

EUROPE, MIDDLE-EAST, AND AFRICA

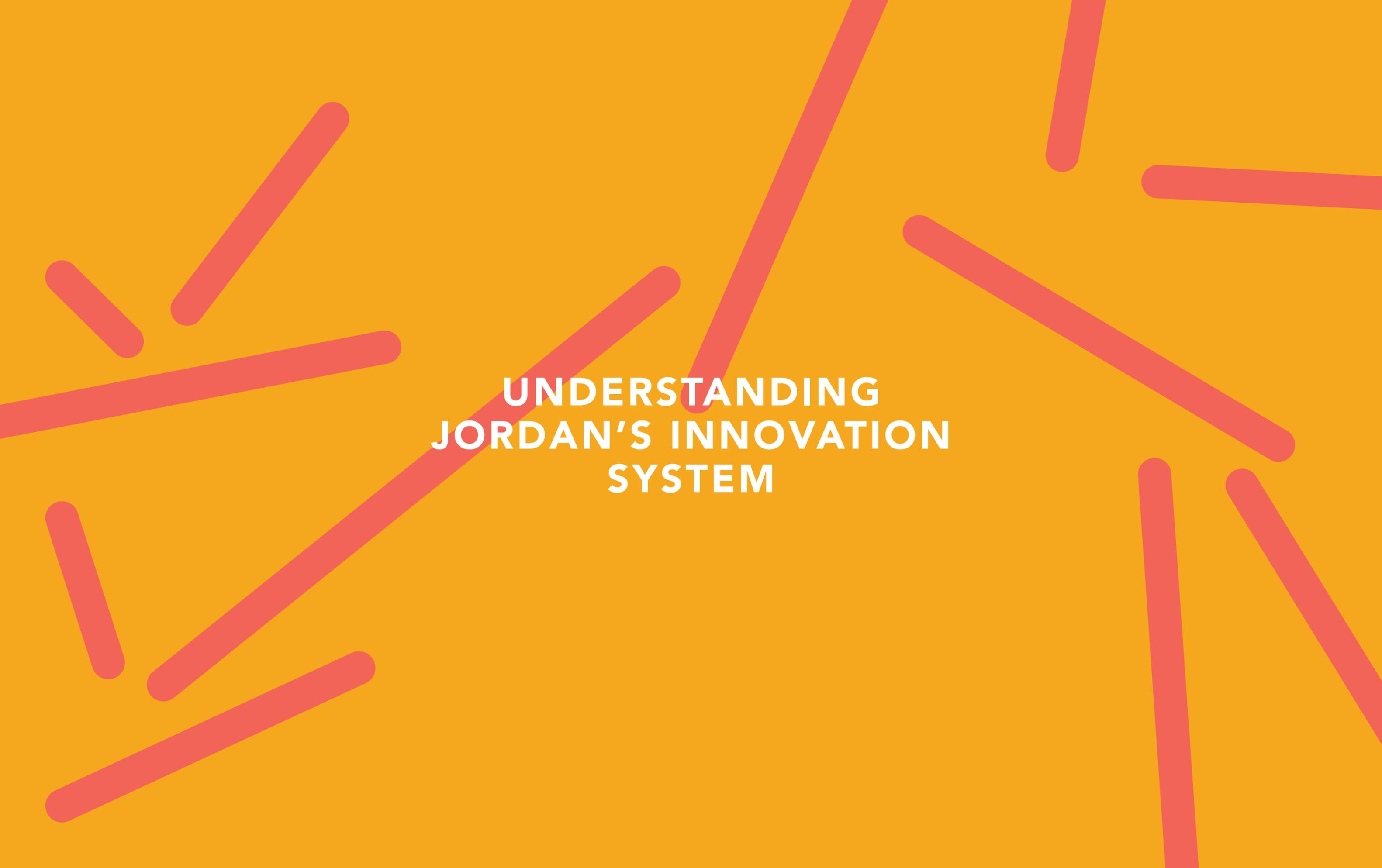
JORDAN





Innovate UK



The background features a solid yellow field with several thick, rounded, pinkish-red diagonal stripes of varying lengths and orientations scattered across it. The stripes are positioned in a way that they appear to radiate from the center, creating a dynamic, energetic feel.

UNDERSTANDING JORDAN'S INNOVATION SYSTEM

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* This report should be referenced as follows: HCST and Nesta (2019) Understanding Jordan’s innovation system.

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• **Disclaimer:** Information and data last collected on September 30, 2019

1. COUNTRY PROFILE

1.1 INTRODUCTION

Over the past decade, Jordan has pursued structural reforms in education and health, as well as taking increased steps towards privatisation and liberalisation. More recently, Jordan has also made important reforms to put its economy on the path to long-term prosperity, covering income tax, business regulations, insolvency and the public procurement framework. Trade with its neighbours, particularly Iraq, has been revitalised. The outlook for the economy reflects fresh momentum, given recent signals of renewed international support through the London Initiative (February 2019). However, further progress is needed so that reforms aimed at enhancing the investment climate and ease of doing business can lead to concrete outcomes.

For Jordan, future economic growth and job creation will depend on its ability to create an environment which stimulates and supports innovation throughout the value system, to improve competitiveness and boost the local economy, thus generating wealth and job creation. Both the Jordan 2025 National Vision and Strategy, adopted in 2015, and the Jordan Economic Growth Plan call for enhancing competitiveness, encouraging innovation and creating a supportive business environment.

Jordan seeks to kickstart the innovation economy through recruiting effective manpower, using the institutional potential built up and developed over long years through public private partnership (PPP) and efforts made by innovative and pioneering individuals. Due to the difficult international and regional economic conditions, harnessing innovation to serve the economy has become essential. Arguably, getting out of the bottleneck depends on making national innovation the basis of economic and social development.¹

¹ Higher Council for Science and Technology, (2013). National Innovation Strategy (2013-2017), p.2

1.1 INTRODUCTION

Innovation can be influenced by a number of factors, including the general conditions of the economy, governance, education and infrastructure. Given the level of technological excellence and the maturity of economic activities in various sectors, to create an environment that fosters innovation, a country should build a critical mass of innovation events and initiatives as follows²:

- Promoting industrial clusters
- Attracting foreign direct investment (FDI)
- Establishing new infrastructure such as scientific cities, if required.

Innovation in Jordan doesn't yet have the critical mass to have a major impact on economic and social development. According to a report by the World Bank (2011) on innovation policy in Jordan, although the Jordanian economy managed to withstand the impact of the global economic crisis, it then reached a relatively stagnant stage. Therefore, innovation needs to play a more important role than before; in particular, to help the Jordanian economy tackle persistent problems related to energy, water, and food. A World Bank report (2011) observed that innovation activities in Jordan were centred around just one type of innovation: namely, technological

innovation, which involves translating innovative ideas into new products. The report concludes that innovation policy in Jordan is facing the following challenges³:

- It is confined to technological innovation and ignores other types of innovation, such as commercial innovation, individual innovation and innovative work methods.
- Its impact is weakened by the implementation of policies, and practitioners sometimes lack the resources required to make real change.
- Policies and strategies are not focused on the activities and events that would lead to change.

² World Bank, (2010). Innovation Policy: A Guide for Developing Countries, p.107-109

³ World Bank/Korea team Aid-Memoire, Joint World Bank – Korea mission to Jordan, (2011). p. 1-2

1.1 INTRODUCTION

It is worth mentioning that any national policy needs to be clear about the specific impact it is looking to make, the key elements that decision-makers want to change, and how this will happen. To be effective, new innovation policies need to be well-researched; policymakers should consult with employees and decision-makers within the science and technology community in Jordan to ensure that new initiatives are in tune with what innovators need.

The Higher Council for Science and Technology (HCST) established the National Center for Innovation (NCI) in 2016 as part of the Jordanian Government's efforts to promote the transition to an innovation-based economy. The establishment of NCI combines national objectives with local, regional and international resources to stimulate innovative activities in the public and private sectors.⁴

NCI will be the first organisation in Jordan to address these challenges. As part of its mission, NCI will be a 'one-stop information and referral hub' for all activities in the country related to innovation and private sector development. This will include coordinating national and international administrative, financial and technical services to nurture and support innovation. NCI will also provide legal/regulatory advocacy and

advisory services to small and medium-sized enterprises, while creating a feedback mechanism to the government to ensure best practices and transparency. Finally, all activities will be run on a robust technology platform, which will combine existing data resources with the data collected through coordinating resource referrals, monitoring and evaluating innovation activities and other key performance indicators reflective of economic shifts towards innovation.

⁴ Higher Council for Science and Technology, (2016). A note submitted to HCST Board Meeting.

COUNTRY PROFILE

1.2 STATISTICAL HIGHLIGHTS

Global Innovation Index rankings (2019)

TABLE 1

According to the Global Innovation Index (GII) 2019, Jordan ranks 86th out of 129 countries. As can be seen in Table 1, only Lebanon trails Jordan in its GII rank among the eight Arab countries listed, while UAE ranks first.⁵

⁵ Table 1. Source: Global Innovation Index report. (2019). Cornell University, INSEAD, and the World Intellectual Property Organisation (WIPO, a specialised agency of the United Nations).

