



منتدى الاستراتيجيات الأردني  
JORDAN STRATEGY FORUM

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# Research & Development Expenditure: What Do The Available Numbers Imply for Arab Countries & Jordan

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## منتدى الاستراتيجيات الأردني JORDAN STRATEGY FORUM

The Jordan Strategy Forum (JSF) is a not-for-profit organization, which represents a group of Jordanian private sector companies that are active in corporate and social responsibility (CSR) and in promoting Jordan's economic growth. JSF's members are active private sector institutions, who demonstrate a genuine will to be part of a dialogue on economic and social issues that concern Jordanian citizens. The Jordan Strategy Forum promotes a strong Jordanian private sector that is profitable, employs Jordanians, pays taxes and supports comprehensive economic growth in Jordan.

The JSF also offers a rare opportunity and space for the private sector to have evidence-based debate with the public sector and decision-makers with the aim to increase awareness, strengthening the future of the Jordanian economy and applying best practices.

For more information about the Jordan Strategy Forum, please visit our website at [www.jsf.org](http://www.jsf.org) or contact us via email at [info@jsf.org](mailto:info@jsf.org). Please visit our Facebook page at [Facebook.com/JordanStrategyForumJSF](https://Facebook.com/JordanStrategyForumJSF) or our Twitter account [@JSFJordan](https://twitter.com/JSFJordan) for continuous updates about Jordan Strategy Forum.

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### To evaluate the study



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## 1. Introduction:

Research and Development (R&D), which covers a range of activities whose aim is to expand knowledge, explore new ideas, and find better solutions to existing challenges, is the driving force behind innovation, progress, and economic growth, and development.

In today's rapid technological advancements, evolving innovation trends, and the ever-changing business landscape, no one should underestimate the importance of R&D activities.

Typically, expenditure on R&D is expressed as a percent of GDP. Expenditure on R&D includes capital and current expenditures in five sectors: Business Enterprises, Governments, Higher Education Institutions, Private Non-Profit Organizations, and Rest of the World (foreign).

### R&D Involves a Number of Benefits:

1. R&D cultivates talent and expertise in various economic domains.
2. R&D serves as the engine of innovation in a given economy.
3. R&D enhances the competitiveness of the economy.
4. R&D plays a pivotal role in driving economic growth.
5. IR&D activities can often result in the creation of valuable intellectual property (IP) rights too.

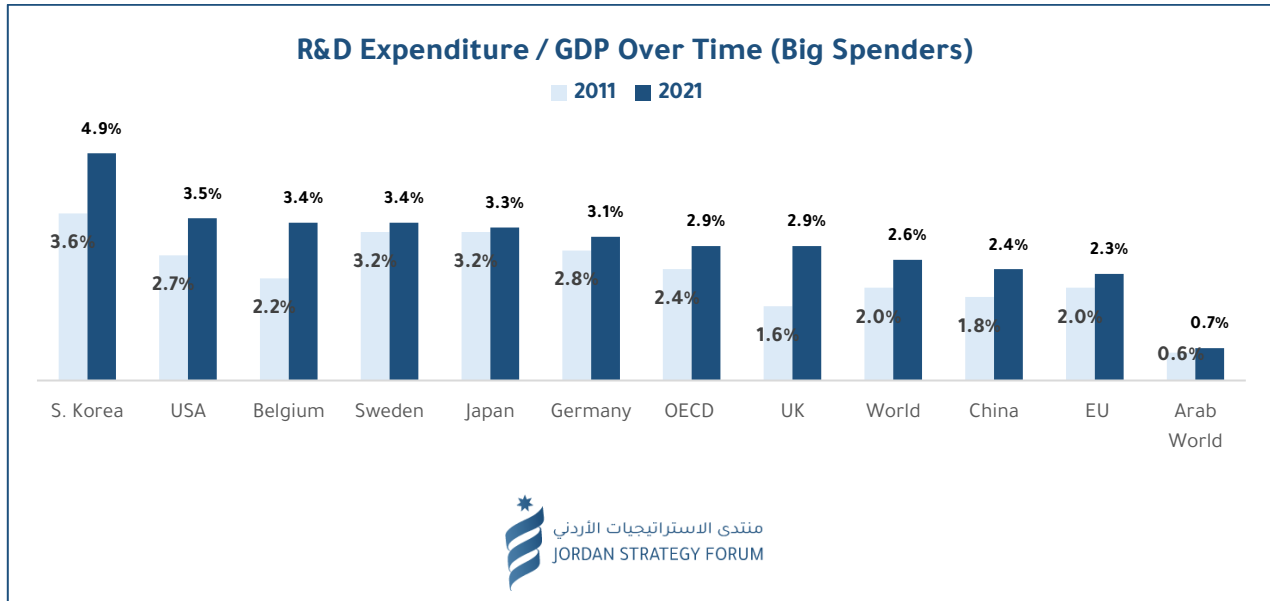
### While Investing in R&D can be Beneficial, this Activity Involves Several Risks.

