

Perspectives of the Thermal Industry

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- A silver metal paper clip is attached to the top left corner of the white paper.
- **A global overview**
 - Client characterization and trends
 - Deep dive in European market
 - Marcial Campos Prize to Thermal Research
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Wellness concept: active process of the individual designed to reach the complete, not only physical, but also of social and emotional health, in order to achieve a more satisfactory and balanced life.



- Under the term “Wellness Industry”, a large variety of different concepts can be included: thermal springs, wellness tourism, mind-body, alternative medicine.....
- ...understanding that more and more, boundaries among different sub-segments are more subtle, with no definitive differentiation among them.
- Economic segments that, depending on the analysis, can included within this definition:
 - Nutrition
 - Fitness
 - Health prevention
 - Beauty medicine
 - Others.....
 - Spas
 - Thermal resorts
 - Wellness Tourism
 - Alternative medicine

Wellness concept is becoming an issue for governments and corporations worldwide

- Several indices are being created to evaluate the “well-being” of a community or a country: OECD Better Life Index, Canadian Index of Well-Being, United Kingdom National Well-Being Index, EU Healthy Life Years, etc
- Companies are internally building the culture of wellness: Harvard Business Review research pointed that *for every dollar invested in wellness, companies average a return of \$2.71 by way of increased productivity, decreased absenteeism, and reduced healthcare cost.*

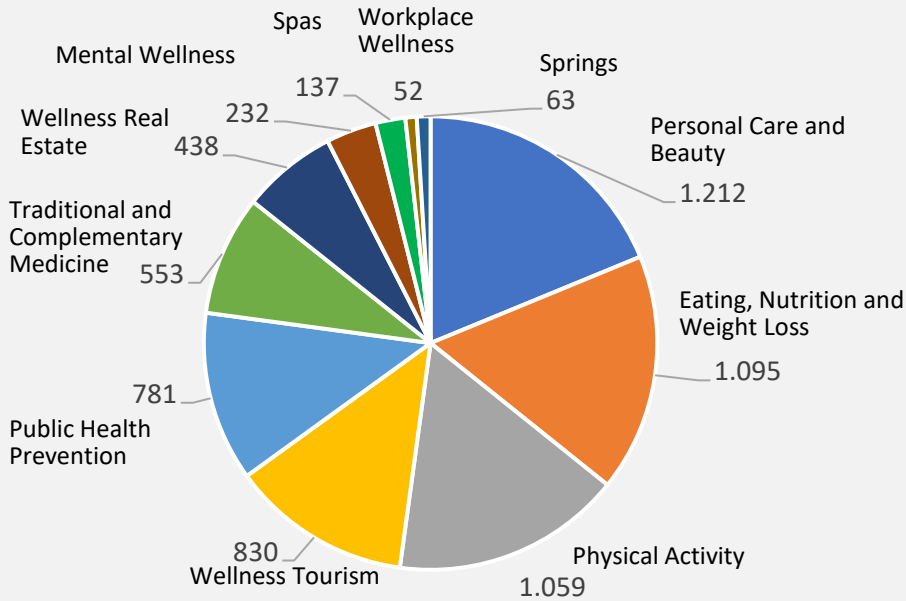


Healthy foods in cafeterias
On-site fitness centers
Medical assistance
Stress treatments
Stop smoking programs
... and more

Some considerations on the difficulties for assessing thermal resorts industry

	Approach	Considerations
 Service providers	Resorts using thermal waters for providing preventive, curative or rehabilitation services.	- No clear borders with other providers of some services also offered in thermal resorts, like spas. - Difficulty of developing new thermal waters resorts due to scarcity of dwells, financial limitations, government authorizations,....
 Clientele	General population.	Evidence shows bias towards elderly people, but dependent upon service being delivered.
 Geographical scope	In Europe, theoretically, a single market	Evidence shows significant percentage of thermal resorts clientele have local/national origin.
 Size	- The volume, both in terms of number of curists, and revenues generated by said clients. - Different measures can be selected for tracking purposes.	Disparity of criteria among countries for estimating amounts.
 Evolution	For historical analysis and forecasting modelling, is crucial to have available and reliable information on main parameters of the industry.	Historical information is scarce and not homogeneous among countries. Additionally, Covid-19 placed a breakthrough on certain data.
 Regulation	Thermal industry is a highly regulated business in almost all geographies.	- Different regulation among countries. - Legal matters set significant conditionings for thermal resorts: Medical staff, facilities, strict quality controls, etc.

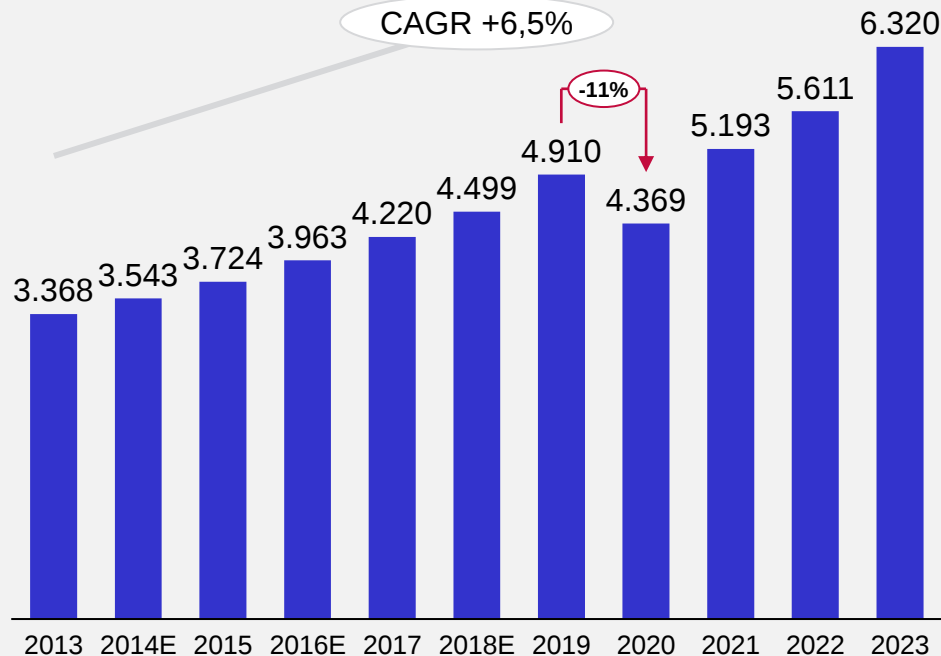
Market size of USD 6.3 trillion worldwide in 2023



- Wellness industry is a **worldwide business**, with a **significant size** in a majority of countries.
- Overlaps between subsegments exist**, with similar services being provided by different actors in the market.
- Personal care and beauty, Nutrition and Physical activity are the segments with largest size.
- As per GWI classification, **thermal springs are among the smaller** segments of wellness industry worldwide

An industry with a robust growth in the long run

Revenues (USD billion)

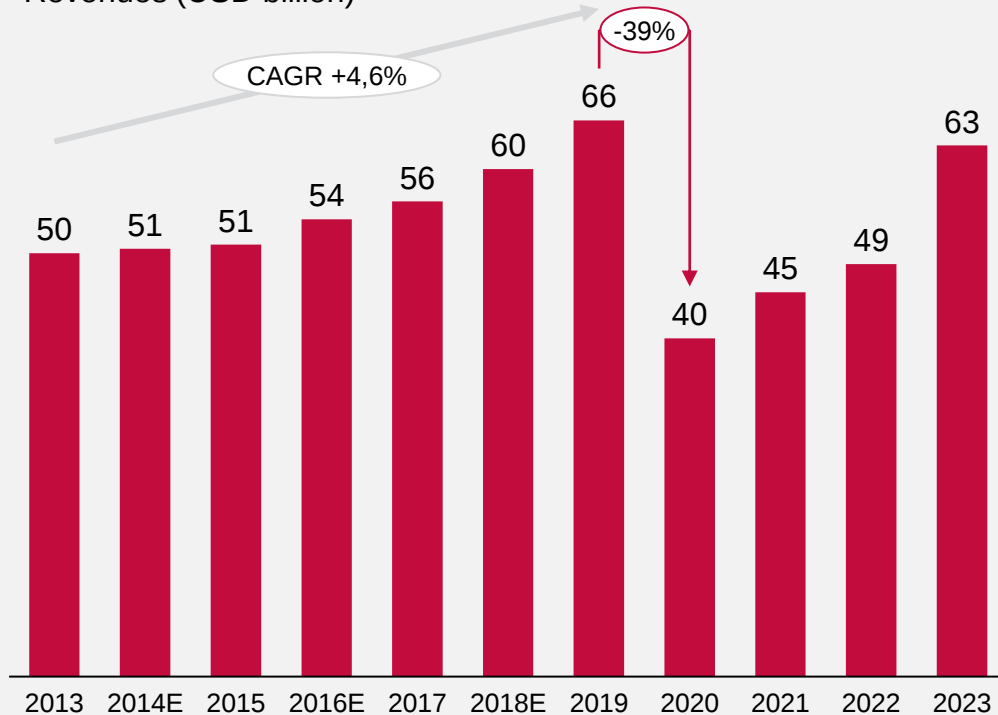


- Industry compound annual growth rate (CAGR) has been strong: 6.5% from 2013 to 2023
- World GDP in same periods (2013-2023) has grown 2.5%, and pre-covid growth, 3.0%
- Covid-19 created a significant setback for the industry, with a before unknown 11% decrease.

An industry that has been growing more than **twice as much as world's GDP** for similar periods