INDEX/ COUNTRY	UAE	KUWAIT	QATAR	SAUDI ARABIA	BAHRAIN	OMAN	JORDAN	LEBANON
GII 2019 Overall Ranking Overall Score (0-100)	36 42.17	60 34.55	65 33.86	68 32.93	78 31.10	80 30.98	86 29.61	88 28.54
Institution Ranking Score (0-100)	28 78.8	90 55.6	53 66.2	104 51.3	54 66.0	69 61.5	67 62.1	102 51.8
Human Capital and Research Ranking Score (0-100)	18 52.4	81 25.5	70 28.9	29 45.5	85 24.4	35 43.3	68 29.4	82 25.3
Infrastructure Ranking Score (0-100)	21 59.4	53 50.2	28 58.0	55 48.9	45 51.6	48 51.3	91 38.2	93 37.1
Market Sophistication Ranking Score (0-100)	34 56.1	41 53.5	82 44.7	47 51.9	79 45.3	78 45.5	106 38.9	95 41.8
Business Sophistication Ranking Score (0-100)	30 41.5	100 24.7	67 30.2	48 34.3	83 27.1	107 23.8	128 16.9	75 29.3
Knowledge & Tech. Outputs Ranking Score (0-100)	63 22.2	52 25.2	80 18.4	87 17.0	92 15.9	112 12.3	84 17.4	109 13.5
Creative Outputs Ranking Score (0-100)	50 31.2	56 29.2	70 25.8	86 21.9	83 22.8	88 21.5	67 26.8	68 26.5

COUNTRY PROFILE

1.2 STATISTICAL HIGHLIGHTS

Statistical highlights - Jordan ^{6 7 8 9}

TABLE 2

6 Higher Council for Science and Technology (2013), National Innovation Strategy (2013-2017).

7 Central Bank of Jordan, annual reports, different issues.

8 Global Competitiveness Index (2018), World Economic Forum.

9 World Development Indicators, World Development Indicators (WDI). <https://ar.knoema.com/atlas/jordan/topics>

10 Ibid

11 Ibid

12 Central Bank of Jordan, annual reports, different issues.

13 Ibid

14 Global Competitiveness Index (2018), World Economic Forum.

15 Global Innovation Index (2019), Cornell University, INSEAD, and the World Intellectual Property Organisation (WIPO, a specialised agency of the United Nations).

16 Research and Development Expenditure in Jordan (2012-2016), report prepared by HCST, 2019.

17 World Development Indicators (WDI). <https://ar.knoema.com/atlas/jordan/topics>

18 Ibid

19 Ibid

20 Mit.gov.jo (2019). Ministry of Industry, Trade and Supply. (www.mit.gov.jo)

INDEX/ COUNTRY	JORDAN
Population (in millions) ¹⁰	10.3
Real GDP at real prices (£ million) 2018 ¹¹	41,128
Real GDP at real prices ¹²	2.0
Per capita GDP at current market prices (£) ¹³	4,642
Global Competitiveness Index (2018) ¹⁴	65
Global Innovation Index (2019) ¹⁵	86
R&D gross domestic expenditure as % of GDP (2016) ¹⁶	0.76
High-tech exports, in % of manufactured exports (2017) ¹⁷	1.8
Researchers in R&D (per million people) (2017) ¹⁸	601
Technicians in R&D (per million people) (2015) ¹⁹	110
Patent applications, resident (2017) ²⁰	26

COUNTRY PROFILE

1.2 STATISTICAL HIGHLIGHTS

Socio-economic inequality in Jordan

Jordan's inequality measures are relatively low in comparison to other countries with similar per capita GDP. Inequality in Jordan, as measured by per capita expenditure from the Households Expenditures and Income Survey (HEIS), stands at a Gini coefficient* of 33.7 per cent in 2010.²¹

This is a similar level to that of the developed European Organisation for Economic Cooperation and Development (OECD) members. It is significantly lower than income inequality in the United States and the UK (which have a Gini coefficient of around 40 per cent), and is likewise lower than inequality in most countries that are close to Jordan in terms of gross domestic product (GDP) per capita.²²

The Gini coefficient measures the inequality among values of a frequency distribution (for example, levels of income). A Gini coefficient of zero expresses perfect equality, where all values are the same (for example, where everyone has the same income). A Gini coefficient of one (or 100%) expresses maximal inequality among values (e.g., for a large number of people, where only one person has all the income or consumption, and all others have none, the Gini coefficient will be very nearly one).

The Gini coefficient was proposed by Gini as a measure of inequality of income or wealth. For OECD countries, in the late 20th century, considering the effect of taxes and transfer payments, the income Gini coefficient ranged between 0.24 and 0.49, with Slovenia being the lowest and Mexico the highest. African countries had the highest pre-tax Gini coefficients in 2008–2009, with South Africa the world's highest, variously estimated to be 0.63 to 0.7, although this figure drops to 0.52 after social assistance is considered, and drops again to 0.47 after taxation. The global income Gini coefficient in 2005 has been estimated to be between 0.61 and 0.68.

* In economics, the Gini coefficient, sometimes called the Gini index or Gini ratio, is a measure of statistical dispersion intended to represent the income or wealth distribution of a nation's residents, and is the most commonly used measurement of inequality. It was developed by the Italian statistician and sociologist Corrado Gini and published in his 1912 paper *Variability and Mutability*.

²¹ UNDP, *Socio-economic Inequality in Jordan*.

²² *Ibid.*

1.2 STATISTICAL HIGHLIGHTS

Research and development (R&D) spending:

- Research and development expenditure (% of GDP) in Jordan was 0.76 per cent in 2016, according to a report prepared by HCST about R&D expenditure (2012-2016).²³
- The total expenditure on R&D in Jordan was around £939 million (£900 million from local sources and £39 million from international sources) during the period (2012-2016), with an annual average of £188 million.²⁴
- Public universities spent around 58 per cent of total local spending on R&D during the period (2012-2016).

Economy - overview:

Jordan's real GDP registered an estimated growth of two per cent in 2018, marginally lower than growth in 2017, constrained by structural impediments and a difficult regional setting. A high unemployment rate (19.2 per cent in the second quarter in 2019 compared to 18.6 per cent in 2018), high dependency on grants and reduced remittances and official inflows from Gulf economies pose a serious challenge. According to provisional estimates for 2018, Jordan's fiscal efforts remained below the budget target as the fiscal deficit (including grants) widened to 3.4 per cent of GDP in 2018, 1.6 per cent higher than the budgeted target for 2018. This was mainly due to limited revenue growth (vis-à-vis the budget targets) and limited flexibility to curtail recurrent spending. However, Jordan showed continued reform efforts, including passing amended income tax legislation in November 2018. Public debt-to-GDP ratio marginally declined - for the first time in a decade - to 94.2 per cent at the end of 2018.²⁵

²³ Research and Development Expenditure in Jordan (2012-2016), report prepared by HCST, 2019.

²⁴ Ibid.

²⁵ The World Bank, Jordan's Economic Update - April 2019.

COUNTRY PROFILE

1.3.1 FUNDS

a) SCIENTIFIC RESEARCH AND INNOVATION SUPPORT FUND (SRISF)

SRISF was established in 2010 under the umbrella of the Ministry of Higher Education and Scientific Research, as the main public fund to support research and innovation. It does this by seeking to build and strengthen research and development in fields that have great strategic value to empower Jordan to become competitive, especially in the fields of energy, water, environment, technological applications, support and protection of intellectual property rights, as well as human resources development. During 2011-2018, SRISF funded 289 projects in different scientific fields with around £19 million. Recently, 'innovation' was added to its mission to focus more on the applied and innovative ideas, as well as the commercialisation process.

<http://srf.gov.jo/>

b) INDUSTRIAL RESEARCH AND DEVELOPMENT FUND (IRDF)

IRDF was established in 1994 as another public fund affiliated to the Higher Council for Science and Technology, with the objective of increasing the competitiveness of Jordanian industries through the development of science and technology. IRDF invests around £4.5 million from its budget and manages around £1.13 million from foreign funds. The main function of IRDF is to

support Jordanian industries to invest in science and technology to achieve a remarkable development in terms of production processes and industrial management, product quality and development, as well as to improve the competitiveness and innovation of Jordanian industries.

<http://www.irdf.jo/>

c) NATIONAL FUND FOR ENTERPRISE SUPPORT (NAFES)

NAFES was established in 2001 as an affiliated fund to the Higher Council for Science and Technology. It assists Jordanian small and medium-sized enterprises (SMEs) to become more efficient and competitive, both locally and internationally, through developing SMEs' administration and financial systems and human resources. NAFES has supported SMEs with around £4.5 million since its establishment in 2001.

<http://www.nafes.org.jo/>

d) INNOVATIVE STARTUPS AND SMES FUND (ISSF)

ISSF was established in 2017 in response to the first recommendation of the Jordanian Economic Policy Council, as a private sector managed fund making investments in innovative startups and early-stage SMEs. The World Bank has invested

COUNTRY PROFILE

1.3.1 FUNDS

around £40.2 million into the fund, along with an additional investment of around £38.6 million from the Central Bank of Jordan, bringing the total working capital of ISSF to around £78.8 million. The objective of ISSF is to promote entrepreneurship and contribute to job creation in Jordan, by providing early-stage equity finance for innovative small and medium-sized enterprises (SMEs). In addition, ISSF encourages entrepreneurship across Jordan through outreach programmes to entrepreneurs from underprivileged regions, underserved sectors and underserved groups such as youth and women entrepreneurs.

ISSF aims to invest in Jordanian companies, providing investment support to partner investors, as well as improving the quality and variety of services provided by intermediaries and networks dedicated to the creation of deal-flow in Jordan's ecosystem.²⁶

<https://issfjo.com/home/>

Other key funds (private) contributing to the innovation ecosystem in Jordan:

- Abdul Hameed Shoman Scientific Research Support Fund (AHSF)
<https://www.shoman.org/en/programs/3/abdul-hameed-shoman-scientific-research-support-fund/>
- Applied Scientific Research Fund (ASRF)
<https://www.linkedin.com/company/applied-scientific-research-fund-asrf-/about/>

²⁶ ISSFjo.com. (2019). Innovative Startups and SMEs Fund (www.issfjo.com)

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1.3.2 UNIVERSITY INNOVATION PROGRAMMES AND CENTRES

a) GERMAN JORDANIAN UNIVERSITY PROGRAM IN INNOVATION & ENTREPRENEURSHIP (GJU PIE)²⁷

In 2013, the University 'Office for Industrial Links' (OIL) started to implement activities that will lead to the establishment of a Technology Transfer Office (TTO) and Innovation and Entrepreneurship support office. The main role of these offices is to establish an innovation and startup culture at GJU and to promote technology transfer.

The programme is linked to the career services of the university to help the students/graduates to gain an understanding of the different career paths and provide them with the tools to select and proceed with their best fit.

