last decade it has fluctuated considerably, and although the percentage of foreign researchers has increased in 2018-2022, it is still below 20%.

RESEARCH STAFF NATIONALITY (2018–2021)					
NATIONALITY COMPOSITION	2018	2019	2020	2021	AVERAGE
Foreign researchers	3	5	5	5	**4.5**
Local researchers	23	21	23	22	**22.3**
% Foreign researchers	11.5	19.2	17.9	18.5	**22**





In terms of research group composition, the Dinosaur Ecosystems group has remained quite stable during the last four years, whereas the Phylogeny & Paleobiodiversity group has shrinked slightly due to the scission of the Paleoecology & Biochronology group. The Life History evolution group has also decreased slightly, while the Paleoprimatology & Paleoanthropology and the Computational Paleobiology groups have grown to some extent.



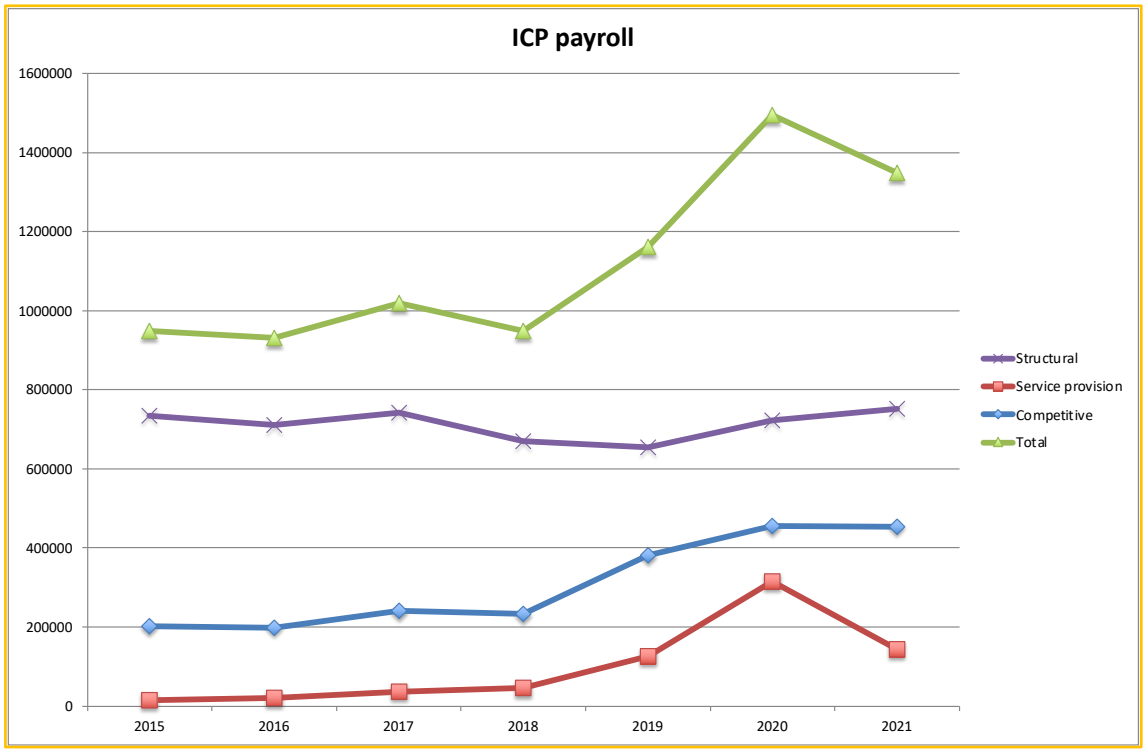
RESEARCH GROUPS STAFF (2018–2021)					
STAFF COMPOSITION	2018	2019	2020	2021	AVERAGE
DE	5	6	5	5	**5.2**
PBDP	11	12	9	8	**10.0**
PEBC	—	—	3	1	**2.0**
PPPA	4	6	8	6	**6.0**
LHE	7	5	3	4	**4.8**
CPB	2	1	3	3	**2.3**

Abbreviations: DE = Dinosaur Ecosystems (formerly Mesozoic Faunas); PBDP = Paleobiodiversity & Phylogeny (formerly Neogene & Quaternary Faunas); PEBC = Paleoecology & Biochronology; PPPA = Paleoprimatology & Paleoanthropology (formerly Paleoprimatology & Human Paleontology); LHE = Life History Evolution (formerly Evolutionary Paleobiology); CPB = Computational Paleobiology (formerly Virtual Paleontology).

Total payroll The total payroll of the ICP can be divided into three distinct categories: structural, service provision, and competitive. The structural portion of the payroll corresponds to the salaries and taxes associated to research and non-academic personnel that performs the regular (research, research support, and administrative) tasks of the ICP defrayed by basal funds, without prejudice that they might also perform some service provision tasks. The service provision payroll corresponds to work and service contracts that are defrayed with funds obtained from service provision. Finally, the competitive payroll refer to researchers and technicians hired by means of competitive funds obtained from external funding agencies.

The total payroll of the ICP has importantly increased since 2018 as compared with previous years, but the structural payroll has remained quite stable after a very slight decrease in 2018-2019. Such an increase is thus attributable to an increase in the competitive payroll

(higher in 2020-2021) coupled with a marked increase in the payroll associated with service provision (which peaked in 2020).



ICP PAYROLL (2018–2020)					
PAYROLL (K€)	2018	2019	2020	2021	AVERAGE
Structural	670.5	653.5	723.1	752.3	**699.9**
Service provision	45.6	125.3	315.9	143.1	**157.5**
Competitive	232.1	381.8	456.0	453.0	**380.7**
TOTAL	948.2	1,160.7	1,495.0	1,348.4	**1,238.1**
Structural (%)	70.7	56.3	48.4	55.8	**56.5**
Service provision (%)	4.8	10.8	21.1	10.6	**12.7**
Competitive (%)	24.5	32.9	30.5	33.6	**30.8**

Continuous training The ICP has an internal policy of continuous training for its personnel, including not only contracted staff but further including research associates and collaborators. Besides the scientific training provided to early stage researchers (R1 and R2) by their corresponding supervisors in the framework of the normal development of their research activities, the ICP provides all of its employees with the opportunity to perform free courses each year, in order to foster their continuous training and learning. Some of these courses are intended to all the ICP personnel, whereas other are specifically targeted to researchers (with emphasis on early stage researchers, but extensible to established and even more senior researchers as well). They include the following:

- Courses defrayed with Social Security funds.
- Scientificotechnical courses instructed by Transmitting Science.

- Courses offered by I-CERCA.
- Non-discrimination training.
- Training on occupational risk prevention.

PART 3

ANALYSIS OF THE ICP

3. ANALYSIS OF THE ICP

CERCA, HRS4R, Equality Plan, comparisons, Strategic Plan fulfillment

3.1. External evaluation by the CERCA Evaluation Committee (2018)

Evaluation A formal evaluation of the ICP was performed by the CERCA institution by means of an Evaluation Commission (EC) composed by members of the ICP Scientific Advisory Board as well as independent members from abroad. The evaluation of the ICP by the EC was based on the responses provided by the ICP Director to the Evaluation Questionnaire elaborated by CERCA (submitted in August 2018) as well as by a presentation performed on October 2018 in front of the EC, based on the results for 2013-2017.

The conclusions of the EC were provided in a written report elaborated by the EC and sent to the ICP Director on December 2018. The EC awarded the ICP with a 'B' qualification (very good, with excellent results at national level although some pending issues to be addressed at the international scenario), although according to the report some members of the EC considered that the ICP deserved the upmost qualification 'A' (outstanding performance, placing the centre among the top international performing institutions on its field). The EC took into account the significant progress of the institution during the 2013-2017 period, the high degree of fulfilment of the recommendations stated in the previous evaluation report (2013), the scientific production and productivity, the excellent management of the center, and the performance in the knowledge transfer activities and the outreach and dissemination activities.

CERCA Recommendations The 13 recommendations provided by the Evaluation Committee are summarized below:

- **Recommendation 1: ERC funding.** To try to obtain European funding by focusing on the research collaboration agreement with ICREA Prof. Marquès-Bonet on palaeogenetics and palaeoproteomics, as well as by applying to ERC Synergy Grants.
- **Recommendation 2: SAB meetings.** The EC recommended to scheduled at least one meeting of the SAB every two years at ICP headquarters, with an agenda made available to SAB members beforehand.
- **Recommendation 3: SAB composition renewal.** To renew the composition of the SAB and define its duties and agenda to optimize its contribution, as well as to consider inviting some foreign ERC grantees to join it.
- **Recommendation 4: Retirement of two Senior Group Leaders.** To define a strategy to replace the two Group Leaders that were expected to retire before the next evaluation.

- **Recommendation 4': CT scan.** To balance the beneficial impact of having again fully operational the CT scan and the cost of fixing this equipment.
- **Recommendation 5: Access to synchrotrons.** To explore the access to other scientific facilities, such as synchrotrons (not only ALBA, but also the European Synchrotron Radiation Facility-ESRF in Grenoble).
- **Recommendation 6: Articulating the network of research associates.** To articulate the network of ICP research associates by creating some simple rules or strategies to deal with the criteria for membership within the network, making explicit their contributions to the ICP, and preparing the relevant documentation for each associate.
- **Recommendation 7: ICP-UAB common strategy.** To devise a common ICP-UAB strategy in the paleontology area, and to be more proactive in trying to establish a beneficial collaboration with the UAB.
- **Recommendation 8: Ascribe UAB professors to the ICP.** To try to affiliate professors from the University. A bottom-up approach of trying to convince individual researchers of the benefits being affiliated with ICP should be promoted. The Board of Trustees (BoT) of ICP should discuss this issue and, where possible, facilitate solutions.
- **Recommendation 9: Recruitment.** To develop further the ICP recruitment strategy to implement an open and transparent procedure without automatically prioritizing associate researchers (i.e., by making calls always open and international), so as to facilitate external applicants—even when the required expertise may only be avalailable among internal applicants.
- **Recommendation 10: Gender balance.** To keep in mind the currently unbalanced gender balance of the ICP at the upper levels of management and consider solving it in all future positions.
- **Recommendation 11: Engaging donors.** To start organizing events to engage donors and philanthropic Foundations (among other fundraising actions), as well as to develop a long-term plan in this regard with the help of the Boad of Trustees, based on topics such as Catalan dinosaurs.
- **Recommendation 12: Spin-offs.** To try to keep a certain level of equity in those companies born from the Institute. That would allow ICP to maintain a certain degree of control of the company and eventually, if required, preserving the reputation of the Institute, as well as strengthening the visibility and impact of ICP.

Thee current implementation degree of the CERCA recommendations is summarized in the table below.

Recommendation No.	Description	Implementation
Recommendation 1	ERC funding	Under implementation
Recommendation 2	SAB meetings	Almost fully implemented
Recommendation 3	SAB composition renewal	Almost fully implemented
Recommendation 4	Retirement of two Senior Group Leaders	Fully implemented
Recommendation 4'	CT scan	Pending implementation
Recommendation 5	Access to synchrotrons	Partly implementd
Recommendation 6	Articulating the network of research associates	Fully implemented
Recommendation 7	ICP-UAB common strategy	Partly implemented
Recommendation 8	Ascribe UAB professors to the ICP	Almost fully implemented
Recommendation 9	Recruitment	Fully implemented
Recommendation 10	Gender balance	Fully implemented
Recommendation 11	Engaging donors	Under implementation
Recommendation 12	Spin-offs	Fully implemented

Recommendations pending full implementation An action plan summarizing the recommendations provided by the EC and the strategy to implement them in 2019-2022 was approved in February 2019 by the Steering Comittee, and subsequently ratified by the Board of Trustees in May 2019. At the end of 2021, 5 recommendations were fully implemented, 3 were almost fully implemented, 2 were partly implemented, 2 were under implementation, and 1 was pending. Those not fully implemented yet are detailed below:

- **Recommendation 1: ERC funding (under implementation).** CERCA recommendation: To try to obtain European funding by focusing on the research collaboration agreement with ICREA Prof. Marquès-Bonet on palaeogenetics and palaeoproteomics, as well as by applying to ERC Synergy Grants. Under implementation: The research agreement with Prof. Tomàs Marquès-Bonet in September 2018 included his commitment to explore the organization and leadership of a transnational project proposal on primate paleogenetics and/or paleoproteomics with the participation of the ICP. In January 2019, an MSCA ITN-ETN application on hominid paleoproteomics (PUSHH) was submitted, with Prof. Marquès-Bonet as the scientist-in-charge of the UPF and the ICP as partner organization. The MSCA ITN-ETN project was awarded in 2019, and it started in 2020. Although, as partner organization, the ICP has no overheads, Dr. Alba is currently cosupervising two PhD grantees for the PUSHH network (one with Prof. Marquès-Bonet and another with Prof. Rook from Italy). This topic offers the prospect to apply for an ERC Synergy in years to come but not until current techniques have been able to retrieve Miocene proteomes. Furthermore, in early 2019 Prof. Marquès-Bonet was awarded an individual ERC grant to which he had previously applied, thereby limiting his possibilities to participate in other ERC projects. On the other hand, the new Project Manager recruited in 2019 joined the ICP January 2020. Since then, he has met with ICP group leaders and other researchers from various categories to discuss funding possibilities within the late H2020 Programme and, in particular, the possibility to apply to ERC grants (StG, CoG and AdG). Additional follow-up monthly meetings have been held with those researchers that plan to apply, to inform

them about ERC training webinars as well as to monitor the progress of their project proposals, particularly since the new EU Research and Innovation framework program 'Horizon Europe' was issued in 2021. A 'Beatriu de Pinós' postdoctoral researcher from the Paleoprimatology & Paleoanthropology Research Group prepared throughout 2021 a Starting Grant application, to be summited in early 2022.

- **Recommendation 2: SAB meetings (almost fully implemented).** CERCA recommendation: The EC recommended to schedule at least one meeting of the SAB every two years at ICP headquarters, with an agenda made available to SAB members beforehand. Almost fully implemented: The SAB meeting scheduled for November 2020, including three new SAB members (see below) had to take place at the ICP, but this was not possible due to travel restrictions associated with the COVID-19 pandemic. So, with the approval of the Board of Trustees, it finally took place by telematic means. It was agreed that the SAB would regularly meet once per year online, except every four years (when coinciding with the CERCA evaluation). The ICP Director provided an update of the center's current situation as well as a brief introduction for the new SAB members. However, it was agreed that in future meetings ICP researchers would make short presentations, to provide SAB members with first-hand knowledge about the center's research staff. Therefore, when the next telematic meeting took place in late 2021, two research group leaders, in addition to the director, made short presentations to the SAB members. In all instances, an agenda was provided to SAB members beforehand, while the minutes were provided to them a posteriori.
- **Recommendation 3: SAB composition renewal (almost fully implemented).** CERCA recommendation: To renew the composition of the SAB and define its duties and agenda to optimize its contribution, as well as to consider inviting some foreign ERC grantees to join it. Almost fully implemented: Following the action plan approved by the Board of Trustees in 2019, three SAB members were replaced in the spring of 2020. The new members were appointed by the Board of Trustees upon the Director's proposal. The new SAB members were selected by simultaneously taking into account their merits, reputation and expertise (in relation to ICP research lines), their experience in fundraising, and the need to keep a balanced gender ratio. The remaining members agreed to stay at least until 2022, when three additional replacements were expected to be proposed by the ICP Director to the Board of Trustees (to be appointed not later than 2023). Nevertheless, the retirement of two SAB members (including the President) precipitated their replacement and designation of a new President in the Board of Trustees meeting that took place in May 2022. Another SAB member should still be replaced, not later than 2023, to complete the SAB renewal.
- **Recommendation 4': CT scan (pending implementation).** CERCA recommendation: To balance the beneficial impact of having again fully operational the CT scan and the cost of fixing this equipment. Pending implementation: A viability plan for the CT was drafted in 2020 by the Computational Paleobiology research group leader, but is pending a decision

from the Steering Committee of the ICP, which has been waiting for the budgetary situation of the center to improve. Given the deficit accumulated until 2019, it was not possible to consider investing in the repair of the CT, given the elevated cost (ca. 100 k€) of fixing it. The viability plan of the CT was originally planned for late 2020 or the spring of 2021, but finally delayed for these reasons. In the light of the positive economic results of 2020, it was expected that in 2021 it would be possible to decide (with the help of the SAB advice) how to proceed in this regard—particularly in the framework of the elaboration of the new Strategic Plan (2022-2025). Nevertheless, several unexpected financial difficulties in 2021 (which reduced the accumulated surplus from 2020) and other, more urgent strategic decisions made it recommendable to delay one year more the discussion with the SAB in this regard. Currently, it is expected that the CT viability plan will be discussed in the SAB meeting planned for late 2022, to be presented for review and approval by the Board of Trustees in 2023.

- **Recommendation 5: Access to synchrotrons (partly implemented).** CERCA recommendation: To explore the access to other scientific facilities, such as synchrotrons (not only ALBA, but also the European Synchrotron Radiation Facility-ESRF in Grenoble). Partly implemented: Indeed, in 2018 the ICP already applied twice to the European Synchrotron Radiation Facility (ESRF) in Grenoble to use its facilities, but unfortunately they were rejected, as there it a lot of competition and paleontology is not among their prioritary research lines. Subsequently, during some time it was not possible to apply there because the facilities were closed. In the meantime, in 2019 the ICP explored other possibilities to collaborate with other synchrotrons (London and ALBA). In particular, the Computational Paleobiology research group leader (Dr. Fortuny) had a meeting with the person in charge of the future beamline FAXTOR from ALBA Synchrotron (expected to be fully operative in 2-3 years), and it was agreed that he will play a key role as coordinator of Spanish paleontologists interested in using this new beamline. It is thus expected that the ICP will actively collaborate in the ALBA Synchrotron sometime in the near future. The ICP also successfully applied to use, in 2020, the neutron-CT facilities of the Heinz Maier-Leinitz Zentrum in Munich (Germany; ref. 15923-2019) and the MinoTauro cluster at the Barcelona Supercomputing Center (Spain; BCV-2020-1-0008). Furthermore, throughout 2019-2021 the ICP regularly used the micro-CT scanning facilities of the Centro Nacional de Investigación Humana (CENIEH) in Burgos (Spain), which is also considered a unique scientific and technical infrastructure (ICTS), and more sporadically also in 2020 in the AST-RX micro- and nanotomography platform of the Muséum National d'Histoire Naturelle in Paris (France).
- **Recommendation 7: ICP-UAB common strategy (partly implemented).** CERCA recommendation: To devise a common ICP-UAB strategy in the paleontology area, and to be more proactive in trying to establish a beneficial collaboration with the UAB. Partly implemented: Besides the obvious link between the UAB and the ICP (given by the fact that the former is one of the patrons of the ICP and that the latter is officially recognized

as university research institute of the UAB), most of the collaborations formally established were mostly focused on teaching: one the one hand, most ICP researchers and several research associates participate in teaching of the Master in Paleobiology & Fossil Record; on the other, during 2020-2022 between three and four ICP researchers had dual affiliation with the UAB Paleontology Unit (Department of Geology) as associate professors. Nonetheless, it is noteworthy that several researchers from the Dinosaurs Ecosystems research group were members of a Consolidated Research Group recognized by the Generalitat de Catalunya led by an UAB professor. Other than that, expanding the collaboration between the ICP and the UAB Paleontology Unit in terms of research was hindered by the different research topics to which they are devoted (vertebrate vs. invertebrate paleontology). Nevertheless, following the incorporation of a former ICP researcher (Dr. Furió) as Serra-Húnter lecturer of the UAB in January 2021, the current conditions are more favorable to the establishment of a deeper collaboration between researchers of both institutions (see also below the implications for the next recommendation with regard to the need to ascribe UAB professors to the ICP). Finally, it is noteworthy that, during 2021, researchers of the ICP actively worked together with UAB and UB professors to devise a new plan for the master studies in Paleobiology (to be submitted for validation in 2022).

- **Recommendation 8: Ascribe UAB professors to the ICP (almost fully implemented).** CERCA recommendation: To try to affiliate professors from the University. A bottom-up approach of trying to convince individual researchers of the benefits being affiliated with ICP should be promoted. The Board of Trustees (BoT) of ICP should discuss this issue and, where possible, facilitate solutions. Almost fully implemented: During 2019, the ICP Director had an interview with the UAB Vice-Rector for Research and Transference (Dr. Armand Sánchez, also one of the UAB representatives in the ICP Board of Trustees) and another with the Head of the UAB Geology Dept. to discuss the possibility to ascribe UAB professors to the ICP. The former confirmed the feasibility of such possibility from the university viewpoint, but recommended to wait a few months until new internal regulations allowed a 50% ascription. This would allow the ascribed professor to ask for funding from both institutions and, hence, facilitate dissipating the reticences that the Head of Dept. (who must approve the deal) might have in this regard. Initially, the Head of the Geology Dept. was opposed such possibility, given the small number of UAB professors in the two relevant units (Paleontology and Stratigraphy) of the department. This evinced that the bottom-up approach recommended by CERCA is necessary but not sufficient to reach the goal, as the approval by the Head of Dept. is mandatory to ascribe UAB professors to the ICP. Nevertheless, in late 2020, an ICP researchers hired by the university as associate professor (Dr. Furió) won a Serra Hunter lecturer position and joined the UAB Paleontology Unit in early 2021. This person wanted to remain officially ascribed to the ICP in order to preserve his working space, direct access to the ICP collections, and other commodities and facilities of the ICP. This situation represented a long-awaited

opportunity window to explore again the possibility to ascribe a UAB professor to the ICP. With this aim in mind, in late 2020 the ICP Director had another interview with the aforementioned UAB Vice-Rector for Research and Transference to discuss the most suitable strategy. It was agreed that the ICP should request the Head of the Geology Dept. to approve the eventual 50% ascription to the ICP of its former researcher, and offer as well the possibility to ascribe to the UAB the current ICP researchers hired for teaching at the university as research collaborators ("investigador vinculat a la universitat", IVU). This would enable to extend into research the current teaching collaboration by undertaking joint (ICP-UAB) research projects. Conversations were resumed in 2021 with the Head of Department, who finally was supportive of the proposal. The latter was finally approved by the Department conditioned to a few specific requirements that will have to be specified in the formal agreement between the UAB and the ICP. Therefore, the aforementioned UAB lecturer remained de facto informally affiliated as well to the ICP during 2021, pending the approval by the university and the signature of the agreement, which are expected for 2022.

- **Recommendation 11: Engaging donors (under implementation).** CERCA recommendation: To start organizing events to engage donors and philanthropic Foundations (among other fundraising actions), as well as to develop a long-term plan in this regard with the help of the Board of Trustees, based on topics such as Catalan dinosaurs. Under implementation: In 2018, the ICP was invited to apply to participate as strategic partner in The Jurassic Project of The Children's Museum (TCM) of Indianapolis, a large scale and long-term research and outreach project focused on dinosaurs. However, the ICP was finally excluded due to the lack of funds to cover the participation of ICP researchers in fieldwork activities during 2019. Unfortunately, due to the lack of Project Manager at the time, it was not possible to secure the required funds to reapply in the following year. Nevertheless, it is noteworthy that in 2020 the ICP managed to increase the funds provided by the Culture Department of the Generalitat de Catalunya to the ICP for the Dinosaurs of the Pyrenees project, as well as to consolidate such kind of funds as a direct transfer from the Catalan government (instead of a discretional, non-competitive grant, as it was before). It is also worth noting that, following a meeting held at the ICP Museum in late 2020 by the ICP Director and the Mayor of Sabadell, the latter formally asked to become part of the ICP Board of Trustees; this would imply some financial contribution, even if meager, to the institution, although unfortunately the City Council of Sabadell had yet to join the ICP Board of Trustees in 2021. In any case, the relative success of fundraising efforts with the public administration should be further complemented by private entities. Given the inability of the former ICP Project Manager to develop a successful strategy to attract private donors and sponsors (as recommended by CERCA), the ICP Director and General Manager agreed to dismiss her in January 2019. An open recruitment process to fill the vacant position was undertaken in 2019 and the new Project Manager joined the ICP in January 2020, further becoming the new Head of the Research

Support & External Services Department later that year. Since then, the new Project Manager has had to devote most of his efforts to oversee and promote further service provision and competitive fundraising, while devising a long-term strategy to attract donors and sponsors. In 2020, it was agreed by the ICP Director and Project Manager to focus most of the efforts during the next few years in attracting sponsors (basically, private companies) for two types of ICP activities: fieldwork (paleontological excavations) and outreach (both temporary itinerant exhibits and the permanent exhibit of the ICP Museum). With the support from the Culture Department of the Generalitat de Catalunya to renew the exhibits of the ICP Museum, the design of a museological plan started in 2021. It should be completed in early 2022, leading not only to the elaboration of a museographical plan but also setting the necessary conditions to contact with companies to secure the required funds. A more specific strategy should be developed with the help of the Board of Trustees in 2022-2023.

3.2. Fulfillment of the HRS4R Action Plan (2018-2021)

HR Excellence Award. With the aim to implement the Human Resources Strategy for Researchers (HRS4R) of the European Union, the ICP endorsed the 'European Charter for Researchers' and the 'Code of Conduct for the Recruitment of Researchers' on December 2016. Soon thereafter, in February 2017, the HRS4R Implementation Committee and Working Group was formally established. This committee was further recognized in the new Organization Chart of the ICP devised by the new Director and approved by the Steering Committee in late 2017 (subsequently ratified by the Board of Patrons in June 2018). This committee has the aim to implement the Human Resources Strategy for Researchers (HRS4R) of the EU at the ICP, and it is mainly composed of non-research staff, since the Researchers Commission further provides advice to the committee from the researchers' viewpoint. Since 2017, the Organization Chart further formally recognizes a Management & Human Resources Department, led by the General Manager, with the aim to improve and give internal visibility to the ICP human resources policies within the context of the implementation of HRS4R.

Throughout 2017, the HRS4R Implementation Committee and Working Group, with the aid of the ICP Researchers Commission, performed an internal 'Gap Analysis' to evaluate the current degree of implementation of the forty principles included in the Charter and Code and, on this basis, elaborate an Action Plan to implement HRS4R at the ICP. These documents were submitted to the European Commission on November 2017, who formally granted the 'HR Excellence in Research' to the ICP on March 2018. In the meantime, the implementation of the Action Plan had already started, being supervised by the above-mentioned organs of the ICP. Throughout 2019 and 2020, multiple documents were elaborated in the framework of the HRS4R Action Plan implementation. On April 2020, an interim assessment report was submitted to EURAXESS to evaluate the level of ambition and the quality of progress in HRS4R implementation at the ICP. The document provided a detailed review of the whole

implementation process of the various principles included in the Charter & Code, as well as the degree of compliance of the different actions stated in the Action Plan and the OTM-R policy.

The results of this evaluation were received on July 2020. The CE Consensus Report concluded that the ICP was performing well, that the HRS4R was embedded, and that no corrective actions were required. The report highlighted the success of the ICP in the aim of having formal documents on recruitment, professional development, and organizational structure. A detailed review of the whole process of the implementation of the several principles included in the Charter & Code and the degree of compliance of the different actions stated in the Action Plan as well as the OTM-R policy was provided on September 2020 and made available through the ICP website (https://www.icp.cat/attachments/transparencia/HRS4R_Report_on_the_Interim_Assessment.pdf). To face the renewal phase of the HR Excellence in Research Award (scheduled for July 2023), the evaluators recommended to perform focus interviews or surveys among ICP staff to assess the perceived effects of the actions developed under the Action Plan. The EC Consensus report included an additional recommendation to publicize the degree of compliance of the Action Plan. With these recommendations in mind, in 2021 the ICP HRS4R Implementation Committee and Working Group devised 5 new actions that are detailed below, together with the actions that were implemented during that year and a summary of the degree of fulfillment of the HRS4R Action Plan as a whole at the end of 2021.

HRS4R Action Plan. The Action Plan devised by the HRS4R Implementation Committee & Working Group (available online from the following URL: http://www.icp.cat/attachments/transparencia/HRS4R_ICP_Action_Plan.pdf) originally included 25 specific actions intended to attain a complete implementation of the forty principles included in the Charter & Code. Six additional actions were subsequently devised, one in 2020 and five in 2021. Although the implementation of the HRS4R Action Plan already began in late 2017 with the approval of the new Organization Chart, most of the Action Plan original initiatives were planned for 2018–2019. The implementation process is overseen by the HRS4R Implementation Committee & Working Group, and further supervised by the Steering Committee, with the aid of other committees and commissions of the ICP (particularly, the Researchers Commission). The implementation of the HRS4R Action Plan at the end of 2021 is summarized in the following table.

Actions pending full implementation Out of the 25 planned for 2018-2021, 18 are fully implemented and 2 almost fully implemented, while 6 are delayed but already under implementation. A new action regarding working conditions (Action 26) was included in 2020 and became fully implemented on 3Q 2020. In turn, 5 new actions (27 to 31) were included in 2021, of which 4 were already fully implemented at the end of the year. The HRS4R actions pending full implementation in 2021 are explained in greater detail below.

HRS4R ACTION PLAN IMPLEMENTATION			
ACTION NO.	DESCRIPTION	EXPECTED	IMPLEMENTATION
Action 1	Upload UAB & CERCA documents to the ICP website	1Q 2018	Fully implemented 2019
Action 2	Update the Strategic Plan	4Q 2018	Fully implemented 2018
Action 3	Manual of Best Practices in Research, Intellectual Property and Scientific Authorship	4Q 2019	Fully implemented 2020
Action 4	Protocol for Invasive and Destructive Analyses of Fossils	1Q 2019	Fully implemented 2020
Action 5	Welcome Handbook	2Q 2019	Delayed, under implementation
Action 6	Protocol for Funding Request	4Q 2018	Delayed, under implementation
Action 7	Transparency webpage and internal communication	1Q 2018	Fully implemented 2021
Action 8	Protocol for Fund Expenditure Accountability	2Q 2018	Delayed, under implementation
Action 9	Safety & prevention training	4Q 2019	Fully implemented 2021
Action 10	Update the internal Information Systems Security Document	3Q 2019	Delayed, under implementation
Action 11	Improve and translate the Plan of Equal Opportunities and Diversity Management	2Q 2020	Almost fully implemented 2020
Action 12	Establish a Non-discrimination Committee	1Q 2018	Fully implemented 2018
Action 13	Improve and translate the Guide of Prevention and Action in Case of Gender Violence	4Q 2020	Almost fully implemented 2021
Action 14	Protocol for the Evaluation, Internal Promotion and Recruitment of Researchers and Technicians	2Q 2018	Fully implemented 2019
Action 15	Definition of professional categories	3Q 2018	Fully implemented 2018
Action 16	Strategy for the Professional Development of Researchers	4Q 2019	Fully implemented 2020
Action 17	Publicize positions at an international level	4Q 2018	Fully implemented 2019
Action 18	Implementation of new organigram with Management & Human Resources Department	2Q 2018	Fully implemented 2018
Action 19	Basic instructions for traveling abroad	3Q 2018	Delayed, under implementation
Action 20	Complaints protocol	2Q 2018	Fully implemented 2020
Action 21	Steering Committee	2Q 2018	Fully implemented 2018
Action 22	Coordination Meetings	1Q 2018	Fully implemented 2018
Action 23	Researchers Commission	1Q 2018	Fully implemented 2018
Action 24	Organization of talks ('Paleovermut's initiative')	1Q 2018	Fully implemented 2018
Action 25	Free language courses and other types of training	1Q 2018	Fully implemented 2018
Action 26	Internal regulation of working time	4Q 2020	New and fully implemented 2020
Action 27	Assess the degree of knowledge of the HRS4R Action Plan	2Q 2021	New and fully implemented 2021
Action 28	Salary Register	3Q 2022	New 2021, pending
Action 29	Staff delegates	4Q 2021	New and fully implemented 2021
Action 30	RRI Commission	4Q 2021	New and fully implemented 2021
Action 31	Strategic Plan Working Group	2Q 2021	New and fully implemented 2021

- **Action 5: Welcome Handbook (delayed, under implementation).** Description: To write an "ICP Welcome Handbook" for new employees, providing guidelines for practical issues such as: ethics in research, strategic goals, accountability, non-discrimination, internal evaluation and career development, working conditions, professional categories, complaints/appeals, organization chart with updated contact details of responsibles of particular tasks, ICP committees and commissions, and continuous training).

Indicator(s)/Target(s): Internal document available and emailed to personnel and visiting researchers. Implementation: Originally planned for 2Q 2019, this document its partially written but it has yet to be finished, due to the prioritization of other actions of the plan (including the newly added ones).

- **Action 6: Protocol for Funding Request (delayed, under implementation).** Description: To write an "ICP Protocol for Funding Request", detailing the funding mechanisms available to ICP researchers and the approvals required by them before application. Indicator (s)/Target(s): Internal document available and emailed to researchers. Implementation: Originally planned for 4Q 2018, a first draft is written but it has yet to be finished, due to changes in the person in charge and the prioritization of other actions of the plan.
- **Action 8: Protocol for Fund Expenditure Accountability (delayed, under implementation).** Description: To write an internal "ICP Protocol for Fund Expenditure Accountability", including all the necessary templates to facilitate to ICP staff the correct justification of research expenses (principle 6). Indicator(s)/Target(s): Internal document available and emailed to researchers and technicians. Implementation: Originally planned to 2Q 2018, a draft is written but it needs to be updated before being publicized. The delay is attributable to changes in the person in charge and the prioritization of other actions of the plan.
- **Action 10: Update the internal Information Systems Security Document (delayed, under implementation).** Description: To update the internal "Information Systems Security Document" of the ICP in the light of the new European regulation of personal data protection, including a protocol aimed to implement mechanisms for safe data access and storage among ICP researchers and technicians. Indicator(s)/Target(s): Updated internal document available and approved by the Steering Committee. Implementation: Originally planned to 3Q 2019, the update of the document is yet to be finished, due to the prioritization of other tasks.
- **Action 11: Improve and translate the Plan of Equal Opportunities and Diversity Management (almost fully implemented).** Description: To improve, expand and translate into English the current ICP Plan of Equal Opportunities and Diversity Management, aiming to (a) promote equality in racial, ethnic or birth origin, gender, sexual orientation, religion or beliefs, political opinion, disability, age, or any other condition personal or social circumstances; and (b) promote equality and strengthen gender balance at selection and evaluation committees as well as supervisory, managerial and decision-making bodies of ICP. This includes initiatives to facilitate the combination of family and professional life. Indicator(s)/Target(s): Updated document approved by the Steering Committee, available from the ICP website and emailed to personnel; minutes of the Non-Discrimination Committee meetings (at least quarterly). Implementation: The new Equality Plan was approved by the Steering Committee on September 22, 2020, to be translated into English during 2021. However, on 2Q 2021 CERCA informed all the centers that all equality plans should be adapted to fulfill the new Spanish legislation enacted on October 2020, even if

centers with less than 50 workers were not legally bound to do so. Therefore, the plan is currently being improved and it will not be translated until its elaboration is finished.

- **Action 13: Improve and translate the Guide of Prevention and Action in Case of Gender Violence (almost fully implemented).** Description: To improve, expand and translate into English the current ICP Guide for the Prevention and Action in Case of Gender Violence, aiming to avoid these conflicts and facilitate their management if they exist. Indicator(s)/Target(s): Expanded and translated version of the document available from the ICP website and emailed to personnel. Implementation: The Protocol for the prevention, detection and intervention in cases of violence against women was approved by the Steering Committee on July 2021. However, it remains to be ratified by the Board of Trustees (expected for the spring of 2022) and its translation into English is also pending.
- **Action 19: Basic instructions for traveling abroad (delayed, under implementation).** Description: Develop and make known to all ICP staff all the basic instructions on the various issues that have to be taken into account before traveling abroad. Indicator(s)/Target(s): Internal document approved by the Steering Committee and emailed to personnel. Implementation: Originally planned for 3Q 2018, the currently available draft still needs to be finished and approved. The delay is attributable to the prioritization of other actions.
- **Action 28: Salary Register (pending implementation).** Description: Elaborate the 2021 salary register of ICP employees including hours worked, gross salary, complements, seniority, etc. Indicator(s)/Target(s): A table of data in Excel format and minute of the Steering Committee in which the definitive version of the Salary Register is approved. Implementation: This action is pending, to be finished in 3Q 2022.

3.3. Equal Opportunities & Diversity Management Plan (2020-2021)

Objectives and actions The ICP trusts in the implementation of a scientific culture with gender perspective, feminist and intersectional, sensible to diversity in every sense: individual and social, structural, institutional, and political. In order to achieve such scientific culture, transparency, responsibility and monitoring are required in decision-making, evaluation and recruitment. This is why it was considered imperative to improve the former Equal Opportunities and Diversity Management Plan as well as to implement new measures to create the necessary conditions and structures to attain actual and effective equal opportunities. A first draft of the Equality Plan was written by the Non-Discrimination Committee and reviewed by the ICP Director. A second draft was submitted for consideration to the ICP Steering Committee, which approved it with amendments on September 22, 2020. The final version was enforced immediately and made available to all ICP personnel on its Transparency website, pending the approval with eventual amendments by the ICP Board of Trustees when the next meeting takes place.

The actions included in the Plan are further detailed in the table below, along with their degree of implementation at the end of 2021.

Action No.	Description	Expected	Implementation
Action 1.1	Translating the Equal Opportunities and Diversity Management Plan into English	1Q 2021	Almost fully implemented
Action 1.2	Internal dissemination of the Equal Opportunities and Diversity Management Plan	2Q 2021	Fully implemented 2021
Action 2.1	Review and update of the protocol for the prevention, detection and intervention in cases of violence against women	4Q 2021	Almost fully implemented
Action 2.2	Internal dissemination of the protocol for the prevention, detection and intervention in cases of violence against women	2Q 2022	Fully implemented 2021
Action 3.1	Establishing a good practices manual for a non-sexist use of language and images	4Q 2021	Delayed, under implementation
Action 3.2	Monitoring corporate documentation to ensure a non-sexist use of language and images	Continuous since 1Q 2022	Pending
Action 4.1	Promoting the implementation of new measures to guarantee the reconciliation of work, private and family life	Continuous since 1Q 2022	Pending
Action 5.1	Monitoring recruitment and internal promotion processes	Continuous since 3Q 2020	Fully implemented 2020
Action 6.1	Internal training in equal opportunities and diversity management from an intersectional perspective	Continuous since 3Q 2021	Fully implemented 2021
Action 6.2	Including a link to the new Equal Opportunities and Diversity Management Plan (and related documents) in the Welcome Handbook	Continuous since 4Q 2021	Delayed
Action 7.1	Incorporating a report on equal opportunities and diversity management in the annual reports	Continuous since 3Q 2020	Fully implemented 2021
Action 7.2	Improving the visibility of the scientific and technical tasks of ICP women	Continuous since 3Q 2020	Fully implemented 2021

The structure of this Plan includes the starting point diagnosis, the definition of principles and goals, the design and time schedule of the actions to put into effect, and the follow-up and evaluation mechanisms. It was also considered necessary to include a glossary of terms related to non-discrimination and diversity management, not only with the aim of clarifying some concepts used in the plan, but also with an educational purpose. To achieve equality recognition and the promotion of cross-cutting policies contributing to the creation of conditions and structures that enable actual and effective equal opportunities, the following seven specific aims are defined:

- **Objective 1:** To distribute the Equal Opportunities and Diversity Management Plan and the direction's commitment to equal opportunities among the personnel.
- **Objective 2:** To implement prevention, detection, and intervention measures in cases of sexual harassment.
- **Objective 3:** Encourage a non-sexist and non-discriminatory use of language and images.
- **Objective 4:** To boost the reconciliation of work, private and family life.

- **Objective 5:** To ensure that equal opportunities recruitment processes are implemented.
- **Objective 6:** To raise awareness of equality issues among the personnel and train them on this topic.
- **Objective 7:** To incorporate gender and intersectional perspective in the center's vision and values.

Actions pending full implementation The following actions are not fully implemented at the end of 2021:

- **Action 1.1: Translating the Equal Opportunities and Diversity Management Plan into English (almost fully implemented).** Description/tasks: To translate the Plan into English to facilitate its dissemination among staff. Implementation: A first draft of the English version of the Plan was made in late 2020, but it remained to be corrected and approved during 2021. However, this was postponed due to changes in Spanish legislation, which require the elaboration of a new Equality Plan. It is expected to be drafted and approved during 2022.
- **Action 2.1: Review and update the protocol for the prevention, detection and intervention in cases of violence against women (almost fully implemented).** Description: Review and improve the protocol for prevention, detection, and intervention in cases of violence against women. Tasks: Write the new protocol; translate the new protocol into English. Implementation: The protocol was approved in July 2020, but English translation and ratification by the Board of Trustees (expected for the spring of 2021) are pending.
- **Action 3.1: Establishing a good practices manual for a non-sexist use of language and images (delayed, under implementation).** Description/tasks: To adopt and improve, if necessary, the UAB guide of good practices for the non-sexist use of language. To disseminate the document through the center regular digital channels (email and newsletters) so the ICP staff can apply its principles in their public documents. Implementation: This action has been delayed due to the prioritization of the management of cases of gender-based violence. It is expected to be implemented during 2022.
- **Action 3.2: Monitor corporate documentation to ensure a non-sexist use of language and images (pending).** To ensure the use of non-sexist or discriminatory language in new ICP manuals and protocols before their final approval. Update the existing ones when relevant changes are made. Raise awareness among ICP staff so that this vision is added in every document elaborated in the different departments and areas of the ICP. This includes: (1) Identification and prioritization of documents to review; (2) Review of documents and making the necessary changes; and (3) Updating the modified documents in their paper version as well as on the website. Implementation: This action is continuous but scheduled to begin its implementation during Q1 2022.
- **Action 4.1: Ensure the implementation of new measures to warrant the reconciliation of work, personal and family life (pending).** Description/tasks: To detect new reconciliation

needs among staff about working day regulations that are not planned in internal policies and propose, when necessary, new measures to the Steering Committee. Collecting information on the needs of personnel by establishing fluid communication channels through the ombudsmen, the Non-discrimination Committee, the HR Department or other Heads of Area and Department. Implementation: This action is continuous but scheduled to begin its implementation during Q1 2022.

- **Action 6.2: Including a link to the new Equal Opportunities and Diversity Management Plan (and related documents) in the Welcome Handbook (delayed).** Description/tasks: To include in the Welcome Handbook links to the new "Equality Opportunities and Diversity Management Plan", the "Protocol for the prevention, detection and intervention in cases of violence against women", the "Manual for a Non-Sexist Use of Language" and the document "Internal Regulation of Working Time". Implementation: This action has been delayed because the Welcome Handbook is pending.

3.4. Comparisons with other institutions (2018-2021)

Institutions The ICP is compared below with three top worldwide paleontological institutions in terms of scientific production and productivity. They are the following:

- **Palaeobiology Research Group (PRG), School of Earth Sciences, University of Bristol (UK):** As advertised in their own webpage (https://www.bristol.ac.uk/earthsciences/research/palaeobiology/), in 2017 it was considered the best paleontology research group in the world in the first discipline-specific annual review by the Center for World University Rankings. In this regard it must be stressed that this concept of 'research group' is different from that of the ICP, so that the eight different 'laboratories' of Bristol's PRG are comparable to the ICP 'research groups', being named after the group leader (the Benton laboratory, the Donoghue laboratory, etc.), although as a whole the PRG is clearly larger than the ICP. The members of the PRG are affiliated to the School of Earth Sciences of the University of Bristol, and therefore the scientific production of the group is difficult to retrieve on this basis, although it can be compiled based on the information provided on its website.
- **University of California – Museum of Paleontology (UCMP), Berkeley, USA:** This institution is more similar to the ICP in the sense that it consists of a museum with research staff (although the ICP is rather a research center with a museum). They are tightly ingrained within the university structure, with most experienced researchers being both university professors and museum curators. The fact that its affiliation is not recognized as distinct from the University of California in Scopus (unlike in the case of the ICP) hinders retrieving their SCI productivity, although this can be done with the help of the publication list reported on its website (http://www.ucmp.berkeley.edu/).

- **Centre de Recherche en Paléontologie (CR2P), CNRS-MNHN-Sorbonne Université, France:** This research center is exclusively devoted to paleontology (in a broad sense). It aims at elucidating the phylogenetic patterns and evolutionary history of living organisms through the fossil record and environments of the past. It is simultaneously supported by the Muséum National d'Histoire Naturelle (MNHN), Paris; the Centre National de la Recherche Scientifique (CNRS); and the Sorbonne Université. As indicated in its webpage (http://paleo.mnhn.fr/en), the CR2P equals to the Unité Mixte de Recherche (UMR) 7207. The CR2P resembles the ICP in involving the cooperation of a university, a museum, and a research national institution. It has three 'research teams', which are much larger than the ICP research groups: Team 1 (PALPAL: Palaeobiodiversities, palaeoenvironments); Team 2 (PDM: Metazoan phylogeny and diversification); and Team 3 (FOSFO: Forms, structures and functions).