Focus on thermal resorts

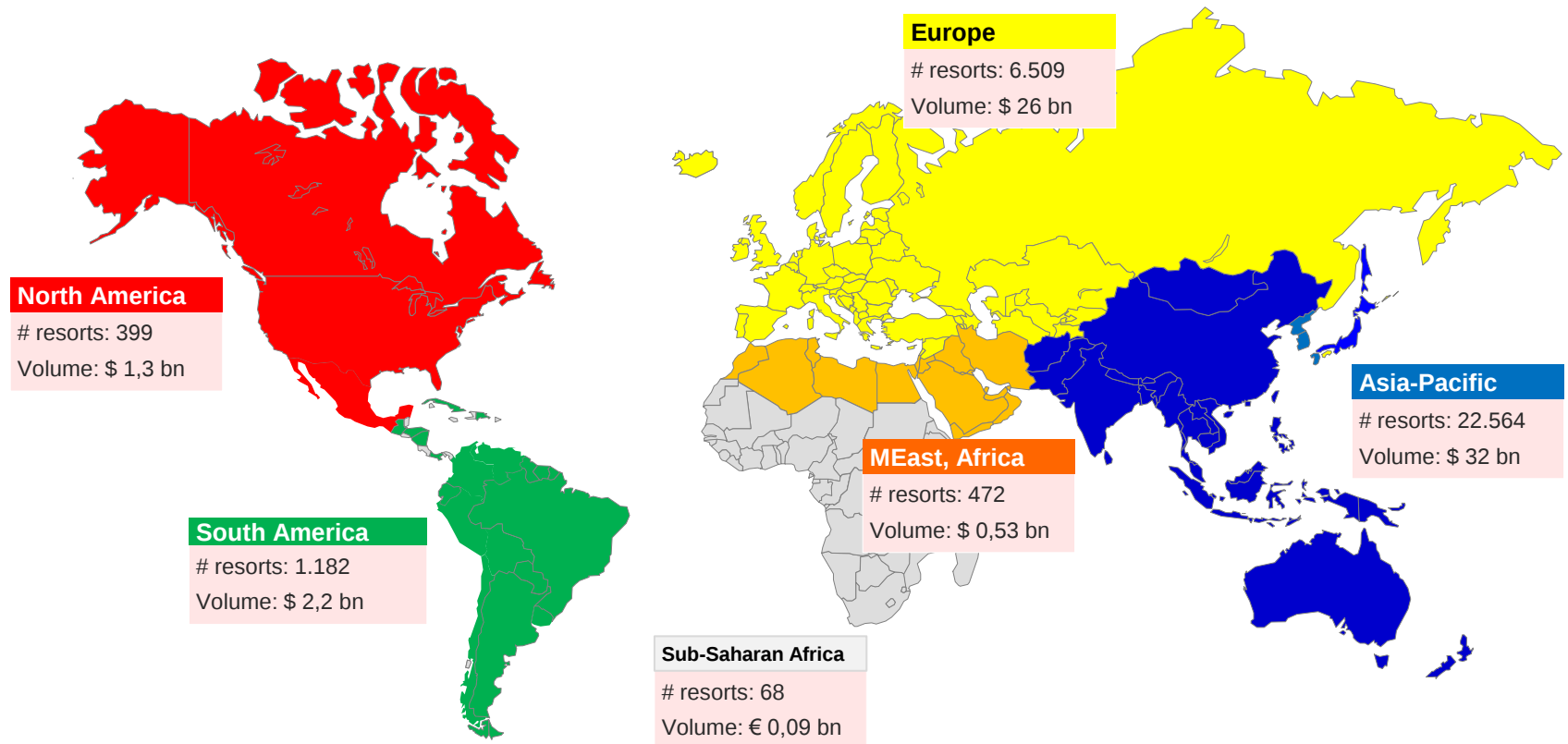
Revenues (USD billion)



- Our focus will be on services provided by thermal resorts, including here public or private **enterprises that use mineral waters** either under medical supervision or with wellness purposes
- Although the smaller of all segments, still a very large business: **USD 63 billion**
- Thermal springs resorts had experienced reasonable growth up to 2019, but then **highly impacted by Covid-19** crisis.
- As of 2023, the industry had almost recovered previous levels of revenues, being at a **95% of pre-pandemic figures**.
- In some countries, specific extraordinary measures to support thermal resorts were taken by governments during Covid

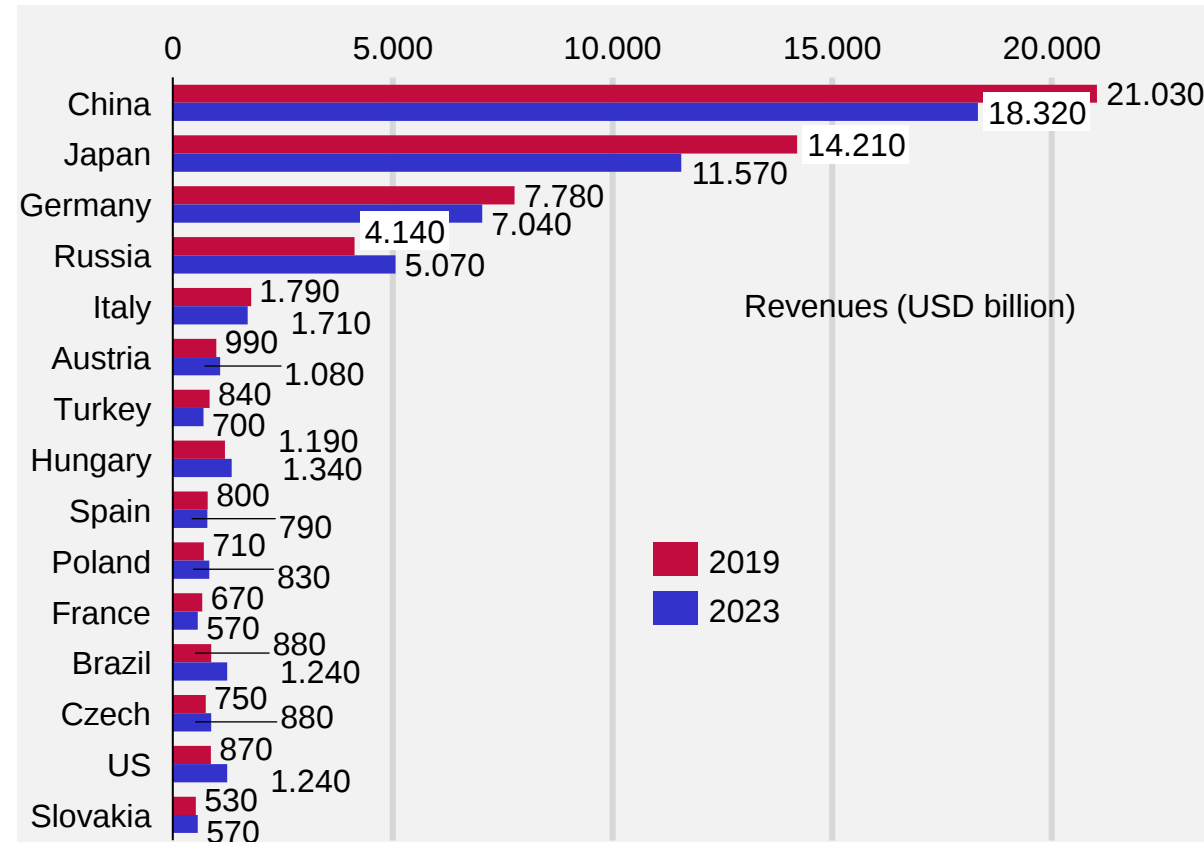


Markets by Region: The importance of cultural heritage



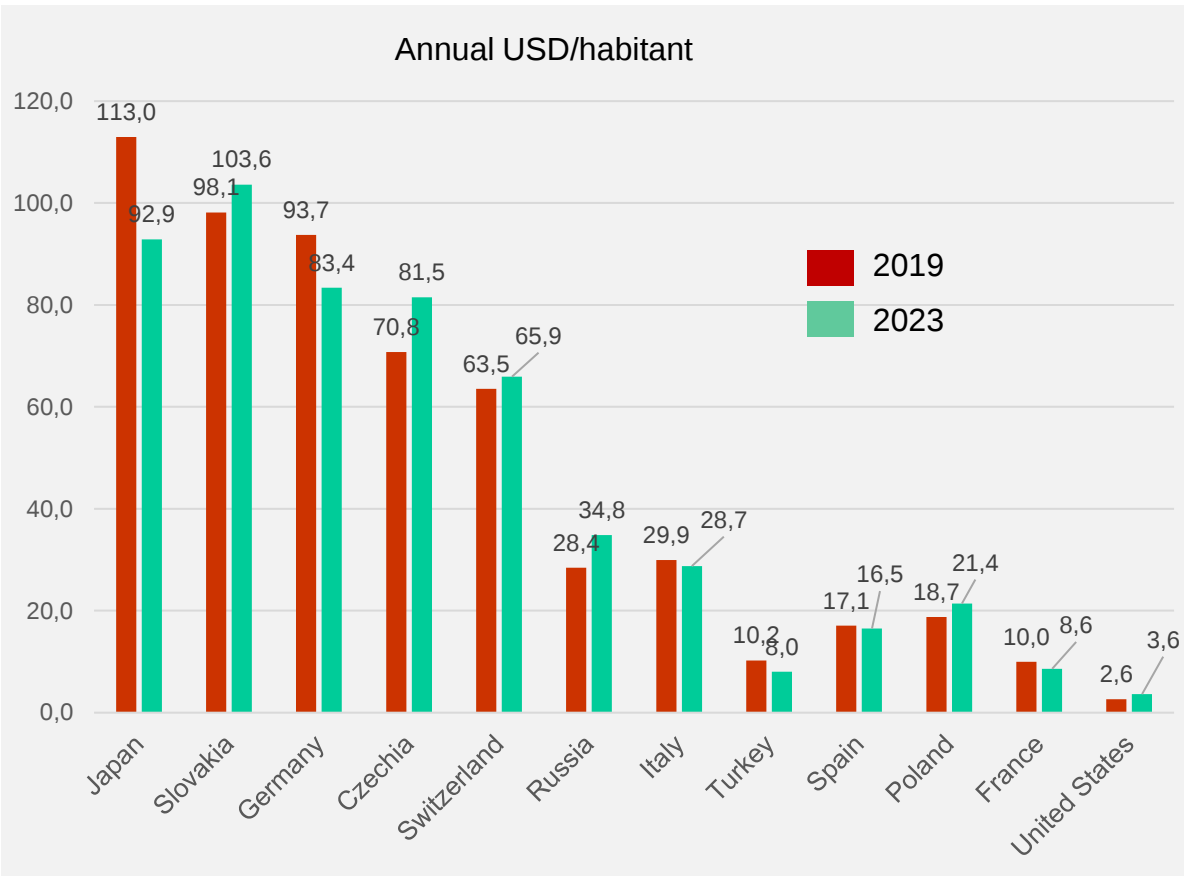
- A total of c. 31.000 thermal resorts work worldwide, with a diverse geographical distribution
- **Highly concentrated in Europe and Asia:** These two regions account for almost 96% of all revenues

Focus on thermal resorts: Revenues (USD bi) by country



- The **top 5 largest markets** (above 1 billion) **represent 75%** of total market.
- Besides China and Japan, **European countries** are the ones dominating the industry.
- Latin America and the US, although with high population and natural resources, have a relatively small size of industry.
- Most of the countries have experienced a decrease in its market since 2019
- This impact has been particularly harsh in Japan and China, still clearly below 2019 levels

Per capita expenditure (annual USD/habitant)



- Japan, Slovakia and Germany have the largest annual expenditure in thermal resorts per habitant.
- In Europe, southern countries have lower expenditure per habitant than northern ones.
- US lags behind with very low figures.
- Recovery to 2019 levels has not yet been reached in all countries as of year 2023

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A simplified vision of thermal resorts clientele

Parameters for thermal resort client characterization

Purpose of stay/Disease

Stay length/recurrence

Medical prescription

Common techniques

Social profile/Financing

Age

Market Profile



Wellness

- Relax
- Recreational
- Resort visit complemented by other purposes: cultural, outdoor activities...
- Stress

- Generally, 3/4 days at most
- Weekend
- Day visit
- If spa-goer, might try different resorts throughout the year
- Low recurrence

- Not necessarily

- Massage
- Beauty treatments
- Swimming Pools
- Sauna
- Yoga, ayurveda...