PIE offers the following:

- Training on - and general awareness of - innovation and entrepreneurship.
 - Entrepreneurship and innovation skills for students and young entrepreneurs;
 - Professors and researchers on entrepreneurship and research commercialisation;
 - Specialised courses on entrepreneurship and product design for target focus fields (CleanTech & Life Sciences).
- Coaching of entrepreneurs and innovators. (support for students in their graduation projects and commercialisation; business modelling;

support with marketing and business development; strategic partnerships; intellectual property rights services and licensing; business establishment and growth.

- Technical development (proof of concept) / product design.
 - Access to university facilities and resources.
 - A test platform for new products.
 - Promotion of entrepreneurs and innovators.

<http://www.gju.edu.jo/content/gju-program-innovation-entrepreneurship-gju-pie-4395>

b) CENTER OF EXCELLENCE FOR INNOVATIVE PROJECTS (CEIP) / JORDAN UNIVERSITY FOR SCIENCE AND TECHNOLOGY²⁸

The Centre has a range of facilities and services to support and sponsor innovative people; develop their skills and innovativeness starting from creating the initial product; passing on to the service model; and finally the establishment and the commercial launch of small businesses.

The technical incubator provides the necessary technical support to design and build prototypes of products and services.

The training department develops the personal, technical, and entrepreneurial skills of the innovators.

²⁷ Gju.edu.jo. (2019). German Jordanian University (www.gju.edu.jo)

COUNTRY PROFILE

1.3.2 UNIVERSITY INNOVATION PROGRAMMES AND CENTRES

The marketing department, on the other hand, promotes products and services, and attracts customers and investors. The technology transfer office, however, is largely concerned with the protection of intellectual property rights by documenting innovative ideas, registering patents, and managing them. The centre also sponsors and supports pioneering and creative initiatives that benefit the university and the local community, or contribute to solving social, economic, academic, and health problems.

<http://www.just.edu.jo/centers/ceip/Pages/default.aspx>

c) THE UNIVERSITY OF JORDAN INNOVATION AND ENTREPRENEURSHIP CENTER (UJIEC)²⁹

UJIEC was established following a decision from the University of Jordan Board of Trustees in 2015, with a vision to be a 'one-stop support hub for innovators and entrepreneurs' at the University of Jordan, as well as the local community, in collaboration and partnership with stakeholders in both the public and private sectors. It has a mission to promote and foster innovation and entrepreneurship culture, education, training and practice to create a generation capable of making a real contribution to the economic development in Jordan. The UJIEC team consists of six full-time staff along with 15 part-time volunteers.

<http://centers.ju.edu.jo/en/ujic/Home.aspx>

d) THE QUEEN RANIA CENTER FOR ENTREPRENEURSHIP (QRCE)³⁰

QRCE is a not-for-profit organisation established in 2004 to help develop technology entrepreneurship in Jordan. The centre is part of Princess Sumaya University for Technology (PSUT), and plays the role of a national centre of excellence for entrepreneurship. With the expansion of the role of the centre and the development of the strategic plan, QRCE is cementing its place in the growing ecosystem for entrepreneurship development and support in the country, starting with a business plan competition involving universities, entrepreneurs and professionals from different sectors. Working closely with local and international organisations, QRCE focuses on areas such as: networking, recognition and awareness, capacity building and support, and funding.

<http://www.qrce.org/>

Other private universities with innovation centers include:

- 1 Philadelphia University: Jordan Innovation Center;
- 2 Hussein Technical University: Center for Innovation and Entrepreneurial Excellence;
- 3 University of Petra: The Technology Innovation Center;
- 4 Middle East University: Innovation and Entrepreneurship Center;
- 5 Applied Science University: Center for Entrepreneurship and Creativity

²⁸ JU.edu.jo. (2019). German Jordanian University (www.ju.edu.jo)

²⁹ Just.edu.jo. (2019). Jordan University of Science and Technology (www.just.edu.jo)

³⁰ www.QRCE.org (2019)

1.3.3 NATIONAL INNOVATION STRATEGY (NIS) 2013 – 2017

As part of Jordan's conviction to tackling the severe economic challenges the country was facing, the Jordanian Government decided to work towards transforming the national economy from an efficiency-based model to an innovation-based economy. The national strategy was set up to follow the cluster method for enhancing the development of key successful sectors in the Jordanian economy. It focused on the following priority clusters:

- Medical services and the pharmaceutical industry; ICT; clean technologies; architecture and engineering services; education and career guidance services; banking and financial services.

The national innovation strategy has a vision of 'creating a Jordanian innovation-based economy' and a mission of 'disseminating the culture of innovation, research and development, development of specialised human resources, and creating a favourable business environment'.³¹

It is hard to track the actions, activities and impact of entities concerned with innovation. Therefore, in order to prevent duplication in the Jordanian innovation

system and fill in the gaps, the Higher Council for Science and Technology established the National Center for Innovation (NCI) to be responsible for planning, coordination and follow-up of various stages of innovation. This was the main outcome of the NIS.

http://www.hcst.gov.jo/sites/default/files/national_innovation_strategy_final.pdf

³¹ Higher Council for Science and Technology, (2013). National Innovation Strategy (2013-2017)

1.3.4 NATIONAL CENTER FOR INNOVATION (NCI)

Central to the success of NCI is the management of an online coordination platform, the Jordan Open Innovation Platform (JOIP), which will bridge the gaps within the market, build connections, enable coordinated actions and direct engagement between private and public stakeholders, and create a truly open and free marketplace for innovation. JOIP envisions a Jordan where high-quality, cost-effective, and easy-to-use innovation services are available to all stakeholders. This idea is enshrined in NCI's founding objectives.

Central to the value of NCI is its ability to prevent the duplication of services, reduce inefficiencies in providing funding and support to the private sector, increase the efficacy of donor contributions through a coordinated facility, and provide vital national statistics on the impact of innovation initiatives so as to monitor

progress and areas for improvement. NCI will create an institutional environment for new and existing innovation-focused entities to improve collaboration and implementation by establishing a formal National Center for Innovation administration and advocacy office, within the Higher Council for Science and Technology, headquartered in Amman with satellite offices throughout Jordan.³²

<http://hcst.gov.jo/en/node/80>

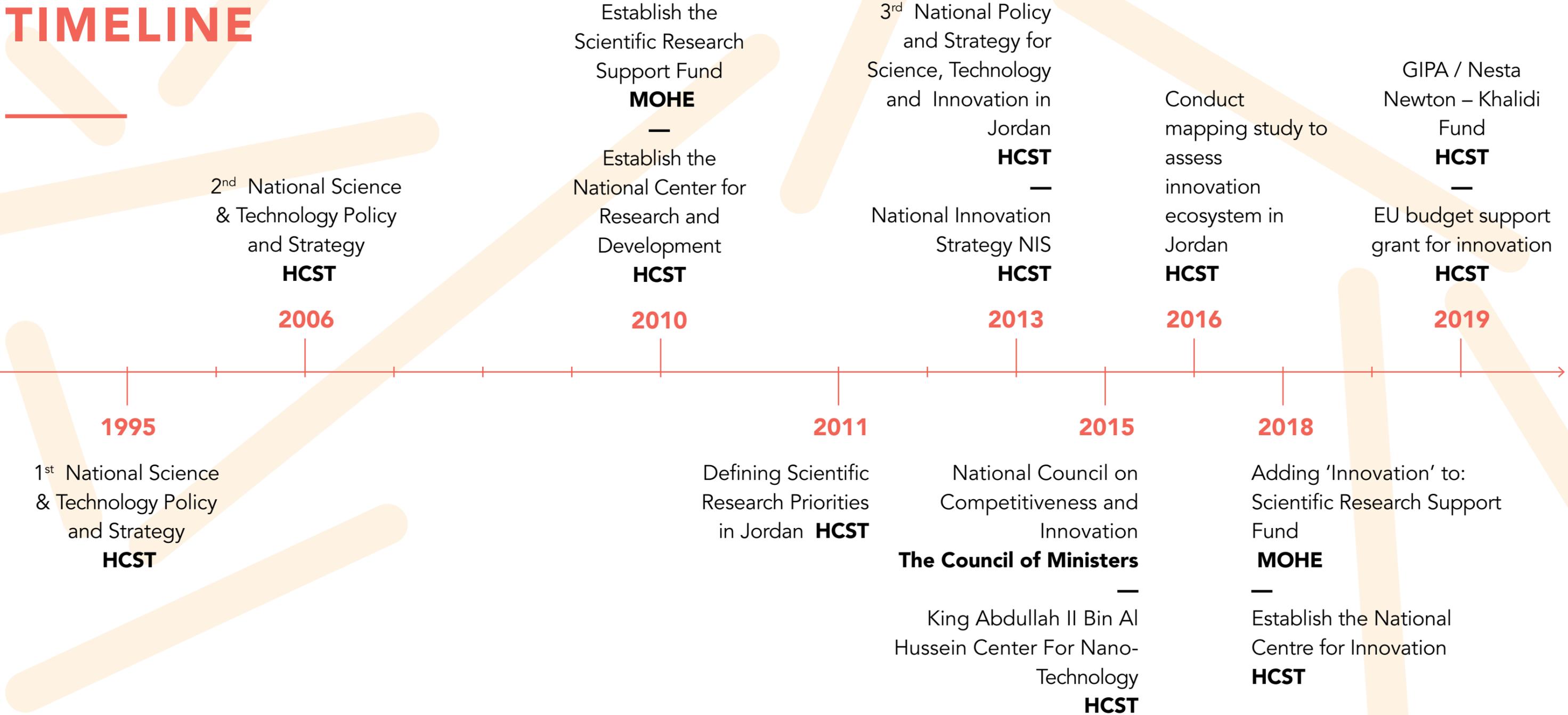
³² Higher Council for Science and Technology, (2013). National Innovation Strategy (2013-2017)

COUNTRY PROFILE

1.4 AN INNOVATION TIMELINE

Below is a brief account of key innovation activities during the period 1995-2019. It lists the main milestones including the establishment of centres,

the launch of essential studies or analyses, and the creation of national policies and strategies, and the institution responsible.



