

October 2020

BIRD FOUNDATION
**IMPACT
STUDY**
2002-2018

BIRD
Israel-U.S.

Binational Industrial Research
and Development Foundation





BIRD'S

MISSION STATEMENT

To stimulate promote and support industrial R&D
of mutual benefit to Israel and the U.S.

MEASURING BIRD'S IMPACT

The BIRD Foundation was established in 1977 to promote and support collaborations between U.S. and Israeli companies in various technological fields for the purpose of joint product development. In the late 70s/early 80s, there was no world wide web, no cell phones and even personal computers were just starting to be introduced. In 1980, Israel was ranked #36 in the world with about 50% of GDP per capita compared to European countries, such as Germany. In 2019, Israel was ranked #20 with 95% of Germany's GDP per capita.

Today, the BIRD Foundation is seen as a highly successful example of a government funded binational industrial R&D program. As early as 1992, a U.S. Congressional Research Service report described the BIRD Foundation as a "small, efficient, and effective organization." In 1996, a study performed by an independent consulting company concluded that "BIRD has been successful in carrying out its primary mission of stimulating profitable cooperation between U.S. and Israeli high-technology companies." In 2007, in a publication dedicated to BIRD's 30th anniversary, approximately 50 leaders and entrepreneurs from Israel and the U.S. provided testimonials praising BIRD's contribution to innovation and U.S.-Israel collaboration. In 2012, a task force was formed to conduct a strategic study which included a comparative analysis of the technological environment in 2012 vs. 1980 and looked at the role BIRD was playing in the 2012 ecosystem. The study led to several recommendations such as pursuing new programs in specific sectors (energy, homeland security and others).

In December 2018, six years after the 2012 study, the Board of Governors discussed the need to conduct an updated impact study. Several months later, the Board identified specific goals to be met and appointed an Advisory Committee that included four Board members/advisors and allocated a budget for the study. In December 2019, after a thorough evaluation of proposals submitted by several consulting firms, the Board approved the Advisory Committee's recommendation to select Shaldor (Israel) in cooperation with the Technology Policy Institute (Professor David Cheney, U.S.) to conduct the impact study.

The impact study was completed on schedule and its conclusions were presented to the Board in June 2020.

This publication provides a summary of the analysis, conclusions and recommendations that were included in the final study and highlights the accomplishments achieved by the BIRD Foundation along with the significant impact BIRD has had on the present ecosystem, as well as the challenges that lie ahead.

We thank all of those involved in the study, including the Shaldor team, Professor David Cheney, the Advisory Committee members and the BIRD Team.

The BIRD Board of Governors and the BIRD Team will continue to strive to promote and support U.S.-Israel partnerships in innovation, for the mutual benefit and improved competitiveness of both the U.S. and Israel.



Walter Copan, Ph.D.
U.S. co-Chairman
Board of Governors



Ami Appelbaum, Ph.D.
Israel co-Chairman
Board of Governors

BOARD OF GOVERNORS

THE BOARD OF GOVERNORS MEETS SEMI-ANNUALLY – EVERY JUNE IN THE U.S. AND EVERY DECEMBER IN ISRAEL.

Each government has three representatives on the Board.

U.S. Governors



Dr. Walter Copan – co-Chairman

Undersecretary of Commerce for Standards and Technology and Director of NIST
U.S. Department of Commerce



Dr. Jonathan Margolis

Deputy Assistant Secretary
Bureau of Oceans, International Environmental and Scientific Affairs
Department of State



Mr. Anthony Marcus

Director
Middle East and North Africa
International Affairs
Department of Treasury

Israeli Governors



Dr. Amiram Appelbaum – co-Chairman

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Ministry of Economy and Industry
Chairman, Israel Innovation Authority



Mr. David Leffler

Director General
Ministry of Economy



Ms. Keren Turner Eyal

Director General (until October 2020)
Ministry of Finance



Dr. Eitan Yudilevich

Executive Director
BIRD Foundation

IMPACT STUDY ADVISORY COMMITTEE & METHODOLOGY

BIRD IMPACT STUDY – ADVISORY COMMITTEE

(appointed by BIRD's Board of Governors on July 2019)

Dr. Lev Drucker

Senior Deputy to the Chief Economist
Representative in the Board of Governors
Israel Ministry of Finance