1. Research may not yield the desired outcome.
2. Risk of spending a large amount of money with no guarantee of an economic return.
3. Consumers may not respond favorably to new products which are created through R&D.

This **"Knowledge is Power"** published by the Jordan Strategy Forum (JSF) outline several observations about R&D spending in the world and by the top global 2,500 companies. The raised observations, and their implications to Jordan's R&D efforts, should prove to be informative to the relevant stakeholders including the government, private sector, universities, Abdul Hameed Shoman Foundation, Scientific Research and Innovation Fund, and others.

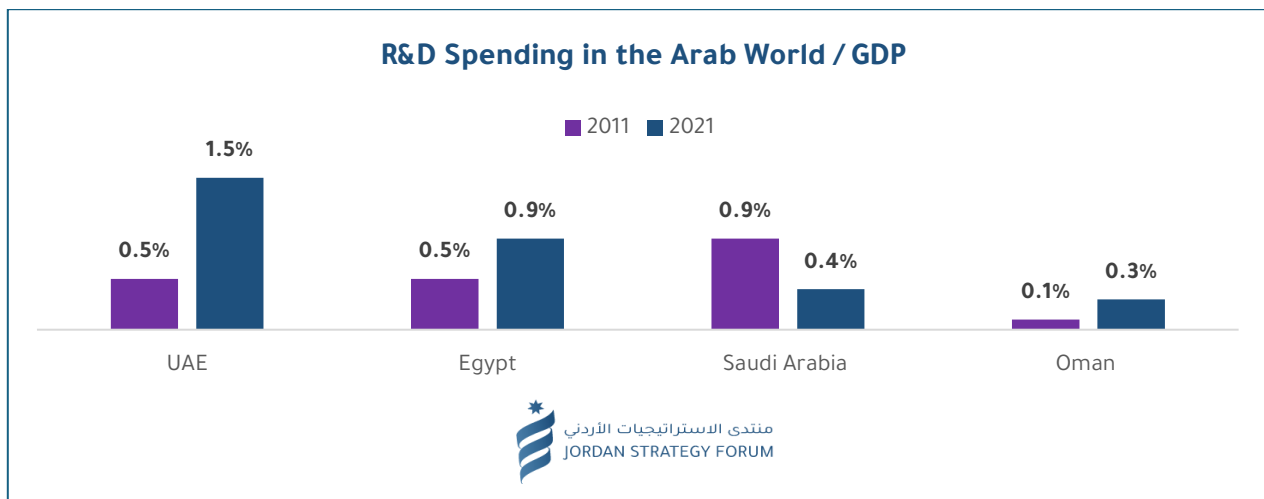
## 2. R&D Spending: Some Macro-Level Observations

- Over time, the **"BIG"** spenders on R&D have increased their spending even more. In 2011 and 2021, South Korea spent the equivalent of 3.6% and 4.9% of its GDP on R&D activities.