COUNTRY PROFILE

1.5.1 INSTITUTIONAL MAP OF THE INNOVATION SYSTEM

National System of Science, Technology and Innovation Policy

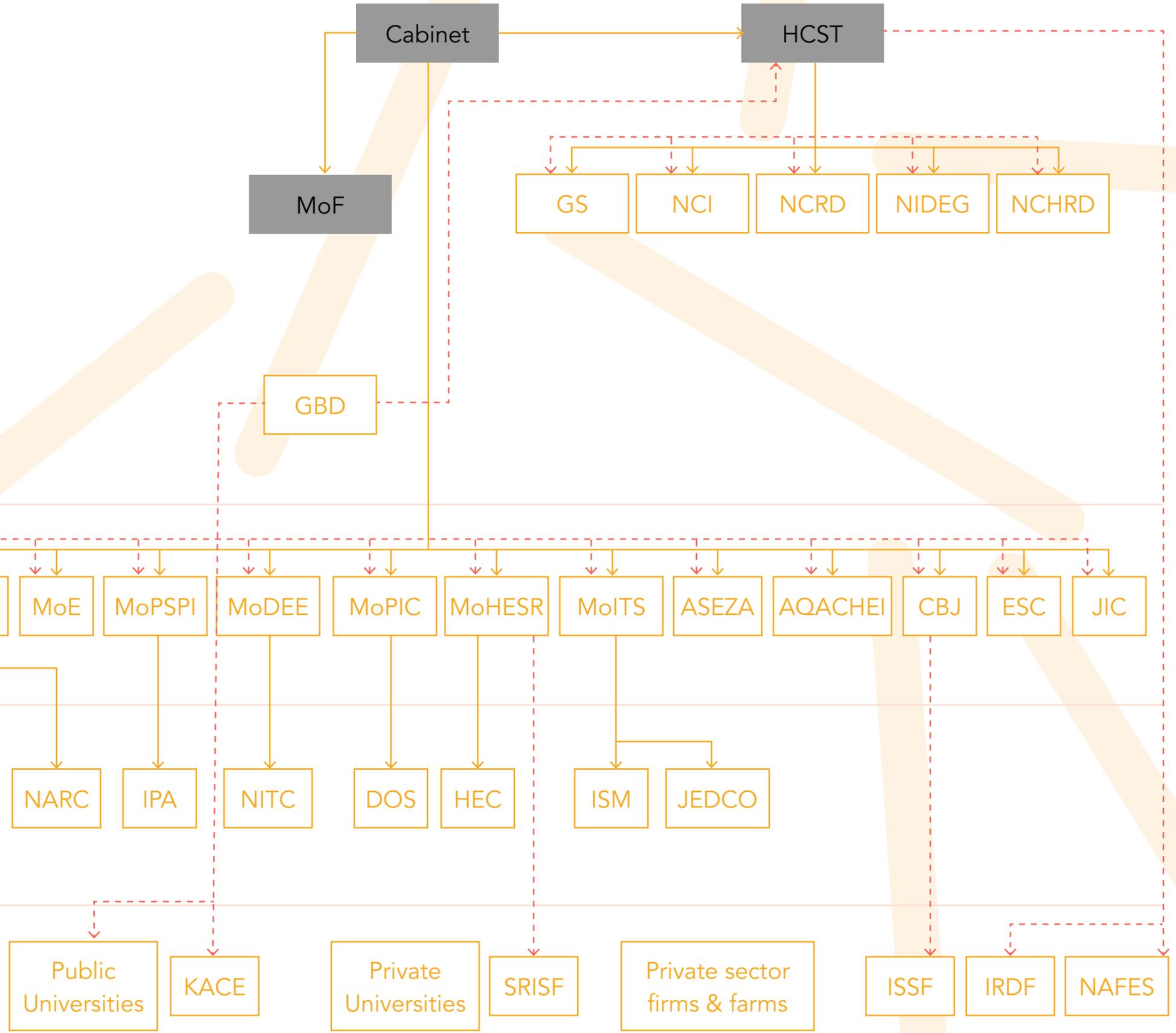
COORDINATING BODY

MINISTRIES

INSTITUTES AND INDEPENDENT ORGANISATIONS

RELEVANT INSTITUTES AND FUNDS

- Political influence
- - - - - Provides funds
- Major Institutions



COUNTRY PROFILE

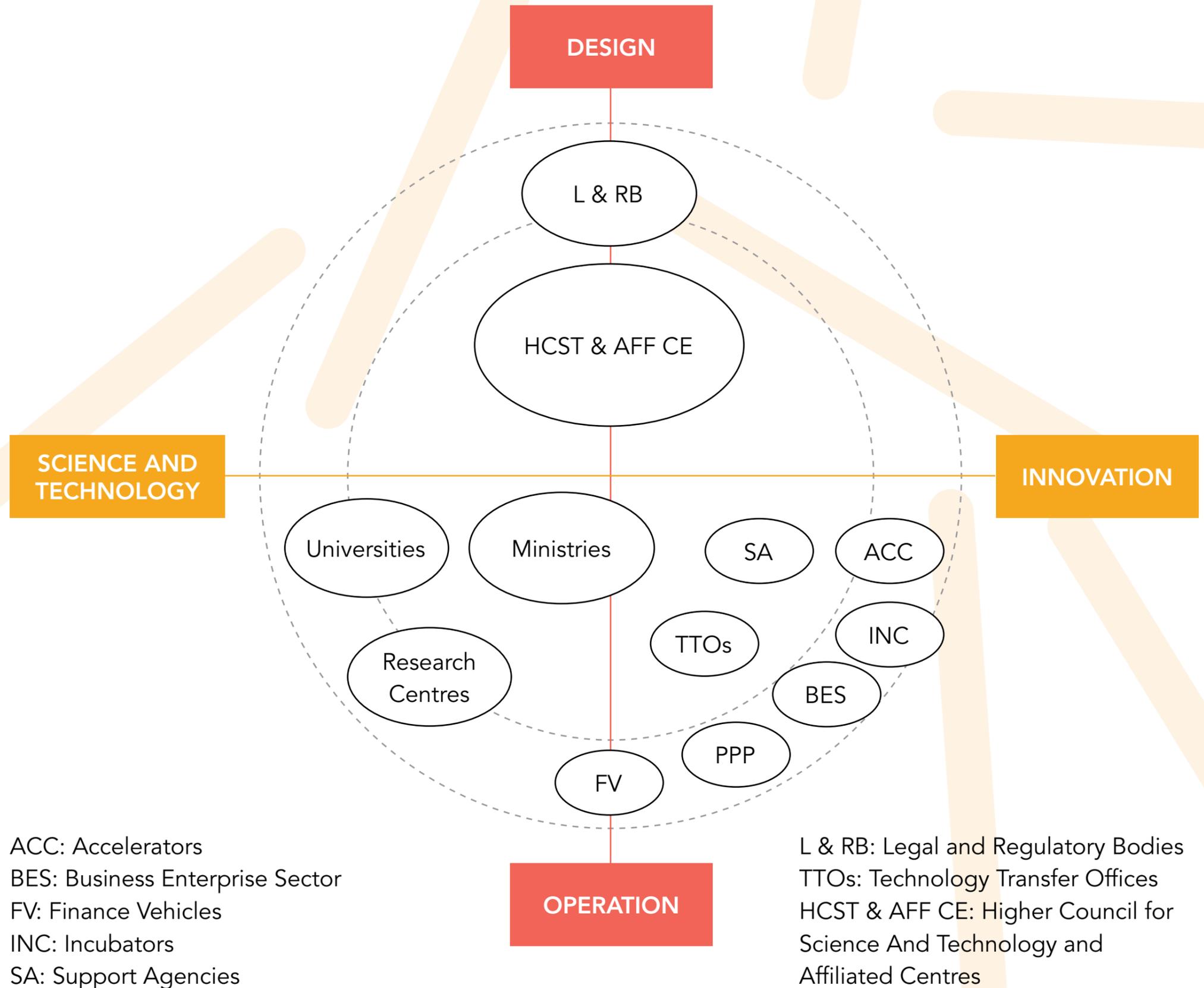
1.5.2 ROLE AND INFLUENCE DIAGRAM OF KEY MINISTRIES AND AGENCIES

The relationships among stakeholders in Jordan's innovation ecosystem are challenging and unclear due to the complexity of governance structures and processes.

This diagram represents the influence map for government institutions in the innovation, science and technology system. In Jordan, most entities have a vital impact on research, policy, coordination, funding, execution, and supporting infrastructure. However, the level of influence of the rest of the entities on innovation is limited due to the lack of a culture of innovation in the education system. As a result, research outputs do not always translate into commercial ventures.

Level of influence: the bigger the size of the bubble, the more influence in the innovation system.

This influence map is indicative and reflects the insights of the project team rather than a formal statement of roles and structures.