Dr. Riju Srimal

Office of Science and Technology Cooperation
Bureau of Oceans and International Environmental
and Scientific Affairs
U.S. Department of State

Mr. Israel Shamay

Executive Director, North America
Israel Innovation Authority

Mr. Michael F. Molnar

Director
Advanced Manufacturing National Program Office - NIST
U.S. Department of Commerce

Dr. Tom Wang

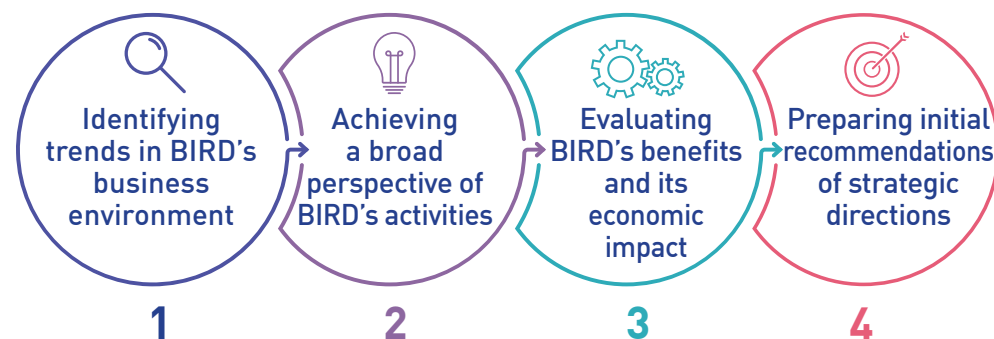
(joined in May 2020)
International Program Manager - NIST
U.S. Department of Commerce

BIRD's Impact Study Methodology

In order to create a comprehensive picture of BIRD's impact, 210 companies and stakeholders were approached, from both the U.S. (107) and Israel (103), including interviews with stakeholders, in-depth interviews with U.S. and Israeli companies and interviews with repaying companies. The second phase was an extensive survey, to which 146 companies responded (81 from the U.S. and 65 from Israel). Companies that won the grant but did not sign the contract were also surveyed.

The interviews were carried out by Shaldor's staff and Prof. David Cheney.

The study consisted of the following stages:



BIRD IS HIGHLY VALUED

Impact Study Insights

Professional Staff

“BIRD staff is **highly professional and knowledgeable**. They are an absolute **delight to work with**”

an Israeli company

Well Connected to Government and Industry

“BIRD is **uniquely positioned and connected to both govts. & industry**. They provide an avenue for cooperation”

an Israeli stakeholder

Highly Dedicated

“Only with BIRD **we felt we have found a real partner**, who’s **committed to our success**”

an Israeli startup

Fast Response to Industry Trends

“BIRD has a stellar reputation in DC. It is known to be reliable, well-run, transparent and **responsive to the industry**”

an American stakeholder

Experienced in Building Partnerships

“BIRD has a tried and true methodology for **creating partnerships that work** - they know how to **bridge differences**”

an American stakeholder

Flexible to Companies' Needs

“BIRD grants are **relatively unrestrictive**, and the terms were **considerate of our needs**”

an American startup

Source: interviews with BIRD's companies and stakeholders

BIRD'S ACTIVITY GENERATES 10 MAJOR BENEFITS

Impact Study Insights

Company-Level Benefits

- 1** 'Risk Sharing' Grant
- 2** Improved Partnerships
- 3** Access to Innovative Technology
- 4** 'Stamp of Approval'
- 5** Improved Core Capabilities
- 6** Better Access to Markets

National-Level Benefits

- 7** Promoting Relations between U.S. & IL Companies
- 8** Strengthening Government R&D Collaboration
- 9** Channeling R&D Investments into U.S.-IL
- 10** Economic Benefits Sales, Jobs, Funds