- Couples
- Family group with kids
- Local/National/International profile
- Own pockets financing
- Higher income

- Average below 50 years

- Volatile, subject to general economic situation
- High growth
- No clear boundaries with other facilities such as spas



Therapeutic

- Cure purpose
- Pre-existing medical condition:
 - Rheumatism
 - Respiratory
 - Dermatological
 -

- Period of 1 week or more
- Regular visitor: more than one stay per year
- Customer loyalty: Usually repeats thermal resort

- Referred to thermal resort by doctor
- Specific thermal techniques prescribed by thermal resort medical staff

- Thermal baths
- Muds
- Hydropinic
- Respiratory
-

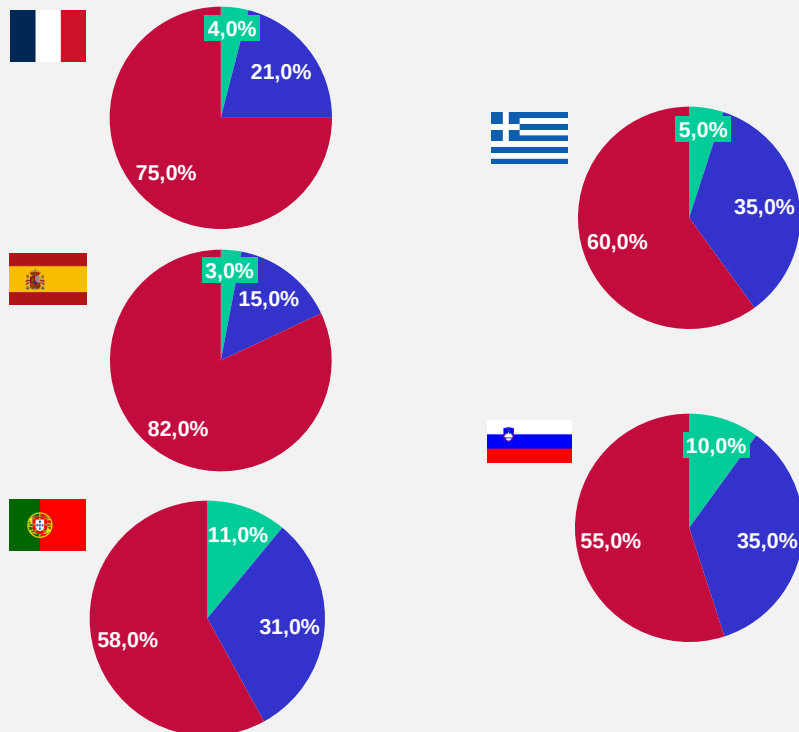
- Travels alone or with couple
- Local/National
- Lower income
- Depending on the country, financially supported by national health system or insurance

- Predominance of elderly people (above 60 years).
- Children for some specific diseases

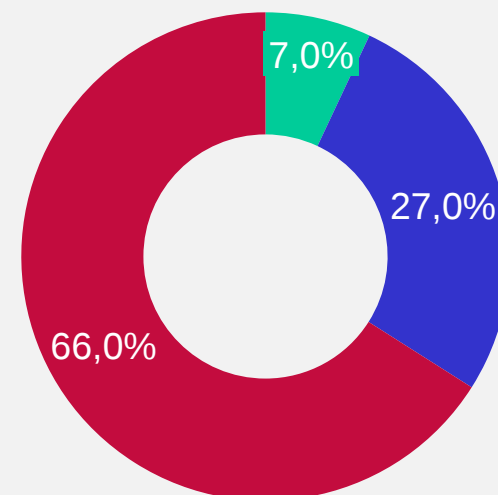
- Population age profile very relevant for market sizing
- Slow growth

Age profile of thermal resort clientele

Country specific



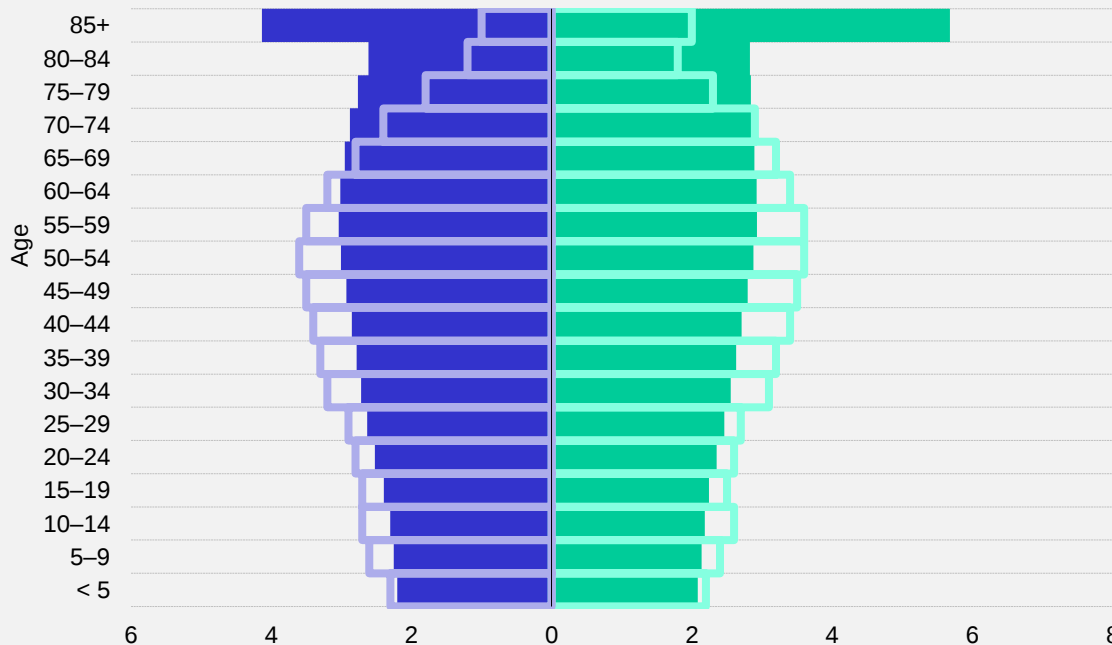
Aggregate



- Age of **thermalists** receiving **therapeutic treatment** is clearly biased towards age of retirement and beyond: On average, **66% of attendants are above 65 years old**
- In Portugal, age profile of only wellness clients shows a younger profile: 81% are in the 15-65 range, while above 65 yrs is 16%

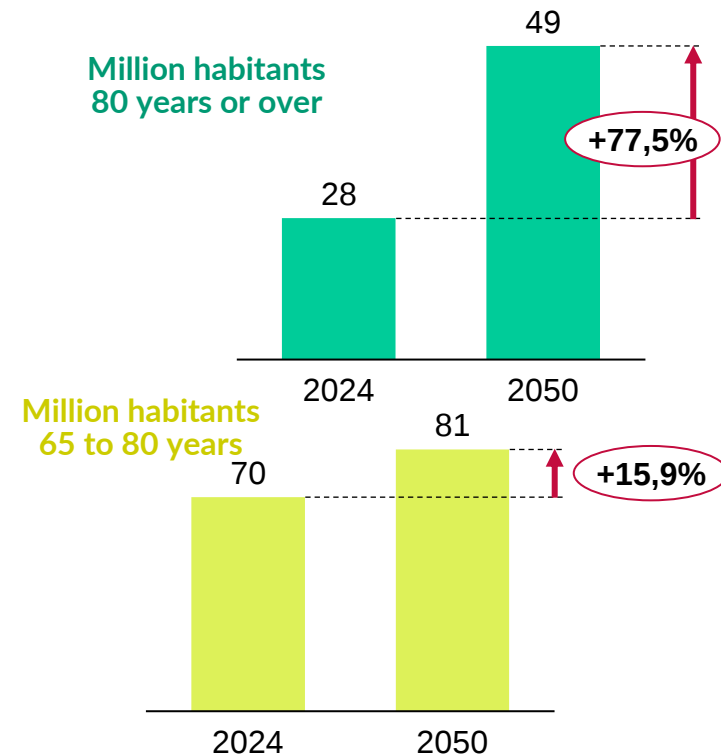
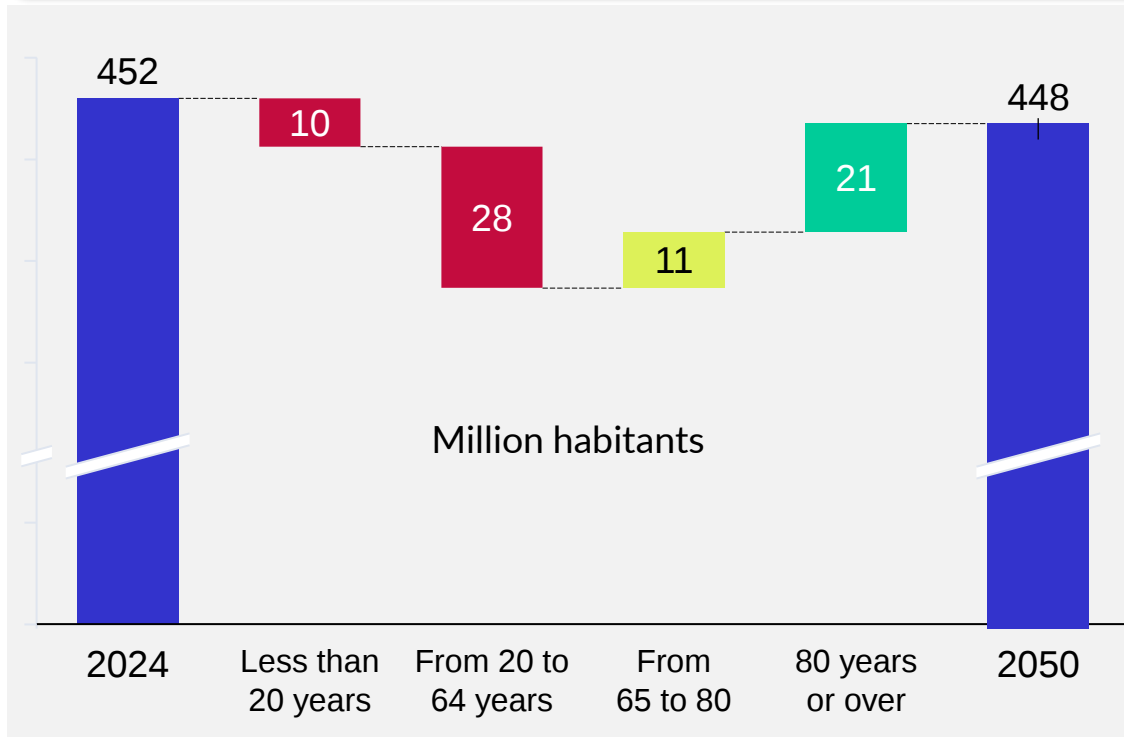
Pattern change in the Population Pyramid

Population pyramids, EU, 2023 and 2100
(% of the total population)