1.5.3 GLOSSARY OF INSTITUTIONAL ABBREVIATIONS AND ACRONYMS

- **AAU:** Al Albeit University
- **ABTU/AHU:** Al Hussein Bin Talal University
- **ACC:** Accelerators
- **AQACHEI:** Accreditation and Quality Assurance Commission for Higher Education Institutions
- **ASEZA:** Aqaba Special Economic Zone Authority
- **BAU:** Al-Balqa' Applied University
- **BES:** Business Enterprise Sector
- **CBJ:** Central Bank of Jordan
- **DOS:** Department of Statistics
- **ESC:** Economic and Social Council
- **FDI:** Foreign Direct Investment
- **FTA:** Free Trade Agreement
- **FV:** Finance Vehicles
- **GBD:** General Budget Department
- **GCC:** Gulf Cooperation Council
- **GDP:** Gross Domestic Product
- **GII:** Global Innovation Index
- **GIPA:** Global Innovation Policy Accelerator
- **GJU:** German Jordan University
- **GS:** General Secretary
- **HCST:** Higher Council for Science and Technology
- **HCST & AFF CE:** Higher Council for Science and Technology and Affiliated Centers
- **HEC:** Higher Education Council
- **HU:** Hashemite University
- **ICT:** Information and Communications Technologies
- **INC:** Incubators
- **IPA:** Institute of Public Administration
- **IPD:** Intellectual Property Directorate
- **IRDF:** Industrial Scientific Research And Development Fund
- **ISSF:** The Innovative Startups and SMEs Fund
- **JD:** Jordan Dinar
- **JEDCO:** Jordan Enterprise Development Corporation
- **JIC:** Jordan Investment Commission
- **JOIP:** Jordan Open Innovation Platform
- **JSMO:** Jordan Standards and Metrology Organisation
- **JU:** University of Jordan
- **JUST:** Jordan University for Science and Technology
- **KACE:** King Abdullah Centre for Excellence
- **KACNT:** King Abdullah Center II for Nanotechnology
- **L & RB:** Legal and Regulatory Bodies
- **MEMR:** Ministry of Energy and Mineral Resources
- **MoA:** Ministry of Agriculture
- **MoC:** Ministry of Culture
- **MoDEE:** Ministry of Digital Economy and Entrepreneurship
- **MoE:** Ministry of Environment
- **MoEd:** Ministry of Education
- **MoF:** Ministry of Finance
- **MoH:** Ministry of Health

1.5.3 GLOSSARY OF INSTITUTIONAL ABBREVIATIONS AND ACRONYMS

- **MoHESR:** Ministry of Higher Education and Scientific Research
- **MoITS:** Ministry of Industry and Trade and Supply
- **MoJ:** Ministry of Justice
- **MoL:** Ministry of Labour
- **MoPIC:** Ministry of Planning and International Cooperation
- **MoPSPI:** Ministry of Public Sector Performance Improvement
- **MoPWH:** Ministry of Public Works and Housing
- **MoT:** Ministry of Transport
- **MU:** Mutah University
- **NAFES:** National Fund For Enterprise Support
- **NARC:** National Agriculture Research Center
- **NCHRD:** National Center for Human Resources Development
- **NCI:** National Center for Innovation
- **NCRD:** National Center for Research and Development
- **NIDEG:** National Institute for Diabetes, Endocrinology and Genetics
- **NIS:** National Innovation Strategy
- **NITC:** National Information Technology Center
- **OECD:** Organisation for Economic Co-operation and Development
- **OIL:** Office for Industrial Links
- **OLB:** Opinion and Legislation Bureau
- **PIE:** Program Innovation & Entrepreneurship
- **PISA:** Program for International Student Assessment
- **PPP:** Public Private Partnership
- **PSUT:** Princess Sumaya University for Technology
- **QRCE:** Queen Rania Center for Entrepreneurship
- **R&D:** Research and Development
- **RSS:** Royal Scientific Society
- **SA:** Support Agencies
- **SME:** Small and Medium-sized Enterprise
- **SRISF:** Scientific Research and Innovation Support Fund
- **TTO/U:** Technology Transfer Office/Unit
- **TTU:** Tafila Technical University
- **UJIEC:** The University of Jordan Innovation and Entrepreneurship Center
- **UNDP:** United Nations Development Programme
- **WDI:** World Development Indicators
- **YU:** Yarmouk University

COUNTRY PROFILE

1.6 STRENGTHS AND WEAKNESSES ANALYSIS

33 Higher Council for Science and Technology, (2013). National Innovation Strategy (2013-2017)

34 Ibid.

35 Ibid.

36 Jordan ICT Forum. 2011. <http://www.jordanictforum.com>

37 Sultan, S. S., & Soete, L. (2012). Innovation for Development: The Case of Jordan. *Dirasat: Administrative Sciences*, 161(720), 1-14.

38 Higher Council for Science and Technology, (2013). National Innovation Strategy (2013-2017)

39 Higher Council for Science and Technology, (2013). National Innovation Strategy (2013-2017)

40 Ibid.

41 Sultan, S. S., & Soete, L. (2012). Innovation for Development: The Case of Jordan. *Dirasat: Administrative Sciences*, 161(720), 1-14.

42 Ibid.

43 Higher Council for Science and Technology, (2013). National Innovation Strategy (2013-2017)

44 Ibid.

INSTITUTIONAL FRAMEWORK

STRENGTHS

- Several bodies **concerned with innovation** with different objectives and activities.³³
- **HCST is the body responsible** for ratifying general innovation policies in the Kingdom, i.e. the national policy and strategy for science, technology and innovation (ST&I).³⁴
- The **most innovative and productive clusters in Jordan** are the ICT cluster and the pharmaceutical industries.³⁵
- The **Jordanian Government** has taken some major steps in the last few years towards creating a dynamic and practical approach to being a part of the international information and communications technology (ICT) community (Jordan ICT Forum, 2011).³⁶ A number of initiatives have been developed to increase digital penetration, improve education and stimulate demand for internet services in particular - and communications services in general - such as: a regulatory framework, fixed line telecommunication, mobile telecommunications, information technology and internet service providers, and postal services.³⁷
- **Institutionalising and improving** the cooperation between HCST and other institutions in the innovation system, starting with nurturing innovative ideas and culminating in commercialisation.³⁸

WEAKNESSES

- The **interaction** among different bodies in charge of innovation (i.e. MOHESR, universities, local community institutions, and the industrial sectors) **is ineffective** to facilitate joint research.³⁹
- Ineffective adaptation and implementation of innovation policies and strategies.⁴⁰
- **Weak coordination** among the governmental institutions.⁴¹
- **Legal and regulatory** hurdles prevent the smooth operation of the ICT sector's products and services.⁴²
- **Fuzzy legislative** environment (particularly surrounding the registration and launching of SMEs).
- Lack of SME incentives.⁴³
- **Scarcity of legislative and legal articles** facilitating and streamlining innovation activities and a lack of legal articles relating to the status of the researcher (creative/innovative researcher law).⁴⁴

COUNTRY PROFILE

1.6 STRENGTHS AND WEAKNESSES ANALYSIS

	STRENGTHS	WEAKNESSES
FUNDING	<ul style="list-style-type: none"> • The Innovative Startups and SMEs Fund (ISSF) was established in 2017.⁴⁵ The World Bank has invested around £40.2 million into the fund, along with an additional investment of around £38.6 million from the Central Bank of Jordan, bringing the total working capital of ISSF to around £78.8 million. (see section 1.3.1) • The Scientific Research and Innovation Support Fund (SRISF) was established in 2010 by MoHESR as the main public funding agency for scientific research. • Higher Council for Science and Technology (HCST) policies augmented the financial support allocated for research and development, and removed obstacles facing the development of market mechanisms such as risk capital, which can be used to fund innovation as an alternative or a complementary source to traditional methods.⁴⁶ 	<ul style="list-style-type: none"> • Access to finance and especially risk capital is the major problem for entrepreneurs in Jordan.⁴⁷ • The private sector’s contribution to R&D spending is less than 20 per cent of the total. • Lack of innovative approaches to supporting and financing scientific research activities in high priority areas for the economy of Jordan. This includes fostering partnerships, the provision of seed money, promoting sabbaticals for university professors, and providing scholarships to scientists and students.⁴⁸ • Lack of a dynamic financial tax system encouraging research/development and innovation.⁴⁹ • Inadequate research and innovation budgets in industrial companies.⁵⁰ The majority of the industrial sector in Jordan is made up of SMEs and a large percentage of them do not have research and development departments.

45 ISSFjo.com. (2019). Innovative Startups and SMEs Fund (www.issfjo.com)

46 Higher Council for Science and Technology, (2013). National Innovation Strategy (2013-2017)

47 Mit.gov.jo (2019). Ministry of Industry, Trade and Supply (www.mit.gov.jo)

48 Ibid.

49 Ibid.

50 Ibid.

COUNTRY PROFILE

1.6 STRENGTHS AND WEAKNESSES ANALYSIS

51 His Majesty King Abdullah speech, 17th World Economic Forum (WEF)

52 Sultan, S. S., & Soete, L. (2012). Innovation for development: the case of Jordan. *Dirasat: Administrative Sciences*, 161(720), 1-14.

53 Higher Council for Science and Technology, (2013). National Innovation Strategy (2013-2017)

54 Mit.gov.jo (2019). Ministry of Industry, Trade and Supply (www.mit.gov.jo)

55 Higher Council for Science and Technology, (2013). National Innovation Strategy (2013-2017)

56 His Majesty King Abdullah speech, 17th World Economic Forum (WEF)

57 Sultan, S. S., & Soete, L. (2012). Innovation for Development: The Case of Jordan. *Dirasat: Administrative Sciences*, 161(720), 1-14.

58 Higher Council for Science and Technology, (2013). National Innovation Strategy (2013-2017)

HUMAN CAPITAL / KNOWLEDGE ASSETS

STRENGTHS

- **Young people in Jordan** are globally connected, tech savvy, fluent in multiple languages and determined to succeed. They are proven assets to every enterprise, as evident from the success of Jordan's ICT industry, which has created thousands of new jobs and accessed markets across the region and beyond.⁵¹
- A number of **dedicated courses on innovation management** and entrepreneurship can be found in public and private universities.⁵²
- **HCST developed the scientific research priorities** for the ten-year period 2011-2020.⁵³ The objective is to direct researchers towards scientific research tracks by determining the research issues with utmost priority within the main subjects. This has resulted in 81 patents and 150 startups, as well as high-tech exports of up to 2.5 per cent.
- The existence of laws and regulations for the protection of intellectual property in addition to patent registration offices.⁵⁴

WEAKNESSES

- Lack of **adequate specialised scientific** and technological highly qualified experts. Also, researchers' mobility and the brain drain (according to the national programme 'Reversing the Brain Drain' which created a network of Jordanian Scientists and Technologists Abroad (JoSTA), there are 92 Jordanian researchers and experts working outside Jordan and holding approximately 151 patents) whether public or private.⁵⁵
- The **number of researchers** per million is around 1,200, with a majority in the public sector.
- Most **SMEs are not innovative** due to a lack of political support as well as a lack of financing and technologically oriented staff.⁵⁶
- Jordan's **primary and secondary education systems** do not promote innovation.⁵⁷
- Most of the **existing scientific research in universities is supply-driven** (mostly basic research) and not demand-driven.⁵⁸

COUNTRY PROFILE

1.6 STRENGTHS AND WEAKNESSES ANALYSIS

⁵⁹ His Majesty King Abdullah speech, 17th World Economic Forum (WEF)

⁶⁰ Mit.gov.jo (2019). Ministry of Industry, Trade and Supply (www.mit.gov.jo)

⁶¹ Sultan, S. S., & Soete, L. (2012). Innovation for Development: The Case of Jordan. Dirasat: Administrative Sciences, 161(720), 1-14.