Methods Most of the comparisons have been performed on the basis of production in SCI (Science Citation Index) journals (i.e., those indexed by the Journal Citation Reports), in part because they constitute the major bulk of peer-reviewed articles published by all these institutions (including the ICP), and aso because bibliometric indicators of impact and quality are restricted to those journals indexed by the JCR. The various metrics employed are summarized in the tables below. They are intended to measure production, authors, productivity, quality and impact, leadership, field of research, multidisciplinarity, and international collaborations. Some of these metrics are considered absolute indicators, in the sense that they are not scaled relative to the size of each institution; others, in contrast, are considered relative indicators (ratios, percentages, mean values, etc.), because they are independent from the size of each institution. The geometric means (GM) of the relative and absolute indicators were computed separately for each institution, and they were scaled to 100 to visually compare them more easily.

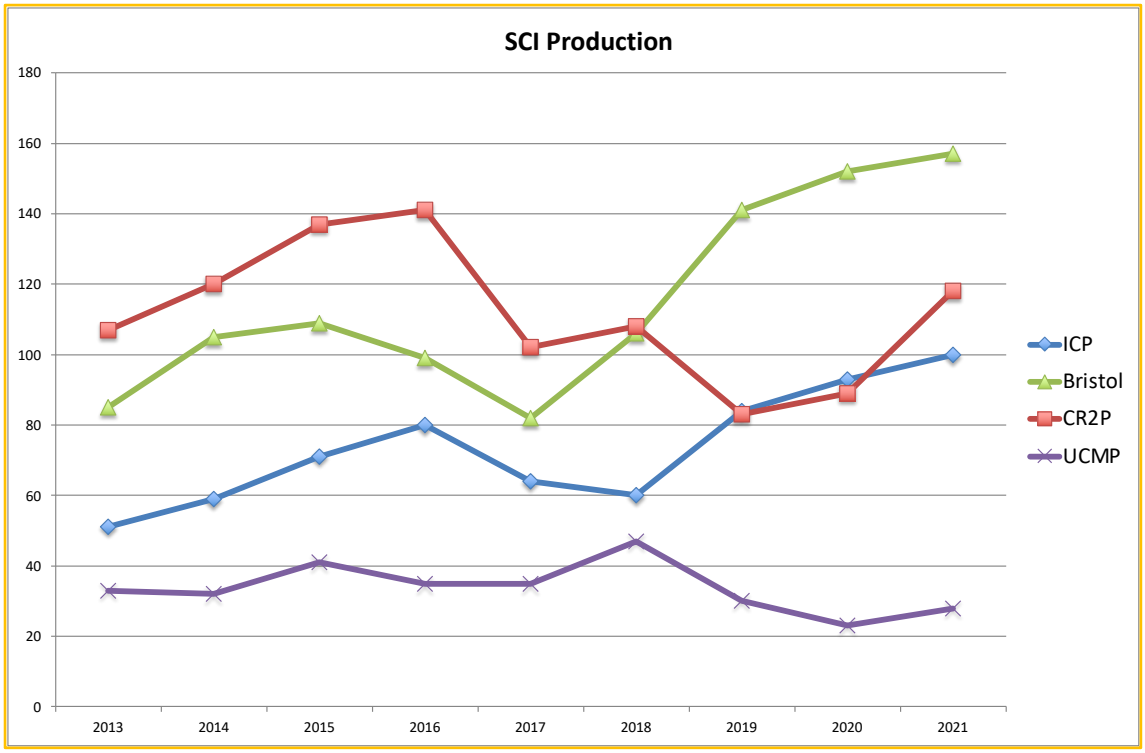
Absolute Indicators	Definition
SCI papers	Number of papers in SCI journals (co)authored by authors from each institution in a given year
SCI authors	Number of authors from each institution that have coauthored at least a paper in a SCI journal in a given year
SCI Q1	Number of papers in SCI journals from the first quartile (co)authored by authors from each institution in a given year
SCI leadership	Number of papers in SCI journals with a corresponding authors from each institution in a given year
SCI Q1 leadership	Number of papers in SCI journals from the first quartile with a corresponding authors from each institution in a given year
Paleontology	Number of papers in SCI journals from the JCR category 'Paleontology' (co)authored by authors from each institution in a given year
Multidisciplinary sciences	Number of papers in SCI journals from the JCR category 'Multidisciplinary sciences' (co)authored by authors from each institution in a given year
SCI papers int. coll.	Number of papers in SCI journals (co)authored by authors from each institution and authors from at least one institution from another country in a given year

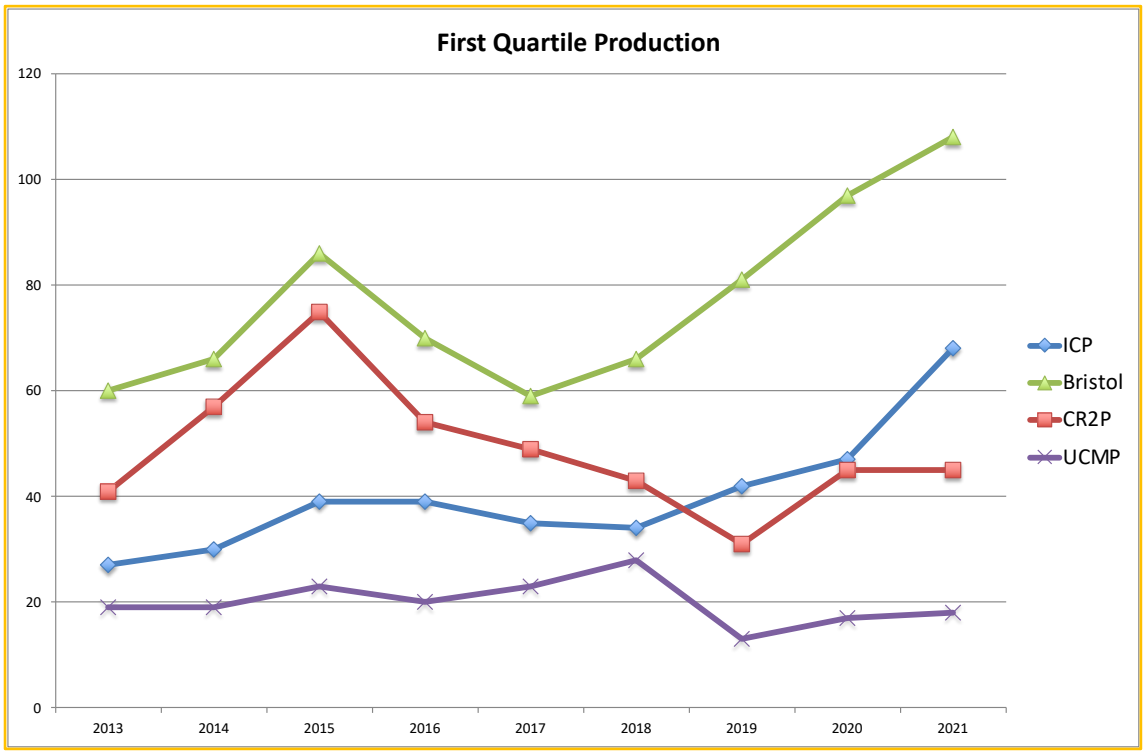
Relative Indicators	Definition
SCI productivity	SCI papers / SCI authors
SCI Q1 productivity	SCI Q1 / SCI authors
SCI Q1 ratio %	SCI Q1 / SCI papers x 100
SCI leadership ratio %	SCI leadership / SCI papers x 100
SCI Q1 leadership ratio %	SCI Q1 leadership / SCI papers x 100
SCI median JIF percentile	Median of journal impact factor percentile for all the SCI papers (co)authored by authors from each institution in a given year
SCI IF GM	Geometric mean of impact factor for all the SCI papers (co)authored by authors from each institution in a given year
%Paleontology	Paleontology / SCI papers x 100
%Multidisciplinary sciences	Multidisciplinary sciences / SCI papers x 100
SCI papers int. coll. (%)	SCI papers int. coll. / SCI papers x 100

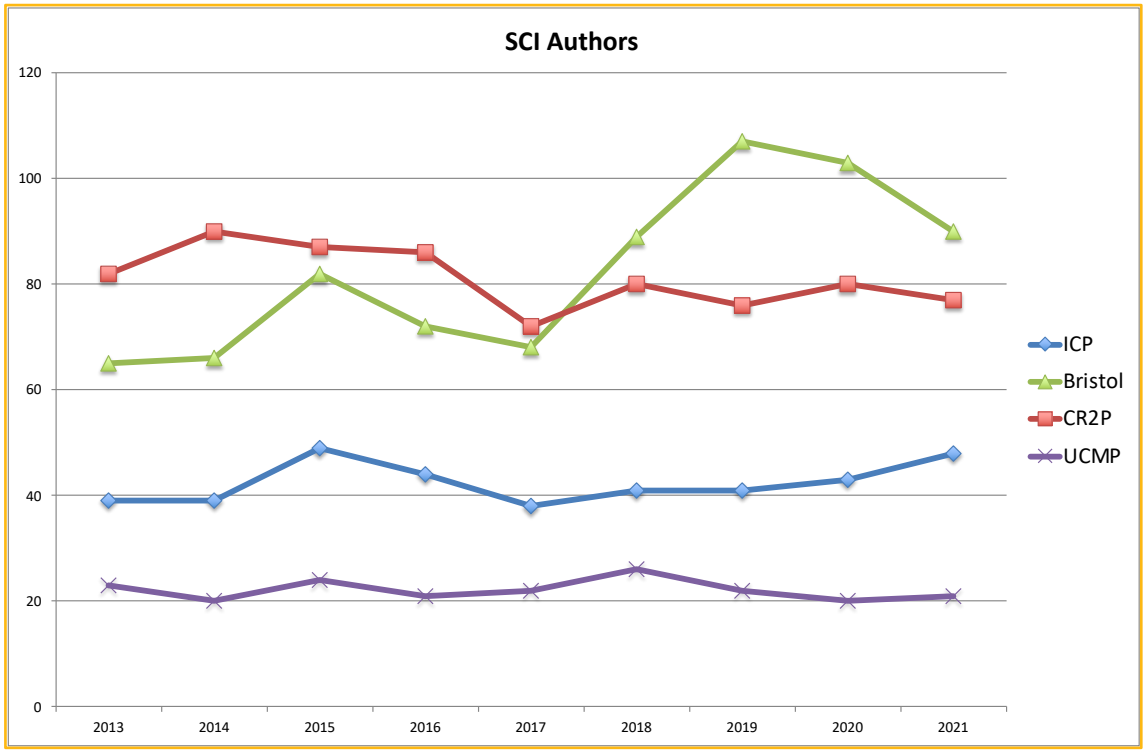
Absolute and relative indicators The values for the aforementioned indicators are reported in the following table (relative indicators are denoted in italics) and subsequent plots. In the latter, all available data (since 2013) have been depicted to better contextualize the results of the last four years.

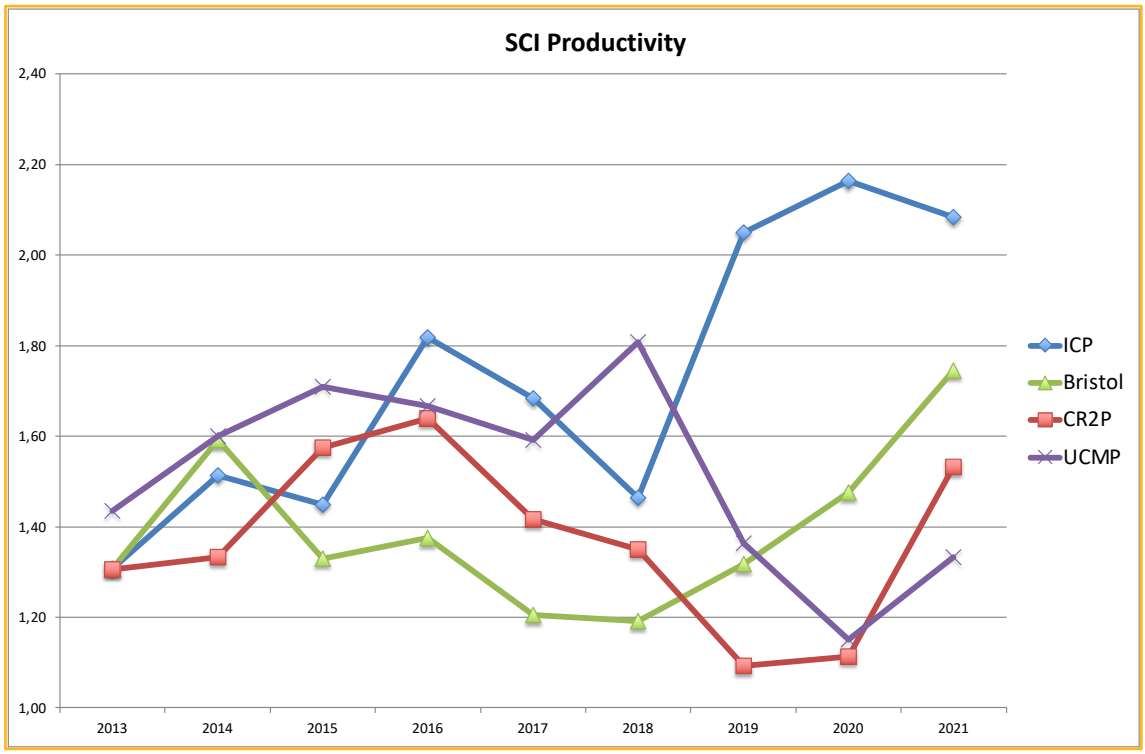
Institution	Metric	2018	2019	2020	2021	Average
ICP	SCI papers	60	84	93	100	**84.3**
PRG	SCI papers	106	141	152	157	**139.0**
CR2P	SCI papers	108	83	89	118	**99.5**
UCMP	SCI papers	47	30	23	28	**32.0**
ICP	SCI Q1	34	42	47	68	**47.8**
PRG	SCI Q1	66	81	97	108	**88.0**
CR2P	SCI Q1	43	31	45	45	**41.0**
UCMP	SCI Q1	28	13	17	18	**19.0**
ICP	SCI authors	41	41	43	48	**43.3**
PRG	SCI authors	89	107	103	90	**97.3**
CR2P	SCI authors	80	76	80	77	**78.3**
UCMP	SCI authors	26	22	20	21	**22.3**
ICP	*SCI productivity*	*1.46*	*2.05*	*2.16*	*2.08*	***1.94***
PRG	*SCI productivity*	*1.19*	*1.32*	*1.48*	*1.74*	***1.43***
CR2P	*SCI productivity*	*1.35*	*1.09*	*1.11*	*1.53*	***1.27***
UCMP	*SCI productivity*	*1.81*	*1.36*	*1.15*	*1.33*	***1.41***
ICP	*SCI Q1 productivity*	*0.83*	*1.02*	*1.09*	*1.42*	***1.09***
PRG	*SCI Q1 productivity*	*0.74*	*0.76*	*0.94*	*1.20*	***0.91***
CR2P	*SCI Q1 productivity*	*0.54*	*0.41*	*0.56*	*0.58*	***0.52***
UCMP	*SCI Q1 productivity*	*1.08*	*0.59*	*0.85*	*0.86*	***0.84***
ICP	*SCI Q1 ratio %*	*56.7*	*50.0*	*50.5*	*68.0*	***56.3***
PRG	*SCI Q1 ratio %*	*62.3*	*57.4*	*63.8*	*68.8*	***63.1***
CR2P	*SCI Q1 ratio %*	*39.8*	*37.3*	*50.6*	*38.1*	***41.5***
UCMP	*SCI Q1 ratio %*	*59.6*	*43.3*	*73.9*	*64.3*	***60.3***
ICP	SCI leadership	24	35	36	51	**36.5**
PRG	SCI leadership	58	75	74	76	**70.8**
CR2P	SCI leadership	36	48	46	45	**43.8**
UCMP	SCI leadership	29	17	7	13	**16.5**

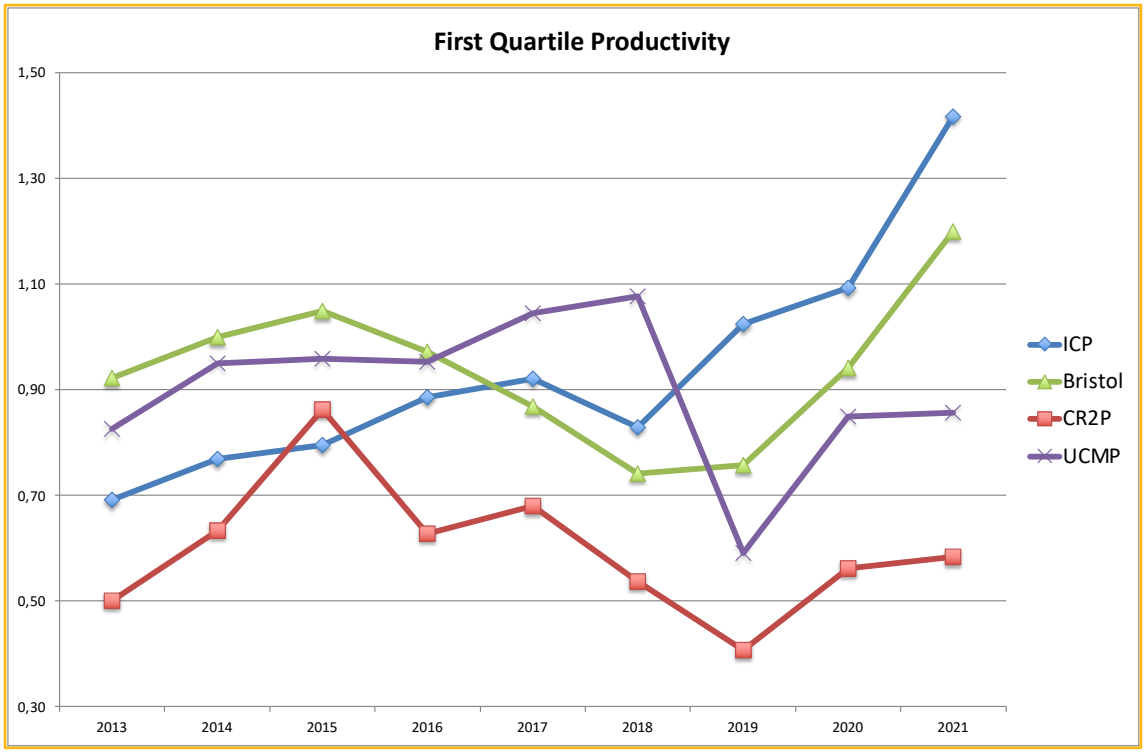
ICP	Q1 leadership	13	17	17	33	**20.0**
PRG	Q1 leadership	34	45	46	51	**44.0**
CR2P	Q1 leadership	16	15	20	22	**18.3**
UCMP	Q1 leadership	17	8	3	5	**8.3**
ICP	*SCI leadership ratio %*	*40.0*	*41.7*	*38.7*	*51.0*	***42.8***
PRG	*SCI leadership ratio %*	*54.7*	*53.2*	*48.7*	*48.4*	***51.3***
CR2P	*SCI leadership ratio %*	*33.3*	*57.8*	*51.7*	*38.1*	***45.2***
UCMP	*SCI leadership ratio %*	*61.7*	*56.7*	*30.4*	*46.4*	***48.8***
ICP	*Q1 leadership ratio %*	*38.2*	*40.5*	*41.2*	*48.5*	***40.9***
PRG	*Q1 leadership ratio %*	*51.5*	*55.6*	*50.0*	*47.2*	***50.4***
CR2P	*Q1 leadership ratio %*	*37.2*	*48.4*	*42.5*	*48.9*	***44.7***
UCMP	*Q1 leadership ratio %*	*60.7*	*61.5*	*27.3*	*27.8*	***41.9***
ICP	*SCI median JIF %ile*	*78.5*	*76.1*	*76.6*	*77.4*	***77.2***
PRG	*SCI median JIF %ile*	*87.9*	*83.5*	*82.8*	*84.3*	***84.6***
CR2P	*SCI median JIF %ile*	*71.1*	*68.3*	*76.9*	*73.8*	***72.5***
UCMP	*SCI median JIF %ile*	*86.5*	*71.5*	*77.4*	*88.2*	***80.9***
ICP	*SCI IF GM*	*2.58*	*3.05*	*3.75*	*3.47*	***3.21***
PRG	*SCI IF GM*	*3.45*	*3.25*	*4.47*	*4.18*	***3.84***
CR2P	*SCI IF GM*	*1.86*	*2.16*	*2.76*	*2.47*	***2.31***
UCMP	*SCI IF GM*	*3.18*	*2.83*	*4.02*	*4.82*	***3.71***
ICP	Paleontology	22	30	29	35	**29.0**
PRG	Paleontology	22	49	34	38	**35.8**
CR2P	Paleontology	36	43	35	54	**42.0**
UCMP	Paleontology	3	7	6	7	**5.8**
ICP	Multidisciplinary sciences	13	11	21	19	**16.0**
PRG	Multidisciplinary sciences	20	19	25	29	**23.3**
CR2P	Multidisciplinary sciences	10	9	7	12	**9.5**
UCMP	Multidisciplinary sciences	7	6	5	5	**5.8**
ICP	*%Paleontology*	*36.7*	*35.7*	*31.2*	*35.0*	***34.6***
PRG	*%Paleontology*	*20.8*	*34.8*	*22.4*	*24.2*	***25.5***
CR2P	*%Paleontology*	*33.3*	*51.8*	*39.3*	*45.8*	***42.6***
UCMP	*%Paleontology*	*6.4*	*23.3*	*26.1*	*25.0*	***20.2***
ICP	*%Multidisciplinary sci.*	*21.7*	*13.1*	*22.6*	*19.0*	***19.1***
PRG	*%Multidisciplinary sci.*	*18.9*	*13.5*	*16.4*	*18.5*	***16.8***
CR2P	*%Multidisciplinary sci.*	*9.3*	*10.8*	*7.9*	*10.2*	***9.5***
UCMP	*%Multidisciplinary sci.*	*14.9*	*20.0*	*21.7*	*17.9*	***18.6***
ICP	SCI papers int. coll.	48	67	80	76	**67.8**
PRG	SCI papers int. coll.	75	108	113	116	**103.0**
CR2P	SCI papers int. coll.	74	55	67	95	**72.8**
UCMP	SCI papers int. coll.	18	6	15	12	**12.8**
ICP	*SCI papers int. coll. (%)*	*80.0*	*79.8*	*86.0*	*76.0*	***80.4***
PRG	*SCI papers int. coll. (%)*	*70.8*	*76.6*	*74.3*	*73.9*	***73.9***
CR2P	*SCI papers int. coll. (%)*	*68.5*	*66.3*	*75.3*	*80.5*	***72.6***
UCMP	*SCI papers int. coll. (%)*	*38.3*	*20.0*	*65.2*	*42.9*	***41.6***

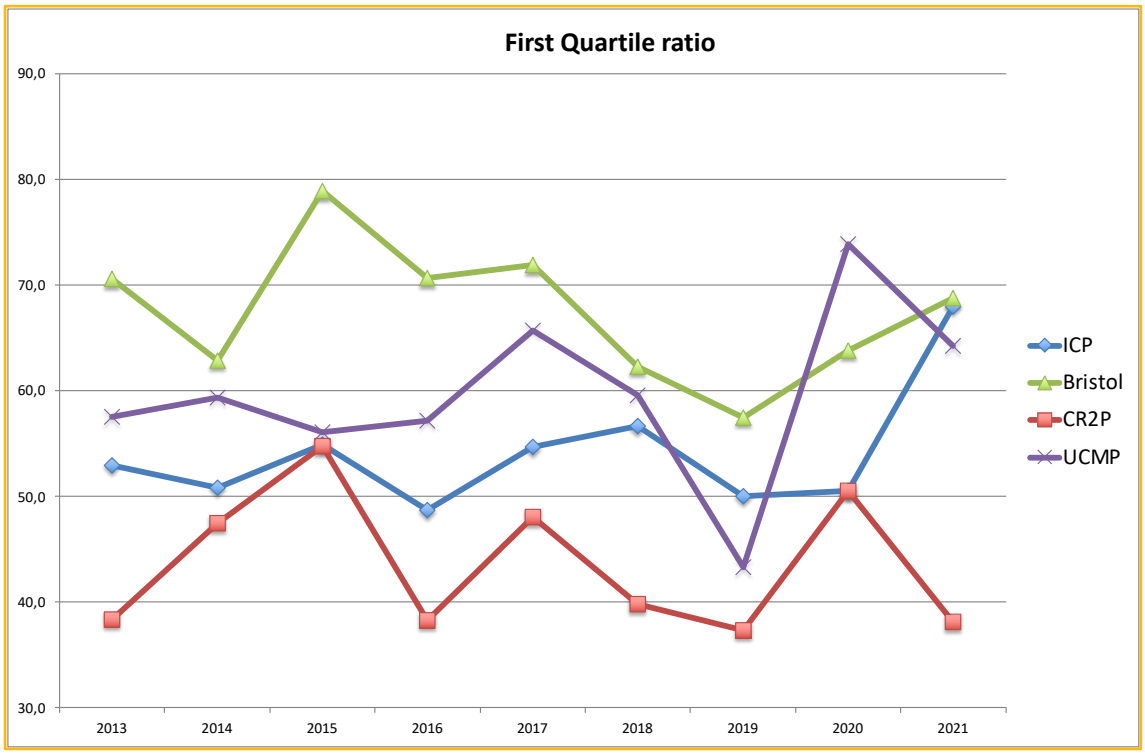

SCI Production
180
160
140
120
100
80
60
40
20
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP

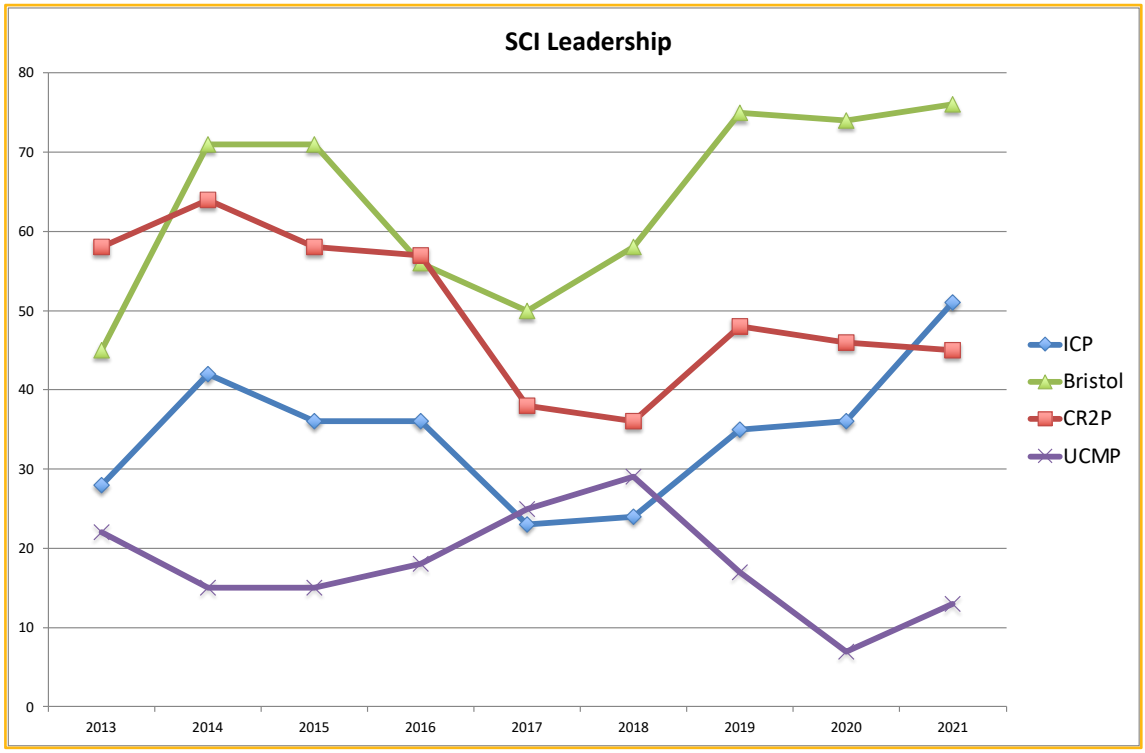

First Quartile Production
120
100
80
60
40
20
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP

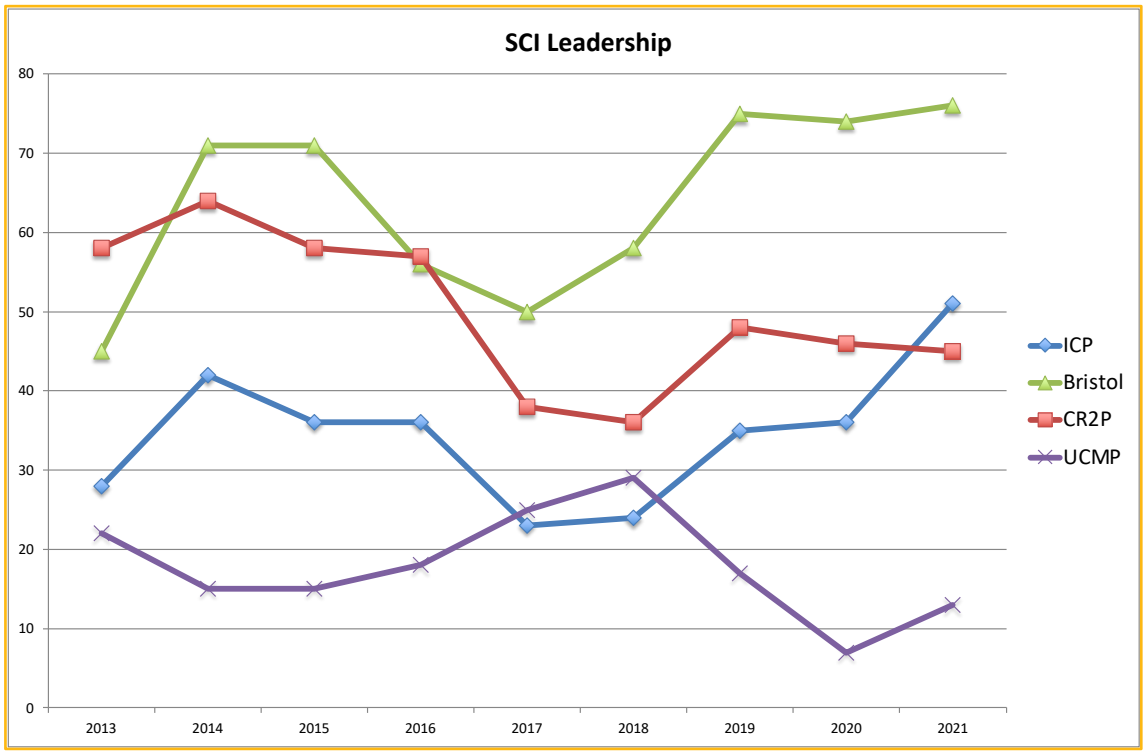

SCI Authors
120
100
80
60
40
20
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP

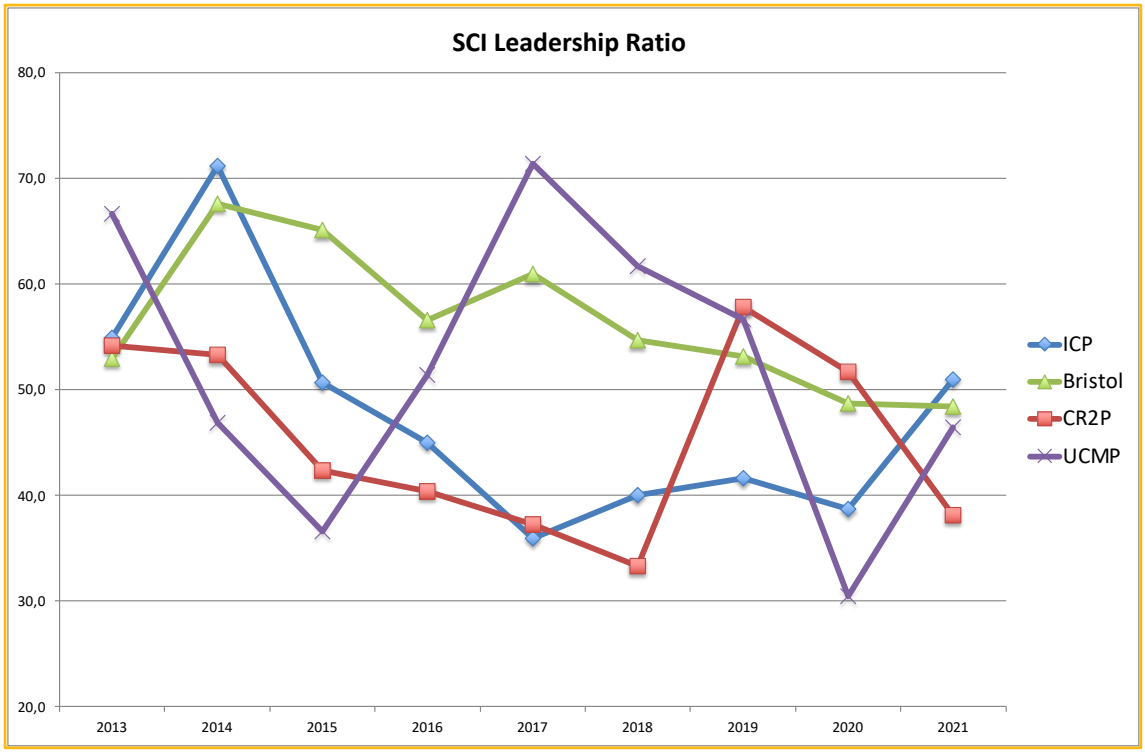

SCI Productivity
2,40
2,20
2,00
1,80
1,60
1,40
1,20
1,00
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP

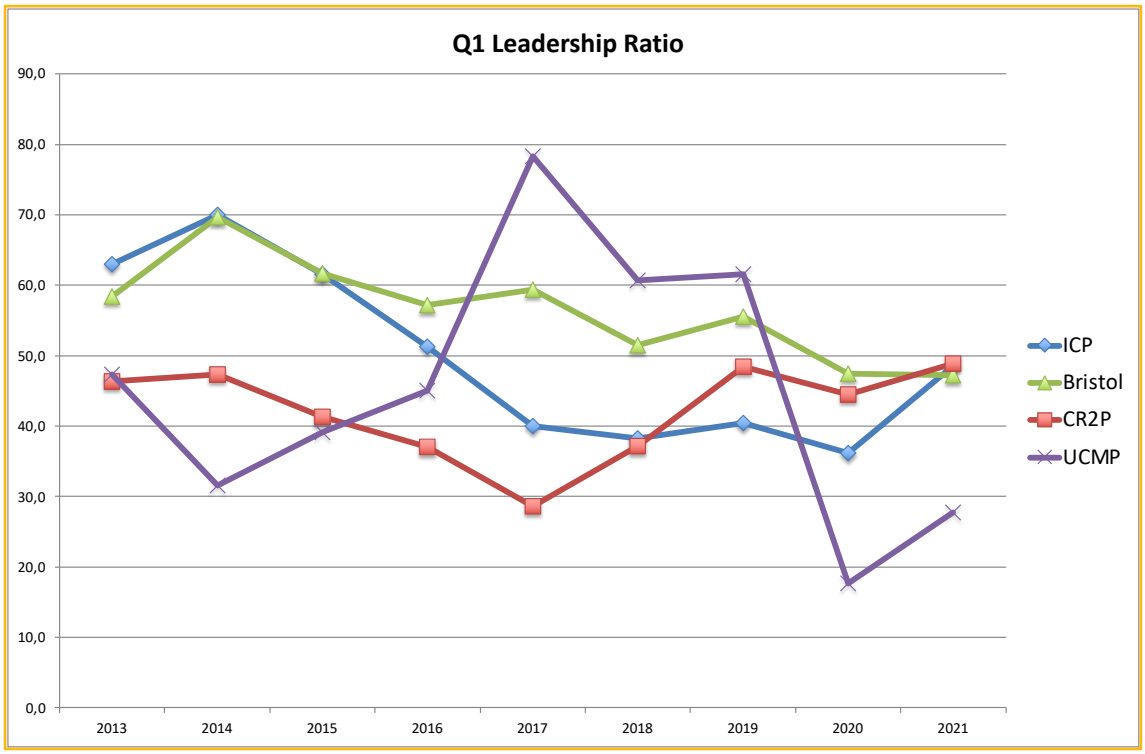

First Quartile Productivity
1,50
1,30
1,10
0,90
0,70
0,50
0,30
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP


First Quartile ratio
90,0
80,0
70,0
60,0
50,0
40,0
30,0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP


SCI Leadership
80
70
60
50
40
30
20
10
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP


SCI Leadership
80
70
60
50
40
30
20
10
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP


SCI Leadership Ratio
80,0
70,0
60,0
50,0
40,0
30,0
20,0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP


Q1 Leadership Ratio
90,0
80,0
70,0
60,0
50,0
40,0
30,0
20,0
10,0
0,0
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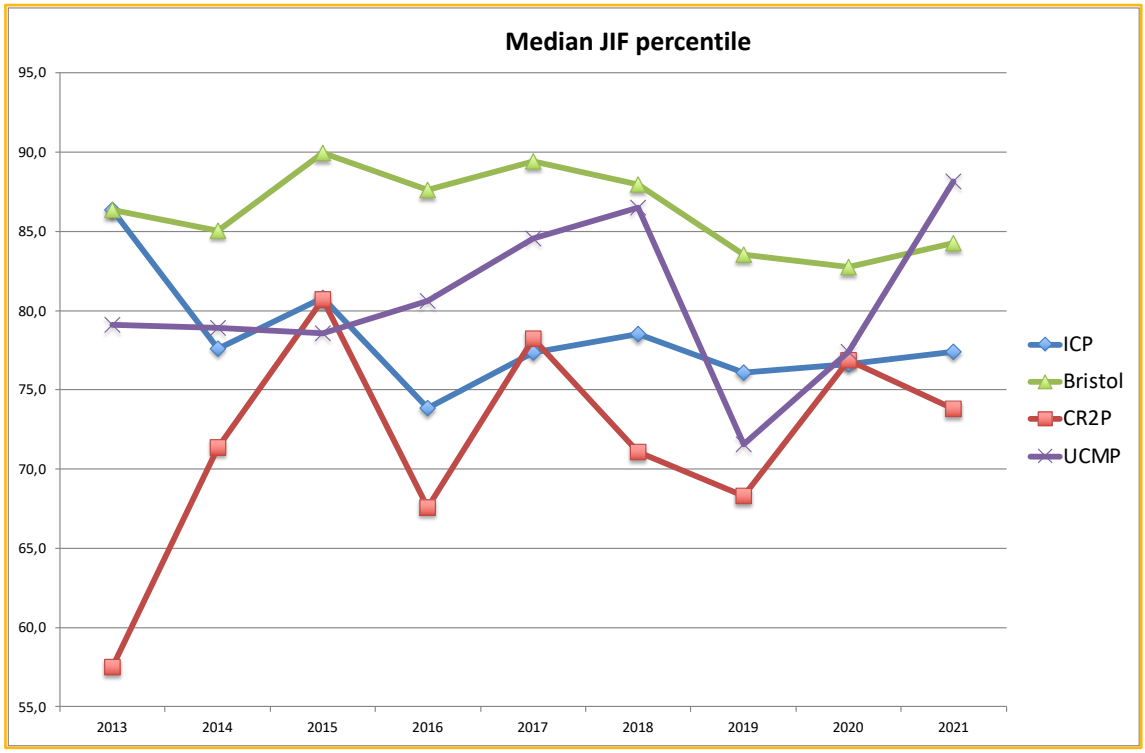
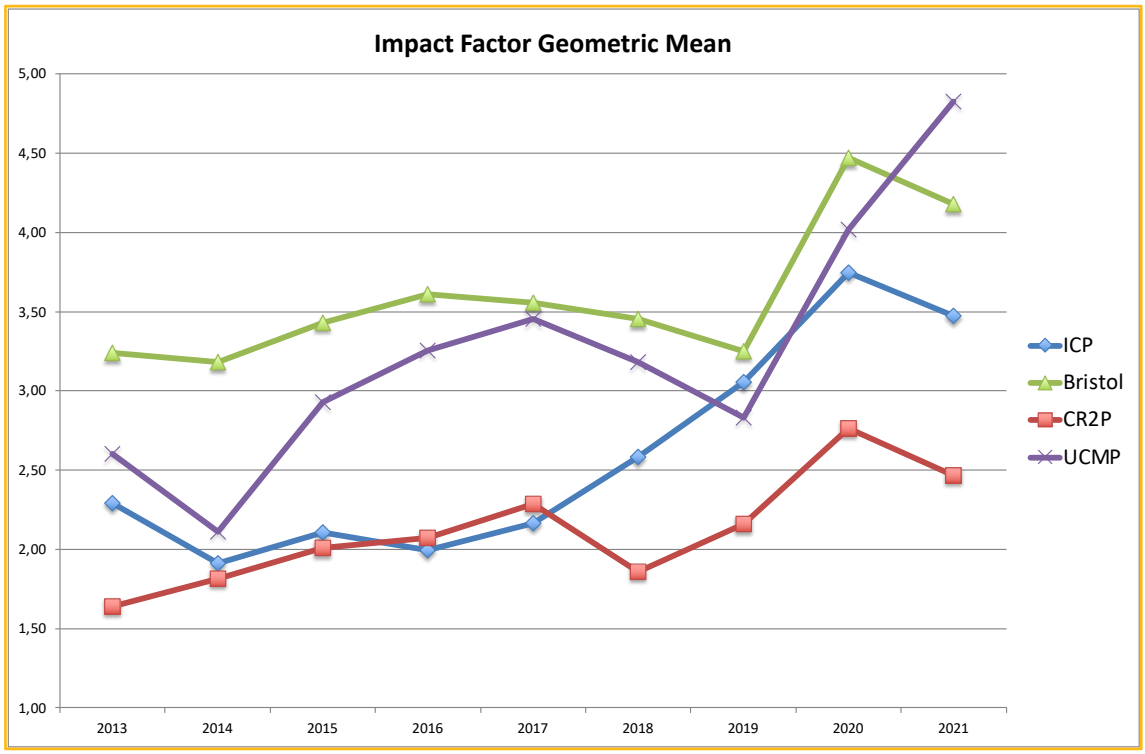
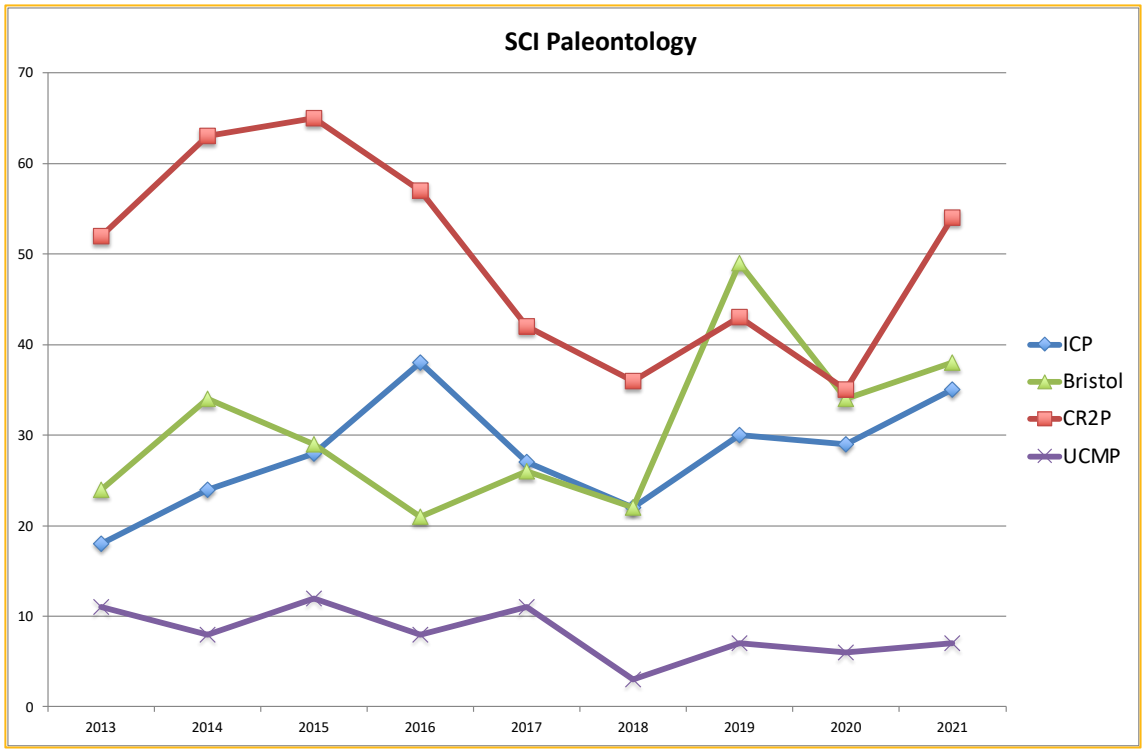
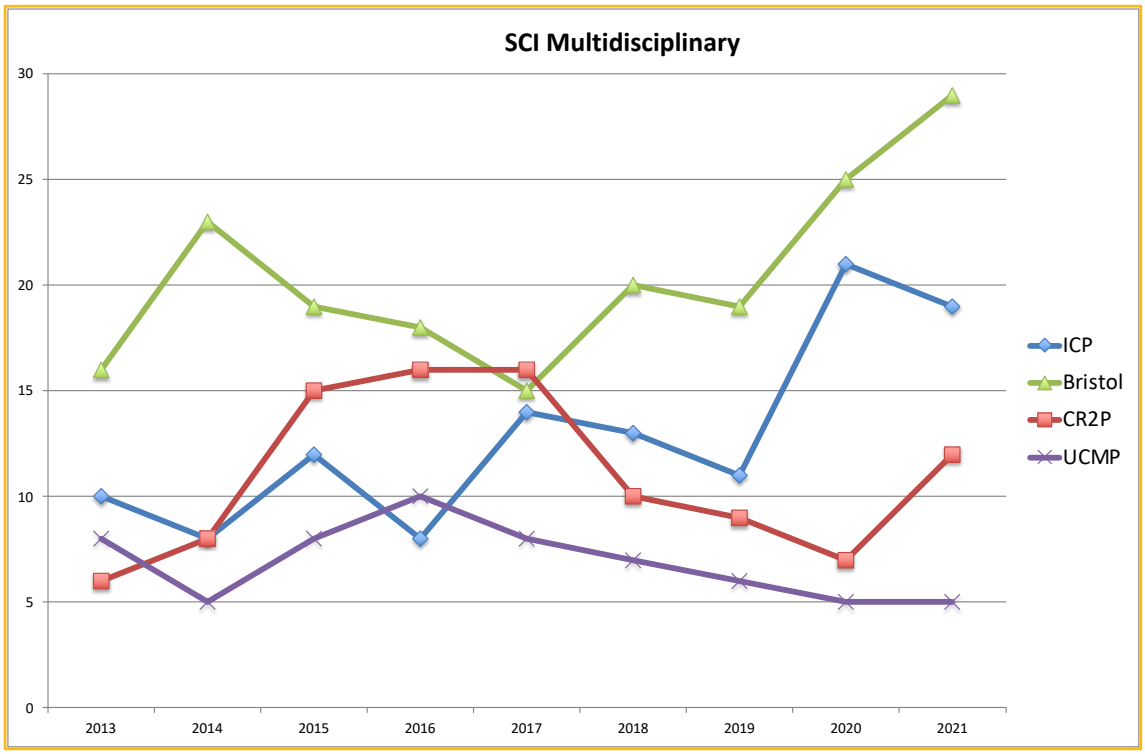
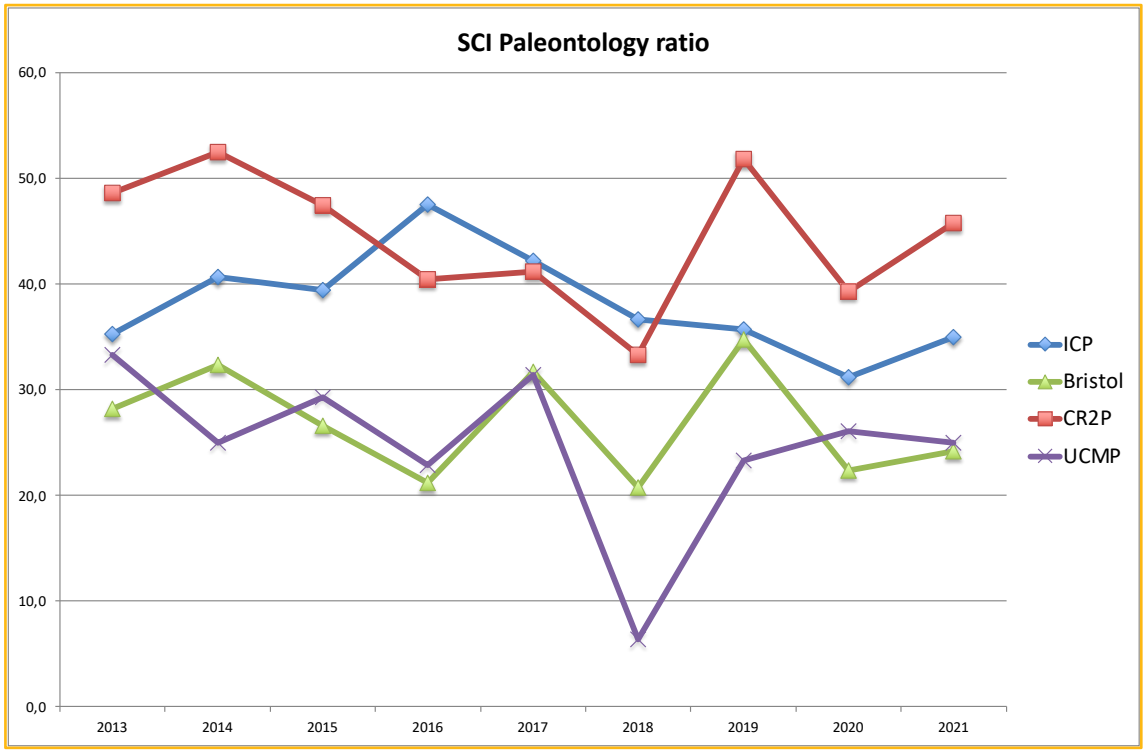
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP