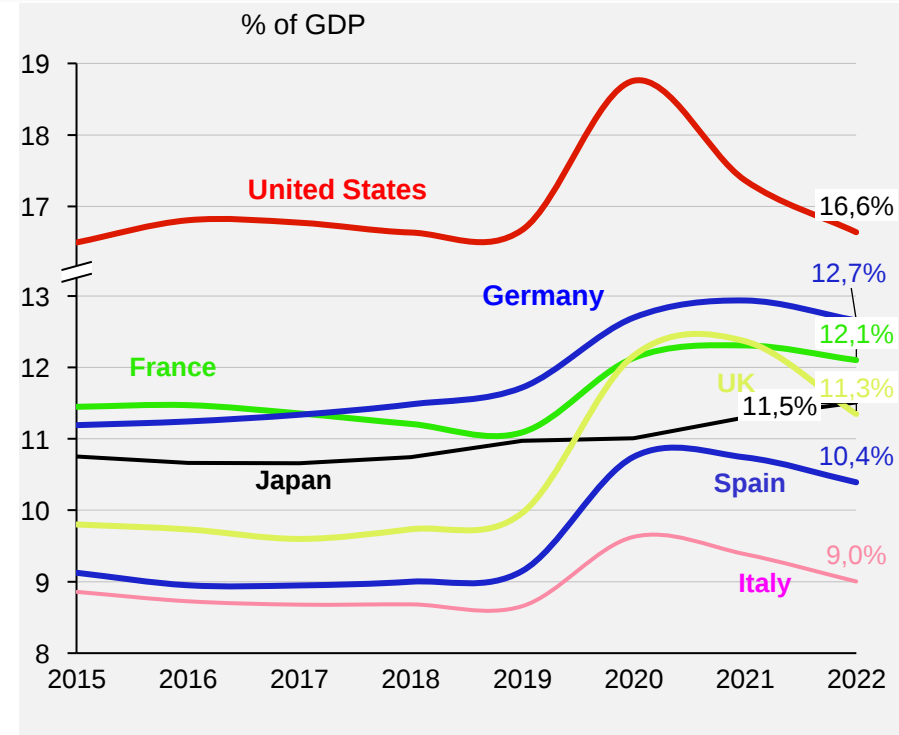
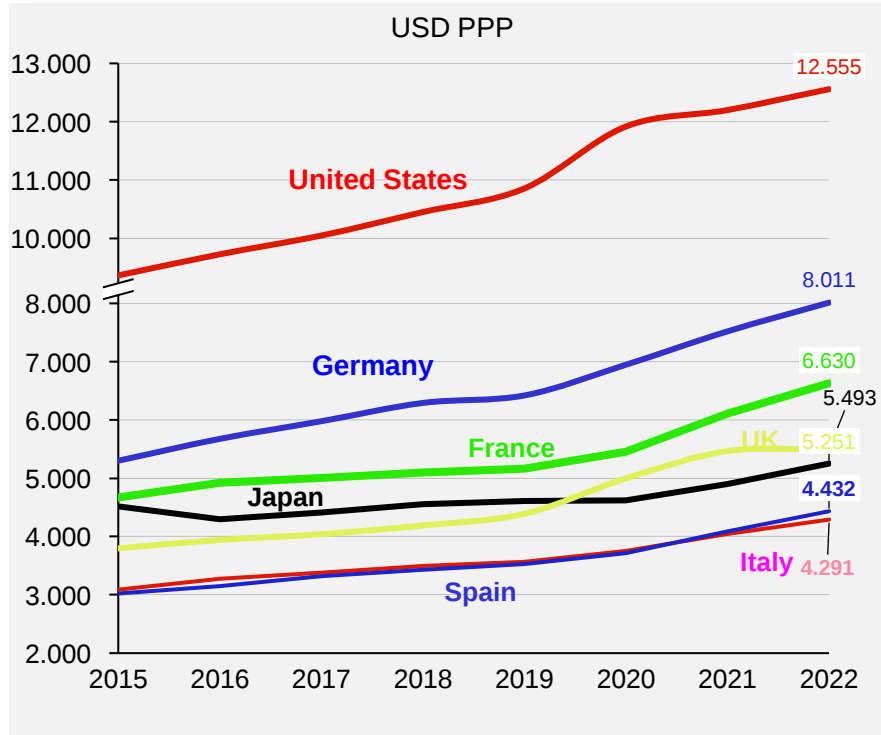
- **A strong upward shift in the age distribution is expected in all EU countries in the coming decades: older age population will grow, while younger brackets will shrink.**
- Even in countries in which working age population (20 to 65) increases, **population above 65v will grow more.**
- **Old age dependency ratio will increase from 36% in 2022 to 59% by 2070,** with the social and economic implications of such change.
- **More people will be working at higher ages:** Participation rate of people in the 55-65 age bracket is projected to increase from current 65.4% to 75.5%
- **Age related expenses** (pensions, healthcare, long-term care and education) **will increase** from 24.4% to a range of 25.6% - 28.3% of GDP depending on demographic scenarios

Forecasted European Union population change: 130 mm above 65 yrs



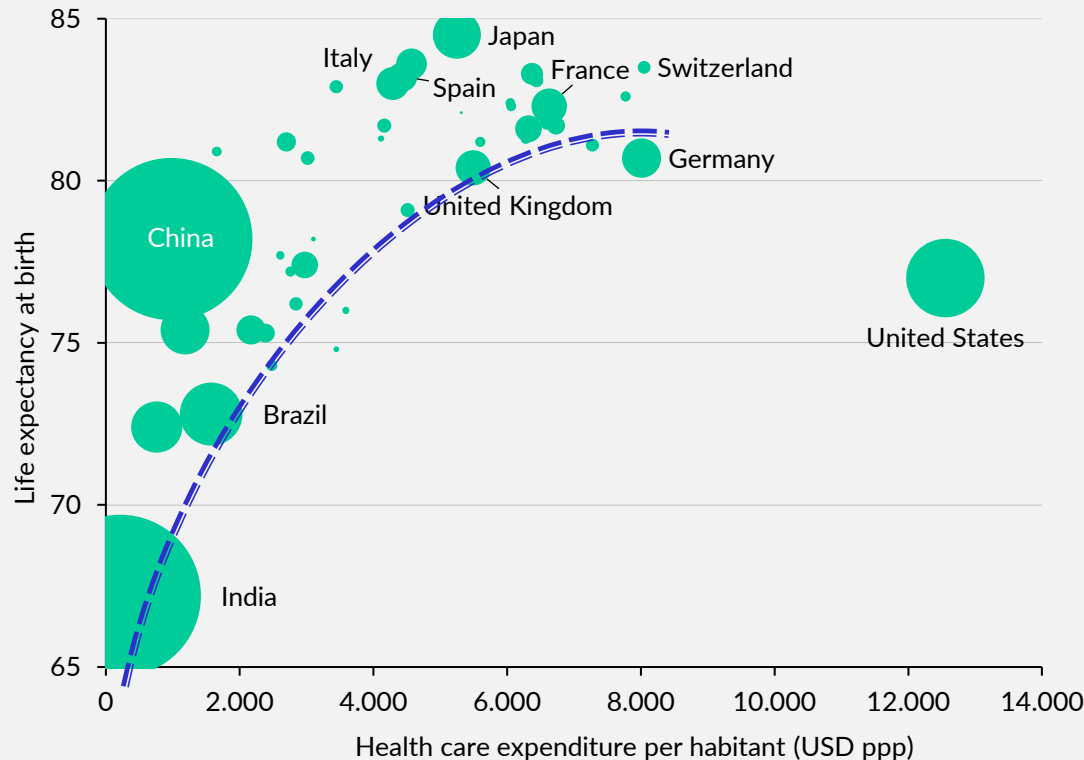
- Until 2050, **population in the EU will decrease**, but with a significant shift in age distribution
- By year 2050 there will be **130 million people above 65**, of which **49 will be above 80** (4th age). This represents an increase of 32 million in this segment (+33%)
- This represents c. 29% of population as opposed to current 21%

Increasing health care costs throughout developed economies



- In the last years, healthcare costs have increased significantly in all major countries, being **the largest single cost in governments' budgets**.
- Per capita healthcare cost shows differences among countries, with United States above any other geography and in Europe, Germany and France have both in absolute and relative terms the higher costs
- **Historically, thermal resorts services coverage by national health systems have suffered with budget constraints**

Health care costs and life expectancy correlation

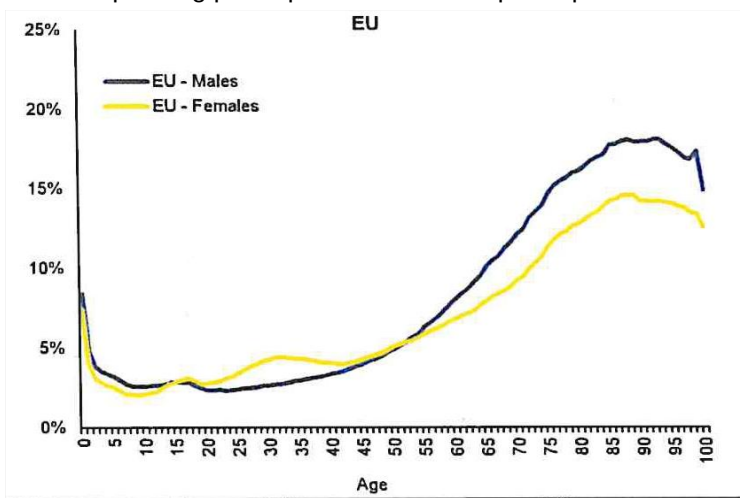


- Life expectancy at birth has grown by **more than 10 years** in most OCDE countries since 1970
- Current life expectancy in this group is at 80.3 years. Covid-19 impact placed a slowdown in the prevailing upwards trend.
- Nonetheless, there is a strong correlation between healthcare costs and life expectancy

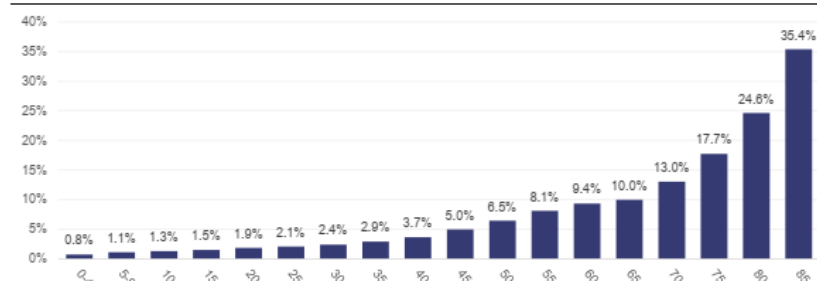
EU projections in health care costs assumes that **half of the future gain in life expectancy is spent in good health**. This considerably mitigates the demographic effects of ageing and can only be achieved if **health systems contribute to healthy ageing**, mostly through health promotion and prevention

Health care costs and aging: A multiplier

Spending per capita as % of GDP per capita



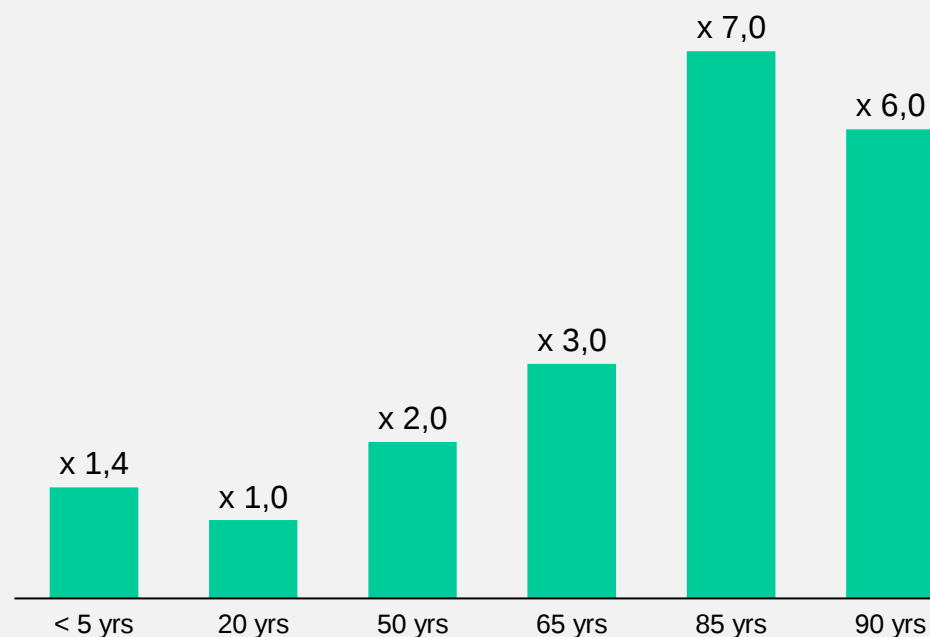
Graph I.3.3: Median dependency rates by age group for EU, based on EU-SILC



The dependency rates are based on EU-SILC data on "self-perceived longstanding severe limitation in activities because of health problems (for at least the last 6 months)". 2016-2019 (base year) average, 2017 values used for ages below 16 where available.