⁶² World Economic Situation and Prospects Report, 2019. United Nations https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2019_BOOK-web.pdf

BROADER ENVIRONMENT

STRENGTHS

- The establishment of a network of free trade agreements (**FTAs**) with strategic commercial partners has helped to **open the economy**.
- An FTA was set up with the European Union countries in 1997, with the aim of developing economic relations and cooperation in various fields and creating favourable conditions for the development of trade exchange and investments between the two sides.
- More than 300 million people in the Arab region provide a **talent pool eager** to compete on a global level, and a huge marketplace for consumers and businesses.⁵⁹

WEAKNESSES

- The **economy in Jordan** is based almost entirely on (micro) enterprises which mostly lack the capability to fund research and innovation.⁶⁰
- Jordan has a relatively **low share of high-tech exports** in total manufactured exports (1.1 per cent).⁶¹
- **Geopolitical tensions** continue to negatively impact the economy of Jordan.⁶²

COUNTRY PROFILE

1.6 STRENGTHS AND WEAKNESSES ANALYSIS

⁶³ Manna R. (2017), *Startup Jordan*. Endeavor Jordan, 2017.

⁶⁴ Ibid.

⁶⁵ World Bank (2015), *JORDAN ECONOMIC MONITOR Global Practice for Macroeconomics & Fiscal Management MIDDLE EAST AND NORTH AFRICA REGION*.

⁶⁶ Higher Council for Science and Technology, (2013). *National Innovation Strategy (2013-2017)*

⁶⁷ Ibid

ECOSYSTEM CONNECTIONS

STRENGTHS

- **Jordan is rich with entrepreneurs** who have the ambition to set up new businesses and the ability to deliver and execute their vision.⁶³
- **Long experience with the regional internet market.**⁶⁴ Almost all Jordanian companies are now competing to advertise their products digitally through hiring professional digital marketing agencies, alongside traditional marketing methods. In addition, the Ministry of ICT has been renamed as the 'Ministry of Digital Economy and Entrepreneurship'.
- The Jordanian Government has exempted **the activities of the information technology sector** from sales tax and customs duties when purchasing goods or services from within the Kingdom or importing from abroad.
- **Exports in the ICT sector** have risen to \$225 million.
- A **number of innovation hubs** serve as intermediaries, allowing the government to identify gaps in the ecosystem, coordinate actions (avoiding redundancies), and foster collaboration and public-private partnership models to support the community of entrepreneurs.⁶⁵

WEAKNESSES

- **Effective partnerships are not formed between business and production sectors** on the one hand, and the scientific and the technological community on the other.⁶⁶
- **High-level research projects are scarce**, and rarely find a favourable opportunity to convert research results into business and commercial products.⁶⁷ This is partly because Jordanian researchers are looking to publish scientific papers for their own promotion; also, Jordan has a limited market which depends on importing advanced technology from abroad.

2.
**CAPACITY BUILDING FOR INNOVATION
IN JORDAN**

2.1 MAPPING INNOVATION POLICYMAKERS: ASSESSING THE SIZE OF THE CORE AUDIENCE

To achieve the target of establishing a stable and well-functioning national innovation system (NIS) in the country, special emphasis should be placed on developing the capacity of innovation policymakers. This core group of policymakers requires specific career development to enable government to take the necessary actions to foster innovation across the system. The functions of government policymaking in Jordan are categorised as follows:⁶⁸

- **Policy formation:** creation, drafting, and dissemination of national or regional innovation policy, including sectoral focus and action planning. This includes creating a results framework for tracking innovation KPIs.
- **Policy coordination:** bringing together policy stakeholders to provide input into national and regional innovation strategy. Activities include facilitating workshops and the creation of advisory committees.
- **Policy assessment and monitoring:** interpretation and analysis of innovation data against policy objectives and feedback. Insights are used to shape later policy iterations.
- **Data collection:** collecting, aggregating, and disseminating innovation data, whether quantitative or qualitative. This includes liaising with international innovation ranking entities like the OECD, UNESCO, etc.
- **Innovation legislation:** drafting of legislation designed to improve and strengthen the national innovation system, including setting pro-innovation fiscal policy, creating public innovation entities (where required by law), and intellectual property law.
- **Foresight research:** analysing domestic and global technological trends and making recommendations for long-term planning within the national innovation system.
- **Standards setting:** setting quality and regulatory standards for the scientific and industrial sectors.
- **Intellectual property regulations:** adoption and enforcement of intellectual property conventions such as patents, copyrights, and trademarks. This includes services related to the registration of intellectual property.
- **Accreditation:** certification of firms, laboratories, and research centres according to domestic and international standards.

⁶⁸ Higher Council for Science and Technology, Mapping Study conducted by OHK management consultants, (2016). P.4:35-4:39.

2.1 MAPPING INNOVATION POLICYMAKERS: ASSESSING THE SIZE OF THE CORE AUDIENCE

The government ministries, departments and agencies responsible for innovation policymaking in Jordan include: Ministry of Planning and International Cooperation (MoPIC); Ministry of Education (MoEd); Ministry of Higher Education and Scientific Research (MoHESR), Ministry of Public Sector Performance Improvement (MoPSPI); Ministry of Industry and Trade (MoIT); Ministry of Finance (MoF); all ministries responsible for infrastructure such as water and irrigation, agriculture, energy, telecommunications, transport, etc.; and ministries responsible for health, welfare and social development. As for departments and agencies, the list includes the Higher Council for Science and Technology (HCST) and its affiliated centres, such as the National Center for Research and Development (NCRD); National Institute for Diabetes, Endocrinology and Genetics (NIDEG); National Center for Human Resources Development (NCHRD); National Center for Innovation (NCI); King Abdullah II Center for Nanotechnology (KACNT); National Agriculture Research Center (NARC); Higher Education Council (HEC); Commission for the Accreditation of Higher Education Institutes (CAHEI); Department of Institutional Performance Improvement and Policies at the Prime Ministry; Unit for Excellence Achievement at the Prime Ministry; Department of Statistics (DOS); and Central Bank of Jordan (CBJ).

Unfortunately there are no statistics regarding the composition, capacity and roles of the policymakers in government related to innovation. However, typically almost all ministries, agencies or departments have a unit - although these may have different titles - related to innovation. Some have units for strategic planning, performance improvement, or quality assurance. All such units and their senior staff were counted in this exercise. The methodology to quantify the capacity in government for innovation policymaking included desk research and circulating a questionnaire. Tables 3-7 summarises the policymaking units at government ministries, departments or agencies. Moreover, Table 8 lists the number, qualifications and expertise in innovation-related areas of the staff in such units. It should be emphasised that this information is a fresh attempt to estimate the capacity of government policymaking in innovation. It was collected for the purpose of this scoping study and is not published anywhere else.

2.1 MAPPING INNOVATION POLICYMAKERS: ASSESSING THE SIZE OF THE CORE AUDIENCE

Institutional set-up
of innovation-related
government units

TABLE 3

NO.	GOVERNMENT ENTITY	UNIT EXISTS	FOCUS ON INNOVATION	INNOVATION-RELATED UNIT(S)
1	Prime Ministry	Yes	High	1) Policy and Institutional Performance Improvement 2) Policies and Best Practices
2	Ministry of Digital Economy and Entrepreneurship	Yes	High	1) Policies and Strategies 2) Project Management and Performance Improvement
3	Ministry of Planning and International Cooperation	Yes	High	1) Policies and Studies 2) Development Plans and Programmes 3) International Cooperation
4	Ministry of Finance	Yes	Low	1) Studies and Economic Policies
5	Ministry of Transport	Yes	Medium	1) Planning and Development 2) Performance Improvement and Human Resources
6	Ministry of Energy and Mineral Resources	Yes	Medium	1) Institutional Development 2) Planning and International Cooperation
7	Ministry of Higher Education	Yes	Low	1) Policies and Planning
8	Ministry of Agriculture	Yes	Low	1) Strategic Planning and Institutional Development
9	Ministry of Industry and Trade	Yes	High	1) Institutional Development. 2) Economic Policies 3) Competition 4) Industrial Development 5) Intellectual Property Protection
10	Ministry of Environment	Yes	Medium	1) Policies and International Cooperation 2) Institutional Performance Improvement

2.1 MAPPING INNOVATION POLICYMAKERS: ASSESSING THE SIZE OF THE CORE AUDIENCE

Institutional set-up
of innovation-related
government units

TABLE 4

NO.	GOVERNMENT ENTITY	UNIT EXISTS	FOCUS ON INNOVATION	INNOVATION-RELATED UNIT(S)
11	Ministry of Education	Yes	Low	1) Development Coordination
12	Ministry of Health	Yes	Medium	1) Health Policies 2) Planning and Health Development
13	Ministry of Public Works and Housing	Yes	Medium	1) Investment and International Cooperation 2) Institutional Performance Improvement
14	Ministry of Justice	Yes	Medium	1) International Cooperation 2) Planning and Institutional Performance Improvement
15	Ministry of Culture	Yes	Medium	1) International Cultural Relations 2) Cultural Heritage
16	Ministry of Labour	Yes	Medium	1) Policies and International Cooperation 2) Employment Strategies
17	Economic and Social Council	Yes	Low	1) Research, Studies and Policies
18	Central Bank of Jordan	Yes	Low	1) Research
19	Aqaba Special Economic Zone Authority	No		No units exist
20	Accreditation and Quality Assurance Commission for Higher Education Institutions	Yes	Low	1) Quality Assurance and Classification

