

## HUMAN RESOURCES

# Pragmatic skills planning

**The Human Resources department of BRGM has developed a global approach to managing jobs and career paths (GEPP), designed to provide the organisation with the skills it needs. It also places particular emphasis on career development opportunities and on the working conditions of employees, particularly researchers, in order to pursue improvements and build loyalty.**

Isabelle Plaid

Human Resources Director

Marie Belossat

Assistant Human Resources Director

BRGM is continuing the approach it rolled in 2018 for the management of jobs and career paths, while making any necessary adjustments. "In this way, we can combine various HR tools to develop a global vision of the skills present in the company, the mobility requirements of employees and the type of profiles that we need to recruit," explains Marie Belossat, Assistant Human Resources Director. This approach, combined with detailed knowledge of the labour market and particularly sectors with shortages, paved the way for the implementation of a first Employment Plan in 2021. This plan sets out BRGM's recruitment policy, giving priority to the skills required in the medium and long term.

"The employment plan will be updated regularly to adjust to constantly changing needs within the company," says Isabelle Plaid, Director of Human Resources. The momentum of the plan for managing jobs and career paths is reflected in a high rate of internal mobility: 6% in 2021, i.e. over 60 employees, compared with 4% in the Objectives and Performance Contract (COP) for 2018-2022. "You can see a real dynamic here, backed up by efforts to systematically open jobs to internal candidates," emphasises Marie Belossat. "This enables us to meet our skills requirements in a difficult context, while promoting the career development of our employees."

### **One goal: scientific excellence**

BRGM is the first public industrial and commercial establishment (EPIC) to receive HRS4R certification. The Human Resources Strategy for Researchers seeks to improve the practices of research organisations with respect to the recruitment and working conditions of researchers. The objective is to deploy this European label more widely.

BRGM received HRS4R certification following an audit of its scientists and researchers and the development of an action plan to reach the expected standards on 49 criteria (recruitment, recognition, ethics, etc.). "The purpose of this process of continuous improvement, which concerns all BRGM employees, is to ensure the quality of our services and the skills level of our workforce," explains Isabelle Plaid. The idea is also to make BRGM more appealing to researchers and to build loyalty.

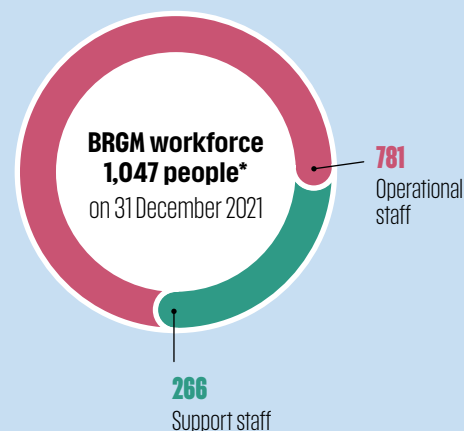


### **Towards a pact for 2024**

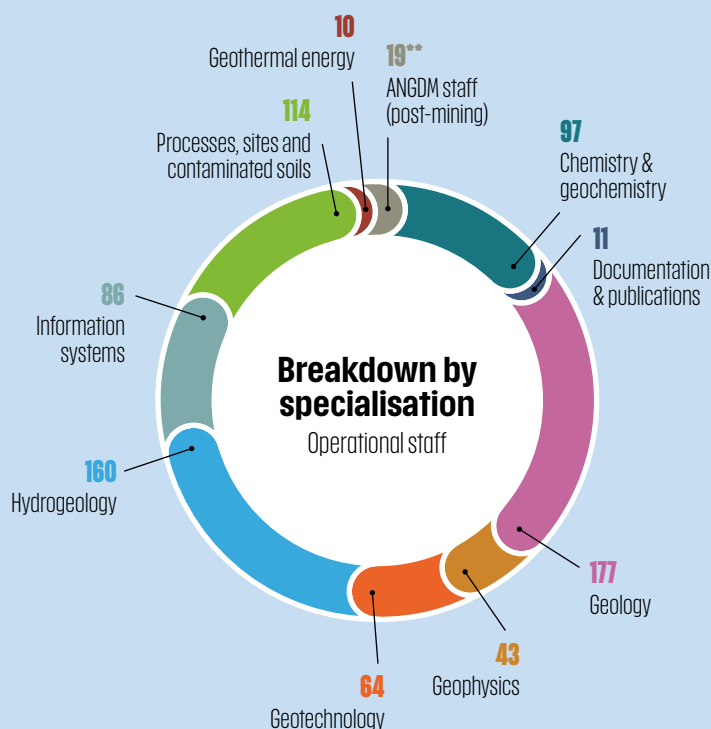
The first plan for improving quality of life in the workplace was completed in December 2021. Taking the name of PACT-21 and based on a social barometer conducted in 2019, its purpose was to better disseminate and apply BRGM's strategy, to develop a culture of listening, dialogue and transmission, to optimise the organisation of work and to support the vision set out by HR.

This plan, which includes 36 actions, has reached a progress rate of 82%, a highly satisfactory result in the light of the health crisis. Illustrating the strong social dialogue at BRGM, its implementation was steered by a team made up of members of the management committee, staff representatives and local managers. A new barometer, planned for early 2022, will measure the impact of PACT-21. ■

“A real dynamic has been set in motion in terms of internal mobility. This enables us to meet our skills requirements in a difficult context, while promoting the career development of our employees.”

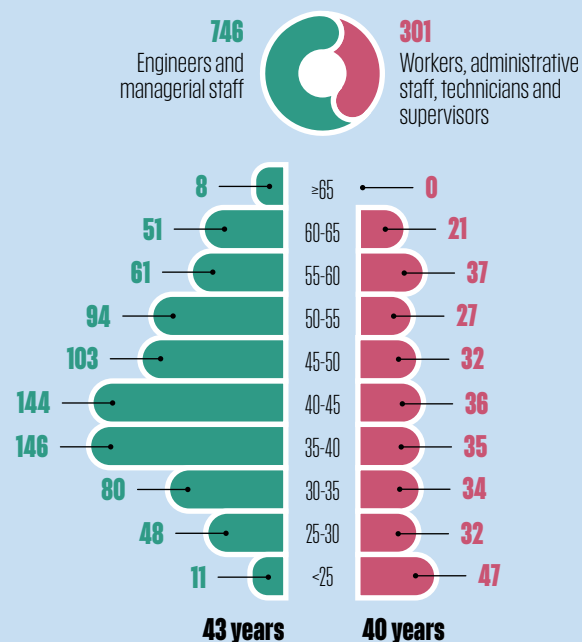


\* Including: 6 post-doctoral researchers, 16 PhD researchers, 14 civic service volunteers (VSCs) and 50 sandwich-course students.