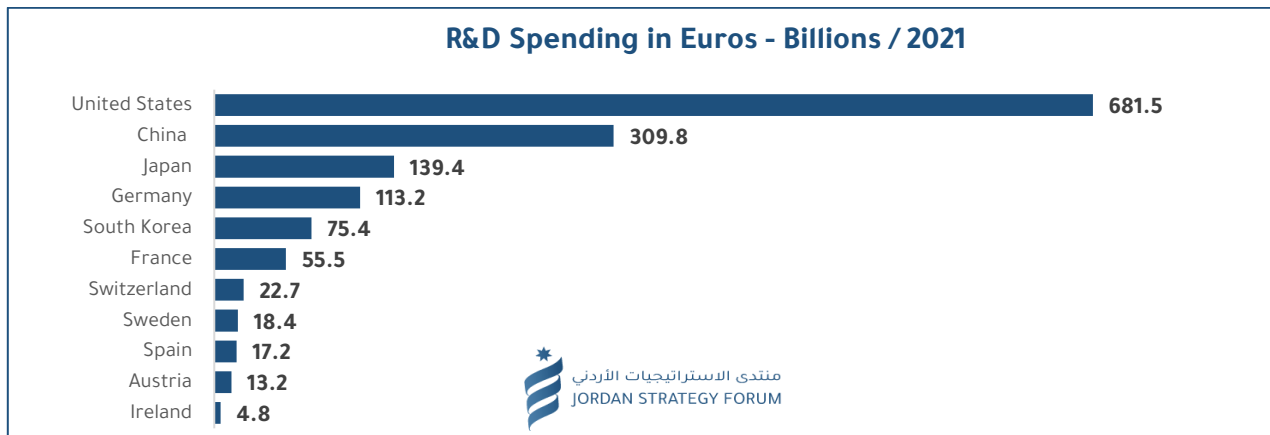
Source: World Bank Database.

- To contextualize the Arab World's spending on R&D to GDP, the available figures show that these economies spend relatively little on this activity (**0.3% to 1.5% of GDP**). The UAE boasts the highest proportion and highest increase in spending on this activity. Here, it is worth noting that Jordan has no published figures.



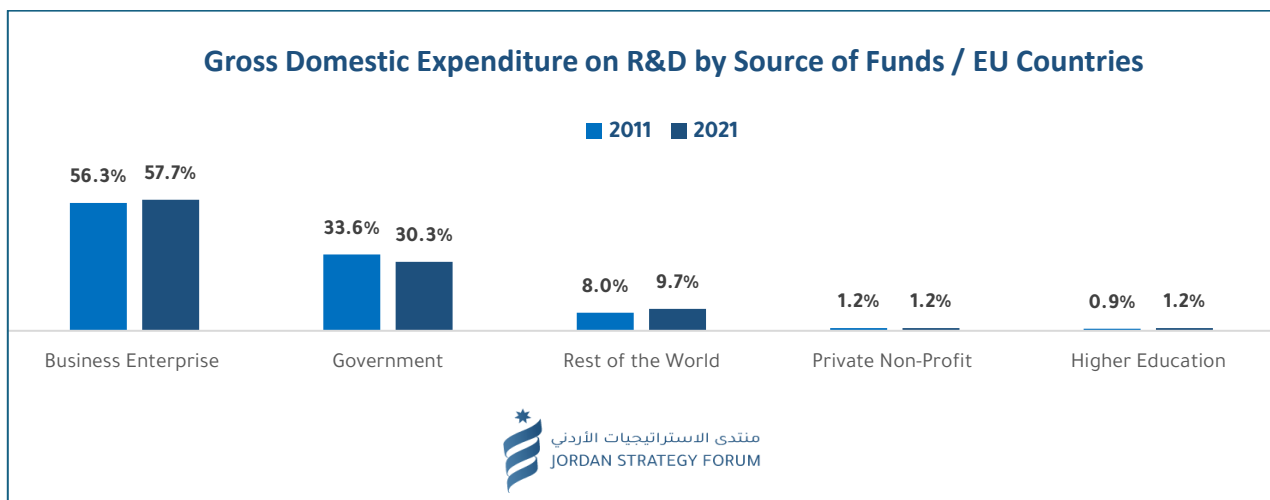
Source: World Bank Database.