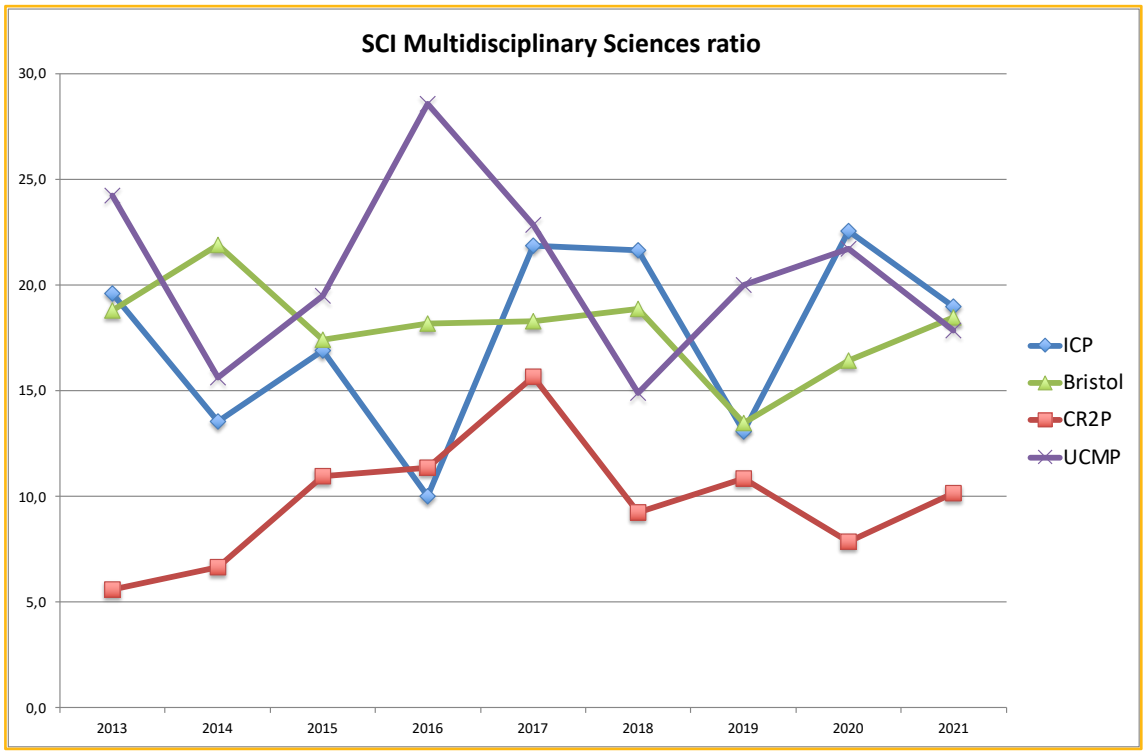

Median JIF percentile
95,0
90,0
85,0
80,0
75,0
70,0
65,0
60,0
55,0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP

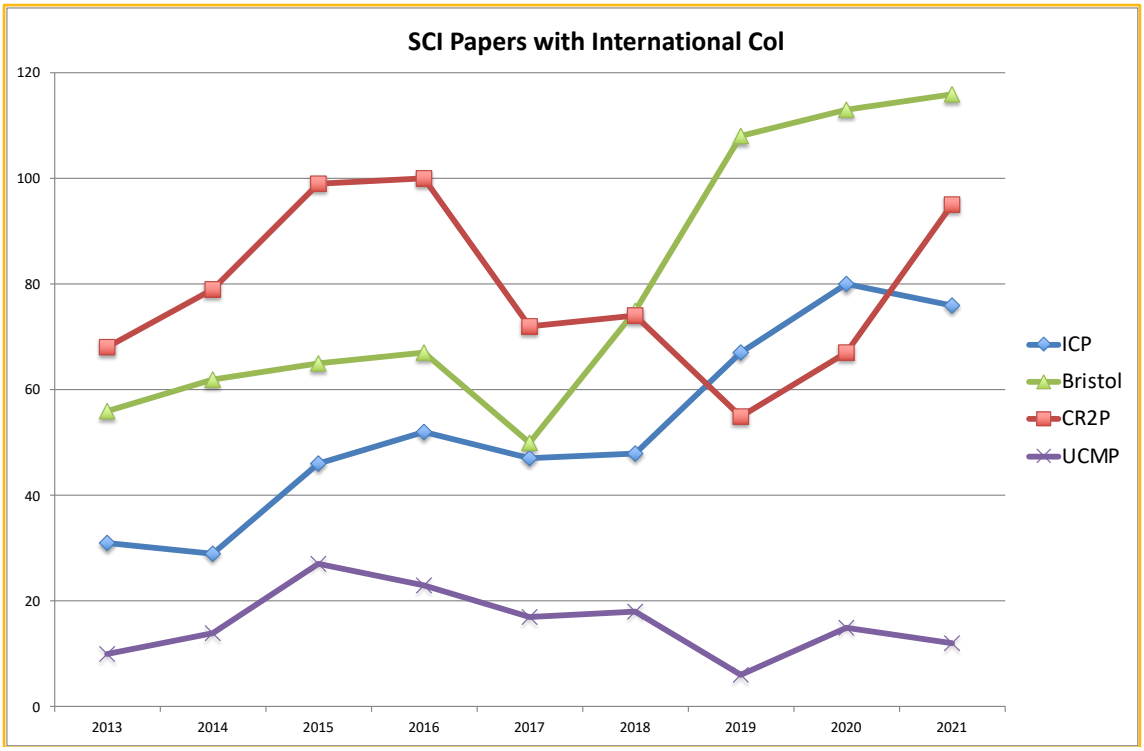

Impact Factor Geometric Mean
5,00
4,50
4,00
3,50
3,00
2,50
2,00
1,50
1,00
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP

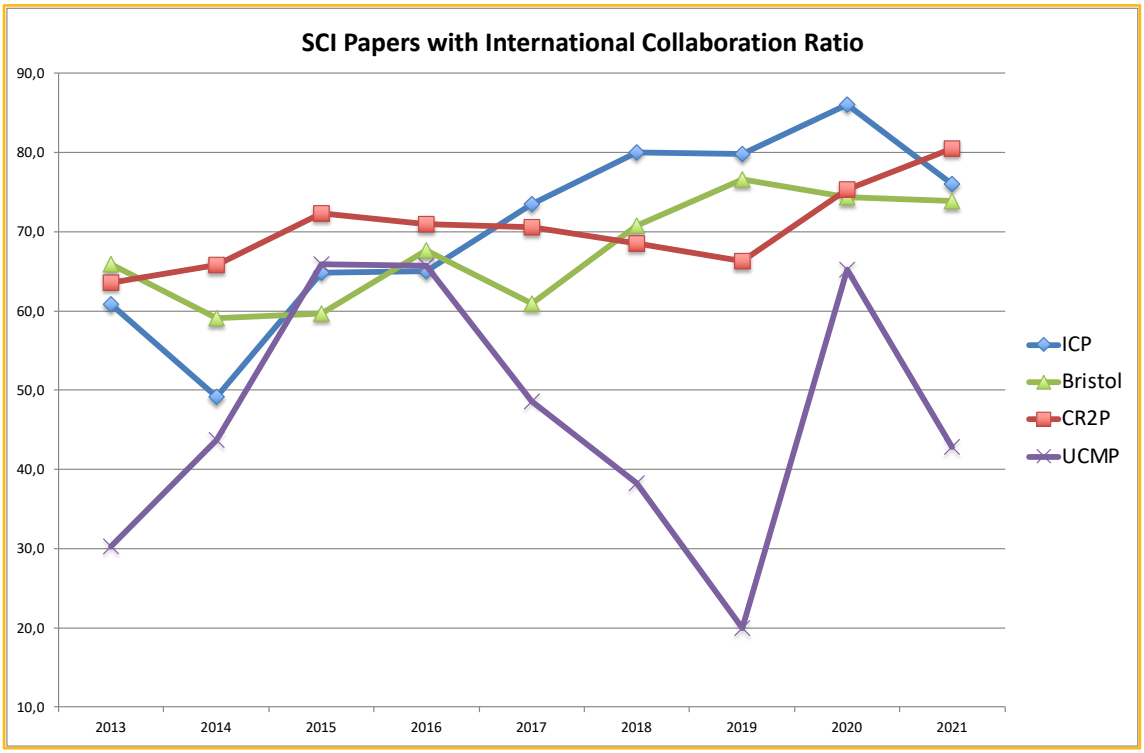

SCI Paleontology
70
60
50
40
30
20
10
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP


SCI Multidisciplinary
30
25
20
15
10
5
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP


SCI Paleontology ratio
60,0
50,0
40,0
30,0
20,0
10,0
0,0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP

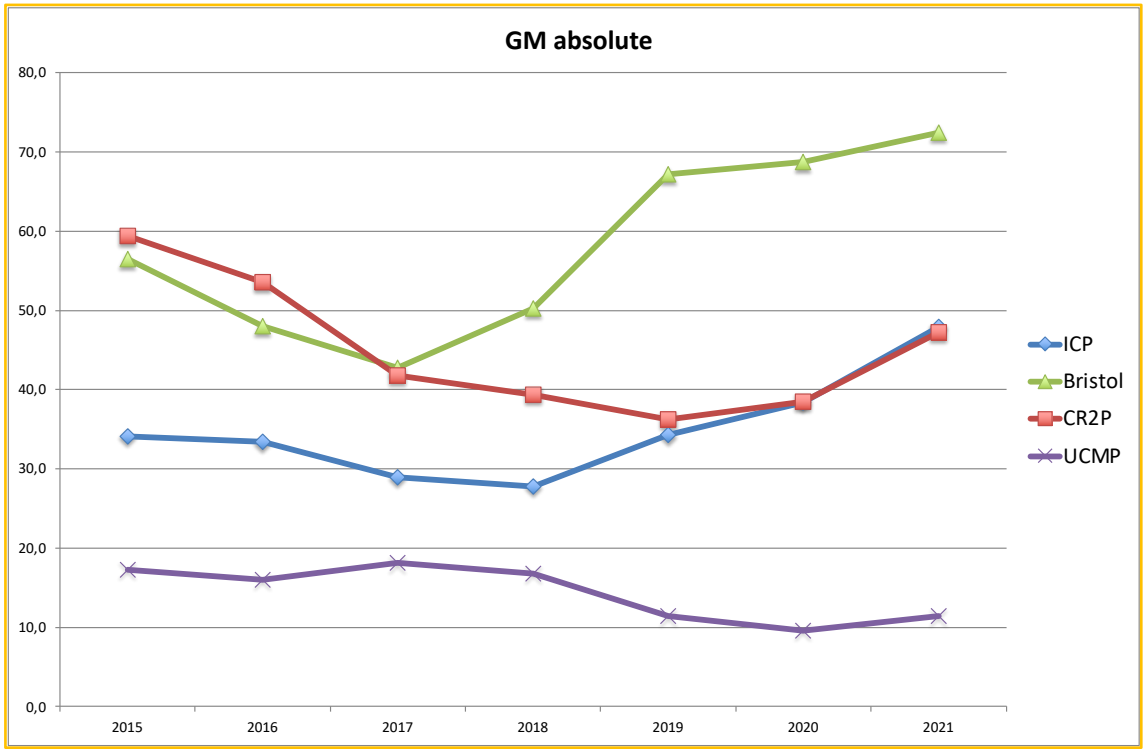

SCI Multidisciplinary Sciences ratio
30,0
25,0
20,0
15,0
10,0
5,0
0,0
2013
2014
2015
2016
2017
2018
2019
2020
2021
ICP
Bristol
CR2P
UCMP

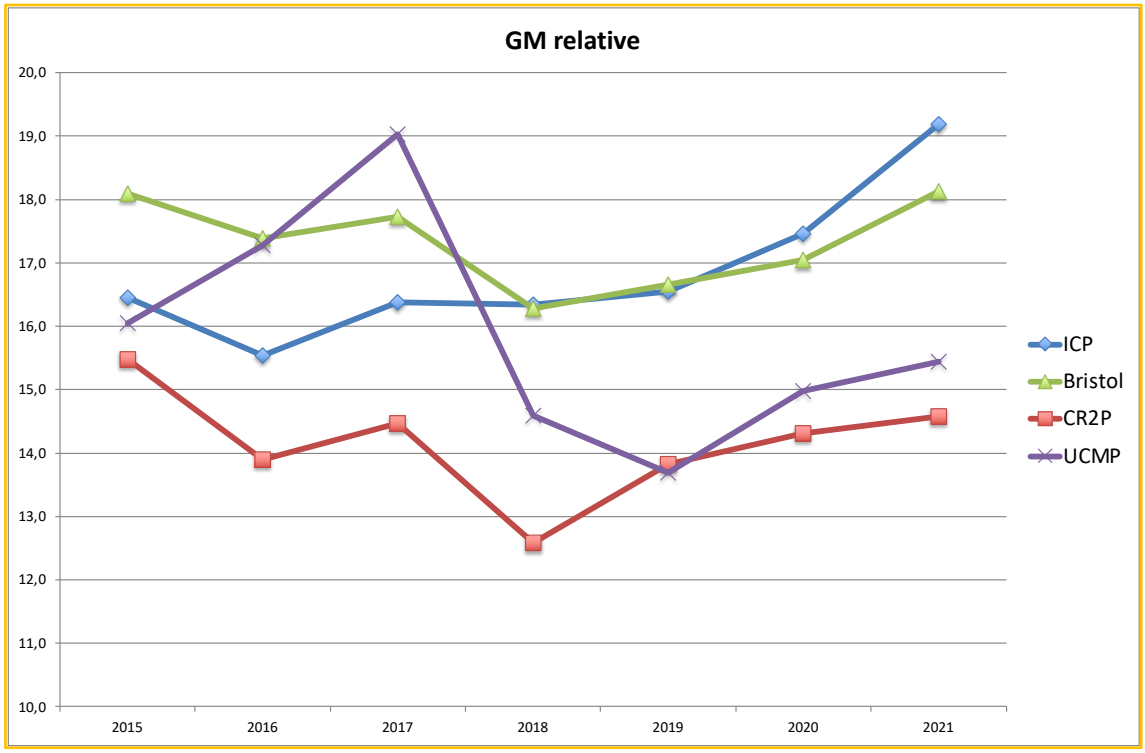




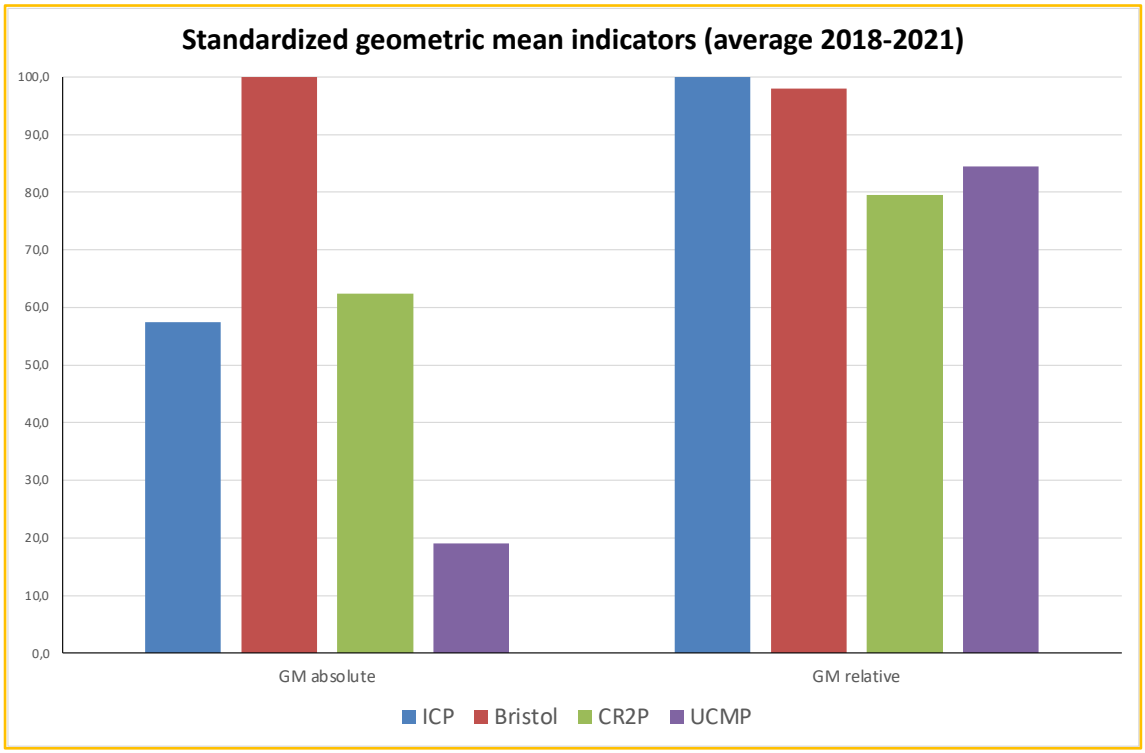
Summary results and rankings The results reported above can be compared by means of two synthetic metrics: the geometric mean (GM) of the indicators; and the GM of the indicators relative to that of the institution with the highest GM (in %). The results are reported below for absolute and relative indicators separately. Absolute indicators better depict the global impact of a given institution among the international scientific community, but relative indicators are size-corrected and therefore are more reliable to evaluate the

performance of a given institution irrespective of its size. The average for the last four years is provided in a standardized form (in %) by dividing the mean value of each institution by that of the institution with the highest mean. To provide as much context as possible, all the figures available for the absolute and relative metrics (since 2015) are also plotted.





Institution	Raw Metric	2018	2019	2020	2021	Average	Standardized Average
ICP	GM absolute	27.8	34.3	38.4	47.9	**37.1**	**57.4**
PRG	GM absolute	50.2	67.2	68.7	72.4	**64.6**	**100.0**
CR2P	GM absolute	39.3	36.3	38.5	47.3	**40.3**	**62.4**
UCMP	GM absolute	16.8	11.4	9.6	11.4	**12.3**	**19.1**
ICP	GM relative	16.3	16.6	17.5	19.2	**17.4**	**100.0**
PRG	GM relative	16.3	16.7	17.0	18.1	**17.0**	**98.0**
CR2P	GM relative	12.6	13.8	14.3	14.6	**13.8**	**79.6**
UCMP	GM relative	14.6	13.7	15.0	15.4	**14.7**	**84.4**

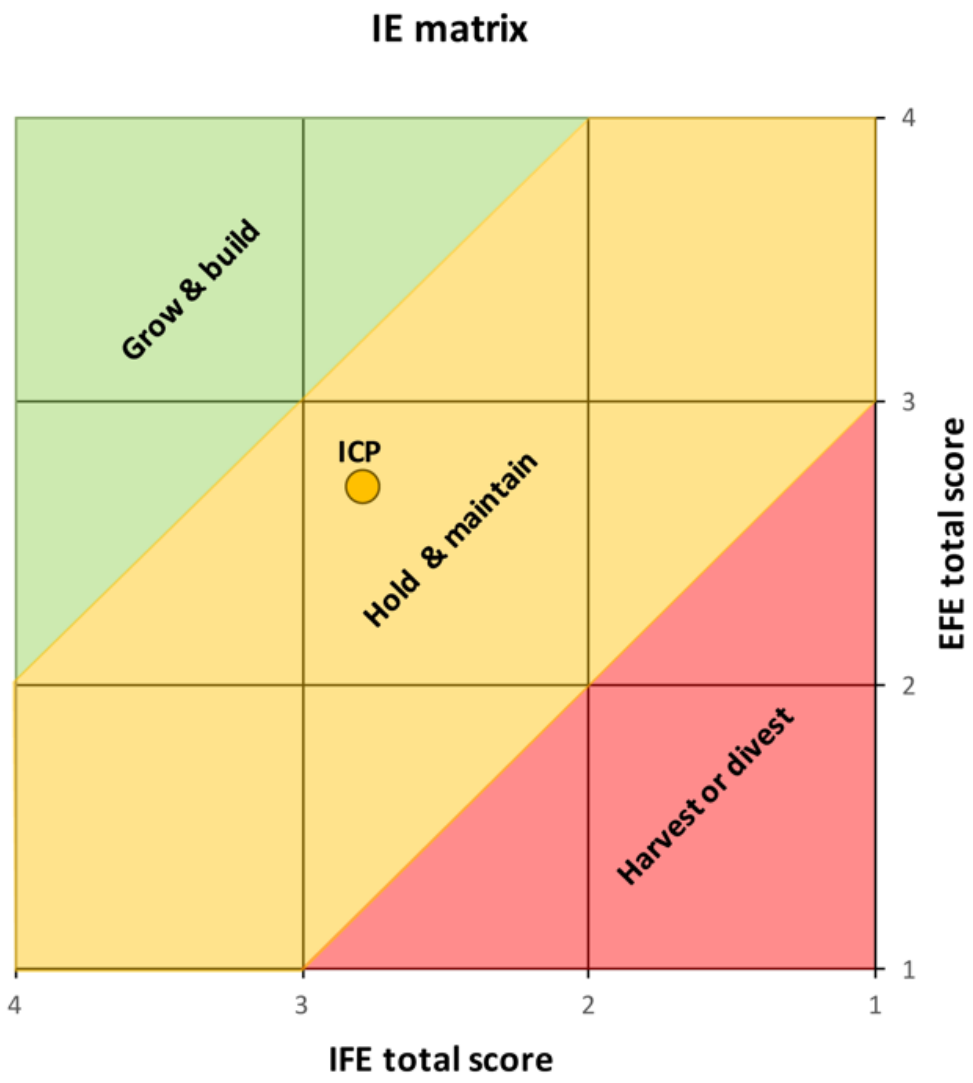


The ICP absolute metrics slightly decreased in 2017-2018, but subsequently improved significantly during the last three years, becoming fully comparable to Paris in 2021 and just below the performance of Bristol (which significantly increased in 2018-2019 and has remained very high since then). In relative terms, since 2016 the ICP has more or less steadily increased, particularly during the last couple years—even surpassing the performance of Bristol, despite the fact that the latter has also improved since 2018. Overall, it is obvious that the performance of the ICP in both absolute and relative terms has considerably improved during the last four years (especially since 2019). When the average of this time interval is considered, the ICP is the third institution in absolute terms (after Bristol and Paris, but very close to the latter, which represents 62% of Bristol's performance as compared to the 57 of the ICP). In contrast, it is most noteworthy that, in relative terms, the ICP emerges as the most proficient institution, closely followed by Bristol (98% of ICP's performance) and, at a higher distance, Berkeley (84%) and Paris (80%). These results clearly evince that the ICP displays an

excellent performance in terms of research outputs, so that most differences as compared to similar paleontological institutions of prestige are due to differences in size.

3.5. Fulfillment of the previous Strategic Plan (2018-2021)

SWOT analysis (2017) A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of the ICP was performed in late 2017 in the framework of the elaboration of a new Strategic Plan (2018-2021), which was publicized in February 2018 and subsequently ratified by the Board of Trustees in June 2018. (http://www.icp.cat/attachments/transparencia/Strategic_plan_2018_2021.pdf). A summary of the SWOT analysis included in the Strategic Plan is provided below. Essentially, the SWOT analysis enabled the identification of 70 factors (23 strengths, 12 weaknesses, 21 opportunities, and 14 threats), which were subjected to internal factor evaluation (IFE) and external factor evaluation (EFE) analyses, and combined in an internal-external (IE) matrix divided into three different regions with different strategical implications in terms of a research center's performance.



The IFE and EFE values calculated for the ICP (2.8 and 2.7, respectively) were higher than 2.5, indicating that the center was relatively strong relative to its competitors, as well as ready to take advantage of at least some opportunities and to defend against threats, respectively). These figures combined indicated that the suitable overall strategy was 'hold and maintain' (see figure above)—i.e., that the ICP was generally doing well and could take advantage of some opportunities, although there was room for improvement and the institution was not powerful enough to plan growing further on the midterm (so that some opportunities must be left unexplored due to excessive risk or lack of resources).

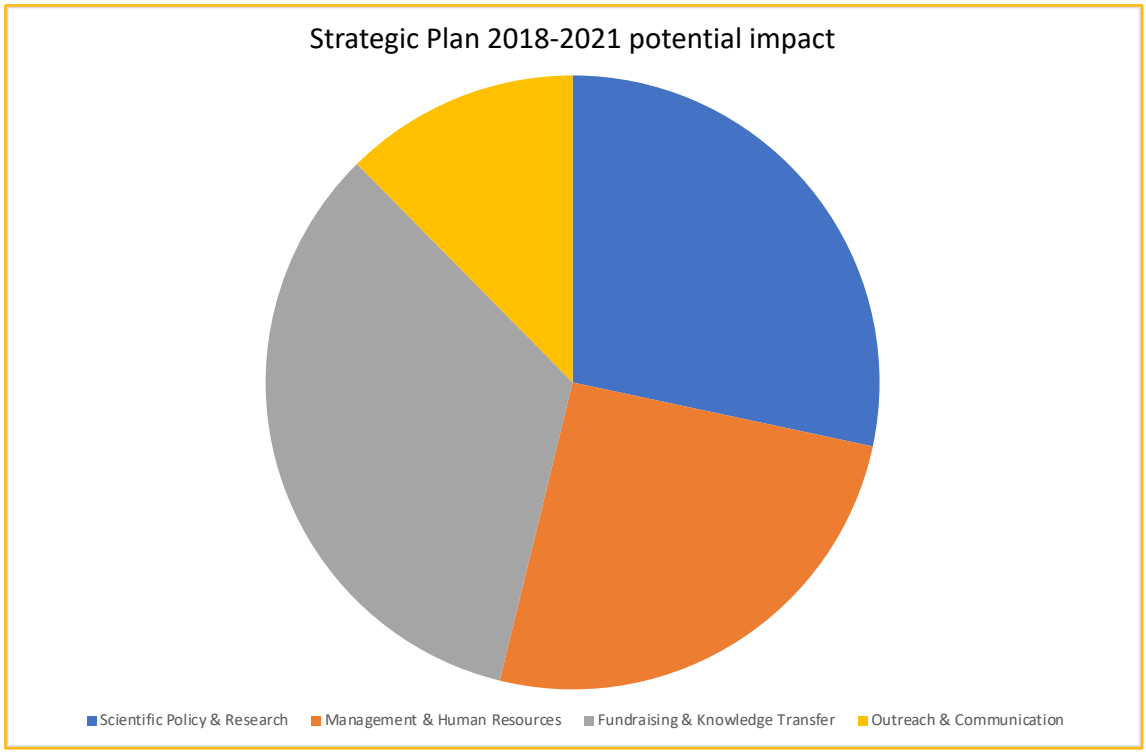
Strategic goals, actions, and indicators The Strategic Plan for 2018–2021, elaborated on the basis of the SWOT analysis summarized above, was conceived as a management tool that seeked to identify the current situation of the institution, including its risks and opportunities, as well as to define its main strategic aims, in order to guarantee the successful accomplishment of its mission on the midterm with regard to paleontological research, knowledge transfer, and conservation of the paleontological heritage of Catalonia. With these aims in mind, the Strategic Plan defined 19 strategic goals within four strategic areas: Scientific Policy & Research (7 goals), Management & Human Resources (5 goals), Fundraising & Knowledge Transfer (5 goals), and Outreach & Communication (2 goals). Each strategic goal was based on one of the following four strategies: Strength-Opportunity (SO, 10 goals), Weakness-Opportunity (WO, 3 goals), Strength-Threat (ST, 2 goals), and Weakness-Threat (WT, 4 goals). The 19 strategic goals defined by the Strategic Plan are the following:

- **Scientific Policy & Research (SPR):**
  - ✓ **SO1:** Consolidate the excellent scientific production and productivity of the ICP.
  - ✓ **SO2:** Consolidate the high quality and impact of the ICP scientific production.
  - ✓ **WO1:** Increase the excellent visibility of the scientific production of the ICP by promoting publication in open-access papers.
  - ✓ **WO2:** Improve research support provided to ICP researchers by the Virtual Paleontology Area.
  - ✓ **ST1:** Preserve the high competitiveness and foster the fidelity of ICP researchers by means of maintaining the excellent research support provided to them.
  - ✓ **ST2:** Provide to researchers specific guidelines of ethics in publishing, with emphasis on intellectual property rights and authorship issues.
  - ✓ **WT1:** Foster talent retention and attraction to secure the continuity of the successful ICP research lines.
- **Management & Human Resources (MHR):**
  - ✓ **SO3:** Increase the critical mass of ICP staff researchers by fostering talent attraction, with emphasis on the recruitment of foreign researchers.
  - ✓ **SO4:** Increase talent attraction at early career stages.
  - ✓ **SO5:** Improve the internal cohesion and coordination and promote staff involvement in decision-making at the ICP by implementing the new Organization Chart.

- ✓ **WT2:** Improve the salaries and general working conditions of ICP staff (including HRS4R implementation) in spite of financial risks and budgetary constraints.
- ✓ **WT3:** Improve the effectiveness and internationalization of researchers' recruitment by developing and implementing OTM-R policies.

- **Fundraising & Knowledge Transfer (FKT):**
  - ✓ **SO6:** Increase the ICP operating budget by means of the provision of external services.
  - ✓ **SO7:** Increase the ICP operating budget by means of competitive calls or research projects and grants, with emphasis on ERC grants and the application of modern techniques to paleontological research.
  - ✓ **SO8:** Foster knowledge transfer also in relation to training.
  - ✓ **WO3:** Increase the ICP operating budget by means of competitive calls for dissemination and outreach activities.
  - ✓ **WT4:** Avoid budgetary deficit at the ICP and increase the ratio of competitive + private income relative to the total budget.
- **Outreach & Communication (OC):**
  - ✓ **SO9:** Promote further the dissemination of the research performed by ICP researchers by means of digital media.
  - ✓ **SO10:** Promote further the outreach activities performed by the ICP.

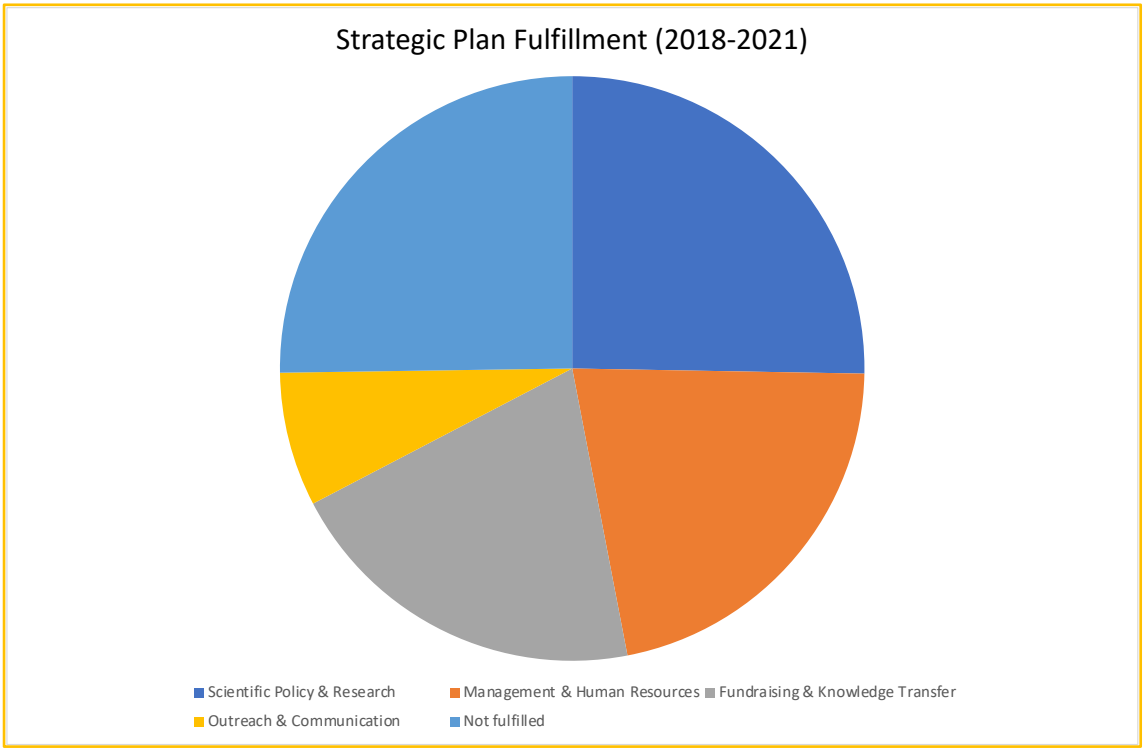
The relative potential impact of the four strategic areas is summarized in the plot below.

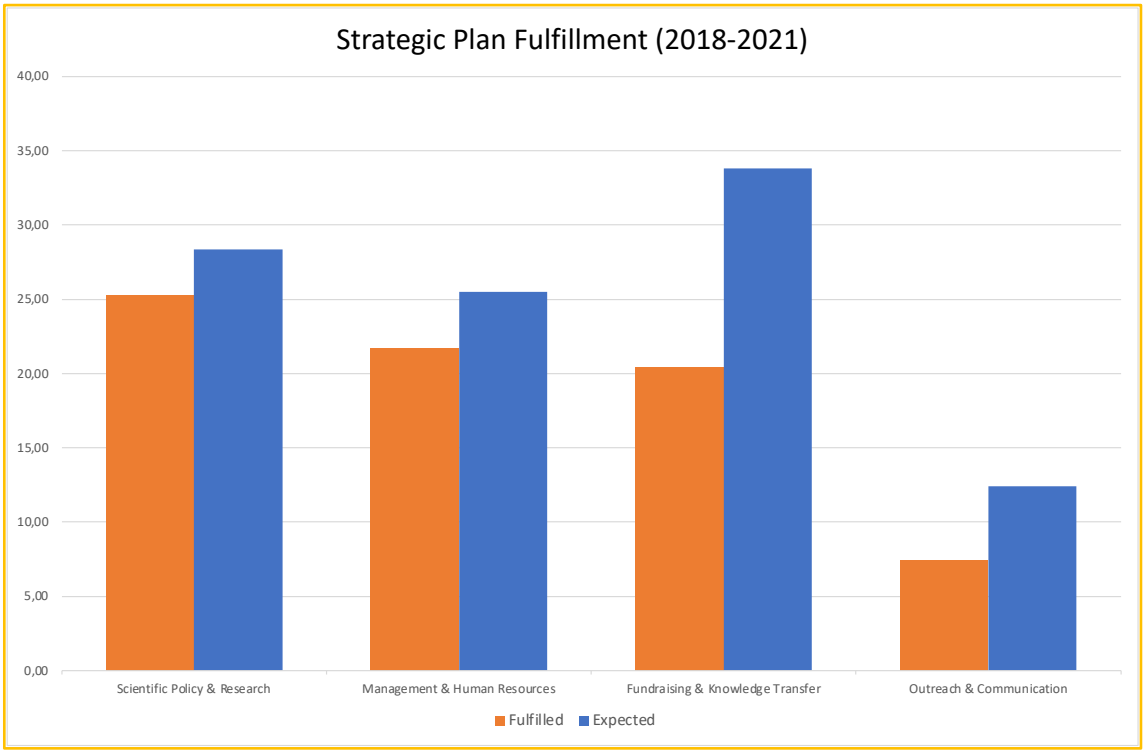


In the Strategic Plan, the aforementioned strategic goals were ranked based on the sum of the weighted scores of the internal and external factors included in each of them, and then

these values are converted into percentages relative to the total summatory, to evaluate the potential impact of each goal. In turn, for each goal, several actions were defined, resulting in a total of 38 strategic actions. The potential impact of each goal was distributed among the contained actions based on a total of 84 indicators, which were rated (1 to 4) according to their perceived importance regarding the corresponding action. The average rating for each action within a goal was converted into a percentage of perceived importance, which served to distribute the goal's potential impact among the included actions. A similar procedure was followed to compute the potential impact of the various indicators, to be used to evaluate the degree of accomplishment of the present Strategic Plan for 2018–2021 at the end of its term. All of the indicators are binary, in the sense that each one includes a criterion/condition) that may be fulfilled (1) or not (0). The summatory of these values multiplied by their respective potential impact percentages will yield the degree of achievement of the strategic plan (from 0% to 100%).

Degree of fulfillment The results after the first two years (2018-2019) indicated a degree of fulfillment of 76.5%, the results after the first three years (2018-2020) were slightly lower (73.0%), and the results for the four years of the plan (2018-2021) at its completion were 74.8%.





By strategic areas, the final degree of fulfillment is as follows:

- Scientific Policy & Research (SPR): 25.3% (as compared with 25.4% in 2019 and 25.3 in 2020) out of a maximum 28.4%.
- Management & Human Resources (MHR): 21.7% (as compared with 21.1% in 2019 and 21.7% in 2020) out of a maximum 25.5%.
- Fundraising & Knowledge Transfer (FKT): 20.4% (as compared with 25.8% in 2019 and 20.4% in 2020) out of a maximum 33.8%.
- Outreach & Communication (OC): 7.4% (as compared with 4.3% in 2019 and 5.7% in 2020) out of a maximum 12.4%.

The strategic area with a greater degree of action fulfillment is SPR (89.2%), followed by MHR (85.1%), FKT (60.3%), and OC (59.8%). It is noteworthy that OC has improved as compared to the previous years, although it still shows the lesser degree of fulfillment. The pandemic surely had some impact in the results obtained after four years of application of the strategic plan, but the pattern is very similar from year to year, overall indicating that the performance of the ICP has improved since the Strategic Plan was issued in early 2018, and that the degree of fulfillment is rather satisfactory for SPR and MHR, while there is still much room for improvement regarding FKT and OC. Therefore, particular efforts should be devoted to the latter two strategic areas in years to come.