\*\*Staff provided by the National Miners' Rights Agency (ANGDM) to BRGM for post-mining activities.

## Age pyramid by category on 31 December 2021



## SUSTAINABLE DEVELOPMENT

# BRGM ramps up its sustainable mobility policy

**BRGM actively seeks to promote more sustainable mobility on its various sites, since travel represents a significant part of the company's carbon footprint. Following a recent internal survey highlighting employees' commuting practices, the company put in place an awareness-raising scheme and drew up a new mobility plan.**

— Fabienne Boutreau  
CSR Officer

Hervé Riolland  
Head of the Auditing Risks and Quality Department

Over the course of three weeks (rather than just one week), from 16 September to 7 October, BRGM organised a series of events and initiatives as part of the European Sustainable Development and Mobility Weeks. The company's 330 participants all promote a common philosophy, based on the idea that "every action can contribute to building a more sustainable future". In line with the "France in transition" scheme created by the Ministry of Ecological Transition, the programme included quizzes linked to the United Nations sustainable development goals (SDGs), documentaries, two walks through forest areas on the Orléans site and the traditional mobility challenge, which incites employees to give up using their private car and travel differently. *"We wanted this year's programme to be based on solidarity,"* says Fabienne Boutreau, CSR Officer at BRGM's General Secretariat. *"By converting the distance covered by the participants in the challenge into money, we managed to raise €750 for the Cent pour un Loiret association, which helps homeless families have access to housing and become more independent."*

### **A survey concerning the staff's intentions to change their practices**

During these three weeks, the staff were also shown the results of an internal survey on commuting practices, carried out in spring 2021 (not including the period of the health crisis). This 66-point questionnaire was sent to everyone who comes to work on BRGM's various offices and sites, whether in Orléans or in the various regions of France. It was completed by 575 respondents, i.e. a return rate of almost 50%, and supplemented by 546 comments. It enabled us to improve our knowledge of employees' travel habits and to assess their intentions as regards changing practices – for example, opting for an electric vehicle, a bicycle or public transport – while also identifying their motivation as well as potential obstacles. *"The results will provide input for the management's discussions with the staff Social and Economic Committee (French CSE) concerning the company's*

**Our service provider, Rodolphe Beaubois – landscape gardener and nurseryman – guided the staff along the walks organised on the Orléans site in collaboration with the CSE's Sustainable Development commission.**

© BRGM





One of the electric vehicles used for moving around on the BRGM site in Orléans.

© BRGM - C. Boucley



*new mobility plan and the implementation of new measures aimed at encouraging employees to adopt a more sustainable form of mobility," says Fabienne Boutreau.*

These same environmental concerns helped shape BRGM's business travel policy, which was completely overhauled on 1 July 2021. The new policy introduced a series of provisions to encourage the use of video-conferencing, train-travel and carpooling. *"In addition to this, the agency that looks after the company business travel arrangements is now required to estimate the carbon footprint of each solution proposed to employees, in order to make them aware of the environmental impact of their journey and to help them make their choice", says Fabienne Boutreau.*

#### **Encouraging new ideas and solutions**

Finally, over the course of the three weeks, the Orléans Metropolitan Council held two conferences to present the results of the *Assises de la transition écologique* (ecological transition forum) organised by the local authority during the first half of 2021. BRGM was invited to participate in this forum in a pilot study concerning sustainable mobility in civil society and thus contributed to the emergence of new solutions. This represents a host of opportunities that can be seized upon to promote the mobility of the future at regional level. ■

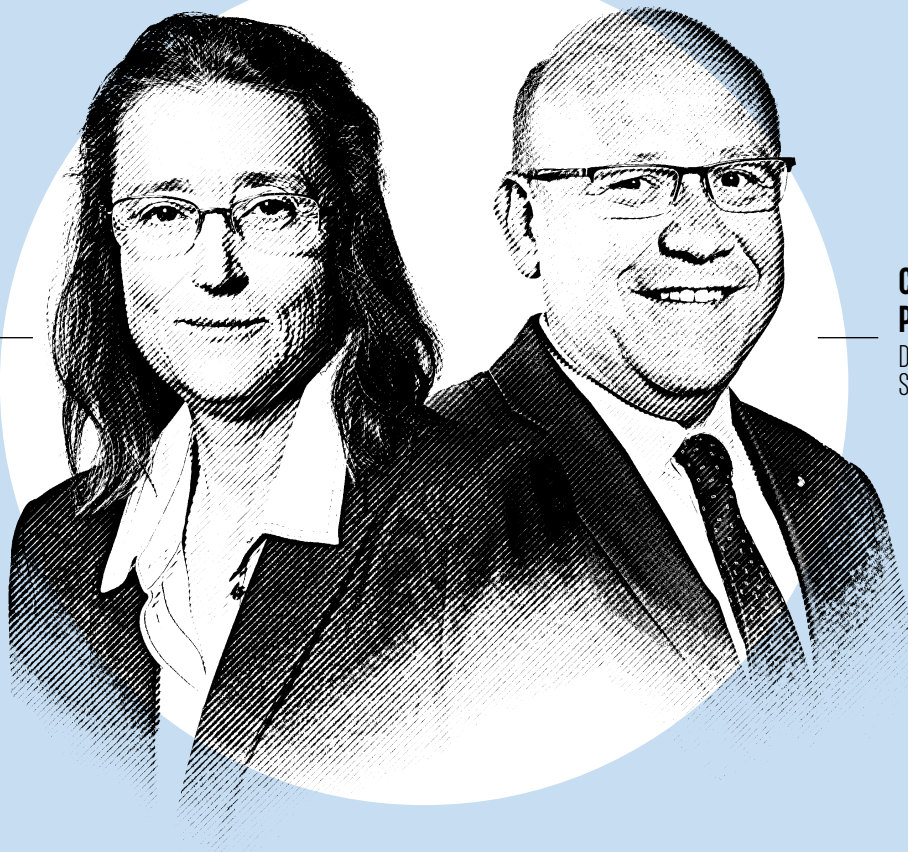
"The 2021 Mobility Challenge raised €750 for a charity, by converting the distance covered by the participants into financial aid."