BIRD IN THE ENVIRONMENT

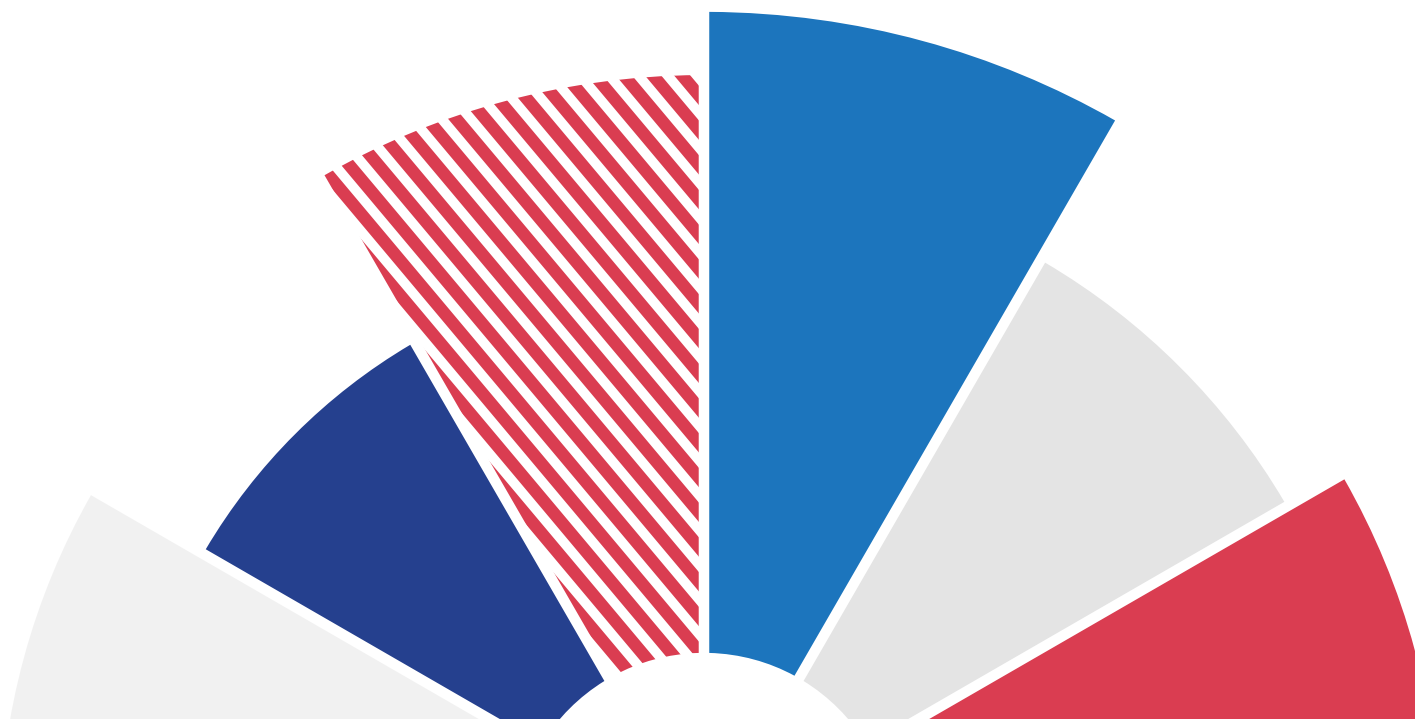
Impact Study Insights

Environment

- U.S. investments in Israel and Israeli exports to the U.S. have increased significantly.
- Capital raised by companies in the U.S. and Israel has increased significantly.
- Massive opening of R&D centers by U.S. companies in Israel.

BIRD in the Environment

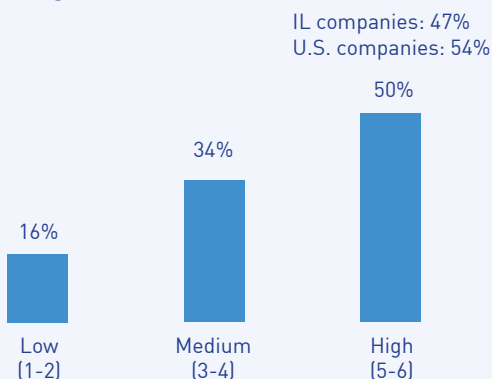
- BIRD's projects develop high-level, innovative technology.
- BIRD creates significant U.S.-Israeli partnerships for mutual benefit and of importance to the private sector and to the governments.



Most Companies Gained Access to New & Innovative Technology

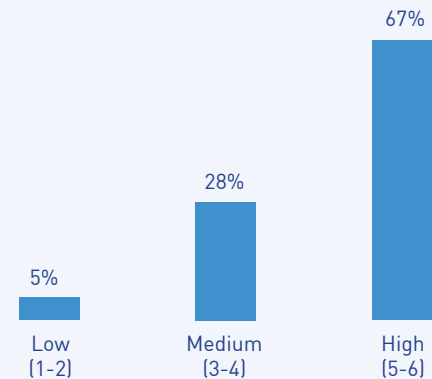
To what extent did the project provide you with **access to new technology**?