ICP Strategic Goals & Actions (2018–2021)	Potential Impact %	Fulfilled? (Yes/No)
SO1 [SPR] — Consolidate the excellent scientific production and productivity of the ICP:		
A1. Encourage ICP researchers to publish more papers in SCI journals	3.31	
I1. Production SCI: 2018-2021 average >= 2013-2017 average (325/5=65 SCI papers/year)	1.65	Yes
I2. Productivity SCI: 2018-2021 average >= 2013-2017 average (1.56 SCI papers/SCI author/year)	1.65	Yes
A2. Recruit new research associates, with emphasis on R3 and R4 categories	2.07	
I3. Research associates: 2021 figure > February 2018 figure (18)	1.24	Yes
I4. R3-R4 research associates: 2021 figure > February 2018 figure (10)	0.83	Yes
A3. Promote further international collaborations	1.32	
I5. SCI papers with international collaboration: 2018-2021 % > 2013-2017 % (210/325=64.6% international SCI papers/total SCI papers)	0.33	Yes
I6. SCI international collaborations-1 (including repeated affiliations): 2018-2021 average > 2013-2017 average (515/5 = 103.0 international collaborations-1/year)	0.33	Yes
I7. SCI international collaborations-2 (excluding repeated affiliations): 2018-2021 average > 2013-2017 average (391/5 = 78,2 international collaborations-2/year)	0.33	Yes
I8. SCI international collaborations-1 % (including repeated affiliations): 2018-2021 % >= 2013-2017 % (515/859 = 60.0% of international/total collaborations-1)	0.17	Yes
I9. SCI international collaborations-2 % (excluding repeated affiliations): 2018-2021 % >= 2013-2017 % (391/552 = 70.8% international/total collaborations-2)	0.17	Yes
SO2 [SPR] — Consolidate the high quality and impact of the ICP scientific production:		
A4. Encourage ICP researchers to prioritize publication in SCI journals from the first quartile	2.41	
I10. Production Q1: 2018-2021 average > 2013-2017 average (170/5=34 Q1 SCI papers/year)	0.88	Yes
I11. Productivity Q1: 2018-2021 average > 2013-2017 average (0.82 SCI papers/SCI author)	0.88	Yes
I12. Q1 ratio %: 2018-2021 % >= 2013-2017 % (170/325=52.3% Q1/total SCI papers)	0.66	Yes
A5. Encourage ICP researchers to target more often SCI journals from the multidisciplinary category	1.84	
I13. Production multidisciplinary: 2018-2021 average > 2013-2017 average (51/5=10.2 multidisciplinary SCI papers/year)	0.53	Yes
I14. Multidisciplinary ratio %: 2018-2021 % >= 2013-2017 % (51/325=15.7% multidisciplinary/total SCI papers)	0.39	Yes
I15. Minimum multidisciplinary ratio %: 2021 figure > 20%	0.26	No
I16. h-index R3: 2021 average > February 2018 average (12.3)	0.26	Yes
I17. h-index R4: 2021 average > February 2018 average (22.4)	0.39	Yes
A6. Encourage ICP researchers to favor journals with high impact factors and/or impact factor percentiles	1.65	
I18. SCI IF GM: 2018-2021 average >= 2013-2017 average (2.1 IF GM/year)	0.66	Yes
I19. SCI median JIF percentile: 2018-2021 average >= 2013-2017 average (77.6 median JIF percentile/year)	0.99	No

WO1 [SPR] — Increase the excellent visibility of the scientific production of the ICP by promoting publication in open-access papers:		
A7. Encourage ICP researchers to publish in SCI open-access journals	1.89	
I20. OA SCI ratio %: 2018-2021 average > 2013-2017 average (85/325=26.2% OA/total SCI papers)	1.26	Yes
I21. OA SCI ratio % in 2021: 2018-2021 average >= 33%	0.63	Yes
WO2 [SPR] — Improve research support provided to ICP researchers by the Virtual Paleontology Area:		
A8. Elaboration of a viability plan for the CT and subsequent repair	1.82	
I22. CT viability plan: CT viability plan finished in 2018	1.04	No
I23. CT repair: CT repaired not later than 2021	0.78	No
ST1 [SPR] — Preserve the high competitiveness and foster the fidelity of ICP researchers by means of maintaining the excellent research support provided to them:		
A9. Maintain or increase the number of research support staff	6.54	
I24. Research support staff: 2021 non-research personnel >= February 2018 non-research personnel	6.54	Yes
ST2 [SPR] — Provide to researchers specific guidelines of ethics in publishing, with emphasis on intellectual property rights and authorship issues:		
A10. Elaborate a manual of best practices in research, in relation to intellectual property and authorship.	3.09	
I25. Manual of best practices: Manual available not later than 2020	0.66	Yes
I26. Lack of internal complaints: 0 external complaints about intellectual property during 2018-2021	0.44	Yes
I27. Lack of external complaints: 0 external complaints about intellectual property during 2018-2021	0.44	Yes
I28. Expressions of concerns: 0 expressions of concerns in 2018-2021	0.66	Yes
I29. Retractions: 0 retractions in 2018-2021	0.88	Yes
WT1 [SPR] — Foster talent retention and attraction to secure the continuity of the successful ICP research lines:		
A11. Encourage R3-R4 talented ICP researchers to stay at the ICP	1.60	
I30. R3-R4 researchers: 2021 R3+R4 researchers >= February 2018 R3+R4 researchers	1.60	Yes
A12. Correct the disequilibria between NQF and the remaining research groups.	0.80	
I31. NQF researchers %: 2021 NQF staff <= 33%	0.53	Yes
I32. SCI NQF production %: 2018-2021 % <= 2013-2017 % (164/325=50.5% SCI papers/year)	0.27	Yes
SO3 [MHR] — Increase the critical mass of ICP staff researchers by fostering talent attraction, with emphasis on the recruitment of foreign researchers:		
A13. Maintain or increase the critical mass of ICP researchers	3.97	
I33. Staff researchers: 2021 researchers >= February 2018 researchers (24)	3.97	Yes
A14. Increase the number of foreign ICP staff researchers, both in absolute and relative terms	2.48	
I34. Foreign researchers: 2021 foreign researchers > February 2018 foreign researchers (2)	1.49	Yes
I35. Foreign researchers ratio %: 2021 % > February 2018 % (2/24=8.3%)	0.99	Yes
A15. Encourage former R1 and R2 researchers to come back to the ICP after a postdoctoral phase abroad	1.99	
I36. R1-R2 returned %: 2021 former R1 or R2 researchers retuned > 20%	1.99	Yes

SO4 [MHR] — Increase talent attraction at early career stages:		
A16. Increase the number of R1 and R2 researchers at the ICP	2.44	
I37: R1-R2 researchers: 2021 R1+R2 researchers >= February 2018 R1+R2 researchers (13)	2.44	No
A17. Increase the number of master students supervised by ICP researchers	2.44	
I38: Master theses: 2018-2021 average > 2013-2017 average (35/5=7.0 master theses/year), i.e., at least 28 supervised master theses in 2017-2021	2.44	Yes
A18. Increase the number of PhD candidates supervised by ICP researchers	3.05	
I39: PhD dissertations: 2018-2021 average > 2013-2017 average (16/5=3.2 PhD dissertations/year), i.e., at least 13 supervised finished PhD in 2017-2021	1.83	Yes
I40. Ongoing PhD: 2021 ongoing PhD > 2016 ongoing PhD (19)	1.22	Yes
SO5 [MHR] — Improve the internal cohesion and coordination and promote staff involvement in decision-making at the ICP by implementing the new Organization Chart:		
A19. Organize a meeting of the Steering Committee almost every month	2.03	
I41. Steering Committee meetings: 2018-2021 average >= of 10 meetings/year	2.03	Yes
A20. Regularly organize meetings of the various ICP advisory organs	1.01	
I42. Researchers Commission meetings: 2018-2021 average >= of 2 meetings/year	1.01	Yes
A21. Organize coordination meetings of quarterly periodicity	1.01	
I43. Coordination meetings: 2018-2021 average >= of 4 meetings/year	1.01	No
WT2 [MHR] — Improve the salaries and general working conditions of ICP staff (including HRS4R implementation) in spite of financial risks and budgetary constraints:		
A22. Improve the ICP salaries of non-competitive staff to the level before the budget cuts during the crisis	1.00	
I44. ICP salaries: 2020 salaries > 2018 salaries	1.00	Yes
A23. Implementation of excellence in human resources for researchers according to the ICP HRS4R Action Plan	1.00	
I45. HRS4R award: HRS4R award before 2021	0.44	Yes
I46. HRS4R Implementation Commission meetings: 2018-2021 average >= of 4 meetings/year	0.33	No
I47. Non-Discrimination Committee meetings: 2018-2021 average >= of 3 meetings/year	0.22	Yes
A24. Elaborate a strategy for the professional development of researchers.	0.67	
I48. Career development: Manual written not later than 2020	0.67	Yes
WT3 [MHR] — Improve the effectiveness and internationalization of researchers' recruitment by developing and implementing OTM-R policies:		
A25. Elaborate a protocol for the evaluation, internal promotion and recruitment of researchers	2.39	
I49. Recruitment protocol: Protocol written not later than 2019	1.06	Yes
I50. International publicization: No new research positions without international publicization	0.53	Yes
I51. Selection: No new research positions without a selection committee	0.80	Yes
SO6 [FKT] — Increase the ICP operating budget by means of the provision of external services:	**7.57**	
A26. Promote the provision of external services by the Research Support & External Services Department	7.57	
I52. External services: 2018-2021 average > 2012-2017 average (535,000/5=ca. 107,000 €/year)	4.32	Yes
I53. External services 50% increase: 2021 figure >= 2017 figure x 1.3 (ca. 128,500 € x 1.3=ca. 167,000 €/year)	3.24	Yes

SO7 [FKT] — Increase the ICP operating budget by means of competitive calls or research projects and grants, with emphasis on ERC grants and the application of modern techniques to paleontological research:		
A27. Promote fundraising by means of competitive projects and grants achieved by the research groups	2.91	
I54. Competitive funding for projects: 2018-2021 average > 2013-2017 average (0.29 M€/year)	2.91	No
A28. Increase the competitive income from Catalan and Spanish research projects	2.54	
I55. Catalan competitive funding for projects: 2018-2021 average > 2013-2017 average (0.10 M€/year)	1.09	No
I56. Spanish competitive funding for projects: 2018-2021 average > 2013-2017 average (0.18 M€/year)	1.45	No
A29. Obtain significant European funding (e.g., ERC grant)	2.91	
I57. Significant international funding: >= 1 ERC grant (or equivalent) in 2018-2021	2.91	No
A30. Consolidate competitive funding for predoctoral grants as well as postdoctoral and tenure-track contracts	2.54	
I58. Tenure-track competitive contracts (RyC): At least 1 new RyC in 2018-2021	0.92	No
I59. Postdoctoral competitive contracts (JdC+BP): At least 3 new postdoctoral contracts in 2018-2021	0.69	Yes
I60. Predoctoral competitive grants (FI+FPI+FPU): At least 4 new predoctoral grants in 2018-2021	0.46	Yes
I61. Technician cofunding (PTA): At least 2 new PTA in 2018-2021	0.46	No
SO8 [FKT] — Foster knowledge transfer also in relation to training:		
A31. Maintain and further promote university training by means of teaching in university masters and courses	7.14	
I62. Master: Still ongoing in 2021	3.57	Yes
I63. Transmitting Science: Still ongoing in 2021	3.57	Yes
WO3 [FKT] — Increase the ICP operating budget by means of competitive calls for dissemination and outreach activities:		
A32. Promote the achievement of competitive funding for scientific dissemination and outreach	5.13	
I64. Competitive funding for communication %: 2018-2021 average > 10% total competitive funds	2.20	No
I65. Competitive funds for exhibit remodeling: 2018-2021 funds >= 50,000 €	1.47	No
I66. Conca Dellà Museum and Dinosfera funding: 2018-2021 funds >= 50,000 €	1.47	Yes
WT4 [FKT] — Avoid budgetary deficit at the ICP and increase the ratio of competitive + private income relative to the total budget:		
A33. Increase the ratio between competitive funds s.l. (competitive + external services) and total operating budget above 50%	3.05	
I67. Competitive s.l. vs. total budget ratio %: 2018-2021 average > 2013-2017 average (3.26 M€ / 7.28 M€ = 45%)	1.74	Yes
I68. Competitive s.l. vs. total budget ratio 50%: 2021 competitive + external / total > 50%	1.31	Yes

SO9 [OC] — Promote further the dissemination of the research performed by ICP researchers by means of digital media:		
A34. Promote the visibility of the ICP website	5.63	
I69. Website visitors: 2018-2021 average >= 2016-2017 average (Google Analytics: ca. 25,500 website visitors/year)	1.30	Yes
I70. Web news: 2018-2021 average >= 35 news/year	1.30	Yes
I71. Web news in Spanish: 2018-2021 web news in Spanish >= 80% web news in Catalan	0.87	Yes
I72. Web news hits: 2018-2021 average >= 2015-2017 average (ca. 60,000 web news hits/year)	0.87	Yes
I73. Web news hits/post: 2017-2021 average >= 2015-2016 average (1664 web news hits/post)	0.87	Yes
I74. English web news hits/post: 2018-2021 average > 2015-2017 average (656 web news hits/post)	0.43	Yes
A35. Promote the visibility of the ICP on social networks	3.47	
I75. Facebook 'likes': 2018-2021 average > 2013-2017 average (311 FB 'likes'/year)	1.73	No
I76. Twitter followers (Museum): 2018-2021 average >= 2013-2017 average (198 new followers/year)	0.87	No
I77. Twitter followers (ICP): 2018-2021 average >= 2013-2017 average (157 new followers/year)	0.86	Yes
SO10 [OC] — Promote further the outreach activities performed by the ICP:		
A36. Attract a higher number of visitors to the ICP Museum in Sabadell	1.23	
I78. Museum visitors: 2018-2021 average >= 2013-2017 average (18,715 museum visits/year)	0.61	No
I79. Museum temporary exhibits: >= 4 temporary exhibits 2018-2021	0.61	No
A37. Elaborate a remodelation plan for the permanent exhibit of the ICP Museum in Sabadell	0.82	
I80. Museum remodelation plan: Plan available not later than 2021	0.82	No
A38. Increase the territorial scope of the ICP outreach activities	1.23	
I81. CosmoCaixa exhibits: >=2 collaborations in 2018-2021	0.41	Yes
I82. Temporary exhibits organization: >= 1 organization in 2018-2021	0.31	No
I83. Conca Dellà Museum and Dinosfera: Relationship still ongoing in 2021	0.31	Yes
I84. Agreements with city councils: >= 2 collaborations active in 2021	0.20	Yes
TOTAL (Potential impact to the left as compared to accomplished impact to the left, in %; the impact of each indicator is summed when fulfilled)	100	**74.8**

PART 4

SWOT ANALYSIS (2021)

4. SWOT ANALYSIS (2021)

Internal and external factor evaluation and matrix

4.1. Introduction

Aims A Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of the ICP was performed in 2021. The analysis was led by the ICP Director with the help of ICP personnel from all areas, the advice provided by members of the Scientific Advisory Board, and the participation of all ICP staff. This SWOT analysis was undertaken to detect the opportunities and threats that the ICP currently faces or will face in the near future, as well as to identify the strengths upon which the ICP will have to rely and the weaknesses that must be overcome to successfully attain its strategic goals.

Types of factors The factors analyzed in SWOT analysis are based on two different polarity axes: internal vs. external and positive vs. negative. Their combination gives rise to the four types of features:

- **Strengths (S):** Internal and positive (helpful) characteristics of the ICP, i.e., those that give it an advantage compared to other paleontological research centers and institutions.
- **Weaknesses (W):** Internal and negative (harmful) characteristics of the ICP, i.e., those that place it at a disadvantage relative to other paleontological research centers and institutions.
- **Opportunities (O):** External and positive (helpful) elements that could be exploited by the ICP toward its own advantage.
- **Threats (T):** External and negative (harmful) elements that could represent a risk to the survival or proper functioning of the ICP.

The following types of internal factors (strengths and weaknesses) were considered:

- **Internal organization:** Mission, aims and scope, scientific policy, organization chart, and organizational culture.
- **Human resources:** Salaries, HRS4R, OTM-R policy, research staff, non-academic staff, research associates, volunteers, and non-discrimination and equal opportunities.
- **Physical resources:** Buildings, location, own facilities and equipment.
- **Scientific outputs:** Scientific production and productivity, and scientific impact.

In turn, the following types of external factors (opportunities and threats) were considered:

- **Scientific and societal impact:** Bibliometrics, open access, societal impact.

- **Funding sources:** Basal budget, competitive funding and external services, seconded/ascribed staff, sponsorship and patronage, and continuous training.
- **Reputation:** International visibility, talent attraction.
- **Collaborations**: Research collaborations, training, outreach and scientific dissemination, museum.
- **Physical environment:** Fossil record, and geopolitical location and sociocultural factors.
- **Economy:** Knowledge transfer, local economy, national and regional economy, and international economy.
- **Legislation:** Cultural heritage laws, intellectual property, and VAT.
- **Politics of science:** Paleontological research in Catalonia, the Catalan University and Research System, the Spanish System of Science, Technology and Innovation, European research funds, and the current COVID-19 crisis.

4.2. Definition of factors

Identified factors The following list of strengths, weaknesses, opportunities and threats identified for the ICP was elaborated by the ICP Director with input from various research group leaders, heads of department or area, and people in charge of several aspects, and discussed in a an extraordinary coordination meeting that took place February 24th. The following people participated:

- David M. Alba (Director).
- Xènia Aymerich (Head of the Preparation & Conservation Area).
- David Basanta (Head of the Research Support & External Services Department).
- Isaac Casanovas-Vilar (Paleoecology & Biochronology Research Group Leader).
- Teresa Esquirol (Head of the Museum Area).
- Pere Figuerola (Head of the Outreach & Communication Department).
- Josep Fortuny (Computational Paleobiology Research Group Leader).
- Jordi Galindo (Head of the Collection & Fieldwork Management Area).
- Manel Llenas (person in charge of the Management Area).
- Enric Menéndez (General Manager).
- Teresa Requena (person in charge of the Archive & Documentation Area).
- Mònica Vincent (person in charge of the Administration Area).

The following 35 strengths (S1–S35) were identified:

- **1. INTERNAL ORGANIZATION:**
  - **1.1. Mission:**
    - **S1.** Mission combines research with dissemination and conservation.
  - **1.2. Aims and scope:**

- **S2.** Paleobiological aims and scope provide a unique perspective among life sciences thanks to access to deep time.

- **1.3. Scientific policy:**
  - **S3.** Successful scientific policy based on Research Groups with definite aims and scope.
  - **S4.** Flexibility in the number of research groups within each area provides opportunity for career development of talented researchers.
  - **S5.** Protocol on good practices in agreement with that of CERCA with emphasis on authorship and intellectual property.
- **1.4. Organization chart:**
  - **S6.** Organization Chart with well-defined hierarchy of non-academic departments promotes coordination.
  - **S7.** Steering Committee provides advice and guidance in decision-making to the Director.
  - **S8.** Scientific Advisory Board provides advice and guidance in scientific policy and strategic management to the Director.
  - **S9.** Committees (e.g., Non-Discrimination, HRS4R Implementation) and commissions (e.g., Researchers, Fieldwork) promote participation of personnel in decision-making.
- **1.5. Organizational culture:**
  - **S10.** Organizational culture slightly dominated by clan (collaboration) and adhocracy (creativity) but with sufficient components of hierarchy (control) and market (competitiveness).

- **2. HUMAN RESOURCES:**
  - **2.1. Salaries:**
    - **S11.** Low salaries enable the maintenance of a critical mass of researchers in spite of budget constraints.
  - **2.2. HRS4R:**
    - **S12.** EU HR Excellence Award (Implementation of HRS4R) is beneficial for talent attraction and success in competitive calls.
    - **S13.** Enforced policy and electronic registration system to monitor staff working time.
  - **2.3. OTM-R policy:**
    - **S14.** The Recruitment Protocol ensures an OTM-R policy for researchers and technicians thus promoting equal opportunities.
  - **2.4. Research staff:**
    - **S15.** Research staff is competitive due to multiple expertises.
    - **S16.** Recruitment protocol includes detailed mechanisms to monitor and evaluate researchers.
  - **2.5. Non-academic staff:**

- **S17.** A large proportion of non-academic staff provides research support (Fieldwork & Collection Management, Preparation & Conservation, etc.).
- **S18.** The Preparation & Conservation Area staff has the required academic background and specific training in fossil preparation.
- **S19.** The Research Support & External Services Department generates abundant revenues by means of service provision to third parties.

- **2.6. Continuous training:**
  - **S20.** Continuous training opportunities are offered to researchers and non-academic staff.
- **2.7. Research associates:**
  - **S21.** Research associates significantly increase scientific production and visibility at no cost.
- **2.8. Volunteers:**
  - **S22.** The volunteering program enables talent attraction at early career stages.
- **2.9. Non-discrimination and equal opportunities:**
  - **S23.** Equality Plan promotes non-discrimination policies, equal opportunities and an improvement of working environment.

- **3. PHYSICAL RESOURCES:**
  - **3.1. Buildings:**
    - **S24.** Having a museum facilitates scientific dissemination and outreach.
  - **3.2. Location:**
    - **S25.** Being a UAB research institute promotes international reputation and also fosters training, knowledge transfer, and talent attraction.
    - **S26.** Free access to electronic publications through the UAB network saves money.
    - **S27.** Reduced fees for hotels rooms, other accommodations, and conference rooms within the campus facilitate visits of foreign researchers and the organization of meetings.
  - **3.3. Own facilities and equipment:**
    - **S28.** Having a museum officially recognized as such with fossil collections promotes the conservation of paleontological heritage and research based on it.
    - **S29.** A modern and fully equipped Preparation Lab is essential for paleontological research and positive for service provision.
    - **S30.** The 3D Virtual Lab of the Computational Paleobiology Research Group provides research support and promotes service provision.
    - **S31.** Webpage and social networks promote visibility.
  - **3.4. Assets:**
    - **S32.** The paleontological collections of the ICP include >120,000 fossils available for study that facilitate paleontological research.

- **S33.** The >100,000 fossils pending preparation housed at the ICP ensure the growth of the museum's collection in years to come.

- **4. SCIENTIFIC OUTPUTS:**
  - **4.1. Scientific production and productivity:**
    - **S34.** Very satisfactory scientific outputs in terms of quality, impact and productivity.
  - **4.2. Scientific impact:**
    - **S35.** Relatively high proportion of publications in open-access journals.

The following 30 weaknesses (W1–W30) were identified:

- **1. INTERNAL ORGANIZATION:**
  - **1.1. Mission:**
    - **W1.** Mission requires a high proportion of non-research staff.
  - **1.2. Aims and scope:**
  - **1.3. Scientific policy:**
    - **W2.** Three Research Group leaders will retire in the next few years.
    - **W3.** Data management policy pending further development by CERCA.
  - **1.4. Organization chart:**
    - **W4.** Multiple commissions and committees imply increased bureaucracy and less agility in decision-making.
    - **W5.** Part of the personnel, not involved in commissions and committees, is not sufficiently involved in decision-making.
  - **1.5. Organizational culture:**
- **2. HUMAN RESOURCES:**
  - **2.1. Salaries:**
    - **W6.** Low salaries put at risk personnel commitment and hinder talent attraction from abroad, especially in the case of postdoctoral, experienced and senior researchers.
  - **2.2. HRS4R:**
    - **W7.** Implementation of HRS4R implies excessive bureaucracy and is time-consuming.
    - **W8.** The lack of a welcome handbook hinders the integration of new staff members.
  - **2.3. OTM-R policy:**
    - **W9.** OTM-R policy implies decreased flexibility in recruitment and is time-consuming.
  - **2.4. Research staff:**
    - **W10.** Research staff lacks sufficient critical mass for undertaking some large-scale research projects.

- **W11.** Excessive multitasking due to administrative tasks, bureaucray, and other academic duties (teaching, supervision, collection management) leaves too little working time for research.

- **2.5. Non-academic staff:**
  - **W12.** Insufficient personnel for communication, preparation, collection management, and processing CT scans.
  - **W13.** Moderate size of the institution implies a multiplicity of tasks and responsibilities for staff members.
  - **W14.** Current lack of sufficient administrative capacity to manage a big transnational project (e.g., ERC grant).
- **2.6. Continuous training:**
- **2.7. Research associates:**
  - **W15.** Low control on the publication strategy of research associates.
- **2.8. Volunteers:**
  - **W16.** Volunteers require frequent, if not constant, supervision by researchers and/or technicians (even forcing changes in their work schedule) until they are adequately trained.
- **2.9. Non-discrimination and equal opportunities:**
  - **W17.** Unbalanced gender ratio, particularly at executive positions and group leadership.
  - **W18.** Need to raise awareness among personnel about violence against women and others kinds of discrimination.

- **3. PHYSICAL RESOURCES:**
  - **3.1. Buildings:**
    - **W19.** Having two headquarters is costly, detrimental for group cohesion, and implies several other inconveniences.
    - **W20.** Insufficient storage space for all the fossils recovered in rescue excavations.
    - **W21.** Museum exhibit pending remodeling.
  - **3.2. Location:**
    - **W22.** Having the main headquarter in a UAB building has elevated maintenance costs.
  - **3.3. Own facilities and equipment:**
    - **W23.** Having a museum is costly because it requires outreach and collection management personnel.
    - **W24.** The industrial CT scan is currently damaged and very expensive to fix.
    - **W25.** Insufficient resources to adequately manage internal communication (e.g., lack of intranet).
    - **W26.** High costs associated with preventing obsolescence of IT and other scientific equipment (e.g., microscopes), as well as associated software.
    - **W27.** Available vehicles for fieldwork are too old or even broken.

- **3.4. Assets:**
  - **W28.** About half of the >120,000 ICP cataloged fossils remain to be digitally inventoried, which is costly and time consuming.
  - **W29.** The ICP storehouses are almost full due to the >100,000 fossils pending preparation, which hinders assuming the deposits from new paleontological excavations.

- **4. SCIENTIFIC OUTPUTS:**
  - **4.1. Scientific production and productivity:**
  - **4.2. Scientific impact:**
    - **W30.** Lack of sufficient funds to significantly increase publication in gold open-access.

The following 47 opportunities (O1–O47) were identified:

- **1. SCIENTIFIC AND SOCIETAL IMPACT:**
  - **1.1. Bibliometrics:**
    - **O1.** Multiple Q1 zoology and anthropology journals publish paleontological research.
  - **1.2. Open access:**
    - **O2.** Free use of UAB digital repository (DDD) to post postprints promotes green open access.
  - **1.3. Societal impact:**
    - **O3.** Dinosaurs, followed by human evolution, attract great interest from lay people.
    - **O4.** The ICP has a number of fans/followers of its social networks.
    - **O5.** The ICP museum is the only museum devoted specifically to paleontology in the most populated area of Catalonia (province of Barcelona).
- **2. FUNDING SOURCES:**
  - **2.1. Basal budget:**
    - **O6.** Stable basal budget from the Catalan Government.
  - **2.2. Competitive funding and external services:**
    - **O7.** External (competitive and service provision) funding higher than basal budget.
  - **2.3. Seconded/ascribed staff:**
    - **O8.** Ascribed personnel from ICREA and the Generalitat de Catalunya.
    - **O9.** Possibility to ascribe UAB professors from the Geology department to the ICP.
  - **2.4. Sponsorship and patronage:**
    - **O10.** The City Council of Sabadell would like to join the Board of Trustees to support the museum.
    - **O11.** The ICP receives direct funding from the Culture Department for outreach activities.
  - **2.5. Continuous training:**

- **O12.** Social security funds enable to provide new continuous training opportunities to staff.

- **3. REPUTATION:**
  - **3.1. International visibility:**
    - **O13.** High international visibility and good reputation.
  - **3.2. Talent attraction:**
    - **O14.** Good capacity for attracting/retaining talent in the form of research associates.
- **4. COLLABORATIONS:**
  - **4.1. Research collaborations:**
    - **O15.** High capacity to establish research collaborations with international research teams.
    - **O16.** Research agreement with ICREA Research Professor from IBE to develop a research line in paleoproteomics and paleogenetics.
    - **O17.** Conversations to collaborate with ALBA synchrotron in paleontological research.
  - **4.2. Training:**
    - **O18.** Agreement with the UAB with regard to teaching in university master degrees.
    - **O19.** Strategic alliance with the company Transmitting Science in the organization of international scientific courses.
    - **O20.** Agreement with multiple Catalan and Spanish universities to allow its undergraduate students to perform practical internships and bachelor thesis at the ICP.
    - **O21.** Agreement with the Escola Superior de Conservació i Restauració de Béns Culturals de Catalunya to allow its undergraduate students to perform fossil preparation practicums at the ICP.
    - **O22.** Possibility for students from foreign universities to perform research internships at the ICP through Erasmus grants.
  - **4.3. Outreach and scientific dissemination:**
    - **O23.** Mutually beneficial agreements with city councils, museums and/or paleontological interpretation centers throughout the Catalan territory.
  - **4.4. Museum:**
    - **O24.** The upcoming network of Natural Science Museums of Catalonia will promote funding opportunities as well as outreach and collection management support.
- **5. PHYSICAL ENVIRONMENT:**
  - **5.1. Fossil record:**
    - **O25.** The rich fossil record from Catalonia facilitates research and fosters international collaborations.

- **5.2. Geopolitical location and sociocultural factors:**
  - **O26.** Appeal to researchers due to the proximity to Barcelona.
  - **O27.** Potential access to ERDF funds.
  - **O28.** Increased researchers' mobility within the Schengen Area.

- **6. ECONOMY:**
  - **6.1. Knowledge transfer:**
    - **O29.** High potential for cultural knowledge transfer.
  - **6.2. Local economy:**
    - **O30.** Good atmosphere regarding scientific innovation and development at the local and regional level.
  - **6.3. National and regional economy:**
  - **6.4. International economy:**
    - **O31.** Scientific globalization increases the potential for talent attraction of researchers in training and talent return of experienced researchers.
- **7. LEGISLATION:**
  - **7.1. Cultural heritage laws:**
    - **O32.** Cultural heritage laws provide increased protection of paleontological sites and fossils and increased funding opportunities for paleontological institutions.
  - **7.2. Intellectual property:**
  - **7.3. VAT:**
- **8. POLITICS OF SCIENCE:**
  - **8.1. Paleontological research in Catalonia:**
    - **O33.** Main driving force of Catalan paleontology with the potential to agglutinate efforts by other institutions.
  - **8.2. The Catalan University and Research System:**
    - **O34.** Good capacity for attracting funds from the Catalan University and Research System.
    - **O35.** Being a CERCA center has budgetary, financial, and organizational advantages.
    - **O36.** Catalan Agreement on the Knowledge Society determines a progressive increase of public research funding in the next few years.
    - **O37.** The upcoming Catalan Science Law should consolidate budget increase for CERCA centers.
    - **O38.** There is parity among men and women entering the scientific career.
    - **O39.** CERCA requires to implement the EU HRS4R policies.
    - **O40.** CERCA requires the centers to have a SAB composed of experts at an international level.
  - **8.3. The Spanish System of Science, Technology and Innovation:**

- **O41.** Increased awareness about gender bias and violence against women in science.
- **O42.** Good capacity for attracting funds from the Spanish System of Science, Technology and Innovation.

- **8.4. European research funds:**
  - **O43.** New EU Research & Innovation Investment Program "Horizon Europe" (2021-2027) with a proposed budget of € 100 billion.
- **8.5. Current COVID-19 crisis:**
  - **O44.** Due to the pandemic there is an increased recognition by lay people about the importance of science and the fact that research is underfinanced.
  - **O45.** After an initial huge investment focused specifically on biomedical research, the pandemic will likely result in new funding opportunities for research in general.
  - **O46.** Due to lockdowns and other restrictions associated with the pandemic new forms of working have become generalized (telematic meetings, teleworking, museum workshops at schools...).
  - **O47.** Following the restrictions associated with the pandemic, there has been an increase in the offer of free online training opportunities and a reduction of travel expenses due to an increase in virtual international scientific meetings.

Finally, the following 34 threats (T1–T34) were identified:

- **1. SCIENTIFIC AND SOCIETAL IMPACT:**
  - **1.1. Bibliometrics:**
    - **T1.** Paleontological journals have low JIF and too few remain stable in Q1.
    - **T2.** Obligation to upload scientific production to Portal de Recerca de Catalunya is time consuming and lacks clear measures to correct mistakes.
  - **1.2. Open access:**
    - **T3.** Increasing requirement of funding agencies to publish in open access.
    - **T4.** Publishing in prestigious open-access journals is very expensive.
  - **1.3. Societal impact:**
    - **T5.** Low biomedical and technological applicability hampers societal impact.
- **2. FUNDING SOURCES:**
  - **2.1. Basal budget:**
    - **T6.** Most of the basal budget is provided by a single patron.
    - **T7.** Future increases of the basal budget dependent on obtaining the maximum qualification (A) in CERCA evaluation.
  - **2.2. Competitive funding and external services:**
    - **T8.** Midterm planning of funding expenditure is hampered by the unpredictability of competitive and service provision income.

    - **T9.** Bad prospects for increasing private funding through service provision due to pandemic-related forthcoming crisis.
  - **2.3. Seconded/ascribed staff:**
    - **T10.** Uncertain replacement of ICREA and civil servants when they retire.
  - **2.4. Sponsorship and patronage:**
    - **T11.** Low fundraising potential for sponsors and donors.
  - **2.5. Continuous training:**
- **3. REPUTATION:**
  - **3.1. International visibility:**
    - **T12.** Competitiveness with similar paleontological research centers/groups from abroad hampered by more restricted critical mass and funding.
  - **3.2. Talent attraction:**
    - **T13.** Limited capacity for talent attraction of foreign researchers, especially above predoctoral level, due the low salaries and insufficient career development opportunities.
- **4. COLLABORATIONS:**
  - **4.1. Research collaborations:**
    - **T14.** Increased collaborations imply a decreased leadership in publication.
  - **4.2. Training:**
  - **4.3. Outreach and scientific dissemination:**
    - **T15.** Very few media specializing in science dissemination in Catalonia.
  - **4.4. Museum:**
    - **T16.** The upcoming network of Natural Science Museums of Catalonia has, at least initially, very limited funding.
- **5. PHYSICAL ENVIRONMENT:**
  - **5.1. Fossil record:**
  - **5.2. Geopolitical location and sociocultural factors:**
- **6. ECONOMY:**
  - **6.1. Knowledge transfer:**
    - **T17.** Low capacity for technological transfer.
  - **6.2. Local economy:**
  - **6.3. National and regional economy:**
    - **T18.** Low salaries and job insecurity determined by national economy.
  - **6.4. International economy:**
    - **T19.** Scientific globalization implies the risk of a brain drain of researchers.
- **7. LEGISLATION:**
  - **7.1. Cultural heritage laws:**
    - **T20.** Excessive bureaucracy for getting and justifying fieldwork permits and grants.
  - **7.2. Intellectual property:**

- **T21.** Need to raise awareness on publishing ethics and intellectual property among researchers.

- **7.3. VAT:**
  - **T22.** Pending lawsuit with the Spanish Government about VAT return.

- **8. POLITICS OF SCIENCE:**
  - **8.1. Paleontological research in Catalonia:**
    - **T23.** The dispersion of paleontological research in Catalonia diminishes its potential impact.
    - **T24.** Very limited university training in paleontology.
  - **8.2. The Catalan University and Research System:**
    - **T25.** Progressive loss of autonomy due to increasing legal requirements to public entities dependent from the Catalan government (e.g., UNEIX).
    - **T26.** There is a progressive gender bias against women beginning at the postdoctoral stage.
    - **T27.** CERCA aims to impose an open data repository to all centers irrespective of the specificities of each research field.
  - **8.3. The Spanish System of Science, Technology and Innovation:**
    - **T28.** Structural problem of low funding levels for research (particularly in natural sciences) leads to exceeding competitiveness among researchers and may cause burnout and even more serious mental health problems due to stress and overwork.
    - **T29.** The (largely justified) perception by foreign researchers that science in Spain is associated with low salaries and small research tems hinders talent attraction even when recruitment opportunities emerge.
  - **8.4. European research funds:**
    - **T30.** Low demonstrated capacity for attracting ERC and other European funds.
    - **T31.** New EU Research & Innovation Investment Program "Horizon Europe" (2021-2027) emphasizes technological applicability (biomedicine, agriculture, sustainability, climate change...) at the expense of fundamental (basic) research.
  - **8.5. Current COVID-19 crisis:**
    - **T32.** Focus of funding agencies on biomedical research.
    - **T33.** The work of some technicians and researchers (e.g., preparation and study of fossils) as well as fieldwork and dissemination/outreach activities are seriously affected by lockdowns and other restrictions associated with the pandemic.
    - **T34.** Consolidation of ongoing international collaborations and establishment of new ones are seriously affected by travel limitations associated with the pandemic.

With regard to internal factors, the SWOT analysis of the ICP enabled to identify 65 internal factors (35 strengths and 30 weaknesses) and 81 external factors (47 opportunities and 34 threats), leading to a total number of 82 positive vs. 64 negative factors.

Summary The identified internal and external factors are summarized in the table below:

	POSITIVE (HELPFUL)	NEGATIVE (HARMFUL)
INTERNAL	**Strengths:**	**Weaknesses:**
	INTERNAL ORGANIZATION: 10 (S1–S10)	INTERNAL ORGANIZATION: 5 (W1–W5)
	HUMAN RESOURCES: 13 (S11–S23)	HUMAN RESOURCES: 12 (W6–W18)
	PHYSICAL RESOURCES: 10 (S24–S33)	PHYSICAL RESOURCES: 11 (W19–W29)
	SCIENTIFIC OUTPUTS: 2 (S34–S35)	SCIENTIFIC OUTPUTS: 1 (W30)
EXTERNAL	**Opportunities:**	**Threats:**
	SCIENTIFIC AND SOCIETAL IMPACT: 5 (O1–O5)	SCIENTIFIC AND SOCIETAL IMPACT: 5 (T1–T5)
	FUNDING SOURCES: 7 (O6–O12)	FUNDING SOURCES: 6 (T6–T11)
	REPUTATION: 2 (O13–O14)	REPUTATION: 2 (T12–T13)
	COLLABORATIONS: 10 (O15–O24)	COLLABORATIONS: 3 (T14–T16)
	PHYSICAL ENVIRONMENT: 4 (O25–O28)	PHYSICAL ENVIRONMENT: 0 (—)
	ECONOMY: 3 (O29–O31)	ECONOMY: 3 (T17–T19)
	LEGISLATION: 1 (O32)	LEGISLATION: 3 (T20–T22)
	POLITICS OF SCIENCE: 10 (O33–O47)	POLITICS OF SCIENCE: 10 (T23–T34)

4.3. Internal and external factor evaluation

Strategic Plan Working Group Based on the SWOT analysis detailed above, the best possible strategy for the ICP was determined with the aid of an IE (internal-external) matrix, by taking into account both internal and external factors simultaneously. The 65 internal factors (35 strengths and 30 weaknesses) and 81 external factors (47 opportunities and 34 threats) were respectively subjected to internal factor evaluation (IFE) and external factor evaluation (EFE) analyses, in order to confect an internal-external (IE) matrix. This process was performed, with the help of the Scientific Advisory Board, by an ad hoc Strategic Plan Working Group that was designated by the Steering Committe on May 26th, 2021 and formally constituted on June 4th, 2021. This working group only included ICP personnel that volunteered to participate in the process and it was intended to represent all the strategic aspects to be reflected in the new Strategic Plan. The composition of this group is as follows:

- David M. Alba (President): Director | Senior Research Group Leader (Paleobiodiversity & Phylogeny) | R4 Researcher | Chair of the Steering Committee | Vice-Chair of the HRS4R Implementation Committee.
- Júlia Arias-Martorell (Member): R2 Researcher.

- David Basanta (Rapporteur): Head of Department (Research Support & External Services) | Project Manager | Member of the Steering Committee | Chair of the Fieldwork Commission | Member of the HRS4R Implementation Committee.
- Xènia Aymerich (Vice-President): Head of Area (Preparation & Conservation) | Chair of the Non-Discrimination Committee | Rapporteur of the HRS4R Implementation Committee.
- Isaac Casanovas-Vilar (Member): Junior Research Group Leader (Paleoecology & Biochronology) | R3 Researcher.
- Teresa Esquirol (Member): Head of Area (Museum) | Member of the HRS4R Implementation Committee.
- Pere Figuerola (Member): Head of Department (Outreach & Communication) | Rapporteur of the Steering Committee | Rapporteur of the Non-Discrimination Committee | Member of the HRS4R Implementation Committee | Ombudsperson.
- Josep Fortuny (Member): Junior Research Group Leader (Computational Paleobiology) | R3 Researcher.
- Sílvia Jovells (Member): Research Associate (R2).
- Judit Marigó (Member): R2 Researcher | Vice-Chair of the Non-Discrimination Committee | Rapporteur of the Researchers Commission Member of the HRS4R Implementation Committee | Ombudsperson.
- Salvador Moyà-Solà (Member): Senior Research Group Leader (Paleoprimatology & Paleoanthropology) | R4 Researcher | Chair of the Researchers Commission.
- Josep M. Robles (Member): Collection Manager | Rapporteur of the Fieldwork Commission | Occupational Risk Prevention Delegate (staff representative).

Methods IFE and EFE follow the same methodology, which is intended to go beyond the mere identification of relevant factors provided by the SWOT analysis by means of evaluating their significance. This is done both quantitatively (by assigning a 'weight') and qualitatively (by assigning a score or 'rating') to each factor. The multiplication of each weight by the corresponding rating provides the 'weighted score' of each factor.

Ratings can only take four different values (from 1 to 4): 1 = very negative; 2 = moderately negative; 3 = moderately positive; and 4 = very positive. The higher the rating, the more positive (or less negative) a particular factor is considered with regard to the organization (not with regard to the organization's activity, unlike weights; see below). In the case of IFE, the scoring takes the following meaning: 1 = major weakness, 2 = minor weakness, 3 = minor strength, and 4 = major strength. Sometimes, by analogy, a similar meaning is given to the scoring in EFE (1 = major threat, 2 = minor threat, 3 = minor opportunity, and 4 = major opportunity). However, normally the scores in EFE measure the response of the organization to opportunities and threats in the following way: 1 = poor response; 2 = average response; 3 = above average response; and 4 = superior response. The latter criterion was the one adopted

by the Strategic Plan Working Group, thus following the same methodology as in the previous Strategic Plan of the ICP.

Weights, in turn, are intended to reflect the relative importance of each factor. This is necessary because it is not reasonable to assume that all of the factors are equally important. The weight of a factor can take any value with two decimals between 0 and 1, as long as the sum of all the factor weights equals 1 for both internal (strengths + weaknesses) and external (opportunities and threats) factors separately. The higher the weight assigned, the higher the importance attributed to a particular factor. The weight assigned to a given factor indicates the relative importance of the factor for the success of the organization's activity (in the case of the ICP, paleobiological research as well as the conservation and dissemination of paleontological heritage). The highest weights should be assigned to those factors considered to have the greatest effect on the organization's performance, irrespective of whether the factor is positive or negative. To facilitate the process of assigning weights, it was decided to assign a value between 0 and 10 to each factor, calculate the sum for all of the factors (separately for internal and external ones), and then divide the value assigned to each factor by the sum of all the (internal or external) factors together. Calculated this way, the sum of the normalized weights assigned to the factors will equal unity for both internal and external factors.

Of course, there is an unavoidable subjectivity in the assignment of both scores (ratings) and weights. To ameliorate this inherent subjectivity, the qualitative scores were discussed and agreed (when possible) by the 12 persons of the Strategic Plan Working Group. The scores were assigned telematically by each member of the group, and then those displaying important discrepancies were discussed in a meeting on June 21st, 2021. When discrepancies persisted, the scores where decided by means of plurality vote (i.e., relative majority)—i.e., all alternatives were voted and the one with a higher number of votes was chosen (the Director only exercised a casting vote in case of tie). In contrast, weights were independently (also using telematic means) by different groups of people involved in the elaboration of the new Strategic Plan, and a weighted average weight was computed for each factor by taking into account the familiarity with strategic planning and decision making at the ICP. For each factor, the value assigned by the Director counted 21% of the average weight (×0.21 factor); the values assigned by the remaining three members of the Steering Committee also counted 24% of the average weight (×0.08 factor each); the values assigned by the remaining nine members of the Strategic Plan Working Group counted 27% of the average weight (×0.03 factor each); and, finally, the values assigned by the seven members of the Scientific Advisory Board counted 28% of the average weight (×0.04 factor each). To evaluate the reliability of the results, they were recalculated based on the weights provided by the Director alone, the average weights provided by the Steering Committee members, the average weights provided by the Strategic Plan Working Group as a whole, and the average weights provided the Scientific Advisory Board.

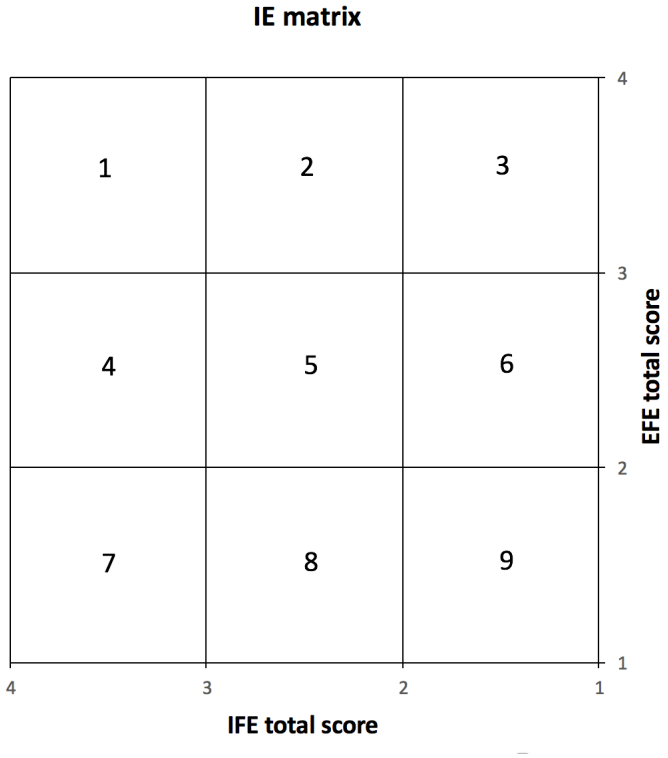
The weighted score of each factor was computed as the product between its weighted average weight and its voted score rating. This procedure enabled to standardize the internal strengths and weaknesses of the ICP (in IFE) as well as the way the ICP responds to external opportunities and threats (in EFE) by taking into account the perceived importance of each factors. Then, the total internal and external weighted score of the ICP was computed by summing all the individual weighted scores (separately for IFE and EFE). The theoretical average of total weighted scores if assigned randomly would be 2.5 (the arithmetic mean of 1, 2, 3 and 4). Therefore, in IFE a total weighted score <2.5 would indicate that the organization being analyzed is weak as compared to its competitors, whereas in EFE it would indicate that the organization is not well prepared to take advantage of opportunities and/or defend against threats. The IFE and EFE results for the ICP are reported below in the following subsections.