#### **Renewal of our quality and environmental management system certifications**

BRGM's ISO 9001 and ISO 14001 certifications – obtained in 2004 and 2012 respectively – acknowledge the company's efforts to ensure the quality and efficiency of its activities and control their environmental footprint. Both certifications were renewed in 2021 for three years, following an audit carried out by AFNOR in Orléans and in the various regional offices. This renewal demonstrates the effectiveness of the work carried out, further confirmed by our 94% customer satisfaction rating in 2021. The audit also highlighted the actions implemented to reduce BRGM's environmental footprint, for example: the expansion of our fleet of electric vehicles; greater consideration of environmental performance criteria in purchasing; the continuation of teleworking (following the Covid pandemic lockdowns); building maintenance focusing on improving energy performance, etc. *"The auditors also appreciated the robustness of our risk analysis process, which is conducted ahead of every project in order to reduce the environmental impact,"* explains Hervé Riolland, Head of the Auditing Risks and Quality Department.

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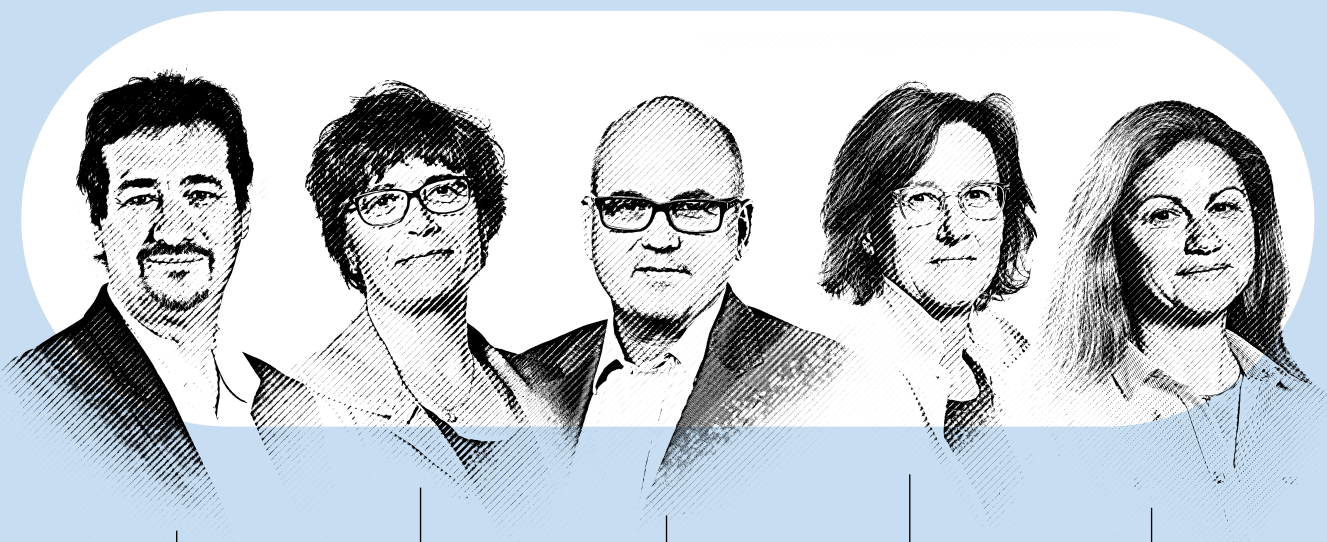
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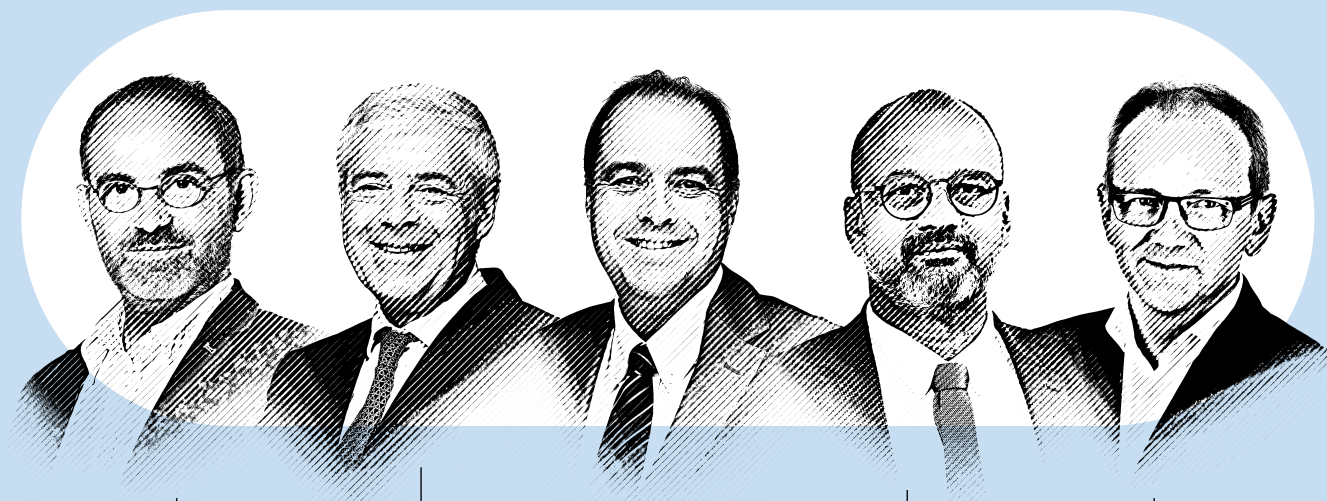
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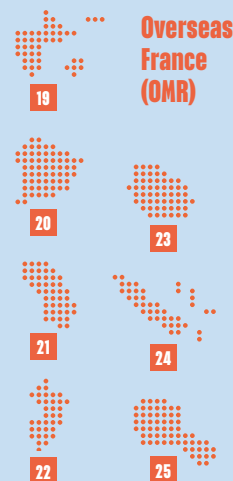
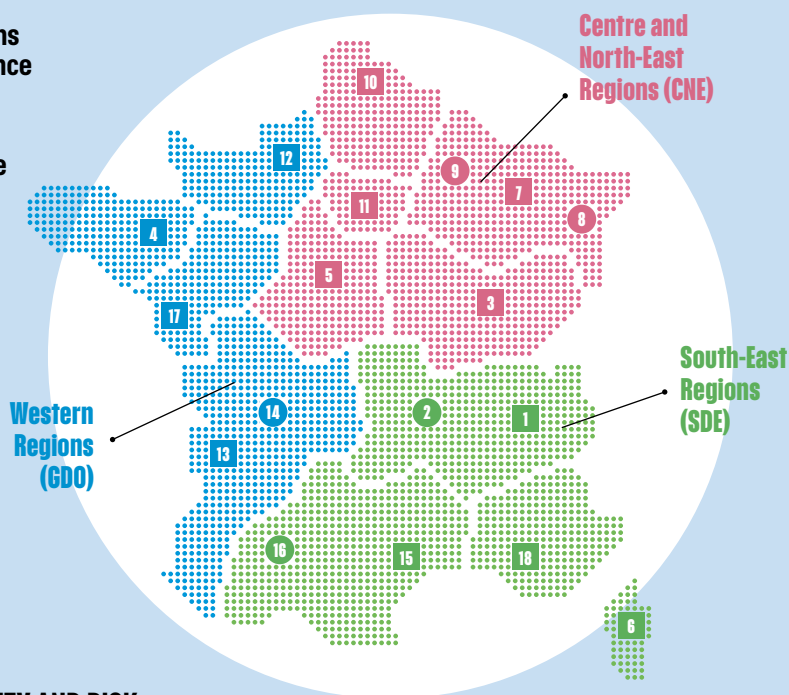
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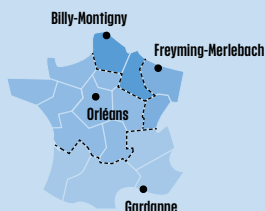
# Regional network