2.1 MAPPING INNOVATION POLICYMAKERS: ASSESSING THE SIZE OF THE CORE AUDIENCE

Institutional set-up
of innovation-related
government units

TABLE 5

NO.	GOVERNMENT ENTITY	UNIT EXISTS	FOCUS ON INNOVATION	INNOVATION-RELATED UNIT(S)
21	Jordan Standards and Metrology Organisation	Yes	Low	1) Organisational Performance
22	Jordan Enterprise Development Corporation	Yes	Low	1) Policy Formulation and Support
23	National Agriculture Research Center	Yes	Low	1) Institutional Development and Information Management
24	Higher Council for Science and Technology	Yes	High	1) Policies and Strategies 2) Science Advice
25	National Center for Human Resources Development	Yes	Low	1) Studies
26	National Institute for Diabetes, Endocrinology and Genetics	Yes	Low	1) Studies and Research
27	National Center for Research and Development	Yes	High	1) Energy Program 2) Badia Research Program 3) Biotechnology Research Program 4) Water and Food Research Program
28	National Center for Innovation	Yes	High	All units
29	Jordan Investment Commission	Yes	Low	1) Studies and Policies
30	Jordan University	Yes	High	1) Accreditation and Quality Assurance 2) Center For Strategic Studies 3) Innovation and Entrepreneurship

2.1 MAPPING INNOVATION POLICYMAKERS: ASSESSING THE SIZE OF THE CORE AUDIENCE

Institutional set-up
of innovation-related
government units

TABLE 6

NO.	GOVERNMENT ENTITY	UNIT EXISTS	FOCUS ON INNOVATION	INNOVATION-RELATED UNIT(S)
31	Jordan University for Science and Technology	Yes	Medium	1) Academic Development and Quality Assurance 2) Excellence for Innovation Projects
32	Yarmouk University	Yes	Low	1) Queen Rania Center for Jordanian Studies
33	Hashemite University	No		No units exist
34	Princess Sumaya University for Technology	Yes	Medium	1) Consultancy and Training 2) Quality Assurance
35	Al-Balqa Applied University	Yes	Medium	1) Consulting, Studies and Training 2) Development and Quality Assurance
36	Mutah University	Yes	Low	1) Information and Planning
37	Al al-Bayt University	Yes	Low	1) Innovation and Excellence
38	Al Hussein Bin Talal University	Yes	Medium	1) Studies 2) Planning, Information and Quality
39	Tafila Technical University	Yes	Medium	1) Consultation and Studies 2) Accreditation and Quality Assurance
40	German Jordan University	Yes	Medium	1) Consultation and Studies 2) Accreditation and Quality Assurance

2.1 MAPPING INNOVATION POLICYMAKERS: ASSESSING THE SIZE OF THE CORE AUDIENCE

Institutional set-up of innovation-related government units

TABLE 7

NO.	GOVERNMENT ENTITY	UNIT EXISTS	FOCUS ON INNOVATION	INNOVATION-RELATED UNIT(S)
41	Upper House of Parliament	Yes	Low	1) Education Committee
42	Lower House of Parliament	Yes	Medium	1) Education and Culture Committee 2) Economics and Investment Committee
43	Department of Statistics	Yes	Low	1) International Cooperation

Out of all the ministries, agencies, departments, universities, etc. involved in innovation policymaking, only nine are highly involved (19 per cent), while 14 are moderately involved (33 per cent), and the rest either have low involvement or none at all. It should be emphasised that this classification is based on first examining the organisational structure of each entity and noting titles of units within that entity. However, this does not directly relate to the degree of involvement in innovation policymaking; therefore further analysis (desk research and survey) was carried out to examine the duties and scope of work of each unit. This was factored into the results shown in Tables 3-7. Finally it is worth mentioning that all units within ministries, departments and agencies, etc. involved highly or to a lesser extent in innovation policymaking

total 55 (27 high and 28 medium). This figure of 55 units involved in innovation policymaking in government is the total target audience for the survey designed for the scoping study.

Further analysis to determine the capacity of the highly and moderately involved entities was carried out using a questionnaire requesting information related to: 1) Type of involvement (direct or indirect), 2) level of involvement from the perspective of the unit, 3) staff number, composition, and degrees earned, and 4) training in innovation policymaking or any related topics.

Table 8 summarises the capabilities of policymakers in government entities involved in innovation.

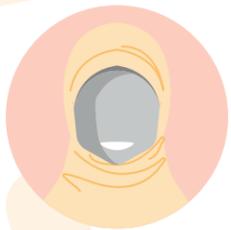
2.1 MAPPING INNOVATION POLICYMAKERS: ASSESSING THE SIZE OF THE CORE AUDIENCE

Human resource capabilities of government units responsible for innovation policymaking

TABLE 8

ENTITY	INVOLVEMENT IN POLICYMAKING				# EMPLOYEES	NUMBER OF TRAINING EVENTS
	Direct	Indirect	National	Institutional		
MODEE	✓	✓	✓	✓	25	7
MOIT	—	✓	—	✓	42	48
UJ	✓	✓	✓	✓	21	35
MOPIC	✓	—	—	✓	18	14
NCRD	—	✓	—	✓	31	0
MOT	✓	✓	✓	✓	40	17
ESC	—	✓	✓	—	26	5
MoPWH	✓	—	—	✓	20	0
PSUT	—	✓	✓	—	5	0
JEDCO	—	✓	—	—	21	807
MOL	✓	✓	✓	—	38	35
JUST	✓	✓	✓	✓	20	39
MOJ	✓	✓	✓	✓	8	0
MEMR	✓	—	—	✓	4	3
AHU	✓	✓	—	✓	9	16
HCST	✓	✓	✓	✓	8	10
MOC	—	✓	—	✓	36	0
GJU	✓	—	✓	✓	7	8
RSS	✓	✓	✓	—	—	—
Total	13	15	11	14	379	257

2.2 INNOVATION POLICYMAKER 'PERSONAS'



Director

She has more than 14 years' experience in management consultancy, studies, and coordinating training programmes at the Centre of Consultations and Studies. She is currently pursuing a national project (hub and marketplace) called Jordan Open Innovation Platform (JOIP) that facilitates the coordination and monitoring of the myriad programmes, initiatives, and stakeholders in Jordan's innovation ecosystem.

MSc in Innovation and Entrepreneurship from the University of Warwick in the UK, and a BSc in Business Administration from the Applied Science University in Jordan.

"Innovation enables us to explore new opportunities that shape the future."

"In Jordan, the traditional education system increases the innovation skills gap in the ecosystem."

"Lack of innovation culture for policymakers in Jordan resulted in the absence of government's role and efforts towards innovation economy."

KEY INDIVIDUAL AND COLLECTIVE CHALLENGES

- Absence of a culture of innovation.
- Absence of Government commitment.
- A fragmented ecosystem.
- Lack of innovation skills.

ASPIRATIONS AND EXPECTATION FROM INTERNATIONAL TRAINING PROGRAMMES

- Understanding the environmental challenges of building a culture of innovation across the ecosystem.
- Gaining more knowledge and information related to building human capacity in innovation and leadership for public entities.
- Exploring success stories and best practices of potential initiatives or activities.
- Building strategic collaboration with peer organisations.

2.2 INNOVATION POLICYMAKER 'PERSONAS'



Deputy President

Over 25 years of diversified experiences working with national and international organisations, government, donor programmes (USAID, EU), management consulting in different areas and fields including science and technology policies, R&D programmes, entrepreneurship support (incubators, competitions, start-ups), capacity building needs assessment and programmes design, events management, efficiency plans, management and follow-up on implementing photovoltaic (PV) systems, managing waste of energy projects, among others. Currently he is deputy president of R&D Center.

“Successful innovative ideas in Jordan are plenty; however, there is no godfather for innovators.”

“Localising Jordanian innovation should be accompanied by clear policies, advanced regulations and [a] proper incentive scheme.”

KEY INDIVIDUAL AND COLLECTIVE CHALLENGES

- Absence of real commitment towards innovation.
- A fragmented and weak structure.
- Insufficient financial resources.
- Limited human resources working in the field.
- Weak laws and regulations which encourage innovation.

ASPIRATIONS AND EXPECTATION FROM INTERNATIONAL TRAINING PROGRAMMES

- International best practices for innovation and innovation policy.
- Regional experiences and lessons learned.
- Sustainable networks for future coordination and exchange of experience.

2.2 INNOVATION POLICYMAKER 'PERSONAS'



Director

The former Director of the Center of Excellence for Innovative Projects and founding Chairman of the Department of Network Engineering and Security. He has 10 years of experience in top US engineering companies and 20 years of academic experience. BA degree in Early Childhood Education (ECE) from JUST and MA and PhD degrees in ECE from the University of Wisconsin, Milwaukee, USA.

45 publications and five US/PCT patents. He was a partner/coordinator in two EU Erasmus+ projects, one DAAD programme, and one UNICEF project with a budget of \$3,500,000.

“The innovation potential of Jordanian youth is excellent, but the weak innovation culture within the society is draining it.”

“To foster the innovation culture in Jordan, we need to start working heavily at all levels of the education system from elementary school to the ministries of education.”

“For a knowledge or innovation-based economy to be a reality, it has to become a strategic goal of the government.”

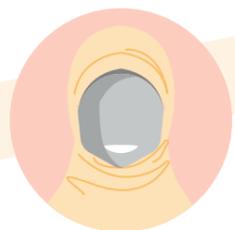
KEY INDIVIDUAL AND COLLECTIVE CHALLENGES

- Nascent innovation culture and corresponding awareness about its potential positive impact on the growth and sustainability of the national economy.
- Shortage of national policies and regulations that support innovation and entrepreneurship.
- Lack of a cohesive national innovation ecosystem.
- Missed opportunities with previous national funding programmes.
- Lack of national/local technology transfer policies.
- A tendency in academic institutions towards theoretical-based research, rather than applied and innovative-based research.

ASPIRATIONS AND EXPECTATION FROM INTERNATIONAL TRAINING PROGRAMMES

- To learn from international experts' knowledge and experience.
- To build a national innovation policy to leverage Jordan's significant potential into a clear road map towards regional excellence and economic growth.