Source: European Commission, EPC.

Health care cost as a multiplier depending on individual's age



- Health care costs increase with can be very significant, with a **multiplier of 7 times** between the minimum cost (age of 20 years) and the maximum (age of 85 years).
- Increased longevity without being able to increase health status leads to an overall health care expenditure increase**
- Given age profile of thermalists, being able to support healthcare cost reduction of overall healthcare cost expense for an individual should be a goal to achieve: **Better health goes along with lower health care needs and may drive down health services use and health expenditure.**

Longer lives but more people with poor health

People are living longer, yet spend more years in moderate or poor health.

Average global life expectancy, years



Global health years as % of life expectancy



- According to an analysis from McKinsey&Co, **extended life span** also **implies an increase** (in absolute terms) in the number of **years of life with poor or moderate health**.
- It is pointed that increasing the percentage of aging in good health condition is feasible in all geographies.

Source: Institute for Health Metrics and Evaluation; World Bank; McKinsey analysis

1

A large market worldwide



- Thermal resorts market belongs to an industry –the wellness industry- with a **large size** in most of the world.
- Europe, for its cultural heritage, is with East Asia, the **leading region in the use of thermal waters** for health purposes.
- **Its growth has been above that of the general economy**, although Covid-19 lead to a relevant slowdown on its tendency, with almost full recovery by year 2023.

2

The change in Europe´s clientele



- Since the beginning of XXI century, there has been a **shift from traditional therapeutic cure to a more holistic approach**: the wellness concept.
- **This change has relevant implications** for thermal resorts: from staff know-how and profile, architectural concepts, environmental considerations, marketing strategies, among others.

3

Age and healthcare costs: An opportunity and a threat



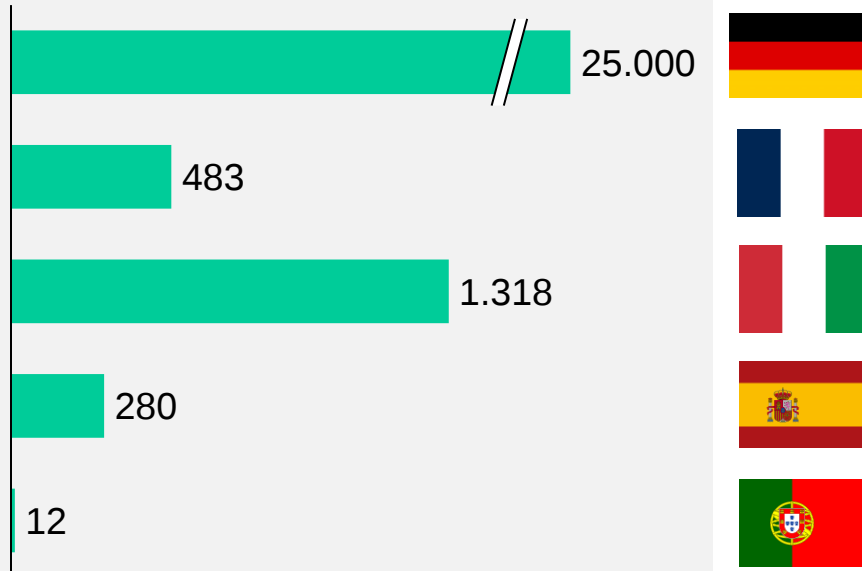
- **Demographic tendencies** in Europe show a significant increase in the age bracket that corresponds to the largest percentage of thermal resorts clientele, thus, **creating an opportunity** for the next decades.
- **Government budgetary constraints** and expected healthcare costs increase due to aging population might create a **threat for therapeutic thermalism**, which has a larger dependance on governmental support in most of the EU countries.
- **Thermal resorts medical practice can significantly contribute to reduction of health care costs** by facilitating better health conditions in the forecasted extended life span of population.

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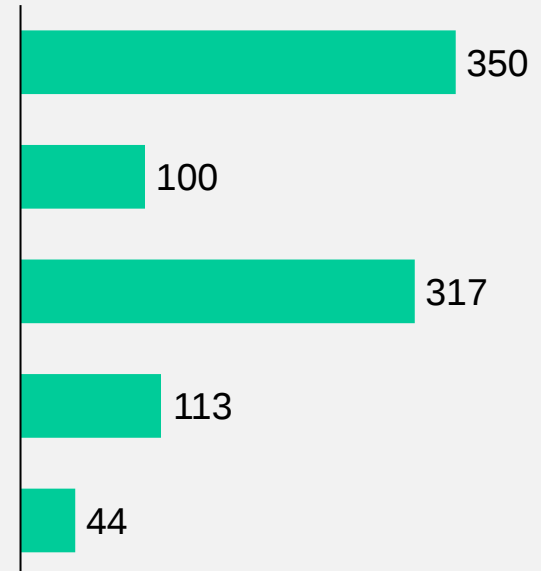
Key metrics on selected European countries

Market sizing: country specific data

Country market size in million euros



Number of reported thermal resorts

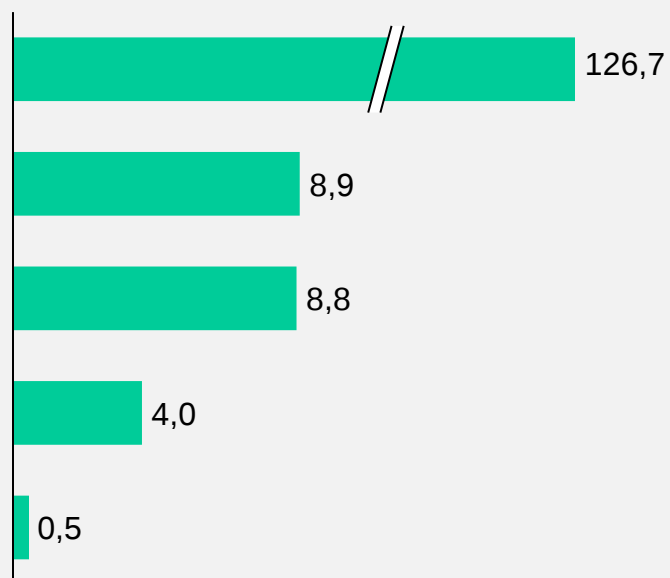


- Lack of homogeneous criteria raises some questions on information provided by domestic institutions related to thermal resort industry:
 - Germany reports the largest sector in Europe, both in terms of market size and number of resorts, with Italy ranking second
 - Behind, France and Spain with much smaller sizes, but both countries having a significant number of resorts.

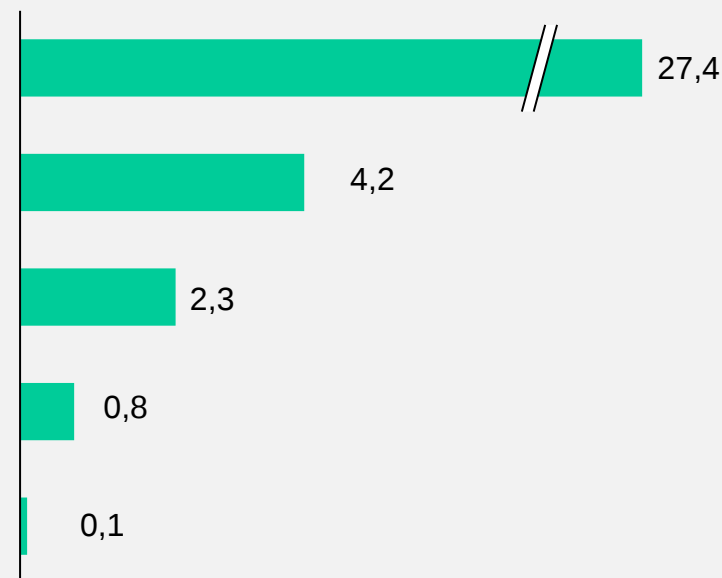
Key metrics on selected European countries

Thermalists and overnight stays

Overnight stays (million)



Number of arrivals (million)



Average stay (days)



4.6



2,1



3,8



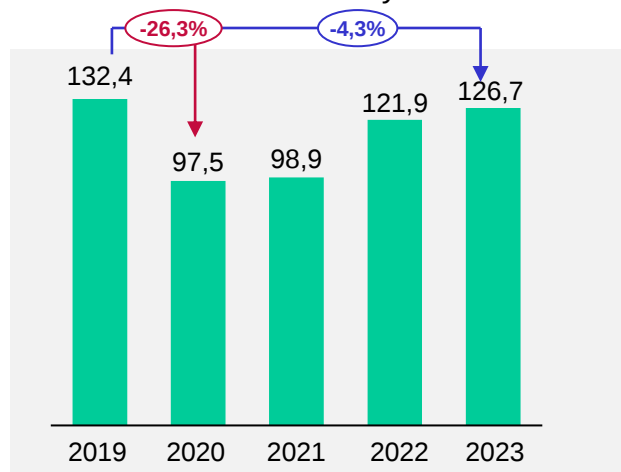
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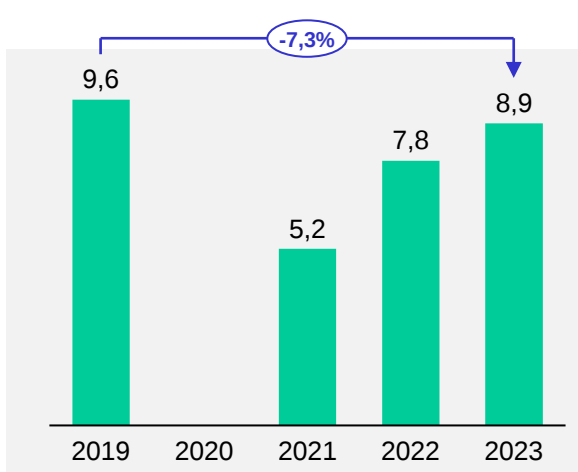
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Overnight stays by country evolution