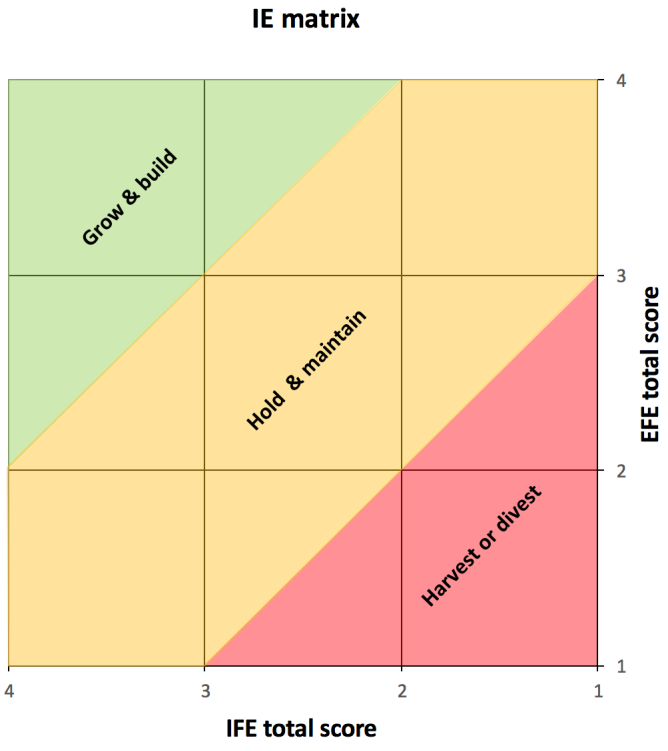
Internal and external factor evaluation The results for the IFE and EFE analyses are reported in the tables below. As explained in the preceding subsection, scores (ratings) were assigned from 1 to 4 by voting (1= major weakness, 2 = minor weakness, 3 = minor strength, and 4 = major strength, in IFE; and 1 = poor response, 2 = average response, 3 = above average response, and 4 = superior response, in EFE), while weights were computed by averaging a value from 0 to 10 assigned by different persons (from lowest to greatest importance) and then normalizing it by the total sum of weights for all of the internal and external factors for IFE and EFE, respectively.

Internal-external matrix An internal-external (IE) matrix is a useful management tool to analyze the current position of an organization and suggest strategies for the future, based on combining the IFE and EFE results. The matrix is composed of nine cells, with the IFE total weighted score on the x-axis (with higher to the left and lower to the right: 4.0–3.0 = strong, 2.99–2.0 = average, 1.99–1.0 = weak), and the EFE total weighted score on the y-axis (with higher on top and lower on the bottom: 4.0–3.0 = high, 2.99–2.0 = medium, 1.99–1.0 = low). The nine resulting cells are numbered as follows (see plot below): 1 = strong IFE + high EFE; 2 = average IFE + high EFE; 3 = weak IFE + high EFE; 4 = strong IFE + medium EFE; 5 = average IFE + medium EFE; 6 = weak IFE + medium EFE; 7 = strong IFE + low EFE; 8 = average IFE + low EFE; 9 = weak IFE + low EFE.

The matrix is divided into three different regions that have different strategical implications. In one possible subdivision, cells 1, 2 and 4 imply a ‘grow and build’ strategy (including market penetration, market development, product development, backward integration, forward integration, horizontal integration); cells 3, 5 and 7 imply a ‘hold and maintain strategy’ (including market penetration and product development); and cells 6, 8 and 9 imply a ‘harvest or divest’ strategy (including retrenchment [=reduction of costs], divestiture [=selling off subsidiary business interests or investments], and liquidation). Alternatively, these strategies can be distributed in three areas of the matrix, by drawing two oblique lines based on the following criteria (see also the plot below): the line between total EFE score = 2 and

total IFE score = 2 separates 'grow and build' on the left from 'hold and maintain' on the center; in turn, the line between scores = 3 separates the latter, on the center, from 'harvest or divest' to the right. See below for further details regarding the meaning of these strategies, intended for commercial companies, for a research center such as the ICP.





INTERNAL FACTOR EVALUATION (IFE) OF THE ICP STRENGTHS	VOTED SCORE	AVERAGE WEIGHT	NORMAL. WEGHT	WEIGHTED SCORE
S1. Mission combines research with dissemination and conservation.	4	9.23	0.019	0.075
S2. Paleobiological aims and scope provide a unique perspective among life sciences thanks to access to deep time.	4	9.36	0.019	0.076
S3. Successful scientific policy based on Research Groups with definite aims and scope.	4	8.06	0.016	0.066
S4. Flexibility in the number of research groups within each area provides opportunities for career development of talented researchers.	3	7.72	0.016	0.047
S5. Protocol on good practices in agreement with that of CERCA with emphasis on authorship and intellectual property	4	7.76	0.016	0.063
S6. Organization Chart with well-defined hierarchy of non-academic departments promotes coordination.	3	7.11	0.014	0.043
S7. Steering Committee provides advice and guidance in decision-making to the Director.	4	8.33	0.017	0.068
S8. Scientific Advisory Board provides advice and guidance in scientific policy and strategic management to the Director.	3	6.95	0.014	0.042
S9. Committees (e.g., Non-Discrimination. HRS4R Implementation) and commissions (e.g., Researchers, Fieldwork) promote participation of personnel in decision-making.	4	8.48	0.017	0.069
S10. Organizational culture slightly dominated by clan (collaboration) and adhocracy (creativity) but with sufficient components of hierarchy (control) and market (competitiveness).	3	7.13	0.014	0.043
S11. Low salaries enable the maintenance of a critical mass of researchers despite budgetary constraints.	3	6.57	0.013	0.040
S12. EU HR Excellence Award (implementation of HRS4R) is beneficial for talent attraction and success in competitive calls.	4	8.23	0.017	0.067
S13. Enforced policy and electronic registration system to monitor staff working time.	3	4.95	0.010	0.030
S14. The Recruitment Protocol ensures an OTM-R policy for researchers and technicians thus promoting equal opportunities.	4	8.66	0.018	0.070
S15. Research staff is competitive due to multiple expertises.	4	8.78	0.018	0.071
S16. Recruitment protocol includes detailed mechanisms to monitor and evaluate researchers.	4	7.80	0.016	0.063
S17. A large proportion of non-academic staff provides research support (Fieldwork & Collection Management, Preparation & Conservation, etc.).	4	8.81	0.018	0.072
S18. The Preparation & Conservation Area staff has the required academic background and specific training in fossil preparation.	4	8.94	0.018	0.073
S19. The Research Support & External Services Department generates abundant revenues by means of service provision to third parties.	4	8.89	0.018	0.072
S20. Continuous training opportunities are offered to researchers and non-academic staff.	3	6.86	0.014	0.042
S21. Research associates significantly increase ICP scientific production and visibility at no cost.	4	8.47	0.017	0.069
S22. The volunteering program promotes talent attraction at early career stages.	3	7.13	0.014	0.043

S23. Equality Plan promotoes non-discrimination policies, equal opportunities and an improvement of working environment.	4	8.82	0.018	0.072
S24. Having a museum facilitates scientific dissemination and outreach.	4	9.21	0.019	0.075
S25. Being a UAB research institute promotes international reputation and also fosters training, knowledge transfer, and talent attraction.	4	8.09	0.016	0.066
S26. Free access to electronic publications through the UAB network saves money.	4	9.05	0.018	0.074
S27. Reduced fees for hotels rooms, other accommodations, and conference rooms within the campus facilitate visits of foreign researchers and the organization of meetings.	3	6.34	0.013	0.039
S28. Having a museum officially recognized as such with fossil collections promotes the conservation of paleontological heritage and research based on it.	4	9.05	0.018	0.074
S29. A modern and fully equipped Preparation Lab is essential for paleontological research and positive for service provision.	4	9.23	0.019	0.075
S30. The 3D Virtual Lab of the Computational Paleobiology Research Group provides research support and promotes service provision.	4	7.92	0.016	0.064
S31. Webpage and social networks promote visibility.	4	8.79	0.018	0.071
S32. The paleontological collections of the ICP include >120.000 fossils available for study that facilitate paleontological research.	4	9.53	0.019	0.077
S33. The >100.000 fossils pending preparation housed at the ICP ensure the growth of the museum's collection in years to come.	4	8.22	0.017	0.067
S34. Very satisfactory scientific outputs in terms of quality, impact and productivity.	4	9.64	0.020	0.078
S35. Relatively high proportion of publications in open-access journals.	3	8.45	0.017	0.052
Weaknesses	**Voted Score**	**Average Weight**	**Normal. Weght**	**Weighted Score**
W1. Mission requires a high proportion of non-academic staff.	2	6.85	0.014	0.028
W2. Three Research Group leaders will retire in the next few years.	1	8.08	0.016	0.016
W3. Data management policy pending further development by CERCA.	2	5.99	0.012	0.024
W4. Multiple commissions and committees imply increased bureaucracy and less agility in decision-making.	2	7.04	0.014	0.029
W5. Part of the personnel, not involved in commissions and committees, is not sufficiently involved in decision-making.	2	5.82	0.012	0.024
W6. Low salaries put at risk personnel commitment and hinder talent attraction from abroad, especially in the case of postdoctoral, experienced and senior researchers.	1	8.16	0.017	0.017
W7. Implementation of HRS4R implies excessive bureaucracy and is time-consuming.	2	6.00	0.012	0.024
W8. The lack of a welcome handbook hinders the integration of new staff members.	2	3.94	0.008	0.016
W9. OTM-R policy implies decreased flexibility in recruitment and is time-consuming.	2	5.48	0.011	0.022
W10. Research staff lacks sufficient critical mass for undertaking some large-scale research projects.	1	7.96	0.016	0.016

W11. Excessive multitasking due to administrative tasks, bureaucray, and other academic duties (teaching, supervision, collection management) leaves too little working time for research.	1	7.60	0.015	0.015
W12. Insufficient personnel for communication, preparation, collection management, and processing CT scans.	1	7.88	0.016	0.016
W13. Moderate size of the institution implies a multiplicity of tasks and responsibilities for staff members.	2	6.11	0.012	0.025
W14. Current lack of sufficient administrative capacity to manage a big transnational project (e.g., ERC grant).	1	7.81	0.016	0.016
W15. Low control on the publication strategy of research associates.	2	5.31	0.011	0.022
W16. Volunteers require frequent, if not constant, supervision by researchers and/or technicians (even forcing changes in their work schedule) until they are adequately trained.	2	5.54	0.011	0.023
W17. Unbalanced gender ratio, particularly at executive positions and group leadership.	1	8.60	0.017	0.017
W18. Need to raise awareness among personnel about violence against women and others kinds of discrimination.	2	8.32	0.017	0.034
W19. Having two headquarters is costly, detrimental for group cohesion, and implies several other inconveniences.	2	6.45	0.013	0.026
W20. Insufficient storage space for all the fossils recovered in rescue excavations.	1	8.21	0.017	0.017
W21. Museum exhibit pending remodeling.	1	6.80	0.014	0.014
W22. Having the main headquarter in a UAB building has elevated maintenance costs.	2	6.29	0.013	0.026
W23. Having a museum is costly because it requires outreach and collection management personnel.	2	5.77	0.012	0.023
W24. The industrial CT scan is currently damaged and very expensive to fix.	1	7.30	0.015	0.015
W25. Insufficient resources to adequately manage internal communication (e.g., lack of intranet).	2	6.02	0.012	0.024
W26. High costs associated with preventing obsolescence of IT and other scientific equipment (e.g., microscopes), as well as associated software.	1	7.68	0.016	0.016
W27. Available vehicles for fieldwork are too old or even broken.	2	6.71	0.014	0.027
W28. About half of the >120,000 ICP cataloged fossils remain to be digitally inventoried, which is costly and time consuming.	2	7.11	0.014	0.029
W29. The ICP storehouses are almost full due to the >100,000 fossils pending preparation, which hinders assuming the deposits from new paleontological excavations.	1	8.29	0.017	0.017
W30. Lack of sufficient funds to significantly increase publication in gold open-access.	2	6.50	0.013	0.026
TOTAL (Strengths + Weaknesses)		492.17	1	**2.833**

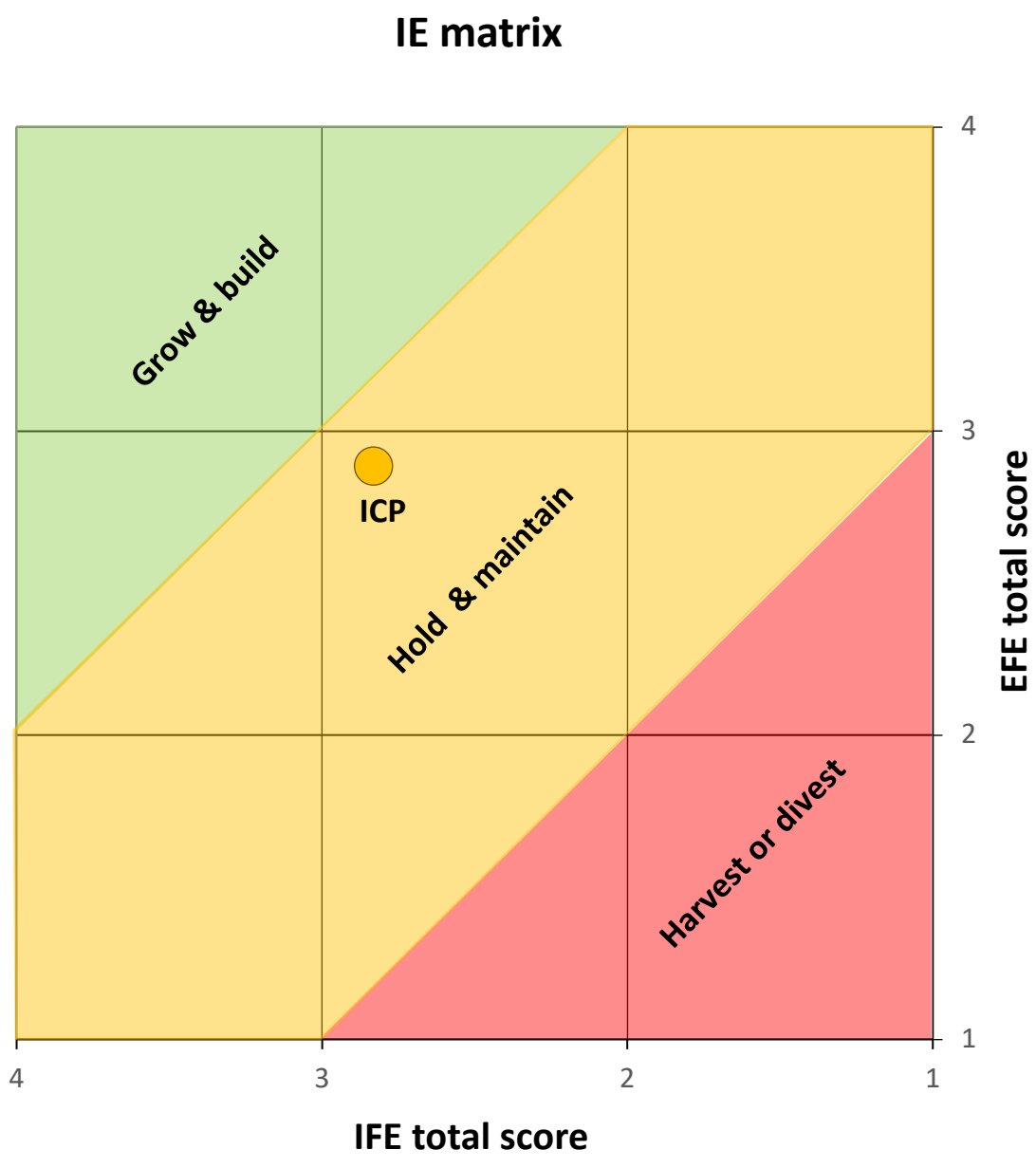
EXTERNAL FACTOR EVALUATION (IFE) OF THE ICP OPPORTUNITIES	VOTED SCORE	AVERAGE WEIGHT	NORMAL. WEGHT	WEIGHTED SCORE
O1. Multiple Q1 zoology and anthropology journals publish paleontological research.	3	7.34	0.012	0.036
O2. Free use of UAB digital repository (DDD) to post postprints promotes green open access.	3	7.75	0.013	0.038
O3. Dinosaurs, followed by human evolution, attract great interest from lay people.	4	8.26	0.013	0.054
O4. The ICP has a number of fans/followers of its social networks.	3	7.35	0.012	0.036
O5. The ICP museum is the only museum devoted specifically to paleontology in the most populated area of Catalonia (province of Barcelona).	4	8.85	0.014	0.058
O6. Stable basal budget from the Catalan Government.	4	9.33	0.015	0.061
O7. External (competitive and service provision) funding higher than basal budget.	4	9.20	0.015	0.060
O8. Ascribed personnel from ICREA and the Generalitat de Catalunya.	3	8.61	0.014	0.042
O9. Possibility to ascribe UAB professors from the Geology department to the ICP.	1	7.19	0.012	0.012
O10. The City Council of Sabadell would like to join the Board of Trustees to support the museum.	4	7.77	0.013	0.051
O11. The ICP receives direct funding from the Culture Department for outreach activities.	3	8.25	0.013	0.040
O12. Social security funds enable to provide new continuous training opportunities to staff.	3	7.94	0.013	0.039
O13. High international visibility and good reputation.	4	8.86	0.014	0.058
O14. Good capacity for attracting/retaining talent in the form of research associates.	3	8.78	0.014	0.043
O15. High capacity to establish research collaborations with international research teams.	4	9.20	0.015	0.060
O16. Research agreement with ICREA Research Professor from IBE to develop a research line in paleoproteomics and paleogenetics.	4	8.70	0.014	0.057
O17. Conversations to collaborate with ALBA synchrotron in paleontological research.	3	7.72	0.013	0.038
O18. Agreement with the UAB with regard to teaching in university master degrees.	3	8.11	0.013	0.040
O19. Strategic alliance with the company Transmitting Science in the organization of international scientific courses.	3	7.13	0.012	0.035
O20. Agreement with multiple Catalan and Spanish universities to allow its undergraduate students to perform practical internships and bachelor thesis at the ICP.	4	8.07	0.013	0.053
O21. Agreement with the Escola Superior de Conservació i Restauració de Béns Culturals de Catalunya to allow its undergraduate students to perform fossil preparation practicums at the ICP.	4	7.65	0.012	0.050
O22. Possibility for students from foreign universities to perform research internships at the ICP through Erasmus grants.	3	7.87	0.013	0.039

O23. Mutually beneficial agreements with city councils, museums and/or paleontological interpretation centers throughout the Catalan territory.	4	8.05	0.013	0.053
O24. The upcoming network of Natural Science Museums of Catalonia will promote funding opportunities as well as outreach and collection management support.	3	7.18	0.012	0.035
O25. The rich fossil record from Catalonia facilitates research and fosters international collaborations.	4	9.31	0.015	0.061
O26. Appeal to researchers due to the proximity to Barcelona.	3	6.17	0.010	0.030
O27. Potential access to ERDF funds.	3	7.62	0.012	0.037
O28. Increased researchers' mobility within the Schengen Area.	3	6.38	0.010	0.031
O29. High potential for cultural knowledge transfer.	3	8.55	0.014	0.042
O30. Good atmosphere regarding scientific innovation and development at the local and regional level.	3	6.60	0.011	0.032
O31. Scientific globalization increases the potential for talent attraction of researchers in training and talent return of experienced researchers.	3	7.72	0.013	0.038
O32. Cultural heritage laws provide increased protection of paleontological sites and fossils and increased funding opportunities for paleontological institutions.	4	8.39	0.014	0.055
O33. Main driving force of Catalan paleontology with the potential to agglutinate efforts by other institutions.	4	8.20	0.013	0.054
O34. Good capacity for attracting funds from the Catalan University and Research System.	3	8.77	0.014	0.043
O35. Being a CERCA center has budgetary, financial, and organizational advantages.	4	8.98	0.015	0.059
O36. Catalan Agreement on the Knowledge Society determines a progressive increase of public research funding in the next few years.	3	7.46	0.012	0.037
O37. The upcoming Catalan Science Law should consolidate budget increase for CERCA centers.	3	7.54	0.012	0.037
O38. There is parity among men and women entering the scientific career.	4	8.37	0.014	0.055
O39. CERCA requires to implement the EU HRS4R policies.	4	8.43	0.014	0.055
O40. CERCA requires the centers to have a SAB composed of international experts.	4	8.24	0.013	0.054
O41. Increased awareness about gender bias and violence against women in science.	3	8.17	0.013	0.040
O42. Good capacity for attracting funds from the Spanish System of Science, Technology and Innovation.	3	8.75	0.014	0.043
O43. New EU Research & Innovation Investment Program "Horizon Europe" (2021-2027) with a proposed budget of € 100 billion.	2	8.66	0.014	0.028
O44. Due to the pandemic there is an increased recognition by lay people about the importance of science and the fact that research is underfinanced.	3	6.23	0.010	0.031
O45. After an initial huge investment focused specifically on biomedical research, the pandemic will likely result in new funding opportunities for research in general.	3	5.74	0.009	0.028
O46. Due to lockdowns and other restrictions associated with the pandemic new forms of working have become generalized (telematic	4	6.79	0.011	0.044

meetings, teleworking, museum workshops at schools...).				
O47. Following the restrictions associated with the pandemic, there has been an increase in the offer of free online training opportunities and a reduction of travel expenses due to an increase in virtual international scientific meetings.	4	6.69	0.011	0.044
THREATS	**VOTED SCORE**	**AVERAGE WEIGHT**	**NORMAL. WEGHT**	**WEIGHTED SCORE**
T1. Paleontological journals have low JIF and too few remain stable in Q1.	2	7.24	0.012	0.024
T2. Obligation to upload scientific production to Portal de Recerca de Catalunya is time consuming and lacks clear measures to correct mistakes.	2	5.68	0.009	0.019
T3. Increasing requirement of funding agencies to publish in open access.	2	7.06	0.012	0.023
T4. Publishing in prestigious open-access journals is very expensive.	2	7.07	0.012	0.023
T5. Low biomedical and technological applicability hampers societal impact.	1	6.80	0.011	0.011
T6. Most of the basal budget is provided by a single patron.	2	7.99	0.013	0.026
T7. Future increases of the basal budget dependent on obtaining the maximum qualification (A) in CERCA evaluation.	3	8.94	0.015	0.044
T8. Midterm planning of funding expenditure is hampered by the unpredictability of competitive and service provision income.	2	7.93	0.013	0.026
T9. Bad prospects for increasing private funding through service provision due to pandemic-related forthcoming crisis.	2	6.99	0.011	0.023
T10. Uncertain replacement of ICREA and civil servants when they retire.	2	8.06	0.013	0.026
T11. Low fundraising potential for sponsors and donors.	2	7.07	0.012	0.023
T12. Competitiveness with similar paleontological research centers/groups from abroad hampered by more restricted critical mass and funding.	3	7.17	0.012	0.035
T13. Limited capacity for talent attraction of foreign researchers, especially above predoctoral level, due the low salaries and insufficient career development opportunities.	2	7.76	0.013	0.025
T14. Increased collaborations imply a decreased leadership in publication.	3	5.08	0.008	0.025
T15. Very few media specializing in science dissemination in Catalonia.	1	5.87	0.010	0.010
T16. The upcoming network of Natural Science Museums of Catalonia has, at least initially, very limited funding.	2	5.50	0.009	0.018
T17. Low capacity for technological transfer.	2	6.87	0.011	0.022
T18. Low salaries and job insecurity determined by national economy.	2	7.67	0.013	0.025
T19. Scientific globalization implies the risk of a brain drain of researchers.	2	6.67	0.011	0.022
T20. Excessive bureaucracy for getting and justifying fieldwork permits and grants.	2	6.20	0.010	0.020
T21. Need to raise awareness on publishing ethics and intellectual property among researchers.	3	6.82	0.011	0.033

T22. Pending lawsuit with the Spanish Government about VAT return.	2	6.64	0.011	0.022
T23. The dispersion of paleontological research in Catalonia diminishes its potential impact.	3	5.94	0.010	0.029
T24. Very limited university training in paleontology.	2	6.82	0.011	0.022
T25. Progressive loss of autonomy due to increasing legal requirements to public entities dependent from the Catalan government (e.g., UNEIX).	2	6.64	0.011	0.022
T26. There is a progressive gender bias against women beginning at the postdoctoral stage.	2	7.94	0.013	0.026
T27. CERCA aims to impose an open data repository to all centers irrespective of the specificities of each research field.	2	6.64	0.011	0.022
T28. Structural problem of low funding levels for research (particularly in natural sciences) leads to exceeding competitiveness among researchers and may cause burnout and even more serious mental health problems due to stress and overwork.	2	7.46	0.012	0.024
T29. The (largely justified) perception by foreign researchers that science in Spain is associated with low salaries and small research tems hinders talent attraction even when recruitment opportunities emerge.	2	7.54	0.012	0.025
T30. Low demonstrated capacity for attracting ERC and other European funds.	2	8.70	0.014	0.028
T31. New EU Research & Innovation Investment Program “Horizon Europe” (2021-2027) emphasizes technological applicability (biomedicine, agriculture, sustainability, climate change...) at the expense of fundamental (basic) research.	2	8.10	0.013	0.026
T32. Focus of funding agencies on biomedical research.	1	7.89	0.013	0.013
T33. The work of some technicians and researchers (e.g., preparation and study of fossils) as well as fieldwork and dissemination/outreach activities are seriously affected by lockdowns and other restrictions associated with the pandemic.	3	6.55	0.011	0.032
T34. Consolidation of ongoing international collaborations and establishment of new ones are seriously affected by travel limitations associated with the pandemic.	3	6.37	0.010	0.031
TOTAL (Opportunities + Threats)		612.58	1	**2.887**

Even if, as noted above, the names and implications of these strategies are focused on commercial companies, they can be easily translated into the corresponding terms for a research institution such as the ICP: total EFE and IFE scores that lead to a 'grown and build' strategy would indicate that a research center is excellent and very strong, and that it must take advantage of favorable opportunities to grow (e.g., diversifying by means of exploring all available favorable strategies); scores indicating a 'hold and maintain' would indicate that a research center is doing well, and can take advantage of some current opportunities to fight against threats in order maintain the status quo, or let some others pass by due to current lack of resources; and, finally, scores indicating a 'harvest or divest' would indicate that a research center is not performing well and that it must be reorganized (to make more efficient use of available resources), downsized (to reduce costs), and/or merged with another center to prevent its disappearance. The results for the IE matrix analysis of the ICP are reported in the plot below.



As it can be seen in the plot, the ICP falls in a central position of the matrix ('hold & maintain' strategy), on cell 5, albeit quite close to the 'grow & build' region. Indeed, both the IFE total score (2.832) and especially the EFE total score (2.887) are above average (2.500) and much closer to 3.000, which would indicate a 'grow & build' strategy. These results are quite positive and indicate that the ICP is a solid institution that is performing well, albeit not exempt of some weaknesses and threats. It is noteworthy that there has been some improvement relative to the results computed for the ICP in the SWOT analysis performed in 2017 for the previous Strategic Plan 2018-2021: 2.783 and 2.693 for the IFE and EFE total scores, respectively. Interestingly, the current matrix delivered better results for EFE than for IFE, while in 2017 the situation was the reverse. This suggests that, while the ICP has improved overall, now it is responding (or expected to respond) better to both opportunities and threats than four years ago. In any case, based on the current results, there is still room for improvement, in the sense that the ICP has to become stronger in order to grow further by making use of all the opportunities that become available in the following years. In the meantime, most of the efforts should focus on maintaining the most important current 'assets' of the ICP, by trying to take advantage of some opportunities but leaving others unexplored when they represent too much risk or require an investment that we cannot yet afford.

Although the results of the IFE and EFE analyses have an inherent subjectivity in the assignment of scores and weights, such caveat is minimized here by the fact that the scores were voted by a group of 12 people (the members of the Strategic Plan Working Group), while the weights are a weighted average of those assigned by a group of 20 people, composed of the aforementioned members of the Strategic Plan Working Group (including the Director) plus the General Manager and the Scientific Advisory Board members. The results of IFE and EFE analyses were computed separately based on the Director's weights only, the arithmetic mean of the weights provided by the Steeering Committee members (four people), the arithmetic mean of the weights provided by the Strategic Plan Working Group members as a whole (twelve people), and the arithmetic mean o those provided by the Scientific Advisory Board members (seven people)—see table below, where SC = Steering Committee, SPWG = Strategic Plan Working Group, SAB = Scientific Advisory Board (the details for individual factors not shown). The higher the total average weight, the higher on average the weights provided by each group (i.e., the perceived importance of the factors, either positive or negative).

	FINAL	DIRECTOR	SC	SPWG	SAB
IFE Total average weight	**492.17**	444.00	465.92	475.30	537.07
IFE Total weighted score	**2.83**	2.93	2.83	2.83	2.80
EFE Total average weight	**612.58**	566.00	594.33	591.20	656.57
EFE Total weighted score	**2.89**	2.90	2.88	2.89	2.88

It is most remarkable that the weights based on those four groups of people yielded very similar IFE and EFE results to one another as well as to the final results reported above—the Director's assessment being the most optimistic but only by a slight margin

As a final notice, it is worth reminding that the weighted scores reported for each internal and external factor in the preceding tables above will also be used to compute the weighted score percentages of the strategic actions based on them.

PART 5

STRATEGIC PLAN (2022-2025)

5. STRATEGIC PLAN (2021-2025)

Strategic areas, goals, actions, and indicators

5.1. Strategic goals and actions

Types of strategies Once determined, with the help of the IE matrix, that the general strategy indicated for the ICP is 'hold and maintain' (see above), it is necessary to identify those specific strategic goals and actions that serve better to this strategy among all those potentially available. The strategic goals have been divided into four main strategic areas:

- Scientific Policy & Research.
- Management & Human Resources.
- Fundraising & Knowledge Transfer.
- Outreach & Communication.

Each area includes several strategic goals, in turn divided into various strategic actions, which were defined by the same Strategic Plan Working Group of the ICP that participated in the SWOT analysis (see previous section for composition details). Emphasis was put at the level of strategic actions, whereas strategic goals and areas were only defined for the purposes of summarizing the progress of the Strategic Plan fulfillment in years to come.

Each strategic action is based on a combination of the internal and external factors defined in the SWOT analysis. These strategies within each area were grouped into four main categories:

- Strength-Opportunity (SO, or 'maxi-maxi') strategies, which use strengths to maximize opportunities, in order to improve further the current situation of the ICP.
- Weakness-Opportunity (WO, or 'mini-maxi') strategies, which minimize weaknesses by taking advantage of opportunities, in order to maintain the current situation of the ICP.
- Strength-Threat (ST, or 'maxi-mini') strategies, which use strengths to minimize threats, in order to prevent a deterioration of the current situation of the ICP.
- Weakness-Threat (WT, or 'mini-mini') strategies, which minimize weaknesses and avoid threats, in order prevent further a deterioration of the current situation of the ICP.

This means that each strategic action can mix multiple positive and negative factors, as well as multiple internal and external factors, but it cannot mix strengths with weaknesses or opportunities with threats. A total of 86 actions distributed in 22 goals were defined by the Strategic Plan Working Group, following an initial draft elaborated by the ICP Director, and subsequently reviewed by the SAB. They are summarized in the table below, which further

includes the number of goals from each strategy within each area, as well as the number of indicators.

Strategic Areas	Goals	Actions					Indicators
		SO	WO	ST	WT	Total	
Scientific Policy & Research	7	7	6	9	1	23	46
Management & Human Resources	9	13	7	3	9	32	76
Fundraising & Knowledge Transfer	3	6	3	4	3	16	39
Outreach & Communication	3	9	5	0	1	15	40
Totals	22	35	21	16	14	86	201

The strategic actions are detailed below, including the type of strategy, the internal and external factors included, and the indicators devised to evaluate the fulfillment of the Strategic Plan.

Scientific Policy & Research:

- **Strategic Goal SG1. Consolidate the high scientific production and productivity of the ICP.**
  - ✓ **Strategic Action SA1. Encourage ICP researchers to publish more papers in SCI journals.**

    Type of strategy: Strength-Threat.

    Internal factors: **S15.** Research staff is competitive due to multiple expertises | **S16.** Recruitment protocol includes detailed mechanisms to monitor and evaluate researchers | **S34.** Very satisfactory scientific outputs in terms of quality, impact and productivity.

    External factors: **T28.** Structural problem of low funding levels for research (particularly in natural sciences) leads to exceeding competitiveness among researchers and may cause burnout and even more serious mental health problems due to stress and overwork.

    Indicators: **I1.** SCI papers average production: 2022-2025 ≥ 2018-2021 | **I2.** SCI papers average productivity: 2022-2025 ≥ 2018-2021.
  - ✓ **Strategic Action SA2. Maintain the current network of research associates with emphasis on R3-R4 categories.**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W15.** Low control on the publication strategy of research associates.

    External factors: **O13.** High international visibility and good reputation | **O14.** Good capacity for attracting/retaining talent in the form of research associates | **O16.** Research agreement with ICREA Research Professor from IBE to develop a research line in paleoproteomics and paleogenetics.

Indicators: **I3.** Research associates average: 2022-2025 ≥ 2018-2021 | **I4.** R3+R4 research associates average: 2022-2025 > 2018-2021.

- ✓ **Strategic Action SA3. Increase the number of publications with international coauthors.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S15.** Research staff is competitive due to multiple expertises | **S27.** Reduced fees for hotels rooms, other accommodations, and conference rooms within the campus facilitate visits of foreign researchers and the organization of meetings.

  External factors: **O15.** High capacity to establish research collaborations with international research teams | **O25.** The rich fossil record from Catalonia facilitates research and fosters international collaborations.

  Indicators: **I5.** SCI papers with international collaborations average: 2022-2025 ≥ 2018-2021 | **I6.** % of SCI papers with international collaborations average: 2022-2025 ≥ 2018-2021.

- **Strategic Goal SG2. Consolidate and increase further the high quality and impact of the ICP scientific production.**
  - ✓ **Strategic Action SA4. Encourage ICP researchers to prioritize publication in SCI journals from the first quartile.**

    Type of strategy: Strength-Threat.

    Internal factors: **S15.** Research staff is competitive due to multiple expertises | **S16.** Recruitment protocol includes detailed mechanisms to monitor and evaluate researchers | **S34.** Very satisfactory scientific outputs in terms of quality, impact and productivity.

    External factors: **T1.** Paleontological journals have low JIF and too few remain stable in Q1.

    Indicators: **I7.** Q1 SCI papers average production: 2022-2025 ≥ 2018-2021 | **I8.** Q1 SCI papers average productivity: 2022-2025 ≥ 2018-2021 | **I9.** % of Q1 SCI papers average: 2022-2025 ≥ 2018-2021.
  - ✓ **Strategic Action SA5. Encourage ICP researchers to select journals with high impact factors and/or impact factor percentiles.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S15.** Research staff is competitive due to multiple expertises | **S16.** Recruitment protocol includes detailed mechanisms to monitor and evaluate researchers | **S34.** Very satisfactory scientific outputs in terms of quality, impact and productivity.

    External factors: **O1.** Multiple Q1 zoology and anthropology journals publish paleontological research.

    Indicators: **I10.** SCI papers JIF geometric mean: 2022-2025 ≥ 2018-2021 | **I11.** SCI papers JIF percentile median: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA6. Encourage ICP researchers to target more often SCI journals from the multidisciplinary sciences category.**

  Type of strategy: Strength-Threat.

  Internal factors: **S15.** Research staff is competitive due to multiple expertises | **S16.** Recruitment protocol includes detailed mechanisms to monitor and evaluate researchers | **S34.** Very satisfactory scientific outputs in terms of quality, impact and productivity.

  External factors: **T5.** Low biomedical and technological applicability hampers societal impact.

  Indicators: **I12.** Multidisciplinary SCI papers average production: 2022-2025 ≥ 2018-2021 | **I13.** % of Multidisciplinary SCI papers average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA7. Increase ICP leadership in publications coauthored with researchers from other institutions.**

  Type of strategy: Strength-Threat.

  Internal factors: **S15.** Research staff is competitive due to multiple expertises | **S16.** Recruitment protocol includes detailed mechanisms to monitor and evaluate researchers | **S34.** Very satisfactory scientific outputs in terms of quality, impact and productivity.

  External factors: **T14.** Increased collaborations imply a decreased leadership in publication.

  Indicators: **I14.** SCI papers with ICP corresponding author average: 2022-2025 > 2018-2021 | **I15.** % of SCI papers with ICP corresponding author average: 2022-2025 > 2018-2021.

- **Strategic Goal SG3. Increase the visibility of the scientific production of the ICP by promoting open-access publication and open data sharing.**

  - ✓ **Strategic Action SA8. Encourage ICP researchers to publish in gold/bronze open-access SCI journals.**

    Type of strategy: Strength-Threat.

    Internal factors: **S16.** Recruitment protocol includes detailed mechanisms to monitor and evaluate researchers | **S35.** Relatively high proportion of publications in open-access journals.

    External factors: **T3.** Increasing requirement of funding agencies to publish in open access | **T4.** Publishing in prestigious open-access journals is very expensive.

    Indicators: **I16.** Gold/bronze OA SCI papers average production: 2022-2025 ≥ 2018-2021 | **I17.** % of gold/bronze OA SCI papers average: 2022-2025 ≥ 2018-2021.

  - ✓ **Strategic Action SA9. Help ICP researchers to make use of green open-access options for subscription journals.**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W30.** Lack of sufficient funds to significantly increase publication in gold open-access.

External factors: **O2.** Free use of UAB digital repository (DDD) to post postprints promotes green open access.

Indicators: **I18.** Continue using the UAB DDD digital repository to post ICP scientific production | **I19.** % of published journal papers posted on DDD average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA10. Promote and facilitate data sharing (open data) by ICP researchers.**

  Type of strategy: Weakness-Threat.

  Internal factors: **W3.** Data management policy pending further development by CERCA.

  External factors: **T27.** CERCA aims to impose an open data repository to all centers irrespective of the specificities of each research field.

  Indicators: **I20.** Sign a collaboration agreement with an open data repository (e.g., MorphoSource) | **I21.** Elaborate a generic data management plan of the ICP or adhere to the CERCA equivalent | **I22.** Implement the necessary internal mechanisms to monitor the number of datasets published by ICP researchers in data repositories (i.e., excluding supplementary material published on the journal's website).

- **Strategic Goal SG4. Promote further the visibility of the ICP in scientific meetings and workshops, particularly at the international level.**
  - ✓ **Strategic Action SA11. Increase the attendance to scientific meetings and workshops, with emphasis on international ones.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S21.** Research associates significantly increase ICP scientific production and visibility at no cost | **S34.** Very satisfactory scientific outputs in terms of quality, impact and productivity.

    External factors: **O47.** Following the restrictions associated with the pandemic, there has been an increase in the offer of free online training opportunities and a reduction of travel expenses due to an increase in virtual international scientific meetings.

    Indicators: **I23.** Number of meetings attended by ICP researchers average: 2022-2025 ≥ 2018-2021 | **I24.** Communications to meetings attended by ICP researchers average: 2022-2025 ≥ 2018-2021 | **I25.** % of international meetings attended by ICP researchers average: 2022-2025 ≥ 2018-2021.

  - ✓ **Strategic Action SA12. (Co)organize scientific meetings.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S27.** Reduced fees for hotel rooms, other accommodations, and conference rooms within the campus facilitate visits of foreign researchers and the organization of meetings.

    External factors: **O13.** High international visibility and good reputation | **O19.** Strategic alliance with the company Transmitting Science in the organization of international scientific courses | **O46.** Due to lockdowns and other restrictions associated with the

pandemic new forms of working have become generalized (telematic meetings, teleworking, museum workshops at schools...).

Indicators: **I26.** Number of meetings (co)organized by the ICP average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA13. Consolidate and expand the network of international collaborators.**

  Type of strategy: Strength-Threat.

  Internal factors: **S8.** Scientific Advisory Board (SAB) provides advice and guidance in scientific policy and strategic management to the Director | **S12.** EU HR Excellence Award (implementation of HRS4R) is beneficial for talent attraction and success in competitive calls | **S25.** Being a UAB research institute promotes international reputation and also fosters training, knowledge transfer, and talent attraction | **S27.** Reduced fees for hotels rooms, other accommodations, and conference rooms within the campus facilitate visits of foreign researchers and the organization of meetings.

  External factors: **T13.** Limited capacity for talent attraction of foreign researchers, especially above predoctoral level, due the low salaries and insufficient career development opportunities | **T14.** Increased collaborations imply a decreased leadership in publication | **T19.** Scientific globalization implies the risk of a brain drain of researchers. | **T34.** Consolidation of ongoing international collaborations and establishment of new ones are seriously affected by travel limitations associated with the pandemic.

  Indicators: **I27.** Number of foreign researchers visiting the ICP average: 2022-2025 ≥ 2018-2021 | **I28.** Number of short stays abroad by ICP researchers: 2022-2025 ≥ 2018-2021.

- **Strategic Goal SG5. Consolidate the ICP as a benchmark institution at the international level regarding paleobiological research.**

  - ✓ **Strategic Action SA14. Improve the competitiveness of the ICP relative to other benchmark paleontological institutions (based on the publication metrics used in the ICP annual report).**

    Type of strategy: Strength-Threat.

    Internal factors: **S2.** Paleobiological aims and scope provide a unique perspective among life sciences thanks to access to deep time | **S3.** Successful scientific policy based on three Research Areas with definite aims and scope | **S15.** Research staff is competitive due to multiple expertises | **S25.** Being a UAB research institute promotes international reputation and also fosters training, knowledge transfer, and talent attraction | **S34.** Very satisfactory scientific outputs in terms of quality, impact and productivity.

    External factors: **T6.** Most of the basal budget is provided by a single patron | **T7.** Future increases of the basal budget dependent on obtaining the maximum qualification (A) in CERCA evaluation | **T9.** Bad prospects for increasing private funding

through service provision due to pandemic-related forthcoming crisis | **T11.** Low fundraising potential for sponsors and donors | **T12.** Competitiveness with similar paleontological research centers/groups from abroad hampered by more restricted critical mass and funding | **T23.** The dispersion of paleontological research in Catalonia diminishes its potential impact.

Indicators: **I29.** Ranking in standardized (%) geometric mean absolute indicators average: 2022-2025 ≥ 2018-2021 | **I30.** Ranking in standardized (%) geometric mean relative indicators average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA15. Preserve the current main lines of research at the ICP.**

  Type of strategy: Weakness-Opportunity.

  Internal factors: **W2.** Three Research Group leaders will retire in the next few years.

  External factors: **O25.** The rich fossil record from Catalonia facilitates research and fosters international collaborations.

  Indicators: **I31.** Number of research groups in each research area in 2025 ≥ 1.

- ✓ **Strategic Action SA16. Maintain the current number of research groups at the ICP.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S2.** Paleobiological aims and scope provide a unique perspective among life sciences thanks to access to deep time | **S3.** Successful scientific policy based on three Research Areas with definite aims and scope | **S4.** Flexibility in the number of research groups within each area provides opportunities for career development of talented researchers | **S15.** Research staff is competitive due to multiple expertises | **S28.** Having a museum officially recognized as such with fossil collections promotes the conservation of paleontological heritage and research based on it | **S32.** The paleontological collections of the ICP include >120,000 fossils available for study that facilitate paleontological research | **S33.** The >100,000 fossils pending preparation housed at the ICP ensure the growth of the museum's collection in years to come.

  External factors: **O25.** The rich fossil record from Catalonia facilitates research and fosters international collaborations.

  Indicators: **I32.** Number of research groups in 2025 ≥ 2021.