- It is informative to note that in 2021, the USA spent more than 681 billion euros on R&D activities. With more than 309 billion, China comes in 2<sup>nd</sup>. Jordan's GDP in 2021 was equal to about 39 billion euros. **The USA spends on R&D about 17.5 times Jordan's GDP (681 billion euros / 39 billion euros). Ireland spends on R&D about 12.0% of Jordan's GDP (4.8 billion euros / 39 billion euros).**



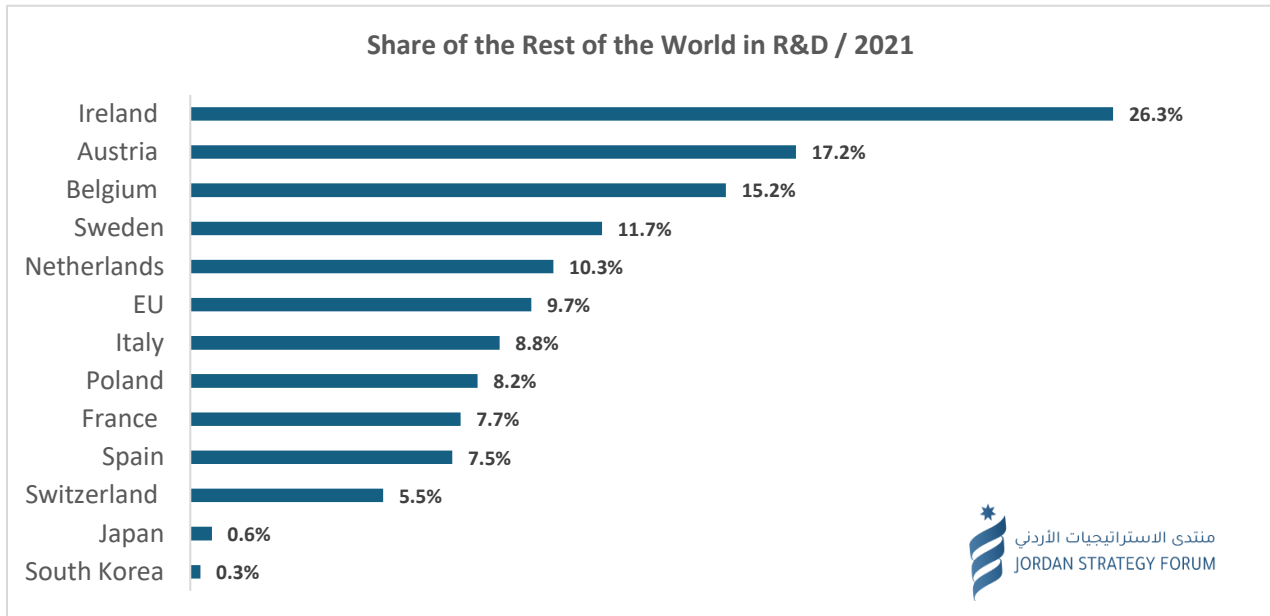
Source: Eurostat and OECD database

- In the UE countries, the private sector dominates expenditure on R&D activities. Indeed, **business-funded R&D** accounts for about 58% of total R&D expenditure in the EU countries.



Source: Eurostat and OECD database.

- It is also informative to note that there is considerable difference in the relative significance of R&D funding from the rest of the world (foreign). For example, in Ireland this ratio is equal to 26.3%, Austria is 17.2%, and in Belgium, it is equal to 15.2%.