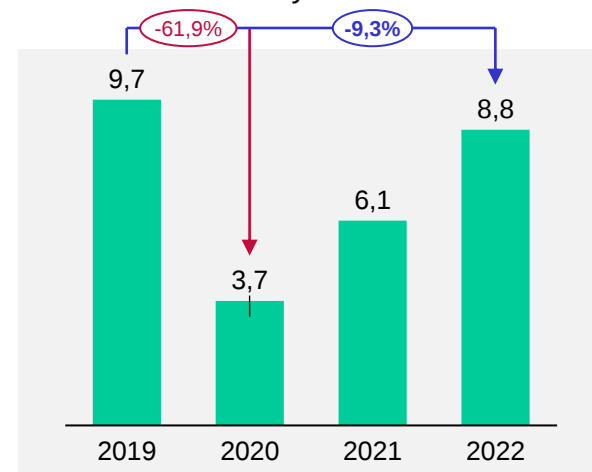
Germany



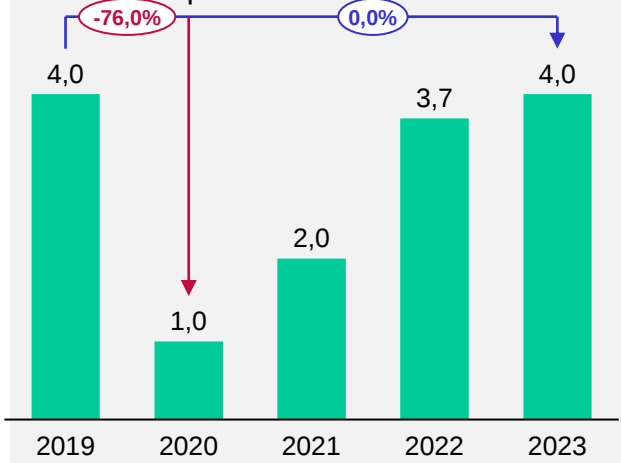
France



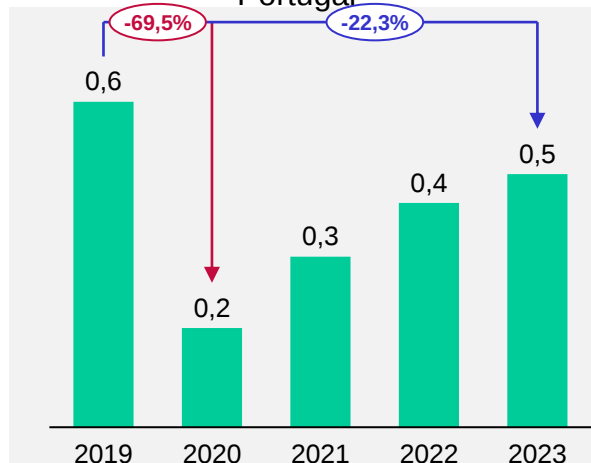
Italy



Spain



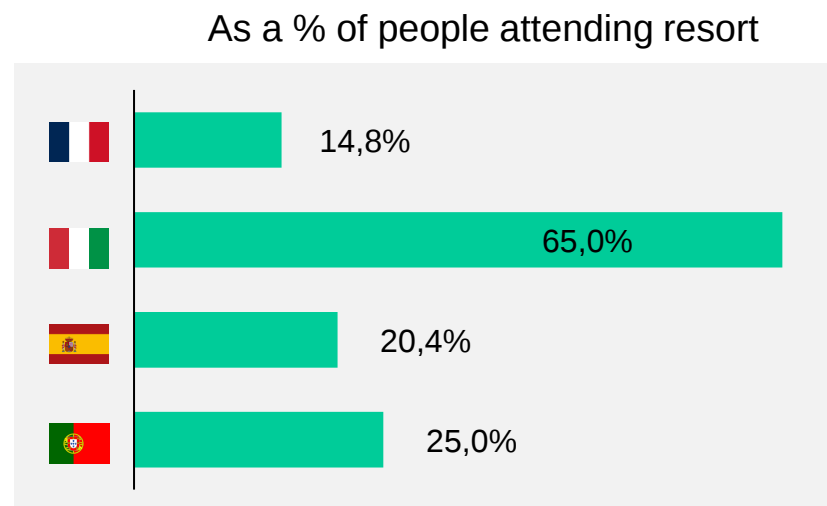
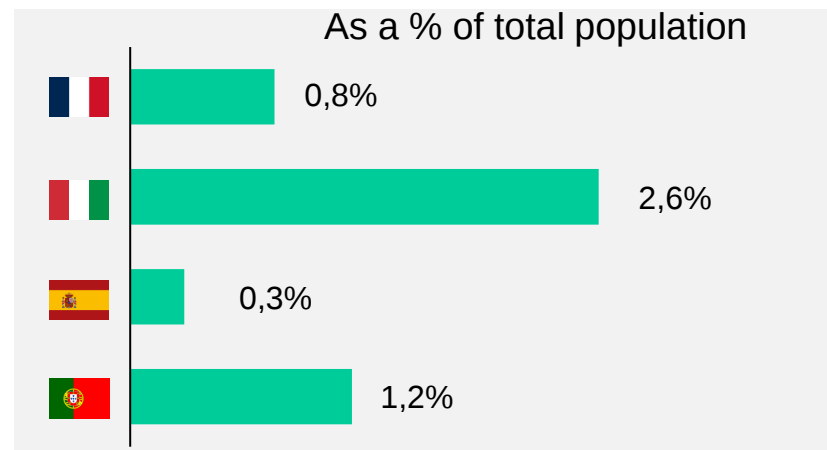
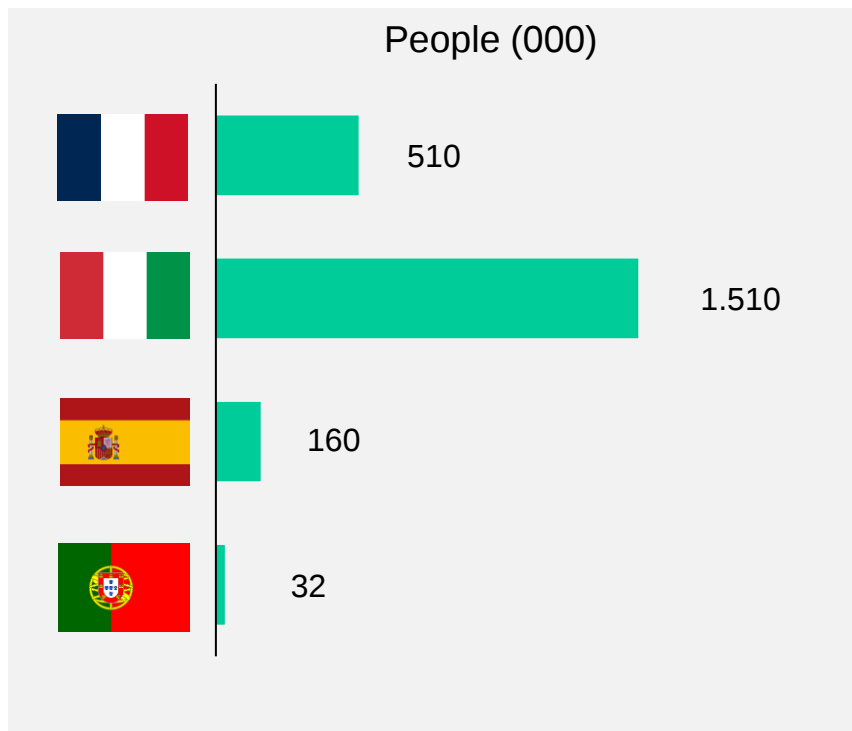
Portugal



- Covid-19 consequences in thermal resorts occupation were extremely negative.
- Germany showed the highest resilience to the crisis
- By year 2023, overnight stays had not yet recovered pre-covid levels.
- Year 2023 is continuing the positive trend of previous years

Key metrics on selected European countries

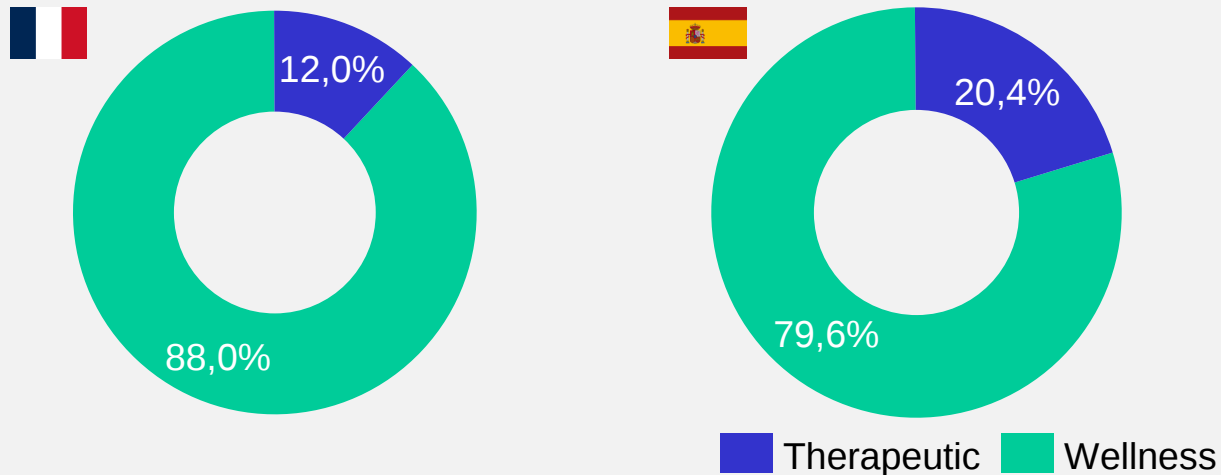
Thermalists under therapeutic stay



- Population percentage attending a resort is still very small when compared with total population.
- Italian proportion of people attending the resort for curative purposes is well above other countries.
- Data from France, Spain and Portugal suggests significant room for growth

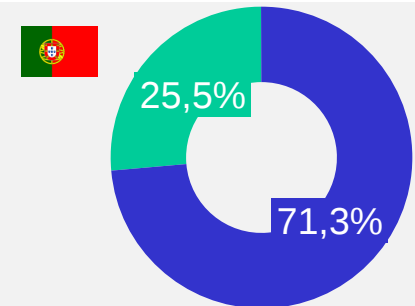
Clientele profile by type of treatment

Distribution by number of clients



- A significant majority -in terms of the number of people- corresponds to the wellness profile, vs therapeutic thermalism.
- For Portugal and France, revenues per type of client shows the opposite one: thermal resorts revenues are coming more from traditional treatments rather than wellness.

Distribution by revenues



Public coverage of thermal treatments in selected European countries

Access

Target population

Length of stay

Pathologies covered

Financing

Resort requisites

France

- By medical prescription (doctor or specialist)
- Limitation on one cure per pathology
- All citizens
- Treatment can last for a period of 18 days during 3 weeks
- Only prescription benefits for pathologies that are included in the list of therapeutic guidelines of the health insurance
- Social Security covers 65% of thermal treatment costs.
- Subject to household income revenues, accommodation could be partially covered. Similarly, up to 65% of transportation.
- Be included in the list of accepted establishments (aprox. 110 resorts).
- Specific techniques to be applied determined by doctor at the resort.