- ✓ **Strategic Action SA17. Promote further a paleoproteomics and paleogenomics research line.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S2.** Paleobiological aims and scope provide a unique perspective among life sciences thanks to access to deep time | **S3.** Successful scientific policy based on three Research Areas with definite aims and scope | **S15.** Research staff is competitive due to multiple expertises.

  External factors: **O16.** Research agreement with ICREA Research Professor from IBE to develop a research line in paleoproteomics and paleogenetics | **O25.** The rich fossil record from Catalonia facilitates research and fosters international collaborations.

Indicators: **I33.** SCI papers on paleoproteomics average: 2022-2025 > 2018-2021 | **I34.** SCI papers on ancient DNA average: 2022-2025 > 2018-2021.

- **Strategic Goal SG6. Increase and improve the technical support provided to ICP researchers.**
  - ✓ **Strategic Action SA18. Maintain or increase the number of research support staff.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S17.** A large proportion of non-academic staff provides research support (Fieldwork & Collection Management, Preparation & Conservation, etc.) | **S18.** The Preparation & Conservation Area staff has the required academic background and specific training in fossil preparation | **S29.** A modern and fully equipped Preparation Lab is essential for paleontological research and positive for service provision.

    External factors: **O7.** External (competitive and service provision) funding higher than basal budget.

    Indicators: **I35.** Number of technicians in the Preparation & Conservation Area average: 2022-2025 ≥ 2018-2021| **I36.** Number of technicians in the Fieldwork & Collection Management Area average: 2022-2025 ≥ 2018-2021.
  - ✓ **Strategic Action SA19. Take a decision about the viability to repair the CT.**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W24.** The industrial CT scan is currently damaged and very expensive to fix | **W26.** High costs associated with preventing obsolescence of IT and other scientific equipment (e.g., microscopes), as well as associated software.

    External factors: **O17.** Conversations to collaborate with ALBA synchrotron in paleontological research | **O37.** The upcoming Catalan Science Law should consolidate budget increase for CERCA centers | **O45.** After an initial huge investment focused specifically on biomedical research, the pandemic will likely result in new funding opportunities for research in general.

    Indicators: **I37.** CT viability plan approved not later than 2023 | **I38.** CT viability plan executed not later than 2025.
  - ✓ **Strategic Action SA20. Improve fieldwork infrastructure.**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W26.** High costs associated with preventing obsolescence of IT and other scientific equipment (e.g., microscopes), as well as associated software | **W27.** Available vehicles for fieldwork are too old or even broken.

    External factors: **O7.** External (competitive and service provision) funding higher than basal budget.

    Indicators: **I39.** New four-wheel off-road vehicle bought not later than 2024 | **I40.** Ongoing agreement with EDAR Riu Sec to screen-wash sediments.
  - ✓ **Strategic Action SA21. Agreement with CERCA to improve scientific equipment.**

    Type of strategy: Weakness-Opportunity.

Internal factors: **W26.** High costs associated with preventing obsolescence of IT and other scientific equipment (e.g., microscopes), as well as associated software.

External factors: **O35.** Being a CERCA center has budgetary, financial, and organizational advantages | **O36.** Catalan Agreement on the Knowledge Society determines a progressive increase of public research funding in the next few years | **O37.** The upcoming Catalan Science Law should consolidate budget increase for CERCA centers.

Indicators: **I41.** Ongoing agreement with CERCA about scientific equipment | **I42.** Funding from CERCA to improve scientific equipment average: 2022-2025 > 2018-2021.

- **Strategic Goal SG7. Promote publishing ethics and raise awareness about intellectual property among ICP researchers.**
  - ✓ **Strategic Action SA22. Disseminate the content of the ICP manual of best practices in research, intellectual property and authorship among ICP researchers.**

    Type of strategy: Strength-Threat.

    Internal factors: **S5.** Protocol on good practices in agreement with that of CERCA with emphasis on authorship and intellectual property | **S20.** Continuous training opportunities are offered to researchers and non-academic staff.

    External factors: **T21.** Need to raise awareness on publishing ethics and intellectual property among researchers.

    Indicators: **I43.** Manual available from the ICP website | **I44.** Training session about ethics in publishing not later 2023.
  - ✓ **Strategic Action SA23. Oversee that ICP researchers adhere to the highest ethical standards in publishing and research.**

    Type of strategy: Strength-Threat.

    Internal factors: **S5.** Protocol on good practices in agreement with that of CERCA with emphasis on authorship and intellectual property.

    External factors: **T21.** Need to raise awareness on publishing ethics and intellectual property among researchers.

    Indicators: **I45.** No external or internal complains or accusations about unethical behavior or scientific misconduct by ICP researchers in 2022-2025 | **I46.** No retractions/expressions of concerns regarding ICP publications in 2022-2025.

Management & Human Resources:

- **Strategic Goal SG8. Increase the number of ICP academic staff with emphasis on the recruitment of foreign researchers and ascribed (seconded) personnel.**
  - ✓ **Strategic Action SA24. Increase the critical mass of ICP researchers.**

    Type of strategy: Strength-Opportunity.

Internal factors: **S11.** Low salaries enable the maintenance of a critical mass of researchers despite budgetary constraints.

External factors: **O8.** Ascribed personnel from ICREA and the Generalitat de Catalunya | **O9.** Possibility to ascribe UAB professors from the Geology department to the ICP | **O13.** High international visibility and good reputation.

Indicators: **I47.** Staff researchers average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA25. Increase the number of foreign ICP staff researchers.**

  Type of strategy: Weakness-Opportunity.

  Internal factors: **W6.** Low salaries put at risk personnel commitment and hinder talent attraction from abroad, especially in the case of postdoctoral, experienced and senior researchers.

  External factors: **O13.** High international visibility and good reputation | **O26.** Appeal to researchers due to the proximity to Barcelona | **O28.** Increased researchers' mobility within the Schengen Area | **O30.** Good atmosphere regarding scientific innovation and development at the local and regional level. | **O31.** Scientific globalization increases the potential for talent attraction of researchers in training and talent return of experienced researchers.

  Indicators: **I48.** Foreign staff researchers average: 2022-2025 > 2018-2021 | **I49.** % of foreign staff researchers average: 2022-2025 > 2018-2021.

- ✓ **Strategic Action SA26. Increase the ratio of academic vs. non-academic staff.**

  Type of strategy: Weakness-Threat.

  Internal factors: **W1.** Mission requires a high proportion of non-academic staff | **W10.** Research staff lacks sufficient critical mass for undertaking some large-scale research projects | **W12.** Insufficient personnel for communication, preparation, collection management, and processing CT scans.

  External factors: **T10.** Uncertain replacement of ICREA and civil servants when they retire. | **T13.** Limited capacity for talent attraction of foreign researchers, especially above predoctoral level, due the low salaries and insufficient career development opportunities | **T29.** The (largely justified) perception by foreign researchers that science in Spain is associated with low salaries and small research teams hinders talent attraction even when recruitment opportunities emerge.

  Indicators: **I50.** % of staff researchers relative to total structural staff (excluding work and service contracts for service provision) average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA27. Increase the number of ascribed (seconded) personnel from the Generalitat de Catalunya and ICREA.**

  Type of strategy: Weakness-Threat.

  Internal factors: **W6.** Low salaries put at risk personnel commitment and hinder talent attraction from abroad, especially in the case of postdoctoral, experienced and senior researchers | **W10.** Research staff lacks sufficient critical mass for undertaking some large-scale research projects.

External factors: **T10.** Uncertain replacement of ICREA and civil servants when they retire.

Indicators: **I51.** ICREA professors ascribed to the ICP average: 2022-2025 ≥ 2018-2021 | **I52.** Civil servants of the Generalitat ascribed to the ICP average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA28. Ascribe UAB professors to the ICP (at 50%).**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S25.** Being a UAB research institute promotes international reputation and also fosters training, knowledge transfer, and talent attraction.

  External factors: **O8.** Ascribed personnel from ICREA and the Generalitat de Catalunya | **O9.** Possibility to ascribe UAB professors from the Geology department to the ICP.

  Indicators: **I53.** UAB professors ascribed to the ICP average: 2022-2025 > 2018-2021.

- **Strategic Goal SG9. Foster talent attraction and retention when recruiting researchers and specialized technicians.**
  - ✓ **Strategic Action SA29. Use the OTM-R mechanisms specified in the ICP recruitment protocol and internationally publicize new positions for researchers and specialized technicians (excluding work and service contracts as well as competitive contracts).**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S12.** EU HR Excellence Award (implementation of HRS4R) is beneficial for talent attraction and success in competitive calls | **S14.** The Recruitment Protocol ensures an OTM-R policy for researchers and technicians thus promoting equal opportunities | **S16.** Recruitment protocol includes detailed mechanisms to monitor and evaluate researchers.

    External factors: **O13.** High international visibility and good reputation | **O14.** Good capacity for attracting/retaining talent in the form of research associates | **O26.** Appeal to researchers due to the proximity to Barcelona | **O31.** Scientific globalization increases the potential for talent attraction of researchers in training and talent return of experienced researchers.

    Indicators: **I54.** Recruited researchers after an OTM-R selection process average: 2022-2025 ≥ 2018-2021 | **I55.** Recruited technicians after an OTM-R selection process average: 2022-2025 ≥ 2018-2021 | **I56.** New positions (excluding work and service contracts as well as competitive contracts) posted in Euraxess average: 2022-2025 ≥ 2018-2021.

  - ✓ **Strategic Action SA30. Increase the number of researchers and technicians recruited by means of competitive calls.**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W6.** Low salaries put at risk personnel commitment and hinder talent attraction from abroad, especially in the case of postdoctoral, experienced and senior researchers | **W10.** Research staff lacks sufficient critical mass for undertaking some large-scale research projects.

External factors: **O13.** High international visibility and good reputation | **O14.** Good capacity for attracting/retaining talent in the form of research associates | **O26.** Appeal to researchers due to the proximity to Barcelona | **O31.** Scientific globalization increases the potential for talent attraction of researchers in training and talent return of experienced researchers | **O34.** Good capacity for attracting funds from the Catalan University and Research System | **O42.** Good capacity for attracting funds from the Spanish System of Science, Technology and Innovation.

Indicators: **I57.** New R1 (predoctoral) researchers recruited with competitive contracts (e.g., FI, FPI, FPU) during 2022-2025 ≥ 2018-2021 | **I58.** New R2 (postdoctoral) researchers recruited with competitive contracts (e.g., Juan de la Cierva and Beatriu de Pinós) during 2022-2025 ≥ 2018-2021 | **I59.** New R3 (tenure-track) researchers recruited with competitive contracts (e.g., Ramón y Cajal) during 2022-2025 ≥ 2018-2021 | **I60.** New technicians recruited with competitive contracts (e.g., PTA) during 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA31. Promote talent attraction at early research career stages.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S22.** The volunteering program promotes talent attraction at early career stages | **S25.** Being a UAB research institute promotes international reputation and also fosters training, knowledge transfer, and talent attraction.

  External factors: **O13.** High international visibility and good reputation | **O14.** Good capacity for attracting/retaining talent in the form of research associates | **O26.** Appeal to researchers due to the proximity to Barcelona | **O31.** Scientific globalization increases the potential for talent attraction of researchers in training and talent return of experienced researchers.

  Indicators: **I61.** Staff R1+R2 researchers (or PhD students recognized in Organization Chart) average: 2022-2025 ≥ 2018-2021 | **I62.** R1-R2 positions opened at the ICP and defrayed with basal funds average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA32. Recruit back former talented ICP researchers by means of competitive contracts funded by external agencies.**

  Type of strategy: Weakness-Threat.

  Internal factors: **W6.** Low salaries put at risk personnel commitment and hinder talent attraction from abroad, especially in the case of postdoctoral, experienced and senior researchers | **W10.** Research staff lacks sufficient critical mass for undertaking some large-scale research projects.

  External factors: **T19.** Scientific globalization implies the risk of a brain drain of researchers.

  Indicators: **I63.** Former staff researchers recruited with competitive postdoctoral (JdC, BP, etc.) contracts: average 2022-2025 ≥ 2018-2021 | **I64.** Former staff researchers recruited with competitive tenure-track or permanent (RyC, ICREA, etc.) contracts: average 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA33. Stabilize talented ICP researchers and technicians with permanent contracts defrayed by basal funds after an international call using OTM-R protocols.**

  Type of strategy: Weakness-Opportunity.

  Internal factors: **W6.** Low salaries put at risk personnel commitment and hinder talent attraction from abroad, especially in the case of postdoctoral, experienced and senior researchers | **W9.** OTM-R policy implies decreased flexibility in recruitment and is time-consuming | **W10.** Research staff lacks sufficient critical mass for undertaking some large-scale research projects.

  External factors: **O13.** High international visibility and good reputation | **O14.** Good capacity for attracting/retaining talent in the form of research associates | **O26.** Appeal to researchers due to the proximity to Barcelona | **O31.** Scientific globalization increases the potential for talent attraction of researchers in training and talent return of experienced researchers.

  Indicators: **I65.** Stabilized researchers after an OTM-R selection process average: 2022-2025 ≥ 2018-2021 | **I66.** Stabilized technicians after an OTM-R international selection process average: 2022-2025 ≥ 2018-2021.

- **Strategic Goal SG10. Improve internal coordination and promote the involvement of ICP personnel in decision-making.**

  - ✓ **Strategic Action SA34. Organize coordination meetings on a quarterly basis.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S6.** Organization Chart with well-defined hierarchy of non-academic departments promotes coordination | **S10.** Organizational culture slightly dominated by clan (collaboration) and adhocracy (creativity) but with sufficient components of hierarchy (control) and market (competitiveness).

    External factors: **O46.** Due to lockdowns and other restrictions associated with the pandemic new forms of working have become generalized (telematic meetings, teleworking, museum workshops at schools...).

    Indicators: **I67.** Coordination meetings average: 2022-2025 ≥ 4/yr.

  - ✓ **Strategic Action SA35. Organize committee meetings regularly.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S6.** Organization Chart with well-defined hierarchy of non-academic departments promotes coordination | **S7.** Steering Committee provides advice and guidance in decision-making to the Director | **S9.** Committees (e.g., Non-Discrimination, HRS4R Implementation) and commissions (e.g., Researchers, Fieldwork) promote participation of personnel in decision-making | **S10.** Organizational culture slightly dominated by clan (collaboration) and adhocracy (creativity) but with sufficient components of hierarchy (control) and market (competitiveness).

External factors: **O46.** Due to lockdowns and other restrictions associated with the pandemic new forms of working have become generalized (telematic meetings, teleworking, museum workshops at schools...).

Indicators: **I68.** Steering Committee meetings average: 2022-2025 ≥ 10/yr | **I69.** HRS4R Implementation Committee meetings average: 2022-2025 ≥ 3/yr | **I70.** Information Systems Security Committee meetings average: 2022-2025 ≥ 1/yr | **I71.** Non-Discrimination Committee meetings average: 2022-2025 ≥ 4/yr.

- ✓ **Strategic Action SA36. Maintain the main ICP committees and commissions.**

  Type of strategy: Weakness-Opportunity.

  Internal factors: **W4.** Multiple commissions and committees imply increased bureaucracy and less agility in decision-making | **W5.** Part of the personnel, not involved in commissions and committees, is not sufficiently involved in decision-making | **W7.** Implementation of HRS4R implies excessive bureaucracy and is time-consuming | **W13.** Moderate size of the institution implies a multiplicity of tasks and responsibilities for staff members.

  External factors: **O46.** Due to lockdowns and other restrictions associated with the pandemic new forms of working have become generalized (telematic meetings, teleworking, museum workshops at schools...).

  Indicators: **I72.** Researchers Commission still active in 2025 | **I73.** Fieldwork Commission still active in 2025 | **I74.** HRS4R Committee still active in 2025 | **I75.** Information Systems Security Committee still active in 2025 | **I76.** Non-Discrimination Committee still active in 2025.

- ✓ **Strategic Action SA37. Regularly update the list of professional categories and job positions at the ICP.**

  Type of strategy: Strength-Threat.

  Internal factors: **S6.** Organization Chart with well-defined hierarchy of non-academic departments promotes coordination.

  External factors: **T25.** Progressive loss of autonomy due to increasing legal requirements to public entities dependent from the Catalan government (e.g., UNEIX).

  Indicators: **I77.** Organization Chart updated on a yearly basis | **I78.** Salary Scale updated on a yearly basis.

- **Strategic Goal SG11. Make full use of the advisory functions of the SAB based on the expertise and experience of its members.**

  - ✓ **Strategic Action SA38. Organize regular meetings with the SAB.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S8.** Scientific Advisory Board (SAB) provides advice and guidance in scientific policy and strategic management to the Director.

    External factors: **O46.** Due to lockdowns and other restrictions associated with the pandemic new forms of working have become generalized (telematic meetings, teleworking, museum workshops at schools...).

Indicators: **I79.** At least one annual SAB meeting | **I80.** Presentations by ICP director and some researchers to the SAB during annual meeting.

- ✓ **Strategic Action SA39. Regularly involve SAB members in ICP internal tasks.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S8.** Scientific Advisory Board (SAB) provides advice and guidance in scientific policy and strategic management to the Director.

  External factors: **O40.** CERCA requires the centers to have a SAB composed of international experts.

  Indicators: **I81.** SAB members involved in ≥50% ICP selection processes | **I82.** SAB members asked for feedback when elaborating the next Strategic Plan.

- **Strategic Goal SG12. Improve the working conditions and training of ICP staff.**
  - ✓ **Strategic Action SA40. Improve the salaries of ICP staff.**

    Type of strategy: Weakness-Threat.

    Internal factors: **W6.** Low salaries put at risk personnel commitment and hinder talent attraction from abroad, especially in the case of postdoctoral, experienced and senior researchers.

    External factors: **T18.** Low salaries and job insecurity determined by national economy.

    Indicators: **I83.** Salaries updated yearly based on the increases determined by law for public sector employees | **I84.** Per capita salary of ICP structural staff (i.e., excluding ascribed and competitive staff, as well as those hired with work and service contracts) 2025 > 2021.
  - ✓ **Strategic Action SA41. Progressively implement HRS4R policies and renew the EU HR Excellence Award.**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W7.** Implementation of HRS4R implies excessive bureaucracy and is time-consuming | **W8.** The lack of a welcome handbook hinders the integration of new staff members | **W13.** Moderate size of the institution implies a multiplicity of tasks and responsibilities for staff members.

    External factors: **O39.** CERCA requires to implement the EU HRS4R policies.

    Indicators: **I85.** Meetings of the HRS4R Implementation Committee average: 2022-2025 ≥ 3/yr | **I86.** New actions included in the HRS4R Action Plan during 2022-2025 ≥ 2 | **I857.** Positive external evaluation by the EU of the HRS4R implementation at the ICP and maintenance of the award during 2022-2025 | **I88.** Complete the ICP Welcome Handbook | **I89.** Complete the ICP Protocol for Funding Request and the ICP Protocol for Fund Expenditure Accountability.
  - ✓ **Strategic Action SA42. Provide free training opportunities to ICP personnel.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S20.** Continuous training opportunities are offered to researchers and non-academic staff.

External factors: **O12.** Social security funds enable to provide new continuous training opportunities to staff | **O47.** Following the restrictions associated with the pandemic, there has been an increase in the offer of free online training opportunities and a reduction of travel expenses due to an increase in virtual international scientific meetings.

Indicators: **I90.** Offer training courses to ICP personnel on a yearly basis | **I91.** Number of different courses offered to personnel average: 2022-2025 ≥ 2018-2021.

- **Strategic Goal SG13. Align ICP strategic goals with those of CERCA and the Catalan Research System.**
  - ✓ **Strategic Action SA43. Obtain an excellent qualification in the next evaluation by CERCA.**

    Type of strategy: Weakness-Threat.

    Internal factors: **W3.** Data management policy pending further development by CERCA.

    External factors: **T7.** Future increases of the basal budget dependent on obtaining the maximum qualification (A) in CERCA evaluation | **T30.** Low demonstrated capacity for attracting ERC and other European funds.

    Indicators: **I92.** 'A' qualification provided by the CERCA evaluation committee in next evaluation (expected for 2022).
  - ✓ **Strategic Action SA44. Comply with CERCA recommendations.**

    Type of strategy: Weakness-Threat.

    Internal factors: **W3.** Data management policy pending further development by CERCA.

    External factors: **T2.** Obligation to upload scientific production to PRC is time consuming and lacks clear measures to correct mistakes | **T5.** Low biomedical and technological applicability hampers societal impact | **T7.** Future increases of the basal budget dependent on obtaining the maximum qualification (A) in CERCA evaluation | **T30.** Low demonstrated capacity for attracting ERC and other European funds.

    Indicators: **I93.** Elaborate an action plan to implement CERCA recommendations | **I94.** Elaborate research impact assessments with the periodicity requested by CERCA | **I95.** Regularly update ICP scientific production to PRC.
- **Strategic Goal SG14. Comply with the obligations of the Generalitat de Catalunya public sector.**
  - ✓ **Strategic Action SA45. Update the ICP transparency webpage.**

    Type of strategy: Strength-Threat.

    Internal factors: **S31.** Webpage and social networks promote visibility.

    External factors: **T25.** Progressive loss of autonomy due to increasing legal requirements to public entities dependent from the Catalan government (e.g., UNEIX).

    Indicators: **I96.** ICP transparency webpage updated at least once a year.

- ✓ **Strategic Action SA46. Regularize (and thereafter regularly update) the information in UNEIX platform.**

  Type of strategy: Weakness-Threat.

  Internal factors: **W11.** Excessive multitasking due to administrative tasks, bureaucracy, and other academic duties (teaching, supervision, collection management) leaves too little working time for research | **W13.** Moderate size of the institution implies a multiplicity of tasks and responsibilities for staff members.

  External factors: **T25.** Progressive loss of autonomy due to increasing legal requirements to public entities dependent from the Catalan government (e.g., UNEIX)

  Indicators: **I97.** UNEIX data 2016-2020 regularized not later than 2022 | **I98.** UNEIX data from 2022 onward uploaded without delay.

- **Strategic Goal SG15. Promote non-discrimination policies.**
  - ✓ **Strategic Action SA47. Adhere to a zero tolerance policy regarding any type of discrimination, with emphasis on violence against women.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S23.** Equality Plan promotes non-discrimination policies, equal opportunities and an improvement of working environment.

    External factors: **O41.** Increased awareness about gender bias and violence against women in science.

    Indicators: **I99.** All allegations about sexual harassment or any kind of violence against women resolved in due time following the ICP relevant protocols | **I100.** All complaints about other types of discrimination or abusive behaviors resolved in due time following the ICP relevant protocols| **I101.** Adapt the ICP Protocol to Prevent Violence against Women to new regulations not later than 2023 | **I102.** Perform and regularly update a pay audit for ICP staff | **I103.** Maintain two ombudspersons (of whom at least one woman) throughout 2022-2025.
  - ✓ **Strategic Action SA48. Raise awareness about ICP non-discrimination policies.**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W18.** Need to raise awareness among personnel about violence against women and other kinds of discrimination.

    External factors: **O41.** Increased awareness about gender bias and violence against women in science.

    Indicators: **I104.** Approve and register the new ICP Equality Plan according to the new regulations not later than 2022 | **I105.** Translate the ICP Equality Plan into English not later than 2023 | **I106.** Training sessions for ICP personnel on non-discrimination policies and the prevention of sexual harassment average: 2022-2025 > 2018-2021.
  - ✓ **Strategic Action SA49. Progressively improve gender balance among ICP personnel.**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W17.** Unbalanced gender ratio, particularly at executive positions and group leadership.

External factors: **O38.** There is parity among men and women entering the scientific career | **O41.** Increased awareness about gender bias and violence against women in science.

Indicators: **I107.** Number of women staff researchers average: 2022-2025 > 2018-2021 | **I108.** % of women among staff researchers average: 2022-2025 > 2018-2021 | **I109.** Number of women among total staff average: 2022-2025 > 2018-2021 | **I110.** % of women among total staff average: 2022-2025 > 2018-2021 | **I111.** Number of women among research associates average: 2022-2025 > 2018-2021 | **I112.** % of women among research associates average: 2022-2025 > 2018-2021.

- ✓ **Strategic Action SA50. Prevent any gender bias during recruitment.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S14.** The Recruitment Protocol ensures an OTM-R policy for researchers and technicians thus promoting equal opportunities | **S23.** Equality Plan promotes non-discrimination policies, equal opportunities and an improvement of working environment.

  External factors: **O38.** There is parity among men and women entering the scientific career | **O41.** Increased awareness about gender bias and violence against women in science.

  Indicators: **I113.** % of women shortlisted during ICP selection processes using the OTM-R protocols average: 2022-2025 > 2018-2021 | **I114.** % of women recruited during ICP selection processes using the OTM-R protocols average: 2022-2025 > 2018-2021.

- ✓ **Strategic Action SA51. Maintain balanced gender ratios in SAB, committees and commissions.**

  Type of strategy: Strength-Threat.

  Internal factors: **S23.** Equality Plan promotes non-discrimination policies, equal opportunities and an improvement of working environment.

  External factors: **T26.** There is a progressive gender bias against women beginning at the postdoctoral stage.

  Indicators: **I115.** SAB composition (7 members) including at least 3 women throughout 2022-2025 | **I116.** Composition of stable internal committees (Steering, HRS4R, Non-Discrimination) and commissions (Researchers) as a whole including ≥40% women | **I117.** Ad hoc selection committees as a whole during 2022-2025 including ≥40% women.

- **Strategic Goal SG16. Manage more efficiently the museum fossil collection.**

  - ✓ **Strategic Action SA52. Increase the ICP collection of fossils by means of permanent deposits.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S1.** Mission combines research with dissemination and conservation | **S17.** A large proportion of non-academic staff provides research support (Fieldwork &

Collection Management, Preparation & Conservation, etc.) | **S32.** The paleontological collections of the ICP include >120,000 fossils available for study that facilitate paleontological research | **S33.** The >100,000 fossils pending preparation housed at the ICP ensure the growth of the museum's collection in years to come.

External factors: **O24.** The upcoming network of Natural Science Museums of Catalonia will promote funding opportunities as well as outreach and collection management support | **O25.** The rich fossil record from Catalonia facilitates research and fosters international collaborations | **O29.** High potential for cultural knowledge transfer | **O32.** Cultural heritage laws provide increased protection of paleontological sites and fossils and increased funding opportunities for paleontological institutions | **O33.** Main driving force of Catalan paleontology with the potential to agglutinate efforts by other institutions.

Indicators: **I118.** Permanent deposits of fossils given to the ICP by the Culture Department average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA53. Increase the number of fossils catalogued into the ICP collection.**

  Type of strategy: Weakness-Threat.

  Internal factors: **W11.** Excessive multitasking due to administrative tasks, bureaucracy, and other academic duties (teaching, supervision, collection management) leaves too little working time for research | **W12.** Insufficient personnel for communication, preparation, collection management, and processing CT scans | **W20.** Insufficient storage space for all the fossils recovered in rescue excavations | **W23.** Having a museum is costly because it requires outreach and collection management personnel | **W28.** About half of the >120,000 ICP cataloged fossils remain to be digitally inventoried, which is costly and time consuming | **W29.** The ICP storehouses are almost full due to the >100,000 fossils pending preparation, which hinders assuming the deposits from new paleontological excavations.

  External factors: **T33.** The work of some technicians and researchers (e.g., preparation and study of fossils) as well as fieldwork and dissemination/outreach activities are seriously affected by lockdowns and other restrictions associated with the pandemic.

  Indicators: **I119.** Record numbers given to catalogued fossils average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA54. Determine if the ICP needs to change collection management software.**

  Type of strategy: Weakness-Threat.

  Internal factors: **W23.** Having a museum is costly because it requires outreach and collection management personnel | **W28.** About half of the >120,000 ICP cataloged fossils remain to be digitally inventoried, which is costly and time consuming.

  External factors: **T16.** The upcoming network of Natural Science Museums of Catalonia has, at least initially, very limited funding.

Indicators: **I120.** Decision about collection management software to be used taken not later than 2025.

✓ **Strategic Action SA55. Be an active and relevant member of the Natural Sciences Museums of Catalonia network.**

Type of strategy: Strength-Opportunity.

Internal factors: **S1.** Mission combines research with dissemination and conservation | **S24.** Having a museum facilitates scientific dissemination and outreach.

External factors: **O24.** The upcoming network of Natural Science Museums of Catalonia will promote funding opportunities as well as outreach and collection management support | **O33.** Main driving force of Catalan paleontology with the potential to agglutinate efforts by other institutions.

Indicators: **I121.** Ongoing agreement with the Museu de Ciències Naturals de Barcelona and the Generalitat de Catalunya to be a member of the network | **I122.** ICP representatives involved in all active commissions and/or working groups of the network.

Fundraising & Knowledge Transfer:

- **Strategic Goal SG17. Avoid budgetary problems by means of promoting service provision and competitive projects.**

✓ **Strategic Action SA56. Increase the operating budget of the ICP beyond that determined by salary increases required by law.**

Type of strategy: Strength-Opportunity.

Internal factors: **S19.** The Research Support & External Services Department generates abundant revenues by means of service provision to third parties.

External factors: **O6.** Stable basal budget from the Catalan Government | **O7.** External (competitive and service provision) funding higher than basal budget | **O10.** The City Council of Sabadell would like to join the Board of Trustees to support the museum | **O11.** The ICP receives direct funding from the Culture Department for outreach activities | **O35.** Being a CERCA center has budgetary, financial, and organizational advantages | **O36.** Catalan Agreement on the Knowledge Society determines a progressive increase of public research funding in the next few years | **O37.** The upcoming Catalan Science Law should consolidate budget increase for CERCA centers. | **O43.** New EU Research & Innovation Investment Program “Horizon Europe” (2021-2027) with a proposed budget of € 100 billion | **O44.** Due to the pandemic there is an increased recognition by lay people about the importance of science and the fact that research is underfinanced. | **O45.** After an initial huge investment focused specifically on biomedical research, the pandemic will likely result in new funding opportunities for research in general.

Indicators: **I123.** Basal budget provided by the Generalitat de Catalunya and other patrons average: 2022-2025 > 2018-2021 | **I124.** Total operating budget average: 2022-2025 > 2018-2021.

- ✓ **Strategic Action SA57. Maintain the ratio between competitive + service provision budget and total operating budget above 50%.**

  Type of strategy: Strength-Threat.

  Internal factors: **S19.** The Research Support & External Services Department generates abundant revenues by means of service provision to third parties | **S26.** Free access to electronic publications through the UAB network saves money.

  External factors: **T8.** Midterm planning of funding expenditure is hampered by the unpredictability of competitive and service provision income | **T9.** Bad prospects for increasing private funding through service provision due to pandemic-related forthcoming crisis | **T17.** Low capacity for technological transfer.

  Indicators: **I125.** Competitive + service provision / total operating budget average 2022-2025 > 2018-2021 | **I126.** Competitive + service provision / total operating budget average 2022-2025 ≥ 50%.

- ✓ **Strategic Action SA58. Prevent budgetary deficit.**

  Type of strategy: Weakness-Threat.

  Internal factors: **W22.** Having the main headquarter in a UAB building has elevated maintenance costs | **W23.** Having a museum is costly because it requires outreach and collection management personnel | **W24.** The industrial CT scan is currently damaged and very expensive to fix | **W26.** High costs associated with preventing obsolescence of IT and other scientific equipment (e.g., microscopes), as well as associated software | **W27.** Available vehicles for fieldwork are too old or even broken.

  External factors: **T6.** Most of the basal budget is provided by a single patron | **T7.** Future increases of the basal budget dependent on obtaining the maximum qualification (A) in CERCA evaluation | **T8.** Midterm planning of funding expenditure is hampered by the unpredictability of competitive and service provision income | **T9.** Bad prospects for increasing private funding through service provision due to pandemic-related forthcoming crisis | **T17.** Low capacity for technological transfer | **T22.** Pending lawsuit with the Spanish Government about VAT return.

  Indicators: **I127.** Positive overall result of the 2022-2025 financial years | **I128.** Obtain a budgetary surplus and transfer part of it to investment budget.

- ✓ **Strategic Action SA59. Promote further the provision of external services by the Research Support & External Services Department.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S18.** The Preparation & Conservation Area staff has the required academic background and specific training in fossil preparation | **S19.** The Research Support & External Services Department generates abundant revenues by means of service provision to third parties | **S28.** Having a museum officially recognized as such

with fossil collections promotes the conservation of paleontological heritage and research based on it | **S29.** A modern and fully equipped Preparation Lab is essential for paleontological research and positive for service provision | **S30.** The 3D Virtual Lab of the Computational Paleobiology Research Group provides research support and promotes service provision.

External factors: **O29.** High potential for cultural knowledge transfer | **O30.** Good atmosphere regarding scientific innovation and development at the local and regional level | **O32.** Cultural heritage laws provide increased protection of paleontological sites and fossils and increased funding opportunities for paleontological institutions.

Indicators: **I129.** Paleontological fieldwork at ACM still ongoing in 2025 | **I130.** Fieldwork service provision income average 2022-2025 ≥ 2018-2021 | **I131.** Preparation and casting service provision income average 2022-2025 ≥ 2018-2021 | **I132.** Museum service provision income average 2022-2025 ≥ 2018-2021 | **I133.** Virtual paleontology service provision income average 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA60. Increase fundraising by means of national competitive projects and individual grants.**

  Type of strategy: Weakness-Opportunity.

  Internal factors: **W10.** Research staff lacks sufficient critical mass for undertaking some large-scale research projects | **W11.** Excessive multitasking due to administrative tasks, bureaucracy, and other academic duties (teaching, supervision, collection management) leaves too little working time for research.

  External factors: **O27.** Potential access to ERDF funds | **O34.** Good capacity for attracting funds from the Catalan University and Research System | **O42.** Good capacity for attracting funds from the Spanish System of Science, Technology and Innovation. | **O45.** After an initial huge investment focused specifically on biomedical research, the pandemic will likely result in new funding opportunities for research in general.

  Indicators: **I134.** Spanish ministries competitive income average 2022-2025 ≥ 2018-2021 | **I135.** AGAUR competitive income average 2022-2025 ≥ 2018-2021 | **I136.** OSIC competitive income average 2022-2025 ≥ 2018-2021 | **I137.** Number of active national R+D projects in 2025 ≥ 2021 | **I138.** Number of ICP consolidated research groups in 2025 ≥ 2021 | **I139.** Number of active OSIC fieldwork projects in 2025 ≥ 2021.

- ✓ **Strategic Action SA61. Increase fundraising by means of transnational and European funding.**

  Type of strategy: Weakness-Threat.

  Internal factors: **W11.** Excessive multitasking due to administrative tasks, bureaucracy, and other academic duties (teaching, supervision, collection management) leaves too little working time for research | **W14.** Current lack of sufficient administrative capacity to manage a big transnational project (e.g., ERC grant).

External factors: **T28.** Structural problem of low funding levels for research (particularly in natural sciences) leads to exceeding competitiveness among researchers and may cause burnout and even more serious mental health problems due to stress and overwork | **T30.** Low demonstrated capacity for attracting ERC and other European funds | **T31.** New EU Research & Innovation Investment Program "Horizon Europe" (2021-2027) emphasizes technological applicability (biomedicine, agriculture, sustainability, climate change...) at the expense of fundamental (basic) research | **T32.** Focus of funding agencies on biomedical research.

Indicators: **I140.** European and transnational funding average 2022-2025 > 2018-2021 | **I141.** Applications to ERC projects average 2022-2025 ≥ 1/yr | **I142.** At least one big European or transnational project (as coordinator or partner with overheads) above 1 M€ total budget (e.g., ERC, Interreg) in 2022-2025 | **I143.** Participate as beneficiary organization in a MSC-ITN during 2022-2025.

- ✓ **Strategic Action SA62. Increase fundraising my means of donors and sponsors.**

  Type of strategy: Strength-Threat.

  Internal factors: **S1.** Mission combines research with dissemination and conservation | **S2.** Paleobiological aims and scope provide a unique perspective among life sciences thanks to access to deep time.

  External factors: **T5.** Low biomedical and technological applicability hampers societal impact | **T9.** Bad prospects for increasing private funding through service provision due to pandemic-related forthcoming crisis | **T11.** Low fundraising potential for sponsors and donors.

  Indicators: **I144.** Income from donors average 2022-2025 > 2018-2021 | **I145.** Income from sponsors average 2022-2025 > 2018-2021.

- **Strategic Goal SG18. Promote paleontological vocations and orient them toward research by means of training and supervision.**
  - ✓ **Strategic Action SA63. Increase the number of young students supervised by ICP researchers.**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W11.** Excessive multitasking due to administrative tasks, bureaucracy, and other academic duties (teaching, supervision, collection management) leaves too little working time for research.

    External factors: **O18.** Agreement with the UAB with regard to teaching in university master degrees | **O20.** Agreement with multiple Catalan and Spanish universities to allow its undergraduate students to perform practical internships and bachelor theses at the ICP.

    Indicators: **I146.** Finished bachelor and master's theses supervised by ICP researchers or research associates average: 2022-2025 ≥ 2018-2021 | **I147.** Finished PhD dissertations supervised by ICP researchers or research associates average: 2022-2025

≥ 2018-2021 | **I148.** Ongoing PhD dissertations supervised by ICP researchers or research associates 2025 ≥ 2021.

- ✓ **Strategic Action SA64. More actively promote the volunteering program of the ICP.**

  Type of strategy: Weakness-Threat.

  Internal factors: **W16.** Volunteers require frequent, if not constant, supervision by researchers and/or technicians (even forcing changes in their work schedule) until they are adequately trained.

  External factors: **T24.** Very limited university training in paleontology | **T28.** Structural problem of low funding levels for research (particularly in natural sciences) leads to exceeding competitiveness among researchers and may cause burnout and even more serious mental health problems due to stress and overwork.

  Indicators: **I149.** Publicize and offer volunteering opportunities through the ICP webpage | **I150.** Publicize and offer volunteering opportunities through relevant volunteering portals and entities (e.g., the Oficina d'Entitats i Voluntariat of the City Council of Sabadell).

- ✓ **Strategic Action SA65. Increase the number of national students that perform practicums at the ICP.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S25.** Being a UAB research institute promotes international reputation and also fosters training, knowledge transfer, and talent attraction.

  External factors: **O20.** Agreement with multiple Catalan and Spanish universities to allow its undergraduate students to perform practical internships and bachelor theses at the ICP.

  Indicators: **I151.** University practicum students at the ICP average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA66. Increase the number of international students that perform traineeships or internships at the ICP.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S25.** Being a UAB research institute promotes international reputation and also fosters training, knowledge transfer, and talent attraction.

  External factors: **O22.** Possibility for students from foreign universities to perform research internships at the ICP through Erasmus grants.

  Indicators: **I152.** Erasmus traineeships at the ICP average: 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA67. Actively participate in university teaching.**

  Type of strategy: Weakness-Opportunity.

  Internal factors: **W11.** Excessive multitasking due to administrative tasks, bureaucracy, and other academic duties (teaching, supervision, collection management) leaves too little working time for research.

  External factors: **O18.** Agreement with the UAB with regard to teaching in university master degrees | **O33.** Main driving force of Catalan paleontology with the potential to

agglutinate efforts by other institutions | **O47.** Following the restrictions associated with the pandemic, there has been an increase in the offer of free online training opportunities and a reduction of travel expenses due to an increase in virtual international scientific meetings.

Indicators: **I153.** Participation in the UAB/UB Paleobiology & Fossil Record master (or equivalent) still active in 2025 | **I154.** Participation in the UB/UAB Biological Anthropology master (or equivalent) still active in 2025 | **I155.** Number of students in (and revenues generated by) the paleobiology master (or equivalent) average 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA68. Actively participate in the (co)organization of specialized scientific courses and workshops.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S2.** Paleobiological aims and scope provide a unique perspective among life sciences thanks to access to deep time | **S25.** Being a UAB research institute promotes international reputation and also fosters training, knowledge transfer, and talent attraction.

  External factors: **O19.** Strategic alliance with the company Transmitting Science in the organization of international scientific courses | **O33.** Main driving force of Catalan paleontology with the potential to agglutinate efforts by other institutions | **O47.** Following the restrictions associated with the pandemic, there has been an increase in the offer of free online training opportunities and a reduction of travel expenses due to an increase in virtual international scientific meetings.

  Indicators: **I156.** Coorganization of specialized courses with Transmitting Science still active in 2025 | **I157.** Number of scientific courses and workshops (co)organized average 2022-2025 ≥ 2018-2021

- **Strategic Goal SG19. Continue promoting the recovery, conservation and study of paleontological heritage.**
  - ✓ **Strategic Action SA69. Increase the number of fieldwork campaigns.**

    Type of strategy: Strength-Threat.

    Internal factors: **S1.** Mission combines research with dissemination and conservation | **S28.** Having a museum officially recognized as such with fossil collections promotes the conservation of paleontological heritage and research based on it.

    External factors: **T20.** Excessive bureaucracy for getting and justifying fieldwork permits and grants | **T33.** The work of some technicians and researchers (e.g., preparation and study of fossils) as well as fieldwork and dissemination/outreach activities are seriously affected by lockdowns and other restrictions associated with the pandemic.

    Indicators: **I158.** Research paleontological campaigns average 2022-2025 ≥ 2018-2021 | **I159.** Rescue paleontological campaigns average 2022-2025 ≥ 2018-2021.
  - ✓ **Strategic Action SA70. Increase the number of fossils prepared.**

Type of strategy: Strength-Opportunity.

Internal factors: **S1.** Mission combines research with dissemination and conservation | **S29.** A modern and fully equipped Preparation Lab is essential for paleontological research and positive for service provision | **S33.** The >100,000 fossils pending preparation housed at the ICP ensure the growth of the museum's collection in years to come.

External factors: **O20.** Agreement with multiple Catalan and Spanish universities to allow its undergraduate students to perform practical internships and bachelor theses at the ICP | **O21.** Agreement with the Escola Superior de Conservació i Restauració de Béns Culturals de Catalunya to allow its undergraduate students to perform fossil preparation practicums at the ICP | **O23.** Mutually beneficial agreements with city councils, museums and/or paleontological interpretation centers throughout the Catalan territory.

Indicators: **I160.** Number of prepared fossils average 2022-2025 ≥ 2018-2021.

✓ **Strategic Action SA71. Increase the number of queries about ICP fossils.**

Type of strategy: Strength-Threat.

Internal factors: **S28.** Having a museum officially recognized as such with fossil collections promotes the conservation of paleontological heritage and research based on it | **S32.** The paleontological collections of the ICP include >120,000 fossils available for study that facilitate paleontological research.

External factors: **T33.** The work of some technicians and researchers (e.g., preparation and study of fossils) as well as fieldwork and dissemination/outreach activities are seriously affected by lockdowns and other restrictions associated with the pandemic.

Indicators: **I161.** Total number of queries 2022-2025 ≥ 2018-2021.

Outreach & Communication:

- **Strategic Goal SG20. Disseminate further the research outputs and activities of the ICP by means of digital and mass media.**

✓ **Strategic Action SA72. Increase the visibility of the ICP website.**

Type of strategy: Strength-Opportunity.

Internal factors: **S1.** Mission combines research with dissemination and conservation | **S31.** Webpage and social networks promote visibility.

External factors: **O3.** Dinosaurs, followed by human evolution, attract great interest from lay people.

Indicators: **I162.** ICP website visitors average 2022-2025 ≥ 2018-2021 | **I163.** Website redesigned not later than 2025.

✓ **Strategic Action SA73. Increase the number of news published on the ICP webpage.**

Type of strategy: Weakness-Opportunity.

Internal factors: **W12.** Insufficient personnel for communication, preparation, collection management, and processing CT scans.

External factors: **O3.** Dinosaurs, followed by human evolution, attract great interest from lay people.

Indicators: **I164.** ICP website news average 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA74. Increase the visibility of the ICP and ICP Museum on social networks.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S1.** Mission combines research with dissemination and conservation | **S28.** Having a museum officially recognized as such with fossil collections promotes the conservation of paleontological heritage and research based on it | **S31.** Webpage and social networks promote visibility.

  External factors: **O3.** Dinosaurs, followed by human evolution, attract great interest from lay people | **O4.** The ICP has a number of fans/followers of its social networks.

  Indicators: **I165.** ICP Facebook fans average 2022-2025 ≥ 2018-2021 | **I166.** ICP Twitter followers average 2022-2025 ≥ 2018-2021 | **I167.** ICP Museum Twitter followers average 2022-2025 ≥ 2018-2021 | **I167.** ICP Museum bulletin subscribers 2022-2025 ≥ 2018-2021 | **I169.** Fossil Preparation Instagram followers average 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA75. Increase the visibility of the ICP on mass media.**

  Type of strategy: Weakness-Threat.

  Internal factors: **W12.** Insufficient personnel for communication, preparation, collection management, and processing CT scans.