**13** regional divisions  
in mainland France

**5** delegations in  
mainland France



□ Regional divisions  
○ Regional delegations



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# A positive 2021 net result for the BRGM group

**In 2021, BRGM confirmed the recovery that had begun in 2020. The improvement in results was due to increased operating activity for BRGM EPIC and the favourable outcome of the ERAMET share sale for its subsidiary BRGM SA.**

Along with four other public research institutes (INRAE, CIRAD, IFREMER and IRD), BRGM operates on behalf of the government under programme 172 of the Organic Act on Public Accounts (LOLF). BRGM also receives subsidies for public service expenditure (SCSP) under programme 181, for its activities in post-mining and support for public-policy development in particular.

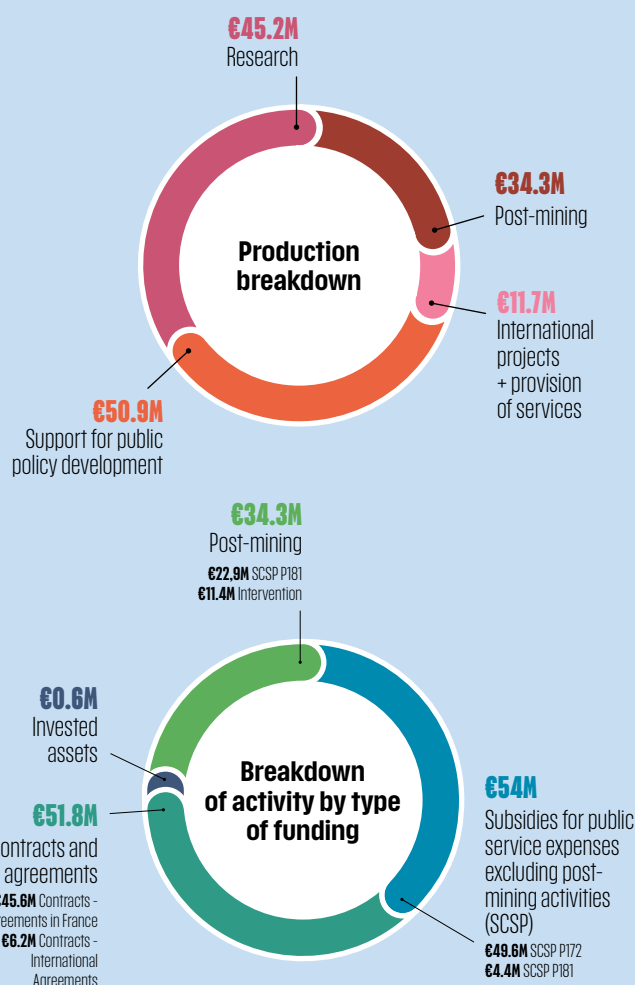
## At the BRGM Group level

The net consolidated profit for the group stands at €12M in 2021 (compared to €0.3M in 2020). The contribution of the different entities to this net result is as follows:

- In 2020, BRGM contributed €3.6M to the Group's consolidated operating result, which corresponds to its net social result of €12.7M adjusted to take account of entries for transactions with subsidiaries (mainly write-back for budget allotments to the BRGM SA subsidiary);
- BRGM SA contributed €7.6M, mainly due to the disposal of ERAMET shares;
- SAGEOS contributed €0.8M of income to the group in 2021, mainly as a result of the sale of CFG shares and dividends received from its subsidiaries and holdings;
- CFG, and IRIS INSTRUMENTS contributed €0.1M and +€0.4M respectively, while MPT IRIS Inc brought a loss of €0.4M.