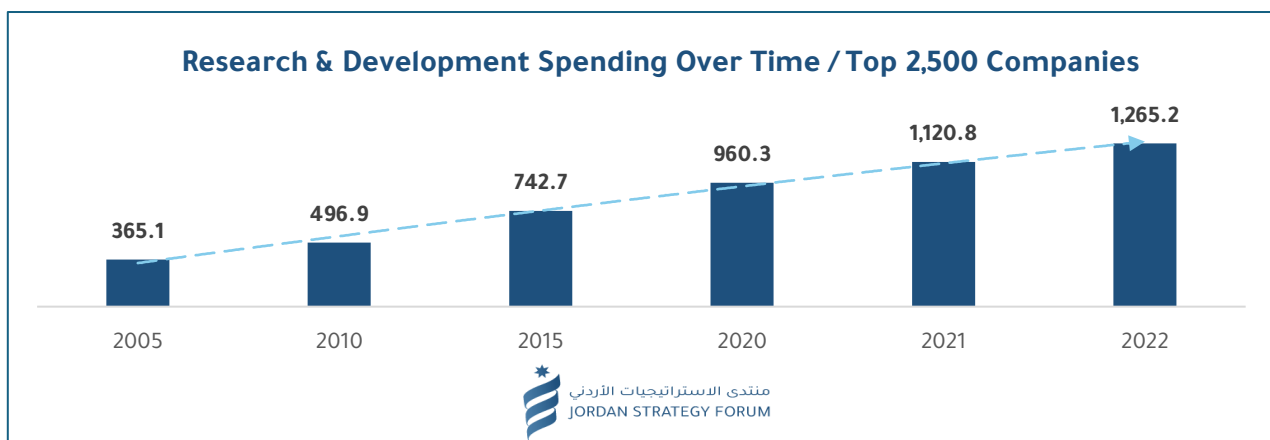


Source: Eurostat and OECD database.

### 3. R&D Spending: Some Micro-Level Observations

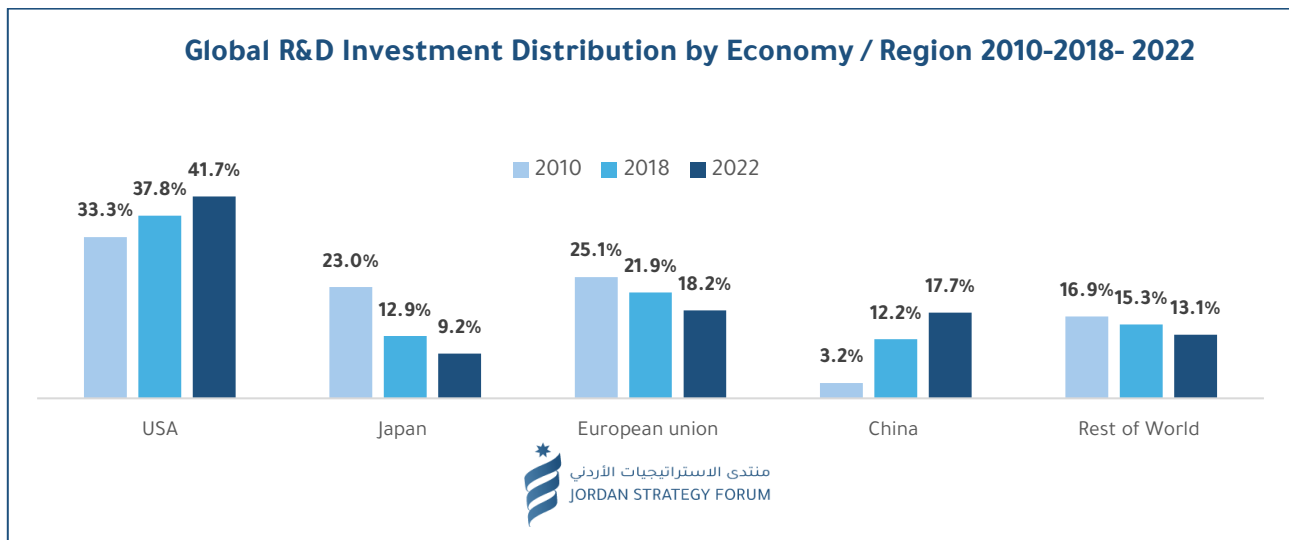
The “EU Industrial R&D Investment Scoreboard of the European Commission’s Joint Research Centre” maintains a database which tracks the **top 2,500 corporate R&D spenders worldwide**. Together, these 2,500 companies account for **“90% of worldwide business R&D investment”** (The 2023 EU Industrial R&D Investment Scoreboard).

- A. R&D investments by the top 2,500 companies in the world have been steadily rising and surpassed **€1.2 trillion in 2022**.