  External factors: **T15.** Very few media specializing in science dissemination in Catalonia.

  Indicators: **I170.** ICP press releases average 2022-2025 ≥ 2018-2021 | **I171.** ICP press conferences average 2022-2025 ≥ 2018-2021.

- ✓ **Strategic Action SA76. Increase the visibility of the Dinosaurs from the Pyrenees project on social networks.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S1.** Mission combines research with dissemination and conservation | **S31.** Webpage and social networks promote visibility.

  External factors: **O3.** Dinosaurs, followed by human evolution, attract great interest from lay people | **O4.** The ICP has a number of fans/followers of its social networks | **O11.** The ICP receives direct funding from the Culture Department for outreach activities | **O23.** Mutually beneficial agreements with city councils, museums and/or paleontological interpretation centers throughout the Catalan territory | **O33.** Main driving force of Catalan paleontology with the potential to agglutinate efforts by other institutions.

Indicators: **I172.** Conca Dellà Museum + Dinosfera + Dinosaurs of the Pyrenees websites visitors average 2022-2025 ≥ 2018-2021 | **I173.** Conca Dellà Museum + Dinosfera + Dinosaurs of the Pyrenees Facebook fans average 2022-2025 ≥ 2019-2021 [no data available for 2018] | **I174.** Conca Dellà + Dinosaurs of the Pyrenees Twitter followers average 2022-2025 ≥ 2019-2021 [no data available for 2018].

- **Strategic Goal SG21. Promote further the outreach activities performed by the ICP.**
  - ✓ **Strategic Action SA77. Attract a higher number of visitors to the ICP Museum in Sabadell.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S1.** Mission combines research with dissemination and conservation | **S24.** Having a museum facilitates scientific dissemination and outreach | **S28.** Having a museum officially recognized as such with fossil collections promotes the conservation of paleontological heritage and research based on it.

    External factors: **O3.** Dinosaurs, followed by human evolution, attract great interest from lay people | **O5.** The ICP museum is the only museum devoted specifically to paleontology in the most populated area of Catalonia (province of Barcelona) | **O10.** The City Council of Sabadell would like to join the Board of Trustees to support the museum | **O24.** The upcoming network of Natural Science Museums of Catalonia will promote funding opportunities as well as outreach and collection management support.

    Indicators: **I175.** Museum visits average 2022-2025 ≥ 2018-2021 | **I176.** School + family workshops and guided visits average 2022-2025 ≥ 2018-2021.
  - ✓ **Strategic Action SA78. Attract a higher number of visitors to other museums or interpretation centers managed by the ICP.**

    Type of strategy: Strength-Opportunity.

    Internal factors: **S1.** Mission combines research with dissemination and conservation | **S24.** Having a museum facilitates scientific dissemination and outreach.

    External factors: **O3.** Dinosaurs, followed by human evolution, attract great interest from lay people | **O23.** Mutually beneficial agreements with city councils, museums and/or paleontological interpretation centers throughout the Catalan territory.

    Indicators: **I177.** Conca Dellà Museum + Dinosfera visits average 2022-2025 ≥ 2018-2021 | **I178**. Conca Dellà Museum + Dinosfera activities average 2022-2025 ≥ 2018-2021.
  - ✓ **Strategic Action SA79. Remodel the exhibits of the ICP Museum in Sabadell.**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W21.** Museum exhibit pending remodeling | **W23.** Having a museum is costly because it requires outreach and collection management personnel.

    External factors: **O3.** Dinosaurs, followed by human evolution, attract great interest from lay people | **O5.** The ICP museum is the only museum devoted specifically to paleontology in the most populated area of Catalonia (province of Barcelona) | **O10.**

The City Council of Sabadell would like to join the Board of Trustees to support the museum | **O11.** The ICP receives direct funding from the Culture Department for outreach activities | **O24.** The upcoming network of Natural Science Museums of Catalonia will promote funding opportunities as well as outreach and collection management support.

Indicators: **I179.** Receive funding from the Culture Department to plan and execute the exhibit remodeling | **I180.** Museological and museographical plans ready not later than 2023 | **I181.** Remodeled permanent exhibit not later than 2025 | **I182.** New temporary exhibit not later than 2025.

- ✓ **Strategic Action SA80. Design and implement new temporary exhibits based on the fossils housed at the ICP with possibility to itinerate.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S24.** Having a museum facilitates scientific dissemination and outreach | **S28.** Having a museum officially recognized as such with fossil collections promotes the conservation of paleontological heritage and research based on it | **S32.** The paleontological collections of the ICP include >120,000 fossils available for study that facilitate paleontological research | **S33.** The >100,000 fossils pending preparation housed at the ICP ensure the growth of the museum's collection in years to come.

  External factors: **O3.** Dinosaurs, followed by human evolution, attract great interest from lay people | **O5.** The ICP museum is the only museum devoted specifically to paleontology in the most populated area of Catalonia (province of Barcelona) | **O10.** The City Council of Sabadell would like to join the Board of Trustees to support the museum | **O11.** The ICP receives direct funding from the Culture Department for outreach activities | **O24.** The upcoming network of Natural Science Museums of Catalonia will promote funding opportunities as well as outreach and collection management support.

  Indicators: **I183.** New temporary exhibits during 2022-2025 ≥ 2 | **I184.** New itinerant temporary exhibits during 2022-2025 ≥ 1.

- ✓ **Strategic Action SA81. Collaborate with other museums and interpretation centers throughout Catalonia.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S1.** Mission combines research with dissemination and conservation.

  External factors: **O3.** Dinosaurs, followed by human evolution, attract great interest from lay people | **O23.** Mutually beneficial agreements with city councils, museums and/or paleontological interpretation centers throughout the Catalan territory | **O24.** The upcoming network of Natural Science Museums of Catalonia will promote funding opportunities as well as outreach and collection management support | **O33.** Main driving force of Catalan paleontology with the potential to agglutinate efforts by other institutions.

Indicators: **I185.** Collaborate with the Ajuntament de Subirats in dissemination and outreach activities related to els Casots site | **I186.** Active collaboration agreement with the Ajuntament dels Hostalets de Pierola in relation to the CRIP | **I187.** Collaboration with CosmoCaixa to exhibit fossils loaned by the ICP | **I188.** Ongoing agreements with other city councils related to the Dinosaurs of the Pyrenees Project.

- ✓ **Strategic Action SA82. Increase competitive fundraising for outreach actions aimed to the general public.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S1.** Mission combines research with dissemination and conservation | **S24.** Having a museum facilitates scientific dissemination and outreach | **S31.** Webpage and social networks promote visibility.

  External factors: **O3.** Dinosaurs, followed by human evolution, attract great interest from lay people | **O4.** The ICP has a number of fans/followers of its social networks | **O23.** Mutually beneficial agreements with city councils, museums and/or paleontological interpretation centers throughout the Catalan territory | **O24.** The upcoming network of Natural Science Museums of Catalonia will promote funding opportunities as well as outreach and collection management support.

  Indicators: **I189.** Applications to FECYT projects average 2022-2025 ≥ 2018-2021 | **I190.** Applications to outreach OSIC projects average 2022-2025 ≥ 2018-2021 | **I191.** Competitive income for outreach activities average 2022-2025 ≥ 2018-2021.

- **Strategic Goal SG22. Improve internal communication.**
  - ✓ **Strategic Action SA83. Regularly organize internal talks (paleovermuts).**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W11**. Excessive multitasking due to administrative tasks, bureaucracy, and other academic duties (teaching, supervision, collection management) leaves too little working time for research | **W12.** Insufficient personnel for communication, preparation, collection management, and processing CT scans | **W19.** Having two headquarters is costly, detrimental for group cohesion, and implies several other inconveniences.

    External factors: **O46.** Due to lockdowns and other restrictions associated with the pandemic new forms of working have become generalized (telematic meetings, teleworking, museum workshops at schools...).

    Indicators: **I192.** ICP Director's paleovermut average 2022-2025 ≥ 1 per yr | **I193.** ICP non-academic staff paleovermut average 2022-2025 ≥ 2 per yr | **I194.** ICP researchers paleovermut average 2022-2025 ≥ 3 per yr | **I195.** Guest or visiting researcher average 2022-2025 ≥ 1 per yr.

  - ✓ **Strategic Action SA84. Ask for feedback to ICP personnel by means of surveys.**

    Type of strategy: Weakness-Opportunity.

    Internal factors: **W5.** Part of the personnel, not involved in commissions and committees, is not sufficiently involved in decision-making | **W12.** Insufficient

personnel for communication, preparation, collection management, and processing CT scans | **W19.** Having two headquarters is costly, detrimental for group cohesion, and implies several other inconveniences.

External factors: **O46.** Due to lockdowns and other restrictions associated with the pandemic new forms of working have become generalized (telematic meetings, teleworking, museum workshops at schools...).

Indicators: **I196.** Surveys about courses offered to employees average 2022-2025 ≥ 1 per yr | **I197.** Surveys about strategic issues ≥ 1 per yr.

- ✓ **Strategic Action SA85. Maintain existing telematic mechanisms and implement new ones of internal communication.**

  Type of strategy: Weakness-Opportunity.

  Internal factors: **W12.** Insufficient personnel for communication, preparation, collection management, and processing CT scans | **W19.** Having two headquarters is costly, detrimental for group cohesion, and implies several other inconveniences | **W25.** Insufficient resources to adequately manage internal communication (e.g., lack of intranet).

  External factors: **O46.** Due to lockdowns and other restrictions associated with the pandemic new forms of working have become generalized (telematic meetings, teleworking, museum workshops at schools...).

  Indicators: **I198.** Internal bulletin sent to personnel on average 2022-2025 ≥ 2 per yr | **I199.** Create a digital space for ICP personnel that merges current electronic mechanisms for the reservation of infrastructures and equipment with an internal calendar, and access to relevant documents and services (e.g., TimeNet).

- ✓ **Strategic Action SA86. Continue using an app to register working time of ICP staff.**

  Type of strategy: Strength-Opportunity.

  Internal factors: **S13.** Enforced policy and electronic registration system to monitor staff working time.

  External factors: **O46.** Due to lockdowns and other restrictions associated with the pandemic new forms of working have become generalized (telematic meetings, teleworking, museum workshops at schools...).

  Indicators: **I200.** Continue using an app to register working time.

5.2. Potential impact of strategic actions

The strategic goals and actions detailed above are recapitulated in a more summary fashion below, including a methodology for the future assessment of the Strategic Plan fulfillment based on the potential impact of each goal and numerous binary indicators. The Strategic Plan for 2022–2025 includes a total of 22 strategic goals and 86 strategic actions (as compared with the 19 goals and 38 actions of the previous plan for 2018–2021): 7 goals and 23 actions from the strategic area of Scientific Policy & Research; 9 goals and 32 actions from the strategic area

of Management & Human Resources; 3 goals and 16 actions from the strategic area of Fundraising & Knowledge Transfer; and 3 goals and 15 actions from the strategic area of Outreach & Communication. In turn, in terms of strategy, 35 actions correspond to the 'strength-opportunity' (SO) category, followed by 21 to 'weakness-opportunity' (WO), 16 to to 'strength-threat' (ST), and 14 to 'weakness-threat' (WT).

This means that more than 40% of the strategic goals are intended to use the strengths of the ICP to maximize its opportunities and hence improve the current situation (SO, 41%). The rest of the strategic goals consist in minimizing weaknesses by taking advantage of opportunities to maintain the current situation (WO, 24%), or in using strengths to minimize threats (ST, 19%) or in minimizing weaknesses and avoiding threats (WT, 16%) so as to prevent a deterioration of the current situation of the ICP. In other words, in rough terms, almost 60% of the strategic aims are intended to preserve the current situation of the ICP, whereas slightly more than 40% are aimed to improve it further. This appears consistent with the strategy of 'hold and maintain' indicated by the SWOT analysis, although differs to some extent from the previous strategic plan, where roughly half of the strategic aims were aimed to improve. This is a bit paradoxical given the somewhat better results of the SWOT analysis, closer to the 'grow & build' strategy than four years ago. It seems that, as the ICP improves, the more difficult it becomes to improve further (or more important becomes to be able to preserve the advances done during the last years). In any case, the menace of unforeseen weaknesses and threats should never be belittled, making it very difficult to fulfill any strategic plan one hundred percent. Therefore, like four years ago, a strategy devised to grow to some (reasonable) extent, such as that proposed for the ICP for the next few years, is probably the best way to prevent the current status quo from worsening.

To measure the impact of each strategic action, we relied on the weighted scores assigned to the internal and external factors during the SWOT analysis. Each action must include at least one internal and one internal factor in accordance with the strategy (SO, WT, WO or ST) determined. However, each action can include multiple internal and external factors simultaneously, and each factor may be included in multiple actions. To prevent biases introduced by the unequal distribution of factors among actions, we standardized the weighted score of each factor by dividing its weighted score by the number of actions in which it is included. This procedure ensures that the sums of internal and external factors for the included actions amount the total weighted score of IFE and EFE, respectively. Then, for each action, a 'normalized' weighted score (in %) was computed as the sum of both internal and external weighted scores divided by the sum of IFE and EFE total weighted scores and multiplied by 100, so that the sum of the % weighted scores of all the actions equals 100%. The % weighted score of each action was taken to denote their significance in the framework of the Strategic Plan as a whole. The standardized weighted scores for all the internal and external factors (including the number of strategic actions in which each is included) are detailed in the following table.

Internal & External factors	WS	Nº SAs	Standardized WS
S1	0.0750151	12	0.00625126
S2	0.0760717	5	0.01521433
S3	0.0655062	3	0.02183538
S4	0.0470572	1	0.04705715
S5	0.0630680	2	0.03153398
S6	0.0433389	3	0.01444630
S7	0.0677005	1	0.06770053
S8	0.0423331	3	0.01411105
S9	0.0689196	1	0.06891963
S10	0.0434608	2	0.02173041
S11	0.0400473	1	0.04004734
S12	0.0668878	2	0.03344390
S13	0.0301727	1	0.03017265
S14	0.0703825	2	0.03519127
S15	0.0713578	9	0.00792865
S16	0.0633931	7	0.00905615
S17	0.0716016	2	0.03580082
S18	0.0726582	2	0.03632910
S19	0.0722518	3	0.02408394
S20	0.0418150	2	0.02090752
S21	0.0688384	1	0.06883835
S22	0.0434608	1	0.04346081
S23	0.0716829	3	0.02389430
S24	0.0748526	5	0.01497051
S25	0.065750	7	0.00939285
S26	0.0735522	1	0.07355220
S27	0.0386454	3	0.01288179
S28	0.0735319	7	0.01050455
S29	0.0750151	3	0.02500504
S30	0.0643683	1	0.06436833
S31	0.0714391	5	0.01428782
S32	0.0774533	4	0.01936333
S33	0.0668065	4	0.01670163
S34	0.0783473	7	0.01119247
S35	0.0515069	1	0.05150685
W1	0.0278361	1	0.02783605
W2	0.0164172	1	0.01641718
W3	0.0243413	3	0.00811377
W4	0.0286081	1	0.02860815
W5	0.0236505	2	0.01182524
W6	0.0165797	6	0.00276329
W7	0.0243819	2	0.01219097

W8	0.0160108	1	0.01601081
W9	0.0222688	1	0.02226884
W10	0.0161734	6	0.00269556
W11	0.0154419	7	0.00220599
W12	0.0160108	7	0.00228726
W13	0.0248289	3	0.00827632
W14	0.0158686	1	0.01586858
W15	0.0215780	1	0.02157802
W16	0.0225127	1	0.02251266
W17	0.0174737	1	0.01747373
W18	0.0338096	1	0.03380963
W19	0.0262106	3	0.00873686
W20	0.0166813	1	0.01668131
W21	0.0138164	1	0.01381643
W22	0.0255604	2	0.01278020
W23	0.0234473	4	0.00586183
W24	0.0148323	2	0.00741617
W25	0.0244632	1	0.02446322
W26	0.0156044	4	0.00390111
W27	0.0272468	2	0.01362341
W28	0.0288926	2	0.01444630
W29	0.0168439	1	0.01684386
W30	0.0264138	1	0.02641377
O1	0.0359461	1	0.03594607
O2	0.0379540	1	0.03795396
O3	0.0539354	10	0.00539354
O4	0.0359950	3	0.01199835
O5	0.0577880	3	0.01926266
O6	0.0609222	1	0.06092223
O7	0.0600734	3	0.02002446
O8	0.0421656	2	0.02108281
O9	0.0117372	2	0.00586858
O10	0.0507359	4	0.01268397
O11	0.0404026	4	0.01010065
O12	0.0388844	1	0.03888445
O13	0.0578533	8	0.00723166
O14	0.0429982	5	0.00859963
O15	0.0600734	1	0.06007337
O16	0.0568085	2	0.02840425
O17	0.0378070	1	0.03780704
O18	0.0397170	2	0.01985849
O19	0.0349176	2	0.01745882
O20	0.0526948	3	0.01756493

O21	0.0499523	1	0.04995231
O22	0.0385416	1	0.03854164
O23	0.0525642	5	0.01051284
O24	0.0351625	6	0.00586042
O25	0.0607916	5	0.01215833
O26	0.0302163	5	0.00604325
O27	0.0373173	1	0.03731731
O28	0.0312447	1	0.03124468
O29	0.0418718	2	0.02093589
O30	0.0323221	2	0.01616104
O31	0.0378070	5	0.00756141
O32	0.0547843	2	0.02739215
O33	0.0535437	7	0.00764909
O34	0.0429492	2	0.0214746
O35	0.0586368	2	0.02931841
O36	0.0365337	2	0.01826687
O37	0.0369255	3	0.01230851
O38	0.0546537	2	0.02732685
O39	0.0550455	1	0.05504549
O40	0.0538048	1	0.05380484
O41	0.0400108	4	0.01000271
O42	0.0428512	2	0.02142562
O43	0.0282690	1	0.02826900
O44	0.0305101	1	0.03051009
O45	0.0281104	3	0.00937014
O46	0.0443368	9	0.00492631
O47	0.0436838	4	0.01092095
T1	0.0236376	1	0.02363756
T2	0.0185444	1	0.01854439
T3	0.0230499	1	0.02304989
T4	0.0230825	1	0.02308254
T5	0.0111005	3	0.00370017
T6	0.0260862	2	0.01304310
T7	0.0437817	4	0.01094543
T8	0.0258903	2	0.01294516
T9	0.0228213	4	0.00570534
T10	0.0263147	2	0.01315737
T11	0.0230825	2	0.01154127
T12	0.0351135	1	0.03511354
T13	0.0253353	2	0.01266764
T14	0.0248782	2	0.01243910
T15	0.0095824	1	0.00958235
T16	0.0179567	1	0.01795671

T17	0.0224296	2	0.01121478
T18	0.0250415	1	0.02504145
T19	0.0217766	2	0.01088830
T20	0.0202421	1	0.02024211
T21	0.0333995	2	0.01669974
T22	0.0216786	1	0.02167865
T23	0.0290899	1	0.02908987
T24	0.0222663	1	0.02226632
T25	0.0216647	3	0.00722155
T26	0.0259230	1	0.02592296
T27	0.0216786	1	0.02167865
T28	0.0243558	3	0.00811861
T29	0.0246170	1	0.02461702
T30	0.0284043	3	0.00946808
T31	0.0264453	1	0.02644534
T32	0.0128799	1	0.01287986
T33	0.0320772	3	0.01069241
T34	0.0311957	1	0.03119571

The % weighted score for each strategic goal and the four strategic areas was computed as the sum of the % weighted scores for the included strategic actions. On this basis, the most significant strategic area is 'Management & Human Resources' (33.6%), followed by 'Scientific Policy & Research' (29.5%), 'Fundraising & Knowledge Transfer' (24.9%), and finally 'Outreach & Communication' (12.0%). The % weighted score for each strategic goal is reported in the table below. The most important one on this basis is 'SG17. Avoid budgetary problems by means of promoting service provision and competitive projects' (16.4%), followed by 'SG5. Consolidate the ICP as a benchmark institution at the international level regarding paleobiological research' (7.6%) and 'SG21. Promote further the outreach activities performed by the ICP' (7.1%).

Strategic Areas & Goals	WS %
Scientific Policy & Research (29.5%)	
SG1. Consolidate the high scientific production and productivity of the ICP.	3.41%
SG2. Consolidate and increase further the high quality and impact of the ICP scientific production.	3.29%
SG3. Increase the visibility of the scientific production of the ICP by promoting open-access publication and open data sharing.	3.35%
SG4. Promote further the visibility of the ICP in scientific meetings and workshops, particularly at the international level	4.73%
SG5. Consolidate the ICP as a benchmark institution at the international level regarding paleobiological research.	7.62%
SG6. Increase and improve the technical support provided to ICP researchers	5.06%
SG7. Promote publishing ethics and raise awareness about intellectual property among ICP researchers.	2.05%
Management & Human Resources (33.6%)	
SG8. Increase the number of ICP academic staff with emphasis on the recruitment of foreign researchers	4.96%

and ascribed (seconded) personnel.	
SG9. Foster talent attraction and retention when recruiting researchers and specialized technicians.	5.96%
SG10. Improve internal coordination and promote the involvement of ICP personnel in decision-making.	5.75%
SG11. Make full use of the advisory functions of the SAB based on the expertise and experience of its members.	1.52%
SG12. Improve the working conditions and training of ICP staff.	3.32%
SG13. Align ICP strategic goals with those of CERCA and the Catalan Research System.	1.39%
SG14. Comply with the obligations of the Generalitat de Catalunya public sector.	0.69%
SG15. Promote non-discrimination policies.	4.87%
SG16. Manage more efficiently the museum fossil collection.	5.14%
Fundraising & Knowledge Transfer (24.9%)	
SG17. Avoid budgetary problems by means of promoting service provision and competitive projects.	16.42%
SG18. Promote paleontological vocations and orient them toward research by means of training and supervision.	4.70%
SG19. Continue promoting the recovery, conservation and study of paleontological heritage.	3.75%
Outreach & Communication (12.0%)	
SG20. Disseminate further the research outputs and activities of the ICP by means of digital and mass media.	2.80%
SG21. Promote further the outreach activities performed by the ICP.	7.11%
SG22. Improve internal communication.	2.12%
Total	**100.0%**

The % weighted score for each strategic action, including the type of strategy (within brackets) and the internal and external factors considered to compute their % weighted score (based on the standardized weighted score of these factors) has been detailed in the following table.

Strategic Actions	IWS	EWS	WS %
Scientific Policy & Research			
SG1. Consolidate the excellent scientific production and productivity of the ICP.			
SA1 [ST]. Encourage ICP researchers to publish more papers in SCI journals**.**	S15+S16+S34	T28	0.635%
SA2 [WO]. Maintain the current network of research associates with emphasis on R3-R4 categories.	W15	O13+O14+O16	1.151%
SA3 [SO]. Increase the number of publications with international coauthors.	S15+S27	O15+O25	1.627%
SG2. Consolidate and increase further the high quality and impact of the ICP scientific production.			
SA4 [ST]. Encourage ICP researchers to prioritize publication in SCI journals from the first quartile.	S15+S16+S34	T1	0.906%
SA5 [SO]. Encourage ICP researchers to select journals with high impact factors and/or impact factor percentiles.	S15+S16+S34	O1	1.121%
SA6 [ST]. Encourage ICP researchers to target more often SCI journals from the multidisciplinary sciences category.	S15+S16+S34	T5	0.557%
SA7 [ST]. Increase ICP leadership in publications coauthored with researchers from other institutions.	S15+S16+S34	T14	0.710%
SG3. Increase the visibility of the scientific production of the ICP by promoting open-access publication and open data sharing.			
SA8 [ST]. Encourage ICP researchers to publish in gold/bronze open-access SCI journals.	S16+S35	T3+T4	1.707%
SA7 [ST]. Increase ICP leadership in publications coauthored with researchers from other institutions.	W30	O2	1.125%
SA10 [WT]. Promote and facilitate data sharing (open data) by ICP researchers.	W3	T27	0.521%
SG4. Promote further the visibility of the ICP in scientific meetings and workshops, particularly at the international level			
SA11 [SO]. Increase the attendance to scientific meetings and workshops, with emphasis on international ones.	S21+S34	O47	1.590%
SA12 [SO]. (Co)organize scientific meetings.	S27	O13+O19+O46	0.743%
SA13 [ST]. Consolidate and expand the network of international collaborators.	S8+S12+S25+S27	T13+T14+T19+T34	2.396%
SG5. Consolidate the ICP as a benchmark institution at the international level regarding paleobiological research.			
SA14 [ST]. Improve the competitiveness of the ICP relative to other benchmark paleontological institutions (based on the publication metrics used in the ICP annual report).	S2+S3+S15+S25+S34	T6+T7+T9+T11+T12+T23	2.990%
SA15 [WO]. Preserve the current main lines of research at the ICP.	W2	O25	0.500%

SA16 [SO]. Maintain the current number of research groups at the ICP.	S2+S3+S4+S15+S28+S32+S33	O25	2.636%
SA17 [SO]. Promote further a paleoproteomics and paleogenomics research line.	S2+S3+S15	O16+O25	1.496%
SG6. Increase and improve the technical support provided to ICP researchers.			
SA18 [SO]. Maintain or increase the number of research support staff.	S17+S18+S29	O7	2.048%
SA19 [WO]. Take a decision about the viability to repair the CT.	W24+W26	O17+O37+O45	1.238%
SA20 [WO]. Improve fieldwork infrastructure.	W26+W27	O7	0.656%
SA21 [WO]. Agreement with CERCA to improve scientific equipment.	W26	O35+O36+O37	1.115%
SG7. Promote publishing ethics and raise awareness about intellectual property among ICP researchers.			
SA22 [ST]. Disseminate the content of the ICP manual of best practices in research, intellectual property and authorship among ICP researchers.	S5+S20	T21	1.209%
SA23 [ST]. Oversee that ICP researchers adhere to the highest ethical standards in publishing and research.	S5	T21	0.843%
Management & Human Resources			
SG8. Increase the number of ICP academic staff with emphasis on the recruitment of foreign researchers and ascribed (seconded) personnel.			
SA24 [SO]. Increase the critical mass of ICP researchers.	S11	O8+O9+O13	1.298%
SA25 [WO]. Increase the number of foreign ICP staff researchers.	W6	O13+O26+O28+O30+O31	1.241%
SA26 [WT]. Increase the ratio of academic vs. non-academic staff.	W1+W10+W12	T10+T13+T29	1.456%
SA27 [WT]. Increase the number of ascribed (seconded) personnel from the Generalitat de Catalunya and ICREA.	W6+W10	T10	0.325%
SA28 [SO]. Ascribe UAB professors to the ICP (at 50%).	S25	O8+O9	0.635%
SG9. Foster talent attraction and retention when recruiting researchers and specialized technicians.			
SA29 [SO]. Use the OTM-R mechanisms specified in the ICP recruitment protocol and internationally publicize new positions for researchers and specialized technicians (excluding work and service contracts as well as competitive contracts).	S12+S14+S16	O13+O14+O26+O31	1.873%
SA30 [WO]. Increase the number of researchers and technicians recruited by means of competitive calls.	W6+W10	O13+O14+O26+O31+O34+O42	1.360%
SA31 [SO]. Promote talent attraction at early research career stages.	S22+S25	O13+O14+O26+O31	1.439%
SA32 [WT]. Recruit back former talented ICP researchers by means of competitive contracts funded by external agencies.	W6+W10	T19	0.286%
SA33 [WO]. Stabilize talented ICP researchers and technicians with permanent contracts defrayed by basal funds after an international call using OTM-R protocols.	W6+W9+W10	O13+O14+O26+O31	0.999%

SG10. Improve internal coordination and promote the involvement of ICP personnel in decision-making.			
SA34 [SO]. Organize coordination meetings on a quarterly basis.	S6+S10	O46	0.719%
SA35 [SO]. Organize committee meetings regularly.	S6+S7+S9+S10	O46	3.107%
SA36 [WO]. Maintain the main ICP committees and commissions.	W4+W5+W7+W13	O46	1.540%
SA37 [ST]. Regularly update the list of professional categories and job positions at the ICP.	S6	T25	0.379%
SG11. Make full use of the advisory functions of the SAB based on the expertise and experience of its members.			
SA38 [SO]. Organize regular meetings with the SAB.	S8	O46	0.333%
SA39 [SO]. Regularly involve SAB members in ICP internal tasks.	S8	O40	1.187%
SG12. Improve the working conditions and training of ICP staff.			
SA40 [WT]. Improve the salaries of ICP staff.	W6	T18	0.486%
SA41 [WO]. Progressively implement HRS4R policies and renew the EU HR Excellence Award.	W7+W8+W13	O39	1.600%
SA42 [SO]. Provide free training opportunities to ICP personnel.	S20	O12+O47	1.236%
SG13. Align ICP strategic goals with those of CERCA and the Catalan Research System.			
SA43 [WT]. Obtain an excellent qualification in the next evaluation by CERCA.	W3	T7+T30	0.499%
SA44 [WT]. Comply with CERCA recommendations.	W3	T2+T5+T7+T30	0.888%
SG14. Comply with the obligations of the Generalitat de Catalunya public sector.			
SA45 [ST]. Update the ICP transparency webpage.	S31	T25	0.376%
SA46 [WT]. Regularize (and thereafter regularly update) the information in UNEIX platform.	W11+W13	T25	0.310%
SG15. Promote non-discrimination policies.			
SA47 [SO]. Adhere to a zero tolerance policy regarding any type of discrimination, with emphasis on violence against women.	S23	O41	0.593%
SA48 [WO]. Raise awareness about ICP non-discrimination policies.	W18	O41	0.766%
SA49 [WO]. Progressively improve gender balance among ICP personnel.	W17	O38+O41	0.958%
SA50 [SO]. Prevent any gender bias during recruitment.	S14+S23	O38+O41	1.686%
SA51 [ST]. Maintain balanced gender ratios in SAB, committees and commissions.	S23	T26	0.871%
SG16. Manage more efficiently the museum fossil collection.			

SA52 [SO]. Increase the ICP collection of fossils by means of permanent deposits.	S1+S17+S32+S33	O24+O25+O29+O32+O33	2.659%
SA53 [WT]. Increase the number of fossils catalogued into the ICP collection.	W11+W12+W20+W23+W28+W29	T33	1.207%
SA54 [WT]. Determine if the ICP needs to change collection management software.	W23+W28	T16	0.669%
SA55 [SO]. Be an active and relevant member of the Natural Sciences Museums of Catalonia network.	S1+S24	O24+O33	0.607%
Fundraising & Knowledge Transfer			
SG17. Avoid budgetary problems by means of promoting service provision and competitive projects.			
SA56 [SO]. Increase the operating budget of the ICP beyond that determined by salary increases required by law.	S19	O6+O7+O10+O11+O35+O36+O37+O43+O44+O45	4.473%
SA57 [ST]. Maintain the ratio between competitive + service provision budget and total operating budget above 50%.	S19+S26	T8+T9+T17	2.229%
SA58 [WT]. Prevent budgetary deficit.	W22+W23+W24+W26+W27	T6+T7+T8+T9+T17+T22	2.083%
SA59 [SO]. Promote further the provision of external services by the Research Support & External Services Department.	S18+S19+S28+S29+S30	O29+O30+O32	3.930%
SA60 [WO]. Increase fundraising by means of national competitive projects and individual grants.	W10+W11	O27+O34+O42+O45	1.652%
SA61 [WT]. Increase fundraising by means of transnational and European funding.	W11+W14	T28+T30+T31+T32	1.311%
SA62 [ST]. Increase fundraising my means of donors and sponsors.	S1+S2	T5+T9+T11	0.742%
SG18. Promote paleontological vocations and orient them toward research by means of training and supervision.			
SA63 [WO]. Increase the number of young students supervised by ICP researchers.	W11	O18+O20	0.693%
SA64 [WT]. More actively promote the volunteering program of the ICP.	W16	T24+T28	0.925%
SA65 [SO]. Increase the number of national students that perform practicums at the ICP.	S25	O20	0,471%
SA66 [SO]. Increase the number of international students that perform traineeships or internships at the ICP.	S25	O22	0.838%
SA67 [WO]. Actively participate in university teaching.	W11	O18+O33+O47	0.710%
SA68 [SO]. Actively participate in the (co)organization of specialized scientific courses and workshops.	S2+S25	O19+O33+O47	1.060%
SG19. Continue promoting the recovery, conservation and study of paleontological heritage.			
SA69 [ST]. Increase the number of fieldwork campaigns.	S1+S28	T20+T33	0.834%
SA70 [SO]. Increase the number of fossils prepared.	S1+S29+S33	O20+O21+O23	2.203%

SA71 [ST]. Increase the number of queries about ICP fossils.	S28+S32	T33	0.709%
Outreach & Communication			
SG20. Disseminate further the research outputs and activities of the ICP by means of digital and mass media.			
SA72 [SO]. Increase the visibility of the ICP website.	S1+S31	O3	0.453%
SA73 [WO]. Increase the number of news published on the ICP webpage.	W12	O3	0.134%
SA74 [SO]. Increase the visibility of the ICP on social networks.	S1+S28+S31	O3+O4	0.847%
SA75 [WT]. Increase the visibility of the ICP on mass media.	W12	T15	0.208%
SA76 [SO]. Increase the visibility of the Dinosaurs from the Pyrenees project on social networks.	S1+S31	O3+O4+O11+O23+O33	1.157%
SG21. Promote further the outreach activities performed by the ICP.			
SA77 [SO]. Attract a higher number of visitors to the ICP Museum in Sabadell.	S1+S24+S28	O3+O5+O10+O24	1.310%
SA78 [SO]. Attract a higher number of visitors to other museums or interpretation centers managed by the ICP.	S1+S24	O3+O23	0.649%
SA79 [WO]. Remodel the exhibits of the ICP Museum in Sabadell.	W21+W23	O3+O5+O10+O11+O24	1.276%
SA80 [SO]. Design and implement new temporary exhibits based on the fossils housed at the ICP with possibility to itinerate.	S24+S28+S32+S33	O3+O5+O10+O11+O24	2.008%
SA81 [SO]. Collaborate with other museums and interpretation centers throughout Catalonia.	S1	O3+O23+O24+O33	0.624%
SA82 [SO]. Increase competitive fundraising for outreach actions aimed to the general public.	S1+S24+S31	O3+O4+O23+O33	1.242%
SG22. Improve internal communication.			
SA83 [WO]. Regularly organize internal talks (paleovermuts).	W11+W12+W19	O46	0.317%
SA84 [WO]. Ask for feedback to ICP personnel by means of surveys.	W5+W12+W19	O46	0.486%
SA85 [WO]. Maintain existing telematic mechanisms and implement new ones of internal communication.	W12+W19+W25	O46	0.707%
SA86 [SO]. Continue using an app to register working time of ICP staff.	S13	O46	0.614%
		Total	**100%**

5.3. Indicators to assess the fulfillment of the plan

Regarding indicators, each goal includes a variable number of indicators (from 1 to 6), so that the potential impact of each indicator was computed by dividing the % weighted score of its goal by the number of indicators included. The indicators are binary, in the sense that each one includes a criterion (or condition) that may be fulfilled or not. If the criterion holds when the strategic plan comes to an end, then the potential impact of the indicator is counted; otherwise, it is not (i.e., it counts as 0%). A total of 200 indicators have been distinguished (reported in the table below).

The degree of achievement of the strategic plan (%) will be the sum of the potential impact (%) of those indicators whose corresponding condition has been fulfilled, therefore potentially varying from 0% to 100%. At the end of each year, a provisional assessment of the degree of fulfillment will be computed (to be reported in the corresponding Annual Report), just by reducing the time span considered for those indicators based on average values for 2022–2025.

Goals	Actions	Indicators	WS %
Scientific Policy & Research			
SG1	SA1 [ST]	**I1.** SCI papers average production: 2022-2025 ≥ 2018-2021.	0.317%
		I2. SCI papers average productivity: 2022-2025 ≥ 2018-2021.	0.317%
	SA2 [WO]	**I3.** Research associates average: 2022-2025 ≥ 2018-2021.	0.575%
		I4. R3+R4 research associates average: 2022-2025 > 2018-2021.	0.575%
	SA3 [SO]	**I5.** SCI papers with international collaborations average: 2022-2025 ≥ 2018-2021.	0.813%
		I6. % of SCI papers with international collaborations average: 2022-2025 ≥ 2018-2021.	0.813%
SG2	SA4 [ST]	**I7.** Q1 SCI papers average production: 2022-2025 ≥ 2018-2021.	0.302%
		I8. Q1 SCI papers average productivity: 2022-2025 ≥ 2018-2021.	0.302%
		I9. % of Q1 SCI papers average: 2022-2025 ≥ 2018-2021.	0.302%
	SA5 [SO]	**I10.** SCI papers JIF geometric mean: 2022-2025 ≥ 2018-2021.	0.561%
		I11. SCI papers JIF percentile median: 2022-2025 ≥ 2018-2021.	0.561%
	SA6 [ST]	**I12.** Multidisciplinary SCI papers average production: 2022-2025 ≥ 2018-2021.	0.279%
		I13. % of Multidisciplinary SCI papers average: 2022-2025 ≥ 2018-2021.	0.279%
	SA7 [ST]	**I14.** SCI papers with ICP corresponding author average: 2022-2025 > 2018-2021.	0.355%
		I15. % of SCI papers with ICP corresponding author average: 2022-2025 > 2018-2021.	0.355%
SG3	SA8 [ST]	**I16.** Gold/bronze OA SCI papers average production: 2022-2025 ≥ 2018-2021.	0.854%
		I17. % of gold/bronze OA SCI papers average: 2022-2025 ≥ 2018-2021.	0.854%
	SA9 [WO]	**I18.** Continue using the UAB DDD digital repository to post ICP scientific production.	0.563%
		I19. % of published journal papers posted on DDD average: 2022-2025 ≥ 2018-2021.	0.563%
	SA10 [WT]	**I20.** Reach a collaboration agreement with an open data repository (e.g., MorphoSource).	0.174%
		I21. Elaborate a generic data sharing plan of the ICP or adhere to the CERCA equivalent.	0.174%
		I22. Implement the necessary internal mechanisms to monitor the number of datasets published by ICP researchers in data repositories (i.e., excluding supplementary material published on the journal's website).	0.174%
SG4	SA11 [SO]	**I23.** Number of meetings attended by ICP researchers average: 2022-2025 ≥ 2018-2021.	0.530%

		I24. Communications to meetings attended by ICP researchers average: 2022-2025 ≥ 2018-2021.	0.530%
		I25. % of international meetings attended by ICP researchers average: 2022-2025 ≥ 2018-2021.	0.530%
	SA12 [SO]	**I26.** Number of meetings (co)organized by the ICP average: 2022-2025 ≥ 2018-2021.	0.743%
	SA13 [ST]	**I27.** Number of foreign researchers visiting the ICP average: 2022-2025 ≥ 2018-2021.	1.198%
		I28. Number of short stays abroad by ICP researchers: 2022-2025 ≥ 2018-2021.	1.198%
SG5	**SA14 [ST]**	**I29.** Ranking in standardized (%) geometric mean absolute indicators average: 2022-2025 ≥ 2018-2021.	1.495%
		I30. Ranking in standardized (%) geometric mean relative indicators average: 2022-2025 ≥ 2018-2021.	1.495%
	SA15 [WO]	**I31.** Number of research groups in each research area in 2025 ≥ 1.	0.500%
	SA16 [SO]	**I32.** Number of research groups in 2025 ≥ 2021.	2.636%
	SA17 [SO]	**I33.** SCI papers on paleoproteomics average: 2022-2025 > 2018-2021.	0.748%
		I34. SCI papers on ancient DNA average: 2022-2025 > 2018-2021.	0.748%
SG6	**SA18 [SO]**	**I35.** Number of technicians in the Preparation & Conservation Area average: 2022-2025 ≥ 2018-2021.	1.024%
		I36. Number of technicians in the Fieldwork & Collection Management Area average: 2022-2025 ≥ 2018-2021.	1.024%
	SA19 [WO]	**I37.** CT viability plan approved not later than 2023.	0.619%
		I38. CT viability plan executed not later than 2025.	0.619%
	SA20 [WO]	**I39.** New four-wheel off-road vehicle bought not later than 2024.	0.328%
		I40. Ongoing agreement with EDAR Riu Sec to screen-wash sediments.	0.328%
	SA21 [WO]	**I41.** Ongoing agreement with CERCA about scientific equipment.	0.558%
		I42. Funding from CERCA to improve scientific equipment average: 2022-2025 > 2018-2021.	0.558%
SG7	**SA22 [ST]**	**I43.** Manual available from the ICP website.	0.604%
		I44. Training session about ethics in publishing not later 2023.	0.604%
	SA23 [ST]	**I45.** No external or internal complains or accusations about unethical behavior or scientific misconduct by ICP researchers in 2022-2025.	0.422%
		I46. No retractions/expressions of concerns regarding ICP publications in 2022-2025.	0.422%
Management & Human Resources			
SG8	**SA24 [SO]**	**I47.** Staff researchers average: 2022-2025 ≥ 2018-2021.	1.298%

	SA25 [WO]	**I48.** Foreign staff researchers average: 2022-2025 > 2018-2021.	0.621%
		I49. % of foreign staff researchers average: 2022-2025 > 2018-2021.	0.621%
	SA26 [WT]	**I50.** % of staff researchers relative to total structural staff (excluding work and service contracts for service provision) average: 2022-2025 ≥ 2018-2021.	1.456%
	SA27 [WT]	**I51.** ICREA professors ascribed to the ICP average: 2022-2025 ≥ 2018-2021.	0.163%
		I52. Civil servants of the Generalitat ascribed to the ICP average: 2022-2025 ≥ 2018-2021.	0.163%
	SA28 [SO]	**I53.** UAB professors ascribed to the ICP average: 2022-2025 > 2018-2021.	0.635%
SG9	**SA29 [SO]**	**I54.** Recruited researchers after an OTM-R selection process average: 2022-2025 ≥ 2018-2021.	0.624%
		I55. Recruited technicians after an OTM-R selection process average: 2022-2025 ≥ 2018-2021.	0.624%
		I56. New positions (excluding work and service contracts as well as competitive contracts) posted in Euraxess average: 2022-2025 ≥ 2018-2021.	0.624%
	SA30 [WO]	**I57.** New R1 (predoctoral) researchers recruited with competitive contracts (e.g., FI, FPI, FPU) during 2022-2025 ≥ 2018-2021.	0.340%
		I58. New R2 (postdoctoral) researchers recruited with competitive contracts (e.g., Juan de la Cierva and Beatriu de Pinós) during 2022-2025 ≥ 2018-2021.	0.340%
		I59. New R3 (tenure-track) researchers recruited with competitive contracts (e.g., Ramón y Cajal) during 2022-2025 ≥ 2018-2021.	0.340%
		I60. New technicians recruited with competitive contracts (e.g., PTA) during 2022-2025 ≥ 2018-2021.	0.340%
	SA31 [SO]	**I61.** Staff R1+R2 researchers (or PhD students recognized in Organization Chart) average: 2022-2025 ≥ 2018-2021.	0.719%
		I62. R1-R2 positions opened at the ICP and defrayed with basal funds average: 2022-2025 ≥ 2018-2021.	0.719%
	SA32 [WT]	**I63.** Former staff researchers recruited with competitive postdoctoral (JdC, BP, etc.) contracts: average 2022-2025 ≥ 2018-2021.	0.143%
		I64. Former staff researchers recruited with competitive tenure-track or permanent (RyC, ICREA, etc.) contracts: average 2022-2025 ≥ 2018-2021.	0.143%
	SA33 [WO]	**I65.** Stabilized researchers after an OTM-R selection process average: 2022-2025 ≥ 2018-2021.	0.500%
		I66. Stabilized technicians after an OTM-R international selection process average: 2022-2025 ≥ 2018-2021.	0.500%
SG10	**SA34 [SO]**	**I67.** Coordination meetings average: 2022-2025 ≥ 4/yr.	0.719%
	SA35 [SO]	**I68.** Steering Committee meetings average: 2022-2025 ≥ 10/yr.	0.777%
		I69. HRS4R Implementation Committee meetings average: 2022-2025 ≥ 3/yr.	0.777%
		I70. Information Systems Security Committee meetings average: 2022-2025 ≥ 1/yr.	0.777%
		I71. Non-Discrimination Committee meetings average: 2022-2025 ≥ 4/yr.	0.777%
	SA36 [WO]	**I72.** Researchers Commission still active in 2025.	0.308%