## At the BRGM EPIC level

BRGM EPIC's net result improved further in the 2021 financial year, with a profit of €12.7M compared to a loss of €1.6M in 2020. The operating result increased by €1.9M to €4M (compared to €2.1M in 2020). The financial result increased by €12.3M compared to 2020 and amounted to €8.7M in 2021 (compared to a loss of €3.6M in 2020).



**+€4M**

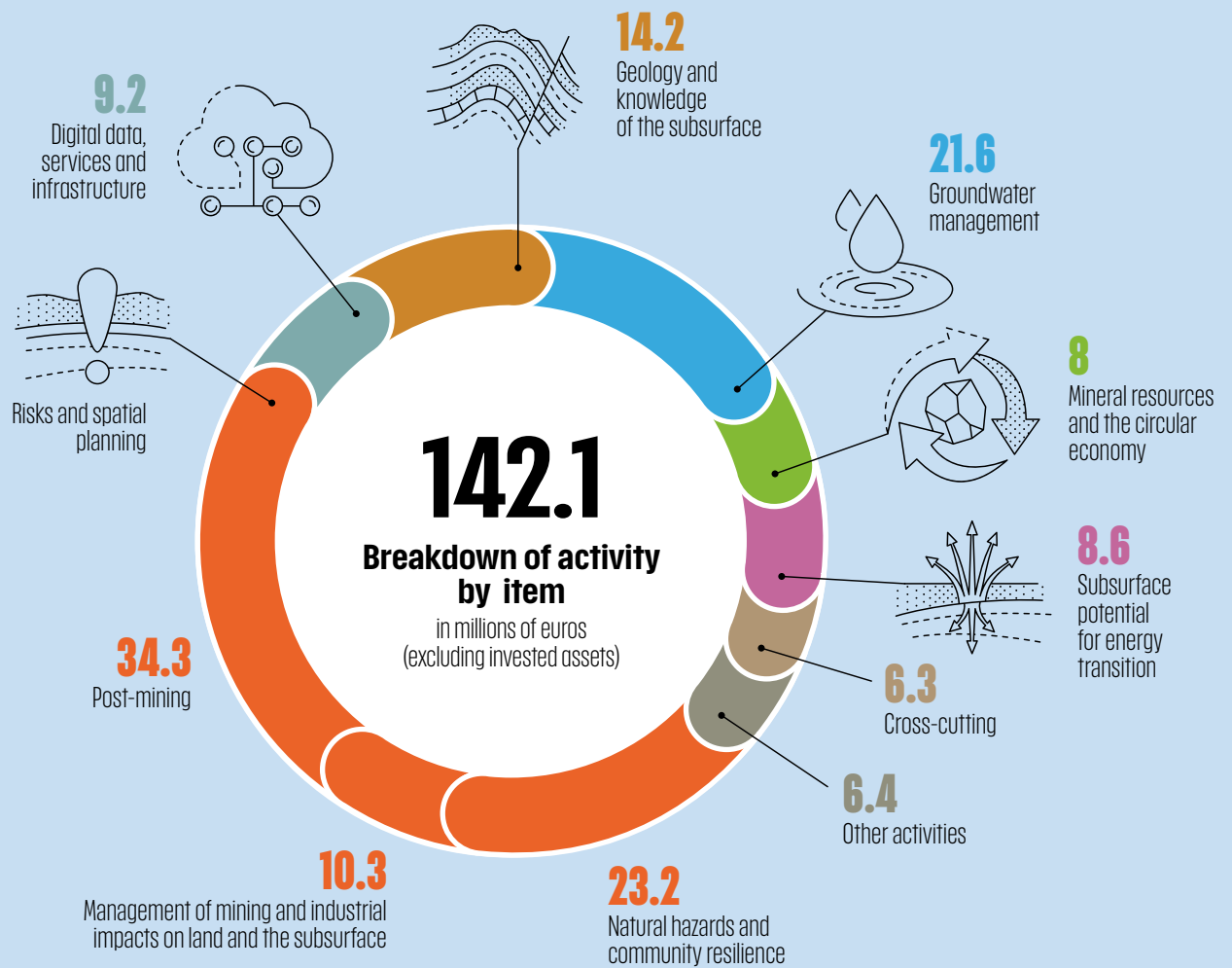
BRGM Epic **operating result** in 2021

**156**

**Operating income 2021**  
in millions of euros

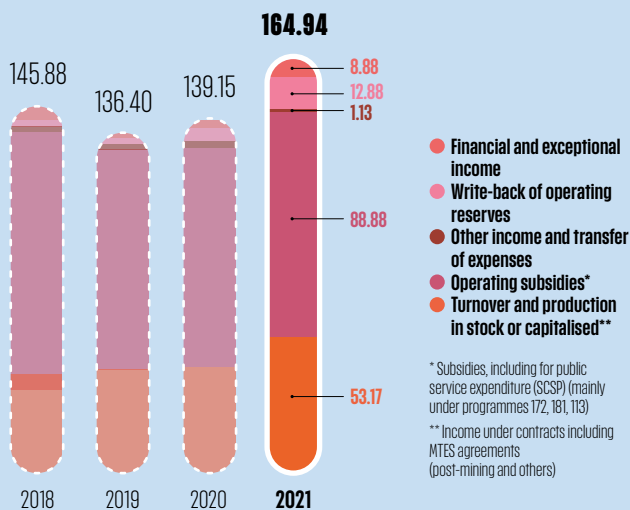
**Operating expenses 2021**  
in millions of euros