Sample of 143 companies



To what extent the technology/product developed **was innovative & disruptive**?

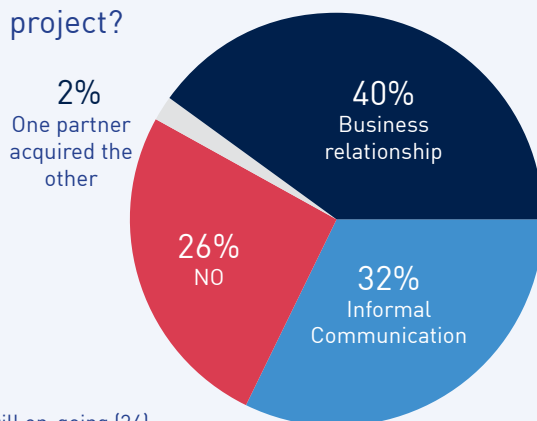
Sample of 143 companies



BIRD Creates High-Quality Partnerships - 75% Continue after the Project

Did the **relationship with your partner** continue after the project?

Sample of 110 companies*

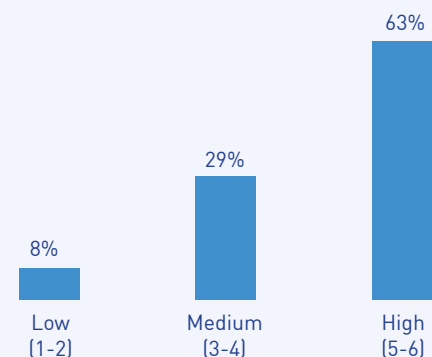


~75% of relationships continue after the project

*Excluding companies with projects still on-going (34)

How good was the 'quality' of the partnership in the project?

Sample of 144 companies

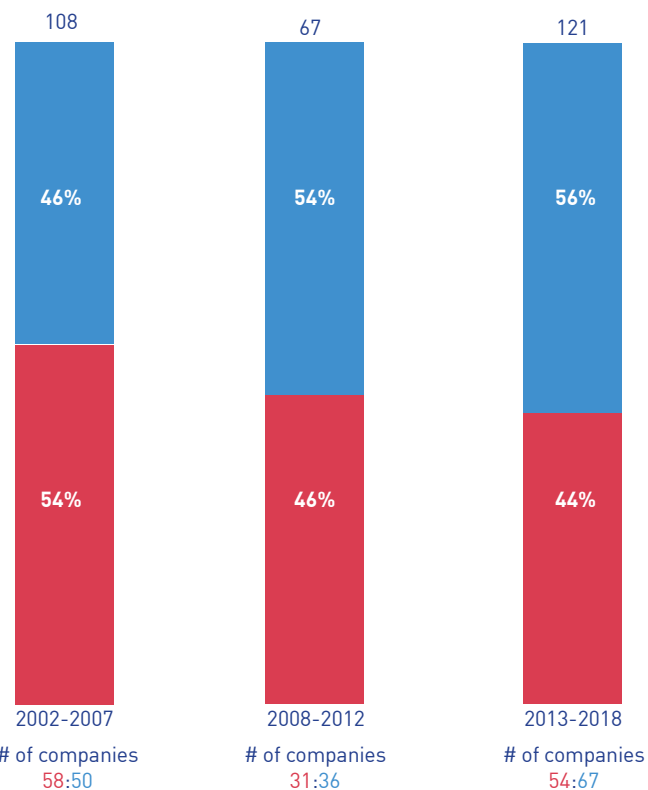


TRENDS

Impact Study Insights

Over the Years, the Share of Companies from Non-Main Hub States has Grown

Number of Projects by State of U.S. Company, All BIRD Programs



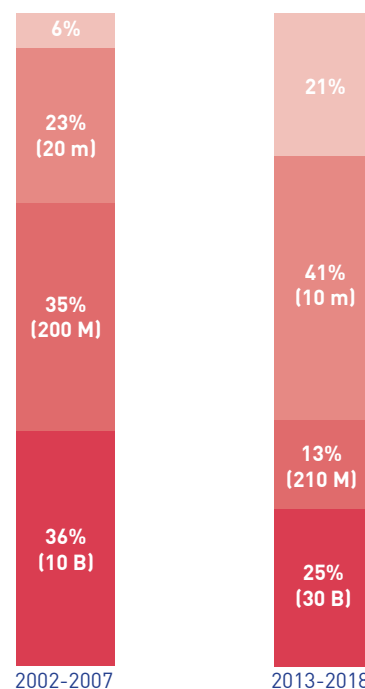
■ Main States ■ Non-Main States

"Main States"= the main hi-tech hubs in the U.S. (CA, MA, NJ, NY)