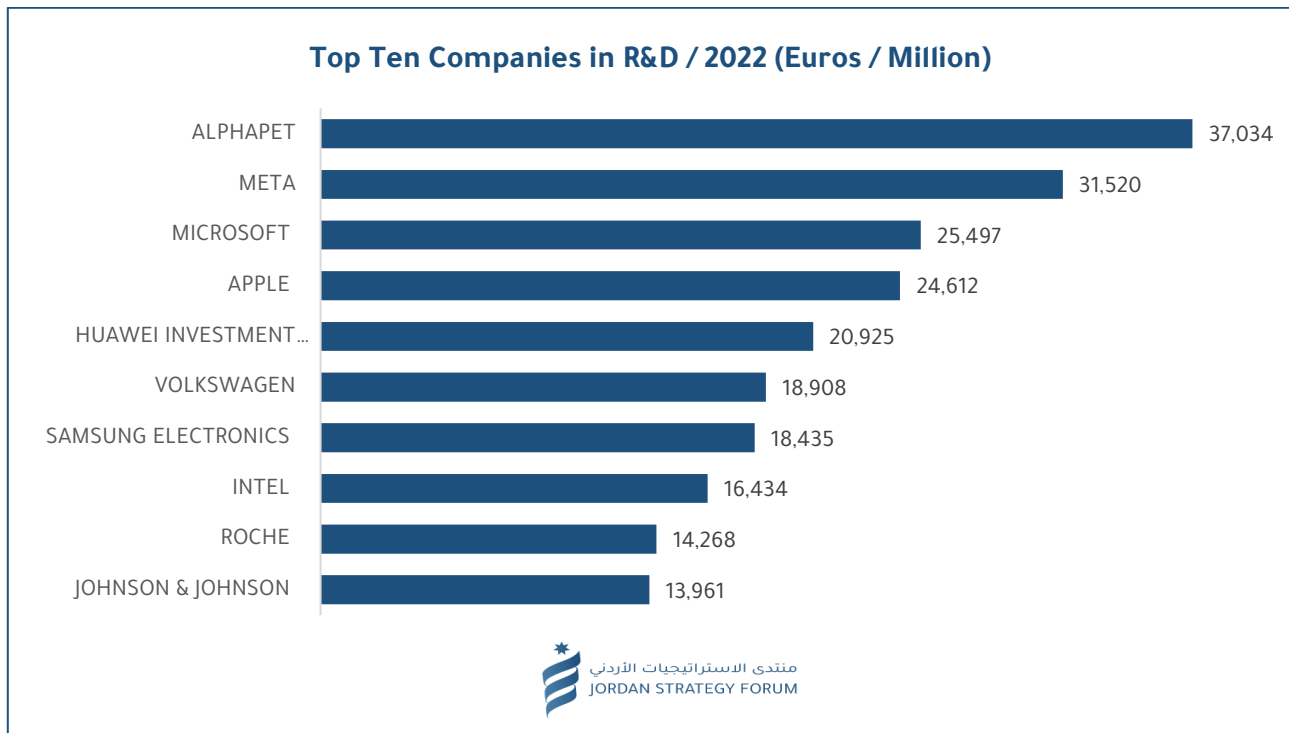
Source: 2023 EU Industrial R&D Investment Scoreboard.

- B.** In 2022, the U.S.A. had **827 companies** among the top 2,500 and a total investment of **€526 billion**.
- C.** In 2022, China had **679 companies** among the top 2,500 and a total investment of **€222 billion**.
- D.** In 2022, the EU countries had **367 companies** among the top 2,500 companies and a total investment of **€219 billion**.
- E.** In 2022, Japan had **229 companies** among the top 2,500 companies and a total investment of **€116 billion**.
- F.** The share of US companies in the 2,500 companies' R&D spending has increased from **33.3% in 2010 to 41.7% in 2022**. Chinese companies' share has also increased from **3.2% in 2010 to 18.2% in 2022**.



Source: 2023 EU Industrial R&D Investment Scoreboard.

- G.** With more than **€37 billion** spent on R&D activities in 2022, **ALPHABET** tops the 2,500 companies in the world.