**152**



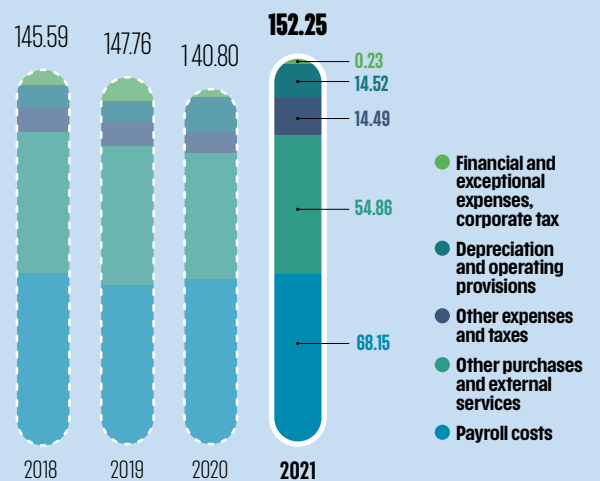
### Evolution of total income 2018-2021

in millions of euros



### Evolution of total expenses 2018-2021

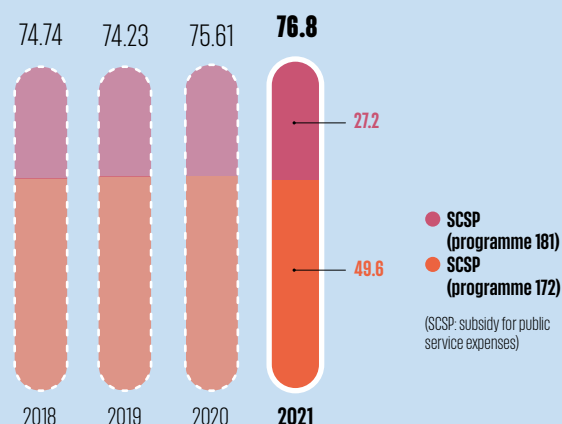
in millions of euros





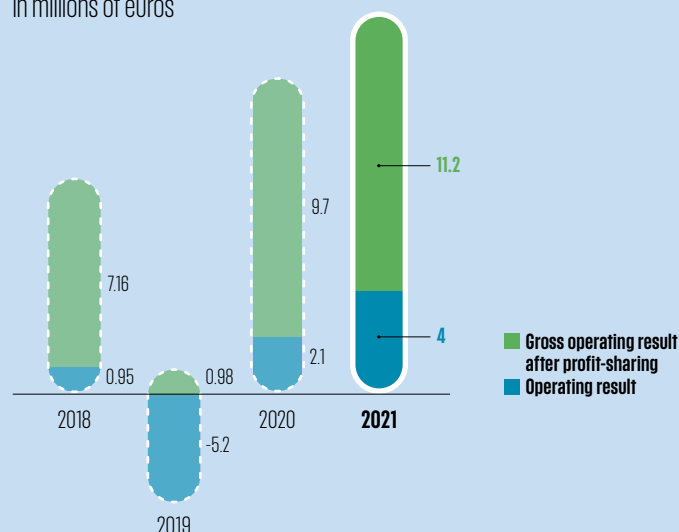
## Evolution of government grants

in millions of euros



## Evolution of operating result

in millions of euros



All these elements led to the payment of a profit-sharing bonus (€1.9M) and will allow a contribution to the company savings plan in 2022.

The BRGM's total operating resources for 2021 amounted to €156M. Excluding reversals of provisions and expense transfers, resources related to current activity increased by 6.6% compared to 2020 and amounted to €140.6M. Its overhead amounted to a total of €152M in 2021. After restatement of provisions and a €6M contribution to a new pension fund, expenses related to ordinary activities amounted to €138.2M, an increase of 6.6% compared to 2020. The increase mainly concerns external operating expenses (+€6.5M), due to the growth in activity. Personnel costs remained stable (at €68.2M).

Excluding post-mining activity, the level of SCSPs remains stable compared to 2020 (€53.9M). The contracts and agreements amounted to €51.8M, up by 5.3% compared to 2020. For business alone, the evolution is contrasted between international activity, which recorded an increase

of €1.8M compared to 2020, and French business activity, for which production decreased slightly by €0.5M.

Production for the Public Policy Support mission attained its highest level for six years at €29.6M. On the other hand, public research activity financed by contracts and agreements (€11.9M) is down by €2.8M compared to 2020. This is due both to an increasing decline in final co-financing rates for national public research projects and to the financial closure of European H2020 projects at a lower level than expected.

The post-mining activity benefited from both an increase in the SCSP allocated to it (+€1M) and a significant increase in its production under contract (+€5.2M).

The financial result of €8.7M in 2021 is the result of the increase in the value of BRGM SA (mainly due to the sale of ERAMET shares) and the dividends received from SAGEOS (€1.5M).

Finally, corporate income tax due for the group amounted to €1M in 2021. ■

## Evolution of resources under contracts for scientific research and support for public policy development support

in millions of euros exclusive of VAT

Contracts and agreements + invested assets	2019	2020	2021
European Union + ERDF	6.424	7.409	4.618
ANR + Carnot	2.047	2.071	2.410
Agencies other than ANR	9.678	9.096	8.900
Local and regional authorities	6.574	6.605	8.455
Government Ministries and agencies	10.957	12.990	16.299
Companies	2.628	2.216	1.127
<b>Sub-total research contracts and agreements + policy support (APP)</b>	<b>38.309</b>	<b>40.387</b>	<b>41.809</b>



## Breakdown of BRGM's international operations by country in 2021

### Americas and Caribbean

Brazil, Jamaica, Trinidad and Tobago,  
Puerto Rico

### Europe

European Union, Serbia,  
Switzerland

### Middle East

Saudi Arabia,  
Jordan

### Maghreb

Algeria,  
Morocco

### Africa and Western Indian Ocean

Angola, Cameroon, Chad,  
Democratic Republic of Congo, Guinea,  
Malawi, Mali, Mozambique, Namibia, Nigeria

# Subsidiaries and holdings

**The BRGM Group's subsidiaries and equity are divided between three holding companies, each corresponding to a specific sector.**