Italy

- By medical prescription of family doctor or from National Health Service
- All citizens
- Treatment lasts for a period of 12 days.
- Length of treatment can vary depending on pathology and prescription
- Only prescription benefits for pathologies that are included in the list of National Health System.
- Prescription valid for one year.
- Some groups can benefit for additional treatments (disabled war veterans, blind or deaf civilians with significant loss, etc).
- Shared health expenses: Individual pays a flat fee of 55 € if non-exempt, 3.1 € if partially exempt, and none if totally exempt. (depending on income or specific health conditions).
- Approx. 320 thermal resorts of which c. 90% accepted for delivering thermal treatments

Spain

- Not included in National Health System
- Only a specific program with partial coverage offered for retired people
- All citizens above 65 years.
- For some specific groups, above 55 years.
- Limited to a maximum of aprox. 192.000 individuals
- Between 10 and 12 days
- Prescribed by the resort doctor (no need for a family doctor or National Health Service prescription)
- Three approved thermal techniques per day included (respiratory, thermal baths, muds,...)
- Depending on personal upon income and time of the year, between 30 and 50% of all costs.
- Includes thermal treatment and accommodation, not transportation
- Included in the list of accepted establishments,
- Aprox 90 in the country

Public coverage of thermal treatments in selected European countries

Access

Target population

Length of stay

Pathologies covered

Financing

Resort requisites

Germany

- By medical prescription (doctor or specialist).
- Managed through the health insurer that has to approve treatment

- All citizens

- An outpatient stay at a health resort is approved every three years or an inpatient stay at a health resort every four years. Exemptions can apply depending upon medical condition
- Usually between 18 and 24 days

- By medical prescription

- Accommodation and treatment costs partially covered by insurer. 10 € ticket per day for individuals, with a maximum of 28 days. Outpatient ticket of 10% of treatment cost and up to 10 € for each prescription.
- Exemptions can apply depending on personal income or specific situations.

- Be recognized by the competent authority
- Agreements with insurance entities also apply

Portugal

- A specific program addressed for senior citizens allows for access to thermal resort supported by health system.

- All citizens above 60 years.

- Between 12 and 21 days of stay at the thermal resort

- By medical prescription.
- Length of treatment depends on medical pathology

- Health system covers aprox. 35% of balneotherapy treatments
- Limit of €95 per cycle of thermal treatments applies.

- Approx. 40 resorts operating in the country

Austria

- By medical prescription (doctor or specialist)
- Two stays can be approved in a five years period. At least one year between two stays
- Exemptions apply

- All citizens

- Usually not more than 22 days

- Prescribed by doctor specialist

- Majority of costs covered by insurance.
- Certain co-payment amounts upon personal income
- Insurance and resort settle bill directly

- Agreements between insurer companies and thermal resorts are needed

Public coverage of thermal treatments in selected European countries

Access

Target population

Length of stay

Pathologies covered

Financing

Resort requisites



Switzerland

- By medical prescription (doctor or specialist).
- Managed through the health insurer that has to approve treatment
- All citizens
- Coverage of maximum of 21 days of stay
- Outpatient coverage in some cases depending on insurance
- By medical prescription
- Health insurance covers 10 francs per day for spa treatments,
- If individual subscribes a premium coverage, up to 50% of costs would be covered with maximum of 12 spa visits
- Thermal resort recognized by insurer



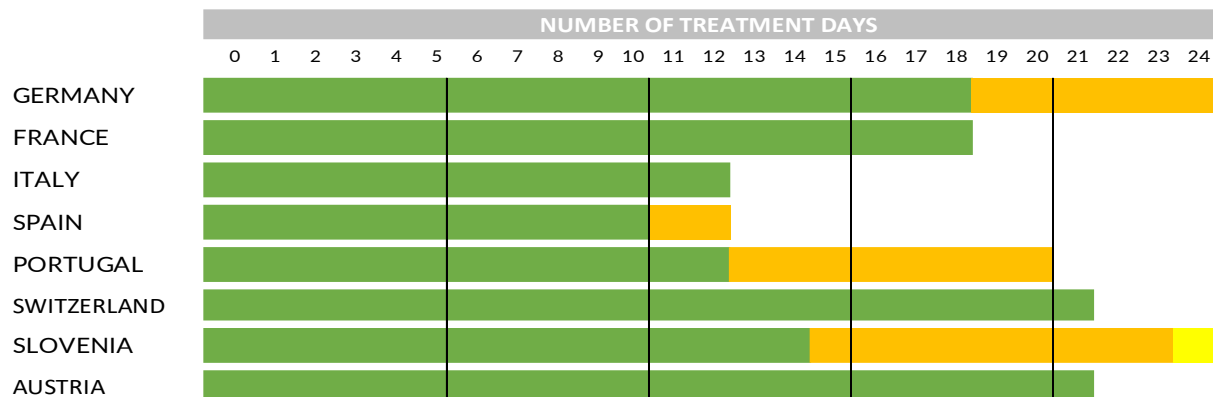
Slovenia

- By medical prescription or medical commission, if the person has a "medical condition"
- All insured citizens
- Insured person has the right to one visit every two years for same medical condition
- Usually, 14 days that could be extended to 28 days if proposed by doctor or thermal resort
- Children treatment usually 21 days
- By medical prescription
- Doctor proposes thermal resort to attend based on the medical condition of the individual and resort qualification for a certain form of treatment.
- Health system covers aprox. 35% of balneotherapy treatments
- Limit of €95 per cycle of thermal treatments applies.
- Up to 60% of treatments cost covered by insurance
- Resorts have to be approved and qualified for specific treatments

Some examples of countries with no extensive national health coverage for thermal treatments

- United Kingdom
- Sweden
- Belgium
- Argentina
- Brazil
- United States
- Norway
- Denmark
- Chile
- Mexico
- Canada

EU health systems coverage of balneotherapy



Medical Balneology and European Countries*

Independent main competency

Spain
Turkey
Italy

Competency or additional qualification

Austria
Chezc Rep.
France
Germany
Hungary
Portugal
Serbia

Included within specialty of PRM

Poland
Romani
Slovakia

Not recognized as medical qualification

Denmark
Sweden
The Netherlands

* Source: Gutenbrunner et al. *Int J Biometeorol.* 2010;54(5):495-507, «A proposal for a worldwide definition....»; European Union Medical Specialists (EUMS) *Physical and Rehabilitation Medicine*

Cross-border thermal treatments across EU: Not moving fundamentals?

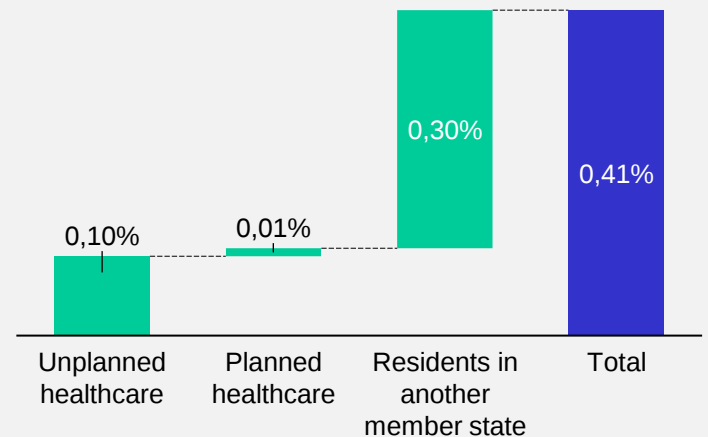
What regulation establishes

- Right of any EU citizen to access healthcare services in other country within the EU, including thermal resorts treatments (see Leichtle case)
- Conditional upon:
 - Competent healthcare system providing such service
 - Expenses same as the ones to be reimbursed in home country
 - Thermal resort to be recognized
- Diverse legal frameworks:
 - Citizens that could receive thermal treatment abroad: Italy, Germany, France, Slovenia, Hungary, Poland,
 - Countries of which its citizens could not receive treatment abroad: Spain, Belgium,

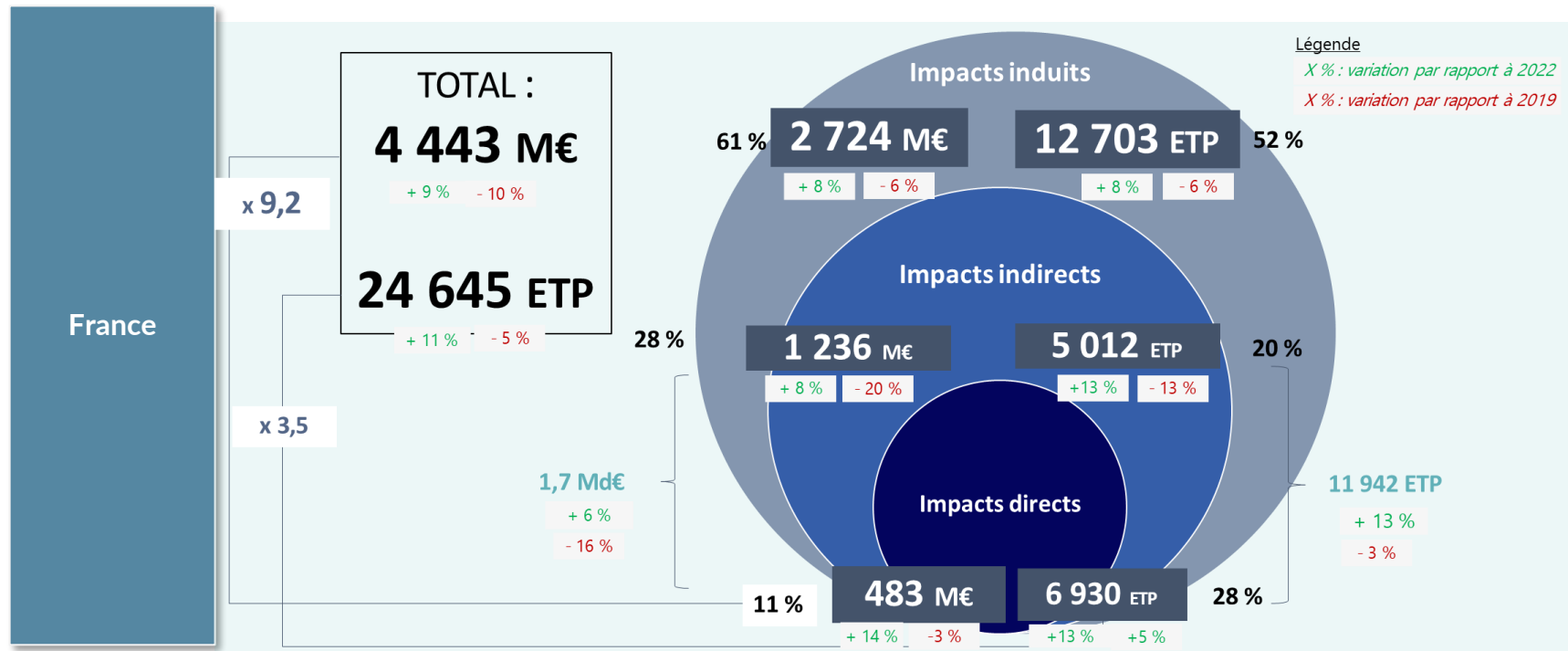
Budgetary impact of cross-border healthcare

- Three different situations generate demand for cross-border assistance: Unplanned necessary healthcare, planned healthcare, and persons who reside in a Member State other than the competent Member State.
- In year 2022, the total amount of cross-border expenditure within the EU was of c. 4.5 bi, a 0.4% of total healthcare cost.
- Majority of cross border health assistance came from residents in another country than home country.
- Germany, France and Spain are the main in-bound receivers of individuals.
- Specifically, proportion of international clients for thermal resorts were in Germany 5%, Italy 12%; Spain 2%; Portugal 13%. But in France, only 0.1% of thermalists were non-French.