		I73. Fieldwork Commission still active in 2025.	0.308%
		I74. HRS4R Committee still active in 2025.	0.308%
		I75. Information Systems Security Committee still active in 2025.	0.308%
		I76. Non-Discrimination Committee still active in 2025.	0.308%
	SA37 [ST]	**I77.** Organization Chart updated on a yearly basis.	0.189%
		I78. Salary Scale updated on a yearly basis.	0.189%
SG11	**SA38 [SO]**	**I79.** At least one annual SAB meeting.	0.166%
		I80. Presentations by ICP director and some researchers to the SAB during annual meeting.	0.166%
	SA39 [SO]	**I81.** SAB members involved in ≥50% ICP selection processes.	0.594%
		I82. SAB members asked for feedback when elaborating the next Strategic Plan.	0.594%
SG12	**SA40 [WT]**	**I83.** Salaries updated yearly based on the increases determined by law for public sector employees.	0.243%
		I84. Per capita salary of ICP structural staff (i.e., excluding ascribed and competitive staff, as well as those hired with work and service contracts) 2025 > 2021.	0.243%
	SA41 [WO]	**I85.** Meetings of the HRS4R Implementation Committee average: 2022-2025 ≥ 3/yr.	0.320%
		I86. New actions included in the HRS4R Action Plan during 2022-2025 ≥ 2.	0.320%
		I87. Positive external evaluation by the EU of the HRS4R implementation at the ICP and maintenance of the award during 2022-2025.	0.320%
		I88. Complete the ICP Welcome Handbook.	0.320%
		I89. Complete the ICP Protocol for Funding Request and the ICP Protocol for Fund Expenditure Accountability	0.320%
	SA42 [SO]	**I90.** Offer training courses to ICP personnel on a yearly basis.	0.618%
		I91. Number of different courses offered to personnel average: 2022-2025 ≥ 2018-2021.	0.618%
SG13	**SA43 [WT]**	**I92.** 'A' qualification provided by the CERCA evaluation committee in next evaluation (expected for 2022).	0.499%
	SA44 [WT]	**I93.** Elaborate an action plan to implement CERCA recommendations.	0.296%
		I94. Elaborate research impact assessments with the periodicity requested by CERCA.	0.296%
		I95. Regularly update ICP scientific production to PRC.	0.296%
SG14	**SA45 [ST]**	**I96.** ICP transparency webpage updated at least once a year.	0.376%
	SA46 [WT]	**I97.** UNEIX data 2016-2020 regularized not later than 2022.	0.155%

		I98. UNEIX data from 2022 onward uploaded without delay.	0.155%
SG15	SA47 [SO]	**I99.** All allegations about sexual harassment or any kind of violence against women resolved in due time following the ICP relevant protocols.	0.119%
		I100. All complaints about other types of discrimination or abusive behaviors resolved in due time following the ICP relevant protocols.	0.119%
		I101. Adapt the ICP Protocol to Prevent Violence against Women to new regulations not later than 2023.	0.119%
		I102. Perform and regularly update a pay audit for ICP staff	0.119%
		I103. Maintain two ombudspersons (of whom at least one woman) throughout 2022-2025.	0.119%
	SA48 [WO]	**I104.** Approve and register the new ICP Equality Plan according to the new regulations not later than 2022.	0.255%
		I105. Translate the ICP Equality Plan into English not later than 2023.	0.255%
		I106. Training sessions for ICP personnel on non-discrimination policies and the prevention of sexual harassment average: 2022-2025 > 2018-2021: 2022-2025 > 2018-2021.	0.255%
	SA49 [WO]	**I107.** Number of women staff researchers average: 2022-2025 > 2018-2021.	0.160%
		I108. % of women among staff researchers average: 2022-2025 > 2018-2021.	0.160%
		I109. Number of women among total staff average: 2022-2025 > 2018-2021.	0.160%
		I110. % of women among total staff average: 2022-2025 > 2018-2021.	0.160%
		I111. Number of women among research associates average: 2022-2025 > 2018-2021.	0.160%
		I112. % of women among research associates average: 2022-2025 > 2018-2021.	0.160%
	SA50 [SO]	**I113.** % of women shortlisted during ICP selection processes using the OTM-R protocols average: 2022-2025 > 2018-2021.	0.843%
		I114. % of women recruited during ICP selection processes using the OTM-R protocols average: 2022-2025 > 2018-2021.	0.843%
	SA51 [ST]	**I115.** SAB composition (7 members) including at least 3 women throughout 2022-2025.	0.290%
		I116. Composition of stable internal committees (Steering, HRS4R, Non-Discrimination) and commissions (Researchers) as a whole including ≥40% women.	0.290%
		I117. Ad hoc selection committees as a whole during 2022-2025 including ≥40% women.	0.290%
SG16	SA52 [SO]	**I118.** Permanent deposits of fossils given to the ICP by the Culture Department average: 2022-2025 ≥ 2018-2021.	2.659%
	SA53 [WT]	**I119.** Record numbers given to catalogued fossils average: 2022-2025 ≥ 2018-2021.	1.207%
	SA54 [WT]	**I120.** Decision about collection management software to be used taken not later than 2025.	0.669%
	SA55 [SO]	**I121.** Ongoing agreement with the Museu de Ciències Naturals de Barcelona and the Generalitat de Catalunya to be a member of the network.	0.304%
		I122. ICP representatives involved in all active commissions and/or working groups of the network.	0.304%

Fundraising & Knowledge Transfer			
SG17	SA56 [SO]	**I123.** Basal budget provided by the Generalitat de Catalunya and other patrons average: 2022-2025 > 2018-2021.	2.237%
		I124. Total operating budget average: 2022-2025 > 2018-2021.	2.237%
	SA57 [ST]	**I125.** Competitive + service provision / total operating budget average 2022-2025 > 2018-2021.	1.115%
		I126. Competitive + service provision / total operating budget average 2022-2025 ≥ 50%.	1.115%
	SA58 [WT]	**I127.** Positive overall result of the 2022-2025 financial years.	1.041%
		I128. Obtain a budgetary surplus and transfer part of it to investment budget.	1.041%
	SA59 [SO]	**I129.** Paleontological fieldwork at ACM still ongoing in 2025.	0.786%
		I130. Fieldwork service provision income average 2022-2025 ≥ 2018-2021.	0.786%
		I131. Preparation and casting service provision income average 2022-2025 ≥ 2018-2021.	0.786%
		I132. Museum service provision income average 2022-2025 ≥ 2018-2021.	0.786%
		I133. Virtual paleontology service provision income average 2022-2025 ≥ 2018-2021.	0.786%
	SA60 [WO]	**I134.** Spanish ministries competitive income average 2022-2025 ≥ 2018-2021.	0.275%
		I135. AGAUR competitive income average 2022-2025 ≥ 2018-2021.	0.275%
		I136. OSIC competitive income average 2022-2025 ≥ 2018-2021.	0.275%
		I137. Number of active national R+D projects in 2025 ≥ 2021.	0.275%
		I138. Number of ICP consolidated research groups in 2025 ≥ 2021.	0.275%
		I139. Number of active OSIC fieldwork projects in 2025 ≥ 2021.	0.275%
	SA61 [WT]	**I140.** European and transnational funding average 2022-2025 > 2018-2021.	0.328%
		I141. Applications to ERC projects average 2022-2025 ≥ 1/yr.	0.328%
		I142. At least one big European or transnational project (as coordinator or partner with overheads) above 1 M€ total budget (e.g., ERC, Interreg) in 2022-2025.	0.328%
		I143. Participate as beneficiary organization in a MSC-ITN during 2022-2025.	0.328%
	SA62 [ST]	**I144.** Income from donors average 2022-2025 > 2018-2021.	0.371%
		I145. Income from sponsors average 2022-2025 > 2018-2021.	0.371%
SG18	SA63 [WO]	**I146.** Finished bachelor and master's theses supervised by ICP researchers or research associates average: 2022-2025 ≥ 2018-2021.	0.231%

		I147. Finished PhD dissertations supervised by ICP researchers or research associates average: 2022-2025 ≥ 2018-2021.	0.231%
		I148. Ongoing PhD dissertations supervised by ICP researchers or research associates 2025 ≥ 2021.	0.231%
	SA64 [WT]	**I149.** Publicize and offer volunteering opportunities through the ICP webpage.	0.462%
		I150. Publicize and offer volunteering opportunities through relevant volunteering portals and entities (e.g., the Oficina d'Entitats i Voluntariat of the City Council of Sabadell).	0.462%
	SA65 [SO]	**I151.** University practicum students at the ICP average: 2022-2025 ≥ 2018-2021.	0.471%
	SA66 [SO]	**I152.** Erasmus traineeships at the ICP average: 2022-2025 ≥ 2018-2021.	0.838%
	SA67 [WO]	**I153.** Participation in the UAB/UB Paleobiology & Fossil Record master (or equivalent) still active in 2025.	0.237%
		I154. Participation in the UB/UAB Biolocial Anthropology master (or equivalent) still active in 2025.	0.237%
		I155. Number of students in (and revenues generated by) the paleobiology master (or equivalent) average 2022-2025 ≥ 2018-2021.	0.237%
	SA68 [SO]	**I156.** Coorganization of specialized courses with Transmitting Science still active in 2025.	0.530%
		I157. Number of scientific courses and workshops (co)organized average 2022-2025 ≥ 2018-2021	0.530%
SG19	**SA69 [ST]**	**I158.** Research paleontological campaigns average 2022-2025 ≥ 2018-2021.	0.417%
		I159. Rescue paleontological campaigns average 2022-2025 ≥ 2018-2021.	0.417%
	SA70 [SO]	**I160.** Number of prepared fossils average 2022-2025 ≥ 2018-2021.	2.203%
	SA71 [ST]	**I161.** Total number of queries 2022-2025 ≥ 2018-2021.	0.709%
Outreach & Communication			
SG20	**SA72 [SO]**	**I162.** ICP website visitors average 2022-2025 ≥ 2018-2021.	0.227%
		I163. Website redesigned not later than 2025.	0.227%
	SA73 [WO]	**I164.** ICP website news average 2022-2025 ≥ 2018-2021.	0.134%
	SA74 [SO]	**I165.** ICP Facebook fans average 2022-2025 ≥ 2018-2021.	0.169%
		I166. ICP Twitter followers average 2022-2025 ≥ 2018-2021.	0.169%
		I167. ICP Museum Twitter followers average 2022-2025 ≥ 2018-2021.	0.169%
		I168. ICP Museum bulletin subscribers 2022-2025 ≥ 2018-2021.	0.169%
		I169. Fossil Preparation Instagram followers average 2022-2025 ≥ 2018-2021	0.169%
	SA75 [WT]	**I170.** ICP press releases average 2022-2025 ≥ 2018-2021.	0.104%

		I171. ICP press conferences average 2022-2025 ≥ 2018-2021.	0.104%
	SA76 [SO]	**I172.** Conca Dellà Museum + Dinosfera + Dinosaurs of the Pyrenees websites visitors average 2022-2025 ≥ 2018-2021.	0.386%
		I173. Conca Dellà Museum + Dinosfera + Dinosaurs of the Pyrenees Facebook fans average 2022-2025 ≥ 2019-2021.	0.386%
		I174. Conca Dellà + Dinosaurs of the Pyrenees Twitter followers average 2022-2025 ≥ 2019-2021.	0.386%
SG21	**SA77 [SO]**	**I175.** Museum visits average 2022-2025 ≥ 2018-2021.	0.655%
		I176. School + family workshops and guided visits average 2022-2025 ≥ 2018-2021.	0.655%
	SA78 [SO]	**I177.** Conca Dellà Museum + Dinosfera visits average 2022-2025 ≥ 2018-2021.	0.325%
		I178. Conca Dellà Museum + Dinosfera activities average 2022-2025 ≥ 2018-2021.	0.325%
	SA79 [WO]	**I179.** Receive funding from the Culture Department to plan and execute the exhibit remodeling.	0.319%
		I180. Museological and museographical plans ready not later than 2023.	0.319%
		I181. Remodeled permanent exhibit not later than 2025.	0.319%
		I182. New temporary exhibit not later than 2025.	0.319%
	SA80 [SO]	**I183.** New temporary exhibits during 2022-2025 ≥ 2.	1.004%
		I184. New itinerant temporary exhibits during 2022-2025 ≥ 1.	1.004%
	SA81 [SO]	**I185.** Collaborate with the Ajuntament de Subirats in dissemination and outreach activities related to els Casots site.	0.156%
		I186. Active collaboration agreement with the Ajuntament dels Hostalets de Pierola in relation to the CRIP.	0.156%
		I187. Collaboration with CosmoCaixa to exhibit fossils loaned by the ICP.	0.156%
		I188. Ongoing agreements with other city councils related to the Dinosaurs of the Pyrenees Project.	0.156%
	SA82 [SO]	**I189.** Applications to FECYT projects average 2022-2025 ≥ 2018-2021.	0.414%
		I190. Applications to outreach OSIC projects average 2022-2025 ≥ 2018-2021.	0.414%
		I191. OSIC competitive income for outreach activities average 2022-2025 ≥ 2018-2021	0.414%
SG22	**SA83 [WO]**	**I192.** ICP Director's paleovermut average 2022-2025 ≥ 1 per yr.	0.079%
		I193. ICP non-academic staff paleovermut average 2022-2025 ≥ 2 per yr.	0.079%
		I194. ICP researchers paleovermut average 2022-2025 ≥ 3 per yr	0.079%
		I195. Guest or visiting researcher average 2022-2025 ≥ 1 per yr.	0.079%

	SA84 [WO]	**I196.** Surveys about courses offered to employees average 2022-2025 ≥ 1 per yr.	0.243%
		I197. Surveys about strategic issues ≥ 1 per yr.	0.243%
	SA85 [WO]	**I198.** Internal bulletin sent to personnel on average 2022-2025 ≥ 2 per yr.	0.353%
		I199. Create a digital space for ICP personnel that merges current electronic mechanisms for the reservation of infrastructures and equipment with an internal calendar, and access to relevant documents and services (e.g., TimeNet).	0.353%
	SA86 [SO]	**I200.** Continue using an app to register working time.	0.614%
		Total	**100%**

5.4. Summary

The table below summarizes the strategic goals and actions of the new Strategic Plan of the ICP for 2022-2025, together with the indicators that will be used to assess the degree of fulfillment of the plan in the future. The numerical values for the 2018-2021 average values used in some of the indicators are reported. This table will serve as a template to annually report the degree of fulfillment of the present Strategic Plan.

ICP Strategic Plan 2018-2021 Fulfillment (Goals, Actions, and Indicators)	Potential Impact %	Fulfilled? (Yes/No)
SCIENTIFIC POLICY & RESEARCH:		
SG1. Consolidate the high scientific production and productivity of the ICP:		
SA1 [ST]. Encourage ICP researchers to publish more papers in SCI journals.		
I1. SCI papers average production: 2022-2025 ≥ 2018-2021 [83.4].	0.317	—
I2. SCI papers average productivity: 2022-2025 ≥ 2018-2021 [1.94].	0.317	—
SA2 [WO]. Maintain the current network of research associates with emphasis on R3-R4 categories.		
I3. Research associates average: 2022-2025 ≥ 2018-2021 [20.8].	0.575	—
I4. R3+R4 research associates average: 2022-2025 > 2018-2021 [14.0].	0.575	—
SA3 [SO]. Increase the number of publications with international coauthors.		
I5. SCI papers with international collaborations average: 2022-2025 ≥ 2018-2021 [67.8].	0.813	—
I6. % of SCI papers with international collaborations average: 2022-2025 ≥ 2018-2021 [80.4].	0.813	—
SG2. Consolidate and increase further the high quality and impact of the ICP scientific production:		
SA4 [ST]. Encourage ICP researchers to prioritize publication in SCI journals from the first quartile.		
I7. Q1 SCI papers average production: 2022-2025 ≥ 2018-2021 [47.8].	0.302	—
I8. Q1 SCI papers average productivity: 2022-2025 ≥ 2018-2021 [1.09].	0.302	—
I9. % of Q1 SCI papers average: 2022-2025 ≥ 2018-2021 [56.3].	0.302	—
SA5 [SO]. Encourage ICP researchers to select journals with high impact factors and/or impact factor percentiles.		
I10. SCI papers JIF geometric mean: 2022-2025 ≥ 2018-2021 [3.26].	0.561	—
I11. SCI papers JIF percentile median: 2022-2025 ≥ 2018-2021 [77.4].	0.561	—
SA6 [ST]. Encourage ICP researchers to target more often SCI journals from the multidisciplinary sciences category.		
I12. Multidisciplinary SCI papers average production: 2022-2025 ≥ 2018-2021 [16.0].	0.279	—
I13. % of Multidisciplinary SCI papers average: 2022-2025 ≥ 2018-2021 [19.1].	0.279	—
SA7 [ST]. Increase ICP leadership in publications coauthored with researchers from other institutions.		
I14. SCI papers with ICP corresponding author average: 2022-2025 > 2018-2021 [36.5].	0.355	—
I15. % of SCI papers with ICP corresponding author average: 2022-2025 > 2018-2021 [42.8].	0.355	—
SG3. Increase the visibility of the scientific production of the ICP by promoting open-access publication and open data sharing:		
SA8 [ST]. Encourage ICP researchers to publish in gold/bronze open-access SCI journals.		
I16. Gold/bronze OA SCI papers average production: 2022-2025 ≥ 2018-2021 [39.0].	0.854	—
I17. % of gold/bronze OA SCI papers average: 2022-2025 ≥ 2018-2021 [45.1].	0.854	—
SA9 [WO]. Help ICP researchers to make use of green open-access options for subscription journals.		
I18. Continue using the UAB DDD digital repository to post ICP scientific production.	0.563	—

I19. % of published journal papers posted on DDD average: 2022-2025 ≥ 2018-2021 [71.5].	0.563	—
SA10 [WT]. Promote and facilitate data sharing (open data) by ICP researchers.		
I20. Reach a collaboration agreement with an open data repository (e.g., MorphoSource).	0.174	—
I21. Elaborate a generic data sharing plan of the ICP or adhere to the CERCA equivalent.	0.174	—
I22. Implement the necessary internal mechanisms to monitor the number of datasets published by ICP researchers in data repositories (i.e., excluding supplementary material published on the journal's website).	0.174	—
SG4. Promote further the visibility of the ICP in scientific meetings and workshops, particularly at the international level:		
SA11 [SO]. Increase the attendance to scientific meetings and workshops, with emphasis on international ones.		
I23. Number of meetings attended by ICP researchers average: 2022-2025 ≥ 2018-2021 [16.8].	0.530	—
I24. Communications to meetings attended by ICP researchers average: 2022-2025 ≥ 2018-2021 [67.8].	0.530	—
I25. % of international meetings attended by ICP researchers average: 2022-2025 ≥ 2018-2021 [13.3].	0.530	—
SA12 [SO]. (Co)organize scientific meetings.		
I26. Number of meetings (co)organized by the ICP average: 2022-2025 ≥ 2018-2021 [0].	0.743	—
SA13 [ST]. Consolidate and expand the network of international collaborators.		
I27. Number of foreign researchers visiting the ICP average: 2022-2025 ≥ 2018-2021 [3.8].	1.198	—
I28. Number of short stays abroad by ICP researchers: 2022-2025 ≥ 2018-2021 [2.3].	1.198	—
SG5. Consolidate the ICP as a benchmark institution at the international level regarding paleobiological research:		
SA14 [ST]. Improve the competitiveness of the ICP relative to other benchmark paleontological institutions (based on the publication metrics used in the ICP annual report).		
I29. Ranking in standardized (%) geometric mean absolute indicators average: 2022-2025 ≥ 2018-2021 [57.1].	1.495	—
I30. Ranking in standardized (%) geometric mean relative indicators average: 2022-2025 ≥ 2018-2021 [99.8].	1.495	—
SA15 [WO]. Preserve the current main lines of research at the ICP.		
I31. Number of research groups in each research area in 2025 ≥ 1.	0.500	—
SA16 [SO]. Maintain the current number of research groups at the ICP.		
I32. Number of research groups in 2025 ≥ 2021 [6].	2.636	—
SA17 [SO]. Promote further a paleoproteomics and paleogenomics research line.		
I33. SCI papers on paleoproteomics average: 2022-2025 > 2018-2021 [0.5].	0.748	—
I34. SCI papers on ancient DNA average: 2022-2025 > 2018-2021 [3.0].	0.748	—
SG6. Increase and improve the technical support provided to ICP researchers:		
SA18 [SO]. Maintain or increase the number of research support staff.		
I35. Number of technicians in the Preparation & Conservation Area average: 2022-2025 ≥ 2018-2021 [5.3].	1.024	—
I36. Number of technicians in the Fieldwork & Collection Management Area average: 2022-2025 ≥ 2018-2021 [19.8].	1.024	—
SA19 [WO]. Take a decision about the viability to repair the CT.		

I37. CT viability plan approved not later than 2023.	0.619	—
I38. CT viability plan executed not later than 2025.	0.619	—
SA20 [WO]. Improve fieldwork infrastructure.		
I39. New four-wheel off-road vehicle bought not later than 2024.	0.328	—
I40. Ongoing agreement with EDAR Riu Sec to screen-wash sediments.	0.328	—
SA21 [WO]. Agreement with CERCA to improve scientific equipment.		
I41. Ongoing agreement with CERCA about scientific equipment.	0.558	—
I42. Funding from CERCA to improve scientific equipment average: 2022-2025 > 2018-2021 [0].	0.558	—
SG7. Promote publishing ethics and raise awareness about intellectual property among ICP researchers:		
SA22 [ST]. Disseminate the content of the ICP manual of best practices in research, intellectual property and authorship among ICP researchers.		
I43. Manual available from the ICP website.	0.604	—
I44. Training session about ethics in publishing not later 2023.	0.604	—
SA23 [ST]. Oversee that ICP researchers adhere to the highest ethical standards in publishing and research.		
I45. No external or internal complains or accusations about unethical behavior or scientific misconduct by ICP researchers in 2022-2025.	0.422	—
I46. No retractions/expressions of concerns regarding ICP publications in 2022-2025.	0.422	—
MANAGEMENT & HUMAN RESOURCES:		
SG8. Increase the number of ICP academic staff with emphasis on the recruitment of foreign researchers and ascribed (seconded) personnel:		
SA24 [SO]. Increase the critical mass of ICP researchers.		
I47. Staff researchers average: 2022-2025 ≥ 2018-2021 [26.8].	1.298	—
SA25 [WO]. Increase the number of foreign ICP staff researchers.		
I48. Foreign staff researchers average: 2022-2025 > 2018-2021 [4.5].	0.621	—
I49. % of foreign staff researchers average: 2022-2025 > 2018-2021 [16.8].	0.621	—
SA26 [WT]. Increase the ratio of academic vs. non-academic staff.		
I50. % of staff researchers relative to total structural staff (excluding work and service contracts for service provision) average: 2022-2025 ≥ 2018-2021 [45.8].	1.456	—
SA27 [WT]. Increase the number of ascribed (seconded) personnel from the Generalitat de Catalunya and ICREA.		
I51. ICREA professors ascribed to the ICP average: 2022-2025 ≥ 2018-2021 [2].	0.163	—
I52. Civil servants of the Generalitat ascribed to the ICP average: 2022-2025 ≥ 2018-2021 [4].	0.163	—
SA28 [SO]. Ascribe UAB professors to the ICP (at 50%).		
I53. UAB professors ascribed to the ICP average: 2022-2025 > 2018-2021 [0].	0.635	—
SG9. Foster talent attraction and retention when recruiting researchers and specialized technicians:		
SA29 [SO]. Use the OTM-R mechanisms specified in the ICP recruitment protocol and internationally publicize new positions for researchers and specialized technicians (excluding work and service contracts as well as competitive contracts).		

I54. Recruited researchers after an OTM-R selection process average: 2022-2025 ≥ 2018-2021 [2.5].	0.624	—
I55. Recruited technicians after an OTM-R selection process average: 2022-2025 ≥ 2018-2021 [1.5].	0.624	—
I56. New positions (excluding work and service contracts as well as competitive contracts) posted in Euraxess average: 2022-2025 ≥ 2018-2021 [1.0].	0.624	—
SA30 [WO]. Increase the number of researchers and technicians recruited by means of competitive calls.		
I57. New R1 (predoctoral) researchers recruited with competitive contracts (e.g., FI, FPI, FPU) during 2022-2025 ≥ 2018-2021 [1.5].	0.340	—
I58. New R2 (postdoctoral) researchers recruited with competitive contracts (e.g., Juan de la Cierva and Beatriu de Pinós) during 2022-2025 ≥ 2018-2021 [1.8].	0.340	—
I59. New R3 (tenure-track) researchers recruited with competitive contracts (e.g., Ramón y Cajal) during 2022-2025 ≥ 2018-2021 [0].	0.340	—
I60. New technicians recruited with competitive contracts (e.g., PTA) during 2022-2025 ≥ 2018-2021 [0].	0.340	—
SA31 [SO]. Promote talent attraction at early research career stages.		
I61. Staff R1+R2 researchers (or PhD students recognized in Organization Chart) average: 2022-2025 ≥ 2018-2021 [17].	0.719	—
I62. R1-R2 positions opened at the ICP and defrayed with basal funds average: 2022-2025 ≥ 2018-2021 [0.3].	0.719	—
SA32 [WT]. Recruit back former talented ICP researchers by means of competitive contracts funded by external agencies.		
I63. Former staff researchers recruited with competitive postdoctoral (JdC, BP, etc.) contracts: average 2022-2025 ≥ 2018-2021 [1].	0.143	—
I64. Former staff researchers recruited with competitive tenure-track or permanent (RyC, ICREA, etc.) contracts: average 2022-2025 ≥ 2018-2021 [0].	0.143	—
SA33 [WO]. Stabilize talented ICP researchers and technicians with permanent contracts defrayed by basal funds after an international call using OTM-R protocols.		
I65. Stabilized researchers after an OTM-R selection process average: 2022-2025 ≥ 2018-2021 [0.3].	0.500	—
I66. Stabilized technicians after an OTM-R international selection process average: 2022-2025 ≥ 2018-2021 [1].	0.500	—
SG10. Improve internal coordination and promote the involvement of ICP personnel in decision-making:		
SA34 [SO]. Organize coordination meetings on a quarterly basis.		
I67. Coordination meetings average: 2022-2025 ≥ 4/yr.	0.719	—
SA35 [SO]. Organize committee meetings regularly.		
I68. Steering Committee meetings average: 2022-2025 ≥ 10/yr.	0.777	—
I69. HRS4R Implementation Committee meetings average: 2022-2025 ≥ 3/yr.	0.777	—
I70. Information Systems Security Committee meetings average: 2022-2025 ≥ 1/yr.	0.777	—
I71. Non-Discrimination Committee meetings average: 2022-2025 ≥ 4/yr.	0.777	—
SA36 [WO]. Maintain the main ICP committees and commissions.		
I72. Researchers Commission still active in 2025.	0.308	—
I73. Fieldwork Commission still active in 2025.	0.308	—
I74. HRS4R Committee still active in 2025.	0.308	—
I75. Information Systems Security Committee still active in 2025.	0.308	—
I76. Non-Discrimination Committee still active in 2025.	0.308	—

SA37 [ST]. Regularly update the list of professional categories and job positions at the ICP.		
I77. Organization Chart updated on a yearly basis.	0.189	—
I78. Salary Scale updated on a yearly basis.	0.189	—
SG11. Make full use of the advisory functions of the SAB based on the expertise and experience of its members:		
SA38 [SO]. Organize regular meetings with the SAB.		
I79. At least one annual SAB meeting.	0.166	—
I80. Presentations by ICP director and some researchers to the SAB during annual meeting.	0.166	—
SA39 [SO]. Regularly involve SAB members in ICP internal tasks.		
I81. SAB members involved in ≥50% ICP selection processes.	0.594	—
I82. SAB members asked for feedback when elaborating the next Strategic Plan.	0.594	—
SG12. Improve the working conditions and training of ICP staff:		
SA40 [WT]. Improve the salaries of ICP staff.		
I83. Salaries updated yearly based on the increases determined by law for public sector employees.	0.243	—
I84. Per capita salary of ICP structural staff (i.e., excluding ascribed and competitive staff, as well as those hired with work and service contracts) 2025 > 2021 [29,453].	0.243	—
SA41 [WO]. Progressively implement HRS4R policies and renew the EU HR Excellence Award.		
I85. Meetings of the HRS4R Implementation Committee average: 2022-2025 ≥ 3/yr.	0.320	—
I86. New actions included in the HRS4R Action Plan during 2022-2025 ≥ 2.	0.320	—
I87. Positive external evaluation by the EU of the HRS4R implementation at the ICP and maintenance of the award during 2022-2025.	0.320	—
I88. Complete the ICP Welcome Handbook.	0.320	—
I89. Complete the ICP Protocol for Funding Request and the ICP Protocol for Fund Expenditure Accountability.	0.320	—
SA42 [SO]. Provide free training opportunities to ICP personnel.		
I90. Offer training courses to ICP personnel on a yearly basis.	0.618	—
I91. Number of different courses offered to personnel average: 2022-2025 ≥ 2018-2021 [11.8].	0.618	—
SG13. Align ICP strategic goals with those of CERCA and the Catalan Research System:		
SA43 [WT]. Obtain an excellent qualification in the next evaluation by CERCA.		
I92. 'A' qualification provided by the CERCA evaluation committee in next evaluation (expected for 2022).	0.499	—
SA44 [WT]. Comply with CERCA recommendations.		
I93. Elaborate an action plan to implement CERCA recommendations.	0.296	—
I94. Elaborate research impact assessments with the periodicity requested by CERCA.	0.296	—
I95. Regularly update ICP scientific production to PRC.	0.296	—
SG14. Comply with the obligations of the Generalitat de Catalunya public sector:		
SA45 [ST]. Update the ICP transparency webpage.		

I96. ICP transparency webpage updated at least once a year.	0.376	—
SA46 [WT]. Regularize (and thereafter regularly update) the information in UNEIX platform.		
I97. UNEIX data 2016-2020 regularized not later than 2022.	0.155	—
I98. UNEIX data from 2022 onward uploaded without delay.	0.155	—
SG15. Promote non-discrimination policies:		
SA47 [SO]. Adhere to a zero tolerance policy regarding any type of discrimination, with emphasis on violence against women.		
I99. All allegations about sexual harassment or any kind of violence against women resolved in due time following the ICP relevant protocols.	0.119	—
I100. All complaints about other types of discrimination or abusive behaviors resolved in due time following the ICP relevant protocols.	0.119	—
I101. Adapt the ICP Protocol to Prevent Violence against Women to new regulations not later than 2023.	0.119	—
I102. Perform and regularly update a pay audit for ICP staff.	0.119	—
I103. Maintain two ombudspersons (of whom at least one woman) throughout 2022-2025.	0.119	—
SA48 [WO]. Raise awareness about ICP non-discrimination policies.		
I104. Approve and register the new ICP Equality Plan according to the new regulations not later than 2022.	0.255	—
I105. Translate the ICP Equality Plan into English not later than 2023.	0.255	—
I106. Training sessions for ICP personnel on non-discrimination policies and the prevention of sexual harassment average: 2022-2025 > 2018-2021: 2022-2025 > 2018-2021.	0.255	—
SA49 [WO]. Progressively improve gender balance among ICP personnel.		
I107. Number of women staff researchers average: 2022-2025 > 2018-2021 [8.0].	0.160	—
I108. % of women among staff researchers average: 2022-2025 > 2018-2021 [30.0].	0.160	—
I109. Number of women among total staff average: 2022-2025 > 2018-2021 [27.5].	0.160	—
I110. % of women among total staff average: 2022-2025 > 2018-2021 [41.6].	0.160	—
I111. Number of women among research associates average: 2022-2025 > 2018-2021 [4.5].	0.160	—
I112. % of women among research associates average: 2022-2025 > 2018-2021 [21.5].	0.160	—
SA50 [SO]. Prevent any gender bias during recruitment.		
I113. % of women shortlisted during ICP selection processes using the OTM-R protocols average: 2022-2025 > 2018-2021 [65.8].	0.843	—
I114. % of women recruited during ICP selection processes using the OTM-R protocols average: 2022-2025 > 2018-2021 [58.3].	0.843	—
SA51 [ST]. Maintain balanced gender ratios in SAB, committees and commissions.		
I115. SAB composition (7 members) including at least 3 women throughout 2022-2025.	0.290	—
I116. Composition of stable internal committees (Steering, HRS4R, Non-Discrimination) and commissions (Researchers) as a whole including ≥40% women.	0.290	—
I117. Ad hoc selection committees as a whole during 2022-2025 including ≥40% women.	0.290	—
SG16. Manage more efficiently the museum fossil collection:		
SA52 [SO]. Increase the ICP collection of fossils by means of permanent deposits.		
I118. Permanent deposits of fossils given to the ICP by the Culture Department average: 2022-2025 ≥ 2018-2021 [11.3].	2.659	—

SA53 [WT]. Increase the number of fossils catalogued into the ICP collection.		
I119. Record numbers given to catalogued fossils average: 2022-2025 ≥ 2018-2021 [4845].	1.207	—
SA54 [WT]. Determine if the ICP needs to change collection management software.		
I120. Decision about collection management software to be used taken not later than 2025.	0.669	—
SA55 [SO]. Be an active and relevant member of the Natural Sciences Museums of Catalonia network.		
I121. Ongoing agreement with the Museu de Ciències Naturals de Barcelona and the Generalitat de Catalunya to be a member of the network.	0.304	—
I122. ICP representatives involved in all active commissions and/or working groups of the network.	0.304	—
FUNDRAISING & KNOWLEDGE TRANSFER:		
SG17. Avoid budgetary problems by means of promoting service provision and competitive projects:		
SA56 [SO]. Increase the operating budget of the ICP beyond that determined by salary increases required by law.		
I123. Basal budget provided by the Generalitat de Catalunya and other patrons average: 2022-2025 > 2018-2021 [835,270].	2.237	—
I124. Total operating budget average: 2022-2025 > 2018-2021 [1,785,778].	2.237	—
SA57 [ST]. Maintain the ratio between competitive + service provision budget and total operating budget above 50%.		
I125. Competitive + service provision / total operating budget average 2022-2025 > 2018-2021 [52.2].	1.115	—
I126. Competitive + service provision / total operating budget average 2022-2025 ≥ 50%.	1.115	—
SA58 [WT]. Prevent budgetary deficit.		
I127. Positive overall result of the 2022-2025 financial years.	1.041	—
I128. Obtain a budgetary surplus and transfer part of it to investment budget.	1.041	—
SA59 [SO]. Promote further the provision of external services by the Research Support & External Services Department.		
I129. Paleontological fieldwork at ACM still ongoing in 2025.	0.786	—
I130. Fieldwork service provision income average 2022-2025 ≥ 2018-2021 [255,419].	0.786	—
I131. Preparation and casting service provision income average 2022-2025 ≥ 2018-2021 [21,096].	0.786	—
I132. Museum service provision income average 2022-2025 ≥ 2018-2021 [54,603].	0.786	—
I133. Virtual paleontology service provision income average 2022-2025 ≥ 2018-2021 [3,968].	0.786	—
SA60 [WO]. Increase fundraising by means of national competitive projects and individual grants.		
I134. Spanish ministries competitive income average 2022-2025 ≥ 2018-2021 [314,977].	0.275	—
I135. AGAUR competitive income average 2022-2025 ≥ 2018-2021 [160,336].	0.275	—
I136. OSIC competitive income average 2022-2025 ≥ 2018-2021 [85,128].	0.275	—
I137. Number of active national R+D projects in 2025 ≥ 2021 [4].	0.275	—
I138. Number of ICP consolidated research groups in 2025 ≥ 2021 [3].	0.275	—
I139. Number of active OSIC fieldwork projects in 2025 ≥ 2021 [6].	0.275	—
SA61 [WT]. Increase fundraising by means of transnational and European funding.		
I140. European and transnational funding average 2022-2025 > 2018-2021 [0].	0.328	—

I141. Applications to ERC projects average 2022-2025 ≥ 1/yr.	0.328	—
I142. At least one big European or transnational project (as coordinator or partner with overheads) above 1 M€ total budget (e.g., ERC, Interreg) in 2022-2025.	0.328	—
I143. Participate as beneficiary organization in a MSC-ITN during 2022-2025.	0.328	—
SA62 [ST]. Increase fundraising my means of donors and sponsors.		
I144. Income from donors average 2022-2025 > 2018-2021 [0].	0.371	—
I145. Income from sponsors average 2022-2025 > 2018-2021 [0].	0.371	—
SG18. Promote paleontological vocations and orient them toward research by means of training and supervision:		
SA63 [WO]. Increase the number of young students supervised by ICP researchers.		
I146. Finished bachelor and master's theses supervised by ICP researchers or research associates average: 2022-2025 ≥ 2018-2021 [16.3].	0.231	—
I147. Finished PhD dissertations supervised by ICP researchers or research associates average: 2022-2025 ≥ 2018-2021 [5.3].	0.231	—
I148. Ongoing PhD dissertations supervised by ICP researchers or research associates 2025 ≥ 2021 [32].	0.231	—
SA64 [WT]. More actively promote the volunteering program of the ICP.		
I149. Publicize and offer volunteering opportunities through the ICP webpage.	0.462	—
I150. Publicize and offer volunteering opportunities through relevant volunteering portals and entities (e.g., the Oficina d'Entitats i Voluntariat of the City Council of Sabadell).	0.462	—
SA65 [SO]. Increase the number of national students that perform practicums at the ICP.		
I151. University practicum students at the ICP average: 2022-2025 ≥ 2018-2021 [6].	0.471	—
SA66 [SO]. Increase the number of international students that perform traineeships or internships at the ICP.		
I152. Erasmus traineeships at the ICP average: 2022-2025 ≥ 2018-2021 [0.8].	0.838	—
SA67 [WO]. Actively participate in university teaching.		
I153. Participation in the UAB/UB Paleobiology & Fossil Record master (or equivalent) still active in 2025.	0.237	—
I154. Participation in the UB/UAB Biolocial Anthropology master (or equivalent) still active in 2025.	0.237	—
I155. Number of students in (and revenues generated by) the paleobiology master (or equivalent) average 2022-2025 ≥ 2018-2021 [6 / 4,520].	0.237	—
SA68 [SO]. Actively participate in the (co)organization of specialized scientific courses and workshops.		
I156. Coorganization of specialized courses with Transmitting Science still active in 2025.	0.530	—
I157. Number of scientific courses and workshops (co)organized average 2022-2025 ≥ 2018-2021 [8.0]	0.530	—
SG19. Continue promoting the recovery, conservation and study of paleontological heritage:		
SA69 [ST]. Increase the number of fieldwork campaigns.		
I158. Research paleontological campaigns average 2022-2025 ≥ 2018-2021 [16.8].	0.417	—
I159. Rescue paleontological campaigns average 2022-2025 ≥ 2018-2021 [5].	0.417	—
SA70 [SO]. Increase the number of fossils prepared.		
I160. Number of prepared fossils average 2022-2025 ≥ 2018-2021 [1392].	2.203	—

SA71 [ST]. Increase the number of queries about ICP fossils.		
I161. Total number of queries 2022-2025 ≥ 2018-2021 [60.5].	0.709	—
OUTREACH & COMMUNICATION:		
SG20. Disseminate further the research outputs and activities of the ICP by means of digital and mass media:		
SA72 [SO]. Increase the visibility of the ICP website.		
I162. ICP website visitors average 2022-2025 ≥ 2018-2021[35,747].	0.227	—
I163. Website redesigned not later than 2025.	0.227	—
SA73 [WO]. Increase the number of news published on the ICP webpage.		
I164. ICP website news average 2022-2025 ≥ 2018-2021 [35.0].	0.134	—
SA74 [SO]. Increase the visibility of the ICP on social networks.		
I165. ICP Facebook fans average 2022-2025 ≥ 2018-2021 [4,544].	0.169	—
I166. ICP Twitter followers average 2022-2025 ≥ 2018-2021 [1,578].	0.169	—
I167. ICP Museum Twitter followers average 2022-2025 ≥ 2018-2021 [1,601].	0.169	—
I168. ICP Museum bulletin subscribers 2022-2025 ≥ 2018-2021 [1,486].	0.169	—
I169. Fossil Preparation Instagram followers average 2022-2025 ≥ 2018-2021 [651].	0.169	—
SA75 [WT]. Increase the visibility of the ICP on mass media.		
I170. ICP press releases average 2022-2025 ≥ 2018-2021 [17.0].	0.104	—
I171. ICP press conferences average 2022-2025 ≥ 2018-2021 [1].	0.104	—
SA76 [SO]. Increase the visibility of the Dinosaurs from the Pyrenees project on social networks.		
I172. Conca Dellà Museum + Dinosfera + Dinosaurs of the Pyrenees websites visitors average 2022-2025 ≥ 2018-2021 [31,852].	0.386	—
I173. Conca Dellà Museum + Dinosfera + Dinosaurs of the Pyrenees Facebook fans average 2022-2025 ≥ 2019-2021 [6,332].	0.386	—
I174. Conca Dellà + Dinosaurs of the Pyrenees Twitter followers average 2022-2025 ≥ 2019-2021 [1,461].	0.386	—
SG21. Promote further the outreach activities performed by the ICP:		
SA77 [SO]. Attract a higher number of visitors to the ICP Museum in Sabadell.		
I175. Museum visits average 2022-2025 ≥ 2018-2021 [16,790].	0.655	—
I176. School + family workshops and guided visits average 2022-2025 ≥ 2018-2021 [309].	0.655	—
SA78 [SO]. Attract a higher number of visitors to other museums or interpretation centers managed by the ICP.		
I177. Conca Dellà Museum + Dinosfera visits average 2022-2025 ≥ 2018-2021 [11,578].	0.325	—
I178. Conca Dellà Museum + Dinosfera activities average 2022-2025 ≥ 2018-2021 [3,324].	0.325	—
SA79 [WO]. Remodel the exhibits of the ICP Museum in Sabadell.		
I179. Receive funding from the Culture Department to plan and execute the exhibit remodeling.	0.319	—
I180. Museological and museographical plans ready not later than 2023.	0.319	—
I181. Remodeled permanent exhibit not later than 2025.	0.319	—

I182. New temporary exhibit not later than 2025.	0.319	—
SA80 [SO]. Design and implement new temporary exhibits based on the fossils housed at the ICP with possibility to itinerate.		
I183. New temporary exhibits during 2022-2025 ≥ 2.	1.004	—
I184. New itinerant temporary exhibits during 2022-2025 ≥ 1.	1.004	—
SA81 [SO]. Collaborate with other museums and interpretation centers throughout Catalonia.		
I185. Collaborate with the Ajuntament de Subirats in dissemination and outreach activities related to els Casots site.	0.156	—
I186. Active collaboration agreement with the Ajuntament dels Hostalets de Pierola in relation to the CRIP.	0.156	—
I187. Collaboration with CosmoCaixa to exhibit fossils loaned by the ICP.	0.156	—
I188. Ongoing agreements with other city councils related to the Dinosaurs of the Pyrenees Project.	0.156	—
SA82 [SO]. Increase competitive fundraising for outreach actions aimed to the general public.		
I189. Applications to FECYT projects average 2022-2025 ≥ 2018-2021 [0.3].	0.414	—
I190. Applications to outreach OSIC projects average 2022-2025 ≥ 2018-2021 [2].	0.414	—
I191. OSIC competitive income for outreach activities average 2022-2025 ≥ 2018-2021 [2223].	0.414	—
SG22. Improve internal communication:		
SA83 [WO]. Regularly organize internal talks (paleovermuts).		
I192. ICP Director's paleovermut average 2022-2025 ≥ 1 per yr.	0.079	—
I193. ICP non-academic staff paleovermut average 2022-2025 ≥ 2 per yr.	0.079	—
I194. ICP researchers paleovermut average 2022-2025 ≥ 3 per yr.	0.079	—
I195. Guest or visiting researcher average 2022-2025 ≥ 1 per yr.	0.079	—
SA84 [WO]. Ask for feedback to ICP personnel by means of surveys.		
I196. Surveys about courses offered to employees average 2022-2025 ≥ 1 per yr.	0.243	—
I197. Surveys about strategic issues ≥ 1 per yr.	0.243	—
SA85 [WO]. Maintain existing telematic mechanisms and implement new ones of internal communication.		
I198. Internal bulletin sent to personnel on average 2022-2025 ≥ 2 per yr.	0.353	—
I199. Create a digital space for ICP personnel that merges current electronic mechanisms for the reservation of infrastructures and equipment with an internal calendar, and access to relevant documents and services (e.g., TimeNet).	0.353	—
SA86 [SO]. Continue using an app to register working time of ICP staff.		
I200. Continue using an app to register working time.	0.614	—
TOTAL (Potential impact to the left, in %; the impact of each indicator is summed when fulfilled)	100	**PENDING**

FINAL NOTE

This Strategic Plan was approved by the Steering Committee of the ICP on April 25, 2022, being immediately publicized among the ICP personnel and through the ICP Transparency webpage. It will be presented by to the ICP Board of Trustees for review and approval as soon as the next meeting takes place, but in the meantime its implementation will began immediately.

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