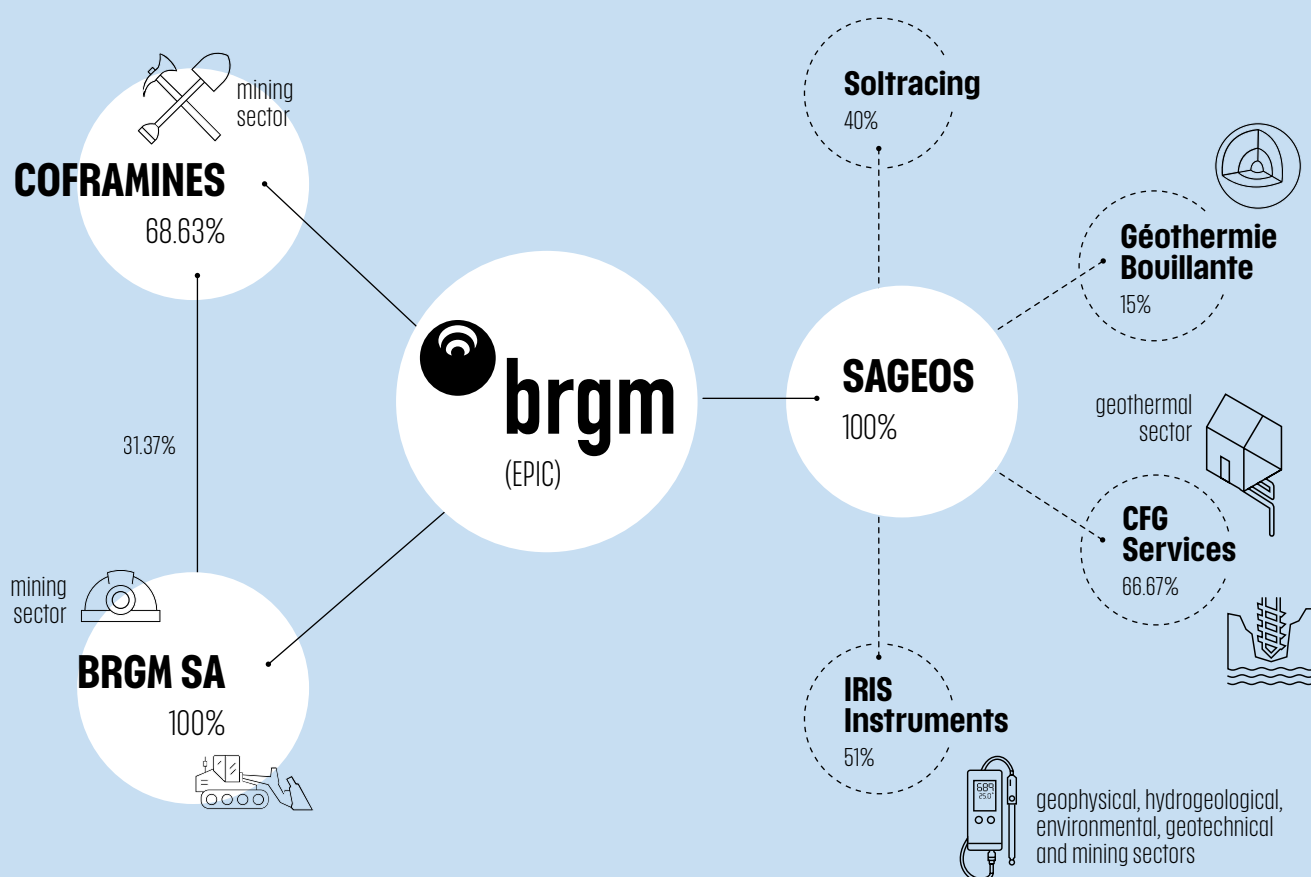
SAGEOS is the holding company for all shares held in subsidiaries operating in geothermal energy, with, on the one hand, CFG Services for which it owns 66.6% of the capital, and on the other, Geothermie Bouillante in which it has a 15% holding (ORMAT Systems and the *Caisse des Dépôts et Consignations* own 63.75% and 21.25% of the capital, respectively) and in measurement instruments for geophysical, hydrogeological, hydraulic, geotechnical and mining surveys, where it has a 51% holding in IRIS Instruments (the Japanese OYO Group

holds the other 49%). For the management of excavated soil, it has a 40% holding in Soltracing (with HESUS owning 50%). COFRAMINES and BRGM SA hold the BRGM Group's remaining equity in the mining sector (dormant companies with no activities or development planned, or companies under liquidation).

BRGM SA has held receivables from the *Société de Participation Minière du Sud Calédonien* (SPMSC) since 2005, when the BRGM Group transferred its share in the GORO project in New Caledonia to the SPMSC. ■

## BRGM Group structure

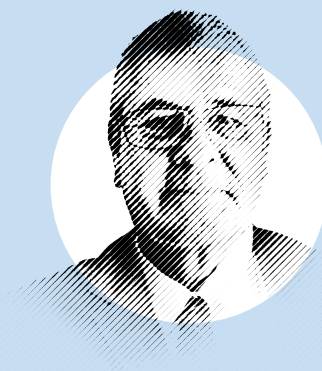
as of 31 December 2021



# A busy year in 2021



CEO: **Georges Picard**  
 Managing Director: **Éric Lasne**  
 Turnover: **€5.468M**  
 SAGEOS holding: **66.66%**  
 Staff: **20 employees**



**Georges Picard**  
 CEO of CFG

The *Compagnie Française de Géothermie* (CFG) is a leader in the geothermal energy market, with core activities in four areas:

- Studies and consultancy in the field of geothermal resources;
- Project design, engineering and management for all geothermal applications (including electricity production and spas);
- Operational maintenance and monitoring of geothermal production facilities;
- Consultancy, services and products in the fields of corrosion and industrial microbiology.

CFG offers its clients its subsurface expertise for the design, implementation and operational monitoring of projects for all types of deep and shallow geothermal extraction and for a wide range of temperatures. CFG's expertise has extended its activities to include engineering services for geothermal loops and fluid conditioning.

To carry out its missions, CFG relies on two activities grouped together in a single production department.

- The IMO division handles project engineering and management (upstream sector: resource characterisation, design and implementation);
- The MSE division handles operational maintenance and monitoring, (downstream sector: commissioning, operational maintenance and monitoring, rehabilitation).