2.2 INNOVATION POLICYMAKER 'PERSONAS'



Advisor for Science Policy & Programme Development

Prior to her current position she led the Scientific Research Department at a private sector organisation. Through that post, she oversaw the Scientific Research Support Fund, Arab Researchers' Award, and the science-based innovation programmes. She was the first Policy Director at the Ministry of Environment, led several departments at the Development and Free Zones Commission, and served as the Chief Executive Officer of EDAMA Association for Energy, Water and Environment, the first Jordanian business association in the green technology sector.

She is an engineer who is passionate about linking science with development, as well as a global volunteer, mentor, speaker and blogger.

"Work together to support the aspired transformation for [an] innovation-driven economy."

"We are lucky that the seeds for public-private partnership are very promising and we should benefit from this Global Innovation Policy Accelerator programme to nurture those seeds with appropriate models, tools, and real examples."

KEY INDIVIDUAL AND COLLECTIVE CHALLENGES

- The trending terminology around innovation includes words like entrepreneurship and creativity. Countries like Jordan need to define for themselves what innovation means as it relates to local, national and regional context.
- Understanding and analysing the demand and supply, as well as the catalysts, of innovation in order to draw Jordan's unique path in this field.
- Creating an ecosystem that enables and supports innovation as a way of thinking and of doing business.
- Getting exposed to what is out there; however this could also be risky if it hinders the local indigenous interpretation of innovation.

ASPIRATIONS AND EXPECTATION FROM INTERNATIONAL TRAINING PROGRAMMES

- Learning about the UK and other countries' innovation systems.
- Understanding the impact we need to seek from innovation and how to measure it.
- Partnerships and potential cooperation.
- How to help Jordanians join the move towards innovative development.

3.
**ASSESSMENTS OF CURRENT AVAILABLE
RANGE OF SUPPORT AND TRAINING FOR INNOVATION
POLICYMAKERS IN JORDAN**

Jordan has a limited number of organisations working on capacity building in the public sector. The majority of these institutions focus on improving public sector employees' skills, services, and procedures rather than focusing on building an innovation culture. The following highlights some of the key players offering training and capacity building for government institutions:

Organisation/Programme: King Abdullah II Center for Excellence (KACE)

ASSESSMENT: The King Abdullah II Center for Excellence was founded in January 2006 to promote a culture of excellence in Jordan's public and private sectors, to boost the competitiveness of Jordan through the adoption of best practices, and to administer three annual excellence awards initiated by the King: 1) King Abdullah II Award for Excellence in Government Performance and Transparency, 2) King Abdullah II Award for Excellence for the Private Sector, and 3) Mark of Best Practice Award. KACE also offers training and development in different areas of excellence, quality and management.

Moreover, the King Abdullah II Center for Excellence is managing an award entitled 'Innovation in Government'. This award aims to encourage government ministries and institutions to adopt creativity in their management, operations, activities and services, create a stimulating work environment and encourage employees to innovate through their ideas, suggestions and initiatives. The award is divided into four categories: 'The Innovative Initiative'; 'Innovative employees'; 'Innovative Organisation'; and 'Innovative leader'.⁷¹

Organisation/Programme: Institute of Public Administration

ASSESSMENT: The organisation was established in 1968 as the Institute of Public Administration to contribute to the development of human resources in the public sector through holding training programmes and conducting studies, research and consultations in the administrative and financial fields. Its aim is to build the institutional and functional capacity to improve public sector performance. Moreover, the organisation aims to link labour to market requirements and education system outcomes by developing training programmes and specialised processes and aligning them with local and external labour market requirements.⁷² The institute designed and delivered several training activities for policy and decision-makers in government.

⁷¹ Nit.gov.jo (2019). Institute of Public Administration
<http://www.nit.gov.jo/>

⁷² Kace.jo (2019). King Abdullah II Centre for Excellence
<http://www.kace.jo/Pages/viewpage?pageID=54>

Innovation capacity building at large

In Jordan the realm of capacity building in innovation is centred around entrepreneurship training and mentorship. All of these activities are designed and delivered from non-institutional tracks. There is considerable entrepreneurship training and mentorship, with entities like iPark, Endeavor, Queen Rania Center for Entrepreneurship (QRCE), and the Business Development Center (BDC) offering business and management skills and training to innovators. Meanwhile, there is a significant focus and several programmes on human capacity building for researchers inside universities, but there is limited scope to influence research priorities and missed research opportunities due to the absence of coordination between public and private institutions. In addition, recently public and private universities have created centres of innovation to encourage entrepreneurship among students. Furthermore, the public universities have dedicated centres which

offer several training and consulting services for both private and public entities. These centres have the capacity to design and provide special training courses for innovation-related policymakers in government.⁷³

Innovation capacity building in the public sector

Jordanian public entities are unclear about innovation and what it can do for them. On the other hand, there is no model that has been tested on any Jordanian public entity to identify its suitability, usability and practicality to those entities. Neither policymakers nor employees are equipped with the right knowledge, expertise, tools and techniques to tackle the issue of innovation or how to implement an innovative idea. Government entities need policies for encouraging employees to innovate and maximise their potential, by providing proper guidance and the necessary supportive environment to achieve this.

Innovation capacity building for policymakers

The first Global Innovation Policy Accelerator (GIPA) workshop was held in Jordan and was organised by the Higher Council for Science and Technology (HCST) in collaboration with Nesta. Most of the attendees confirmed that, to harness the benefits of innovation among stakeholders, the government needs to explore new approaches to encourage, foster and facilitate innovation programmes and activities that fit within the Jordanian context. Enhancing the innovation culture in the public sector aims to encourage ministries and public entities to adopt innovation in their leadership, processes and services and to create a work environment that stimulates innovation. Thus, there is significant need for help with knowledge, expertise, skills, awareness, training, consultation and projects. All of these steps will help build a culture of innovation. Jordan could benefit from a well-structured programme for leveraging the role of innovation in public sector institutions.⁷⁴

⁷³ OHK Consultant Company (2016), The National Center for Innovation Mapping Study, Section 3, page 20-23.

⁷⁴ GIPA Workshop held at HCST, Amman 21 July 2019

ASSESSMENTS OF CURRENT AVAILABLE RANGE OF SUPPORT AND TRAINING FOR INNOVATION POLICYMAKERS IN JORDAN

Designing innovation policies requires qualified policymakers who have specific knowledge, and a good understanding of what is innovation and how it leads to economic growth and sustainable development. Policy experts should enhance their competencies to enable them to design and implement science, technology and innovation policies and programmes. Jordan has limited success in developing capacity building programmes related to innovation and in particular for policymakers. In order to create a critical mass of expertise in science, technology and innovation (ST&I), it is essential to equip people with the skills required for innovation and focus on specific needs as follows:

TRAINING COURSE FOCUS	OBJECTIVES
<p>1. Promoting a culture of innovation and entrepreneurship</p>	<ul style="list-style-type: none"> • Raise awareness of innovation and its importance. • Understand innovation concepts, types and obstacles. • Understand innovation - principles, applications and portfolios. • Ensure the organisation's readiness for innovation
<p>2. Innovative leadership in the public sector</p>	<ul style="list-style-type: none"> • Provide an introduction to government innovation. • Consider innovation - framework, leadership and empowerment. • Provide models of government innovation best practices.
<p>3. Identification of science, technology and innovation policy instruments within the country</p>	<ul style="list-style-type: none"> • The innovation management process. • Building a core innovation group.

4.

**ASSESSMENT OF LIKELY AREAS OF FOCUS
FOR A GLOBAL INNOVATION POLICY ACCELERATOR
TEAM FROM JORDAN**

ASSESSMENT OF LIKELY AREAS OF FOCUS FOR A GLOBAL INNOVATION POLICY ACCELERATOR TEAM FROM JORDAN

During the first Global Innovation Policy Accelerator (GIPA) workshop, held in Jordan on 21 July 2019, participants addressed the main challenges within the innovation ecosystem and admitted that existing innovation policies do not deliver the results as expected. This may be attributed to a lack of adaptation and implementation procedures, the presence of obstacles, or the absence of incentives. The participants also said that there is a strong interest/need to develop a new approach to promoting innovation in Jordan.

Later, the Policy Accelerator National Champion (Dr. Khaled Elshuraydeh) emphasised the need to assess the existing National Innovation Strategy, which resulted in the creation of the NCI, and to update to the strategy now that NCI is established. The Policy Accelerator team from Jordan will present this challenge in the first session in London in October 2019, and discuss with the mentors how to approach this task. With the help of the experts and advisors, the team will formulate a work plan to update the strategy.

Potential challenges to be addressed by the Jordanian Team:

1. **Overarching national innovation policy**
2. **Innovation ecosystem in Jordan**
3. **Innovation professionals at policy level.**

5.
DIAGNOSIS AND
RECOMMENDATIONS

DIAGNOSIS AND RECOMMENDATIONS

For an innovation-driven economy to become a reality, public and private sectors as well as academia and civil society organisations need to work together to support the aspired transformation. In Jordan, we are lucky that the seeds for public-private partnership are very promising and we should benefit from this Global Innovation Policy Accelerator programme to nurture those seeds with appropriate models, tools, and real examples.

1.

Culture of innovation:

Foster a culture of innovation and entrepreneurship at all levels, starting from early school.

Adopt a model (training course) that fits Jordan's culture to enhance employees' innovation skills in public entities.

Innovation is everybody's business – this should be integrated within the mindset of all stakeholders.

2.

Innovation ecosystem:

Consider a redesign for the innovation ecosystem, starting with critical thinking and education; understanding local and global challenges in key sectors; defining the impact we aspire to create through innovation; exposure to types and examples of innovation that have impact; and monitoring the evolution of innovation, as well as the capacity to innovate and improve the ecosystem accordingly. Engage industry, youth, women, local communities as well as scientists in the redesign process.

3.

Innovation policy:

Create a national innovation policy associated with corresponding government regulations that encourages and facilitates innovation and entrepreneurship.

Innovation is the only way forward for high-value job creation. We need a roadmap to prepare for that within education, economic plans and social development.

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