Participation of Smaller U.S. Companies has Increased; Startups are the Majority of Israeli Participants



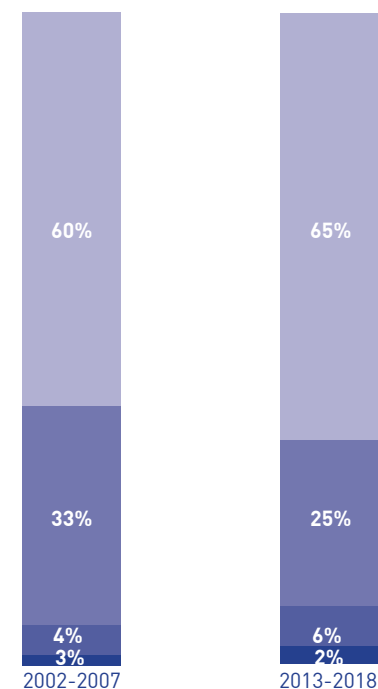
U.S. Distribution of Company Sizes (Average Revenue)



■ Start-ups Rev. under \$1M
 ■ Small Rev. \$1-50M
 ■ Medium Rev. \$50-500M
 ■ Large Rev. \$500M+



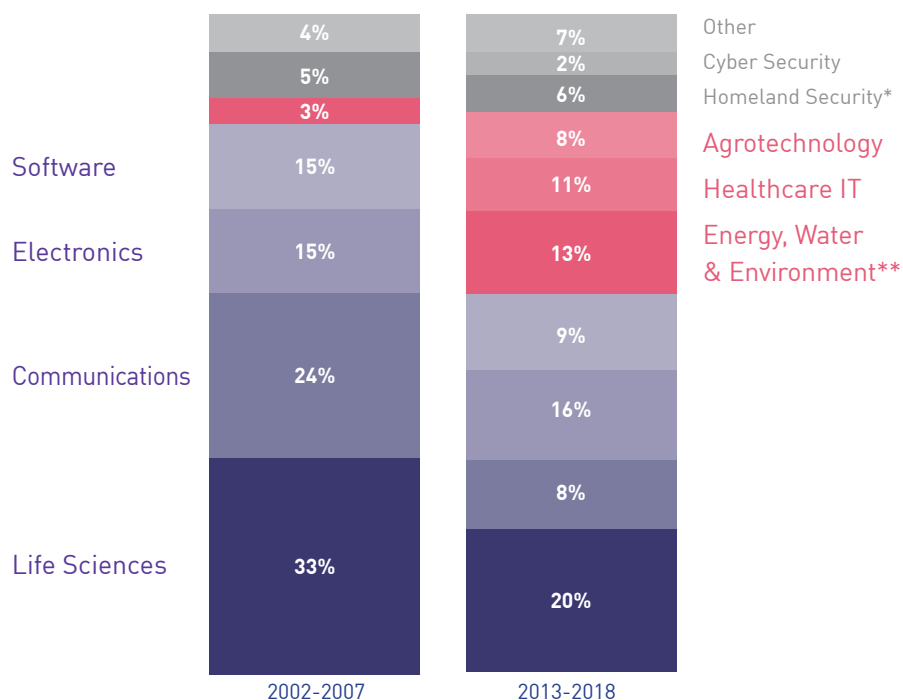
Israel Distribution of Company Sizes (Average Revenue)



■ Start-ups
 ■ Small
 ■ Medium
 ■ Large

BIRD's Sector Mix Investment has Become More Diverse – Promoting More Projects in Under-funded/Riskier Sectors