X-border healthcare as a share of total healthcare expenditure



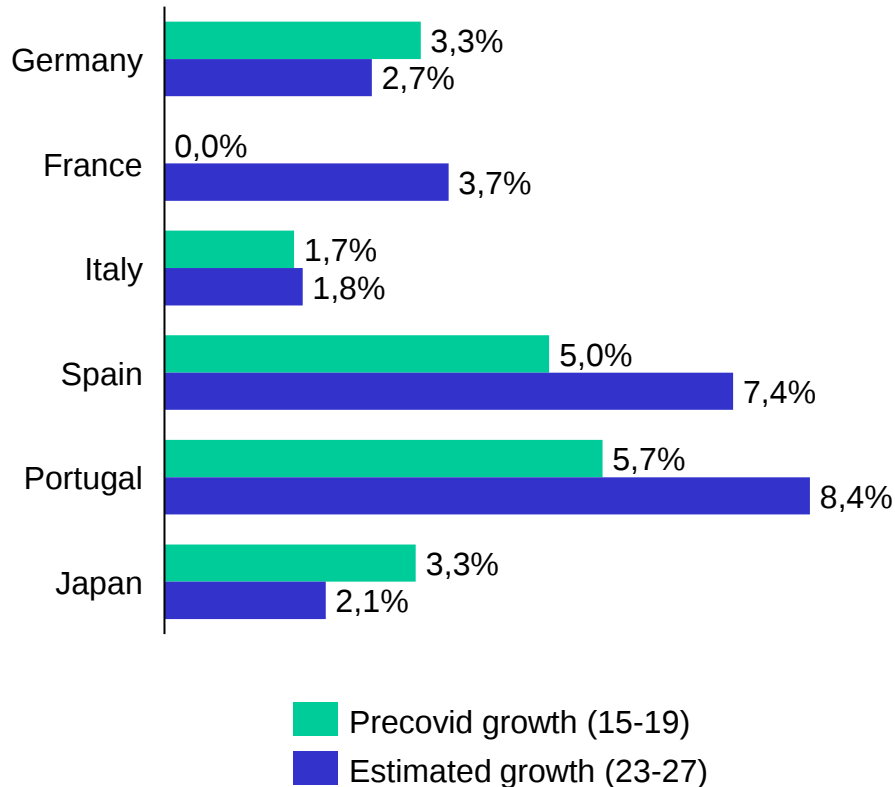
An industry with a significant positive multiplier effect in local economies



Spain

- Government sponsored IMSERSO program contributes with an annual amount of aprox. € 35 mm to foment assistance to thermal resorts among elderly population.
- A study conducted on this program found that government returns were 2.4x the invested amount, mainly due to additional taxes and labour employment associated to the economic activity generated by thermal resorts participating in the program

Thermal sector growth considerations



- Thermal resort sector will show positive growth rates in the geographies and regions analyzed in the period 2023-2027
- Growth will be in all cases above GDP growth for such economies
- Negative impact of covid-19 should be offset by years 23/24. Per the available information, year 2023 had not already reached in all geographies precovid levels.
- Japan had a significant recovery in 2023, returning to more historical growth patterns in the next years.

1

Main characteristics of selected European countries thermal resort industry

- Population percentage attending a resort is still small when compared with total population, suggesting **room for growth** if being able to disseminate **public awareness** of its benefits.
- Although number of people attending a thermal resort for wellness purposes surpasses that of **therapeutic treatments**, the **importance** of the latter remains very high from an economic standpoint.
- In general, the **sector is very fragmented**, with very few companies running several resorts.



2

Legislation and public support for the industry: A national play

- Legislation regarding public support of thermal treatments varies a lot throughout Europe, with significant differences among countries, leading to a **non-single market in Europe**.
- Key considerations as, for example, whether to be considered or not within the list of authorized treatments by national health systems differs by country.
- Given that general trend has been to reduce costs coverage for traditional thermal treatments, **thermalism can help support budgetary constraints** in coming decades in two ways:
 - As a **medical practice with lower costs and secondary effects** than traditional cure based on pharmaceuticals.
 - Fostering the achievement of **healthy life conditions for individuals at higher ages**.
- European cross border directive**, although positive for the sector, **does not seem to significantly change the patterns** of the sector: There are excessive asymmetries among countries in national legislations, therefore jeopardizing positive effects of the health cross-border regulation.
- Thermal resort industry shows a **significant impact in local economies**, being a clear trigger of economic development in the area were located, frequently **fixing population in small towns**.



3

Growth perspectives

- Robust growth for the coming years should continue, even above general economic perspectives.



- 
- A silver metal paper clip is attached to the top left corner of the white paper.
- A global overview
 - Client characterization and trends
 - Deep dive in European market
 - **Marcial Campos Prize to Thermal Research**



XI INTERNATIONAL PRIZE MARCIAL CAMPOS TO THERMAL RESEARCH



TERMAS DE CUNTIS



omth

sith

Background

THERMAL TREATMENTS for the improvement of people's health have been applied for centuries. In fact, traces and remains of establishments devoted to this aim still survives from different ages.

Almost every country in the world has a rich variety and diversity of mineral and medicinal waters, around which spas have developed their activity.

Simultaneously, a wide knowledge on thermal techniques, their applications and healing effects, have been developed.



MARCIAL CAMPOS

President of the World Thermal Organization (1977-1992), SITH and of Anbal carried out an important task promoting and spreading at international levels the virtues of using these waters, emphasizing its advantages and qualities.

OMTH -ISMH-SITH

The World Thermal Organization, the International Society of Hydrothermal Techniques and the International Society of Medical Hidrology, wishing to continue the scientific research on Thermalism and to spread it even more, has decided to convene the International Prize Marcial Campos to award thermal research.





PREMIO INTERNACIONAL A LA INVESTIGACIÓN



Awarded Works

FIRST EDITION
2001

Title
"ANTIOXIDANT EFFECT OF SULFURIZED
MINERAL-MEDICINAL WATER AND ITS IMPACT
ON THE IMMUNE SYSTEM"

Country
Spain

Authors
Mr. Manuel Freire Garabal, Mrs.
María Jesús Núñez Iglesias, Mrs.
M^a Sinda Blanco Lobeiras.

SECOND EDITION
2003

"INFLUENCE OF CRENOTHERAPY WITH
SULFATED BICARBONATE WATERS ON
OXIDATIVE STRESS IN A SPA POPULATION."

Spain

Dr. Antonio Hernández Torres,
Dr. Estrella Cuenca Giralde, Dr.
Josep Ramón i Jiménez and Dr.
Angela Casado Moragón.

THIRD EDITION
2005

"EXPERIMENTAL STUDY ON VEGETATIVITY OF
ATCC GERMS AND CLINICAL ISOLATE IN
MINERAL-MEDICINAL WATERS"

Spain

Mrs. Concepción Serrano Moreno
and Mrs. Margarita Romero
Martín

FOURTH EDITION
2007

FIFTH EDITION
2010

SIXTH EDITION
2012

Awarded Works

Title	Country	Authors
"PAIPA-BOYACA HOT SPRINGS COLOMBIA".	Colombia	Mrs. Gladys J. Puerto Estupiñán, Mr. José Mario Daza Higuera
"THE HYDROTHERMAL RESOURCES OF THE HIGH UPWELLING ZONE OF THE CENTRAL WEST OF THE PROVINCE OF SANTIAGO DEL ESTERO ."	Argentina	Dr. Dr. Alfredo Pedro Martín
"BIOMONITORIZACIÓN AMBIENTAL CON IBL COMO INSTRUMENTO IMPORTANTE PARA LA CERTIFICACIÓN AMBIENTAL UNI EN ISO 14001"	Italy	Dr. Mr. Adelomo Corsini, Mr. Fabrizio Chiti, Mr. Stefano Loppi, Mr. Luca Paoli (Siena University)

SEVENTH EDITION
2014

EIGHTH EDITION
2016

NINTH EDITION
2019

TENTH EDITION
2023

Awarded Works

Title	Country	Authors
"VETRIOLO THERMAL WATER MODULATES THE NEGATIVE EFFECT OF ITERLEUKIN 1 B IN OSTEOARTHRITIC CHONDROCYTES"	Italy	Mrs. Antonela Fioravanti, Mr. Antonio N. Pascarelli, Mr. Antonello Lamboglia, Ms. Giulia Collodel
"ANTI-INFLAMMATORY, ANTIOXIDANT AND ANTI-CATABOLIC PROPERTIES OF HYDROGEN SULFIDE IN OSTEOARTHRITIS."	Spain	Mrs. Ángela Vela Anero, Mrs. Elena Fernández Burguera, Mr.Francisco J. Blanco García and Mrs Rosa Mejjide Faílde
"PRIMUM NIHIL NOCERE"	Italy	Dr. Fausto Bonsignori, Dr. Enrico Ascione, Dr. Attilio Varricchio
"DEVELOPMENT OF SUN PROTECTION CREAMS ENRICHED WITH EXTRACTS FROM WILD FOREST RESOURCES USING GREEN EXTRACTION TECHNOLOGY FORMULATED WITH THERMAL WATERS."	Spain	Mrs. Lucía Lopez Huertas

Summary of Rules



- 1** The works will deal with any subject related to the research and application of mineral and medicinal water, and its impact on people and communities.
- 2** Papers can relate to any of the following subjects:
 - a) Medical Hydrology, Climatology, Thalassotherapy, Bacteriology and Biology;
 - b) Geology, Geochemistry, Chemistry and Physics;
 - c) Engineering, Architecture, Urbanism, Environmental Science;
 - d) Economy, Finance, Law.
- 3** The authors of the works can be one or several.
- 4** The prize amounts to 10.000 €.
- 5** The prize will be awarded in Cuntis (Pontevedra - Spain).
- 6** Jury members will be representatives of SITH, OMTh, ISMH and Xunta de Galicia. The jury will act with total freedom and decision will be taken by simple majority of the present members.
- 7** The organizing institutions will spread the work in the most suitable circles. The winner/s will attend their request for the presentation of the work to the media, in a press conference.



A large indoor swimming pool with a wooden ceiling and large windows. The pool has lane lines and a central tile design. A red logo is overlaid in the center.

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