The engineering and project management activity was sustained from the second quarter onwards with the management and supervision of a new Dogger doublet in Evry (91) and significant shaft rehabilitation work in France and Switzerland. Feasibility studies in the Île-de-France, Centre-Val de Loire and PACA regions suggest that there is good potential for the production of carbon-free energy in heating networks and in the industrial sector in the near future.

CFG has supported major energy operators in their current projects and the development of geothermal electrical generation projects in the overseas territories. These projects are revitalising the subsurface engineering sector in volcanic environments and enabling the redevelopment of know-how specific to this field of activity.

The microbiology consultancy activity on behalf of ANDRA continued, albeit at a lower level than that projected.

The maintenance and operational monitoring business was particularly busy in terms of maintenance work and sales of specialised shaft equipment.

Scheduled maintenance activities, of which there were seven this year, generated a lot of work, placing heavy demands on the technical teams in a health context which is still complex in 2021. In addition to these maintenance operations, we also had to deal with breakdowns that tested the responsiveness and availability of our teams.

The maintenance work led to the discovery of problems either with the production equipment or with the structures

themselves. The rehabilitation of the facilities generated equipment sales and rehabilitation work as prime contractor.

We should also note the equipping of two new doublets at Champs-sur-Marne and Vélizy with CFG technologies in terms of anti-corrosion treatment.

Production of Labège kits was very strong with the upswing of the oil and gas sector after two years of low demand and low prices.

Major orders were filled, notably for operators in West Africa.

In terms of research and development, partnership projects were pursued in 2021 on various technical subjects such as the development of high-temperature submersible pumps, and the exploration of new options for coupling geothermal energy and CO<sub>2</sub> reinjection.

Research work (with ADEME funding) on complete preparation of shafts with composite materials was finalised in 2021 with the development of a specific cementing methodology. From 2022, this work will be applied for the construction of two doublets incorporating this technology in Alfortville and Champigny-sur-Marne. ■



**Complex rehabilitation operation with snubbing unit in Switzerland.**  
 © CFG



# Towards a resumption of mining exploration



CEO: **Catherine Truffert**

Turnover: **€5.9M**

SAGEOS holding: **51%**

OYO holding: **49%**

Staff: **26 employees**



**Catherine Truffert**

CEO, Iris Instruments

The health crisis and all its consequences remained a central concern for IRIS Instruments in 2021 and for its employees and customers. Their cohesion and professionalism enabled our teams once again to rise to the occasion to face this second atypical year.

Due to successive country restrictions, travel to scientific conferences, trade fairs and customer visits remained limited. However, digital communication tools were used to ensure that the bond with scientific, commercial and customer partners was not lost.

Financially, the company is performing well, driven equally by the mineral prospection, groundwater exploration and environmental markets.

The commercial success of compact resistivity meters (SYSCAL), designed for monitoring the first 250 m of the subsurface, is intensifying with uses that extend beyond traditional applications such as hydrogeology, monitoring of natural and anthropic risks, archaeology, etc. Consequently, these leading-edge electrical-imaging instruments, with their proven reliability, are now routinely used in the field of civil engineering.

Global mining exploration budgets increased significantly in 2021, driven by a growing demand for base metals and for critical metals related to energy transitions (transport and energy). IRIS Instruments was able to capitalise on this momentum with increased sales of resistivity and induced polarisation, deep-exploration systems for investigating beyond the first 250 metres. Although it is too early to predict, this enthusiasm for deep exploration is likely to be sustained.

IRIS Instruments is ready to meet the demand for deep mining prospection with the publication of its patent EP3572846A1 "High Power Transformer and Transmitter for Geophysical Measurements" and its range of instruments that are patented in the USA, Canada and Australia. With its 6kW of power, this transmitter will become an essential tool for deep monitoring, alongside FullWavers and more traditional receivers such as ELRECs.

Private sector equipment sales increased in 2021, indicating a significant economic recovery despite the difficulties operators still face in moving from one theatre to another.

IRIS Instruments continues its research and development effort in order to offer its customers solutions that meet their challenges. The company benefits from support under the French government's recovery plan in the context

of its joint laboratory with the CEA/IRFU. Its success in responding to calls for projects also provides opportunities for high-quality collaborative research with BRGM and other scientific partners. This investment guarantees the performance of future instruments that will be offered to tomorrow's customers.. ■

**CCI Consult uses a SYSCAL PRO resistivity meter to monitor the subsurface of railway tracks in France.**

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**BRGM Communication, Science Outreach  
and Publishing Department**

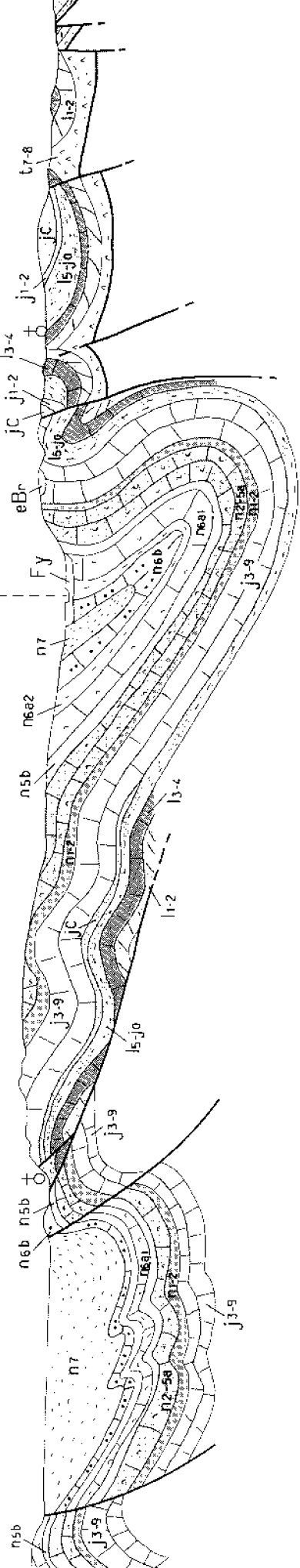
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**Credits**

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ISBN 978-2-7159-2781-0

**Design & layout**

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# French Geological Survey



Geoscience for a sustainable Earth

**brgm**

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