BIRD's sector distribution over time, % of total projects

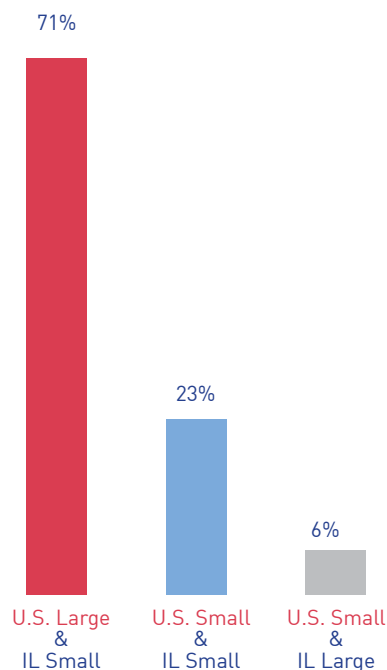


* 8% inc. BIRD HLS

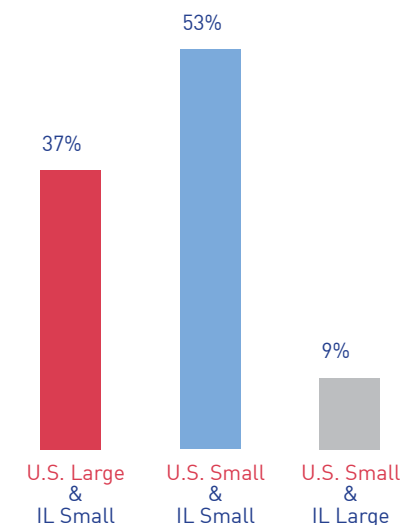
** 33% including BIRD Energy

More Projects of Small-with-Small Partnerships Generated

Type of BIRD partnerships, % of total projects (2002-07)



Type of BIRD partnerships, % of total projects (2013-18)



'Large' includes companies with \$50M+ revenues (a.k.a 'large' & 'medium')

'Small' includes companies with less than \$50M revenues (a.k.a 'small' & 'startups')

BIRD CREATED SIGNIFICANT ECONOMIC IMPACT

Impact Study Insights

Net Invested

\$175M
(2002-2018)*

Sales

~\$750-900M
Sales Generated

~\$500-550M
Actual Sales

~\$250-350M
Future Sales

Jobs Created

8,500-10,000
Jobs Created

1,700
Direct Jobs

6,800 - 8,500
Indirect Jobs

Funds Raised

\$5,500M
Funds Raised

~\$550M
Direct Funds Raised

1
\$Grant → **3**
\$ 'Additional'
Total BIRD

1
\$Grant → **5.7**
\$ 'Additional'
BIRD Startups

*Net invested may increase up to ~\$190M, after full payments of grants approved for 2016-18

- Total grants paid, including companies that did not raise funds
- 'Additional' - refers to 2/3 years following the award (2 for small companies, 3 for startups)
- Total BIRD: including small companies and startups

BIRD'S ACTIVITY HAS CHANGED IN THE LAST 2 DECADES

Impact Study Insights

2 Decades Ago...

Focus on 'more-funded' sectors

(Software, communications, electronics, life sciences)

Focus on 'large with small' partnerships

(mainly U.S. large, IL small)

Today...

More projects in the under-funded/riskier sectors

(Energy, healthcare IT, agro-tech, HLS...)

More projects of 'small with small' partnerships

Commercialization is more challenging

Since 2002, the 'Real Value' of BIRD's Grant Eroded by 25%

Nominal & Real BIRD Grant Value, 2002 as Base Year*



*Based on US & IL GDP deflators

SUMMARY - BIRD'S BENEFITS

BIRD's 'basic' operative model is successful, and creates important benefits

- The grant's 'risk sharing' mechanism enables companies to engage in higher risk R&D
- The grant (mostly) doesn't replace private funding, and is especially attractive among the Energy, Water and Environment & Life Sciences sectors
- The partnerships are 'high quality' thanks to BIRD's contribution to the companies' commitment

BIRD creates benefits with significant economic value

- High positive reputation which improves PR, fundraising and ability to find partners
- Long lasting relationships which continue after the project ends (as business or informal)
- Unique U.S.-IL partnerships, mostly of U.S. companies that partner with Israeli companies for the first time

BIRD's projects develop high-level innovative technology

- Majority of the companies regard their projects as highly innovative and disruptive
- Half of the companies feel that they gained access to new technology through the projects



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