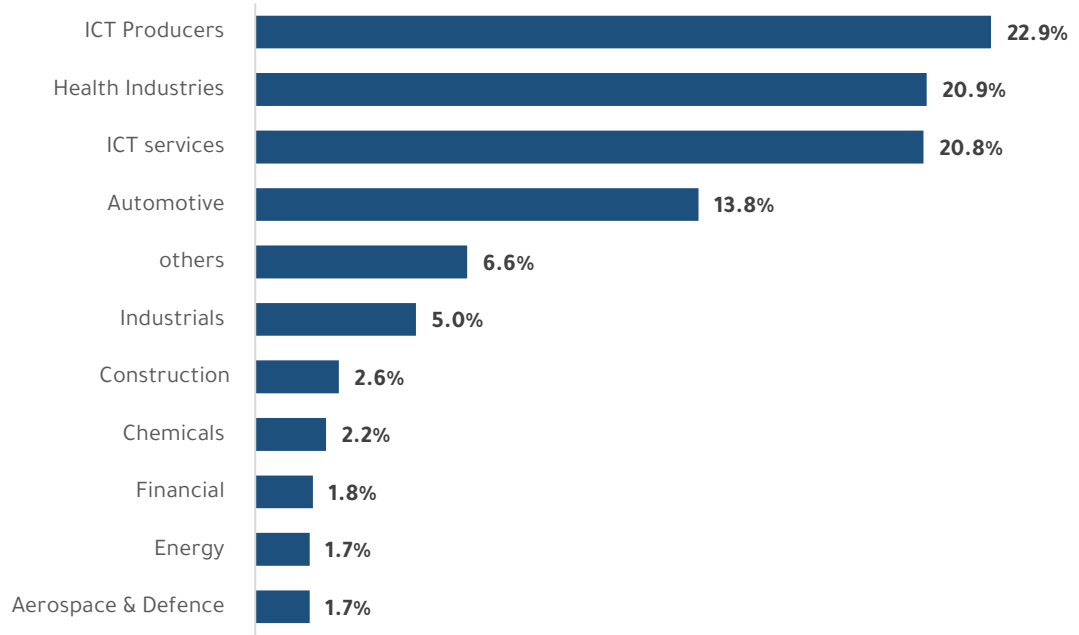


Source: 2023 EU Industrial R&D Investment Scoreboard

- H. In the Arab region, two companies are among the top 2,500 in the world. In Saudi Arabia, **“Saudi Arabian Oil”** spent €1.1 billion on R&D in 2022. In the United Arab Emirates (UAE), **“Mamoura Diversified Global Holding”** spent €430.7 million in 2022.
- I. The top 2,500 companies' R&D spending covers almost all sectors one can think of. However, the sectors which dominate this spending are ICT Producers, Health Industries, and ICT Services.



### Sector's Share of the 2,500 Companies' R&D Spending



Source: 2023 EU Industrial R&D Investment Scoreboard

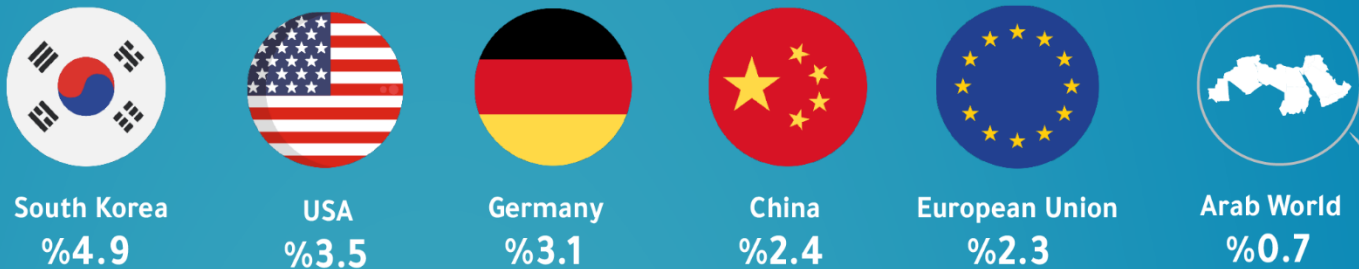
#### 4. Conclusions and Recommendations:

Within the context of the economic importance of R&D, and the dominance of the USA, China, EU countries, and Japan in this activity, it is imperative for all Jordanian stakeholders to consider the following observations / conclusions / recommendations.

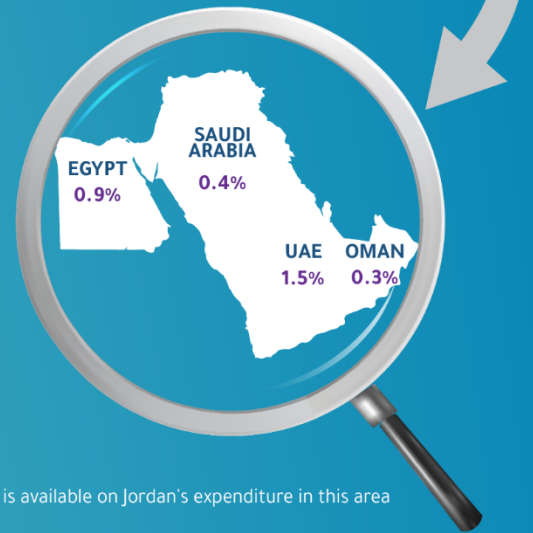
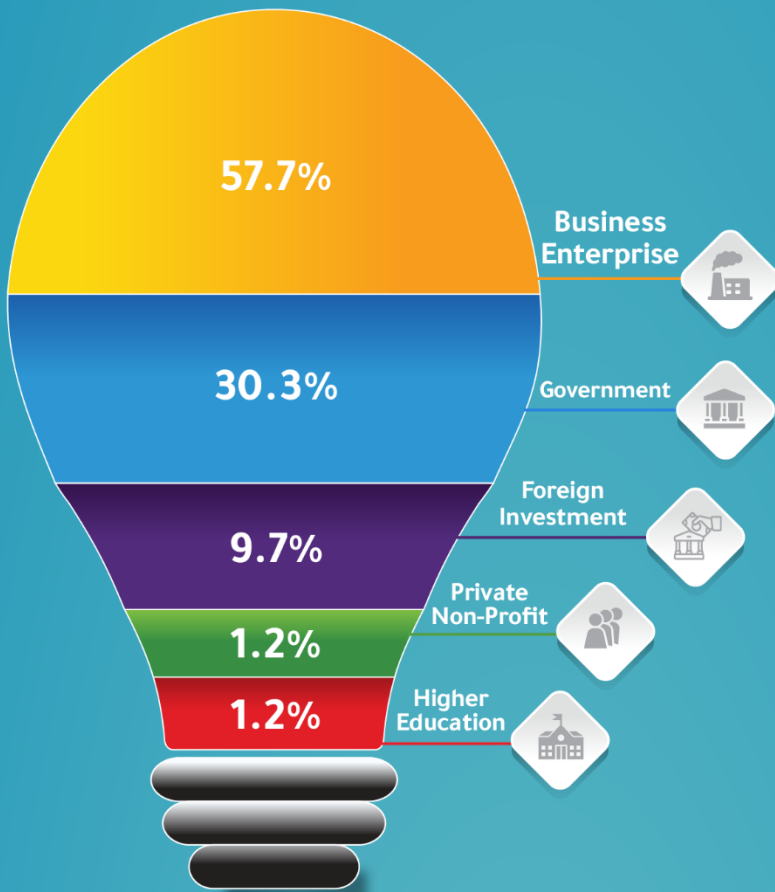
- A. There should be a database in Jordan which maintains and publishes R&D spending in amount and on what sector(s). Such a database would be instrumental in knowing what the country spends on R&D and in measuring the “returns” on R&D expenditure.
- B. Calling for more R&D funding in the country is not sufficient. All relevant stakeholders should come together and agree on the “priorities” of R&D spending.
- C. The local private sector should be encouraged to fund their R&D activities from the rest of the world (foreign). Indeed, this can be done if the private sector (and the government) can attract foreign direct investment from companies which are strong in their R&D spending.

**The Irish experience is a good example to learn from.**

## Governments' expenditure on research and development as a percentage of GDP (2021)



## Gross Domestic Expenditure on R&D by Source of Funds / EU countries (2021)



\*No published data is available on Jordan's expenditure in this area

## Top countries in research and development expenditure in 2021 (billion euros)





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