A knowledge-based economy cannot develop without innovative businesses, meaning start-ups.

When compared with the forty most developed economies in the world, the maturity of the Polish start-up ecosystem is at an average level. Among the five factors studied, the highest level represents: legal regulations, institutional environment and human capital. Nevertheless, the potential of development of start-ups in Poland is significant. Added value generated by such entities in 2023 may even reach PLN 2.2 billion, with more than 50 thousand jobs created.

This document presents a summary of the study. Full report is available in Polish.
A thorough analysis of the start-up ecosystem should be targeted at comprehensive, multi-dimensional imaging of the dynamic environment. It requires the use of differentiated methodologies and investigation of several areas that have an impact on the functioning of start-ups on various fields and stages of their activity. To obtain an overall diagnosis of the Polish ecosystem, the study was divided into four stages.

01. Diagnosis of maturity of the start-up ecosystem in Poland

02. Survey on the current status of the ecosystem

03. Estimation of the impact of start-ups on Polish economy

04. Determination of key areas of change orienting the ecosystem towards rapid growth
Stage 1
To proceed with the analysis, it was necessary to precisely define the object of interest. For the purpose of the study, a start-up was defined as a business carried out in order to generate new products and services in conditions of high uncertainty and with no more than 10 years of market presence. At the same time, the notion of start-ups should not be narrowed down to companies producing IT and telecom solutions. Obviously, it is these kinds of start-ups that have been most visible so far. This is due to the spectacular successes of companies like Google or Facebook. There is, however, an increasing number of successful start-ups, also in Poland, in industries adjacent to or non-related to the ICT sector. Therefore, the report covers start-ups operating in the following areas:

- IT solutions and solutions supporting digital transformation,
- multimedia and telecom solutions,
- technologies of optimisation of the use of energy and RES,
- biotechnologies and medical technologies,
- nanotechnologies and material technologies,
- industrial solutions.

Given the assumptions above, five areas crucial for the sustainable development of the start-up ecosystem were distinguished.

Maturity of the Polish ecosystem

Assuming that there are environments in the world which considerably support the development of start-ups, the ecosystem’s maturity model was constructed. The model is based on the experience of the best developed and richest countries in the world. By using a variety of indicators and other sources of information, it is also possible to compare the maturity of a selected country with the created model. The comparison of the Polish start-up ecosystem with the maturity model created produced a relative evaluation of Poland against the background of the countries analysed. Each of the areas that are crucial for the development of a start-up-friendly environment were evaluated on a scale from 1 to 4, where 1 is the lowest and 4 is the highest score.

Average maturity of Poland, by areas

1.93 Poland

4.0 Full maturity

Diagnosis of the start-up ecosystem in Poland

- Financing
- Legal regulations
- Human capital
- Social capital
- Institutional environment
Based on the maturity scale, Poland scored 1.93. Poland proves to be most successful in the areas of legal regulations (score: 2.55) and institutional environment (score: 2.5), while the weakest areas include social capital (score: 1.5) and financing (score: 1.68). Human capital, in turn, is moderately developed (score: 2.27). Additionally, the analysis showed that the maturity of the Polish start-up ecosystem slightly varies, depending on the level of development of the undertaking. Poland creates better conditions on the initial levels of development of start-ups (ideation and vision).

In Eastern and Central Europe, low levels of social capital are often a ‘legacy’ of the Communist era, which manifests itself in low levels of trust, a lack of cooperation skills, insignificant involvement in social life and dislike of risk. The considerably low score given to Poland in the area of financing is mainly a result of the effects of little savings in the economy and an insufficient tendency to risk and activeness on the part of investors, including business angels or venture capital funds.

The needs of start-ups on subsequent stages of their development vary, which means that particular aspects of the key areas described in the report either gain or lose importance together with the development of the undertaking.

### Number of business angels per 1 million of citizens

- **Great Britain**: 66
- **Germany**: 19
- **Poland**: 4

Source: Deloitte's own study based on Eban, Statistics Compendium 2014 and World Bank’s data/

### Percentage share of venture capital investments in the GDP

- **Israel**: 0.383
- **USA**: 0.284
- **Median Germany**: 0.027
- **Poland**: 0.005

Source: OECD Entrepreneurship at a Glance 2017
Stage 2
Next, a survey was conducted among start-ups operating in Poland, which provided a closer look at enterprises from the ecosystem. The areas analysed included, among others, finance, employment, business area and experience of start-ups.

Start-ups’ fields of activity

<table>
<thead>
<tr>
<th>Field</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT solutions and solutions supporting digital transformation</td>
<td>50.86%</td>
</tr>
<tr>
<td>Creative industry and multimedia solutions</td>
<td>30.86%</td>
</tr>
<tr>
<td>Technologies of optimisation of the use of energy and RES</td>
<td>12.57%</td>
</tr>
<tr>
<td>Biotechnologies and medical technologies</td>
<td>9.14%</td>
</tr>
<tr>
<td>Nanotechnologies and material technologies</td>
<td>6.86%</td>
</tr>
<tr>
<td>Robotics and other industrial solutions</td>
<td>5.71%</td>
</tr>
<tr>
<td>Other</td>
<td>9.14%</td>
</tr>
</tbody>
</table>

Source: Deloitte’s own study

Average annual growth in the start-up’s revenue within the last 3 years, by branches

The entities surveyed operated in various areas. More than 50% of the respondents said that their activity was connected with ICT solutions or with digital transformation support. Almost one-third related their activity to creative industry and multimedia technologies. Over 80% of the start-ups surveyed were established within the last 5 years. 70% of respondents defined the stage of their start-up’s development as validation (the process of verification of demand for the service/product produced by the company and comparison of the results with assumptions) or graduation (the stage heading towards rapid growth of revenue, number of users or other presumed indicators).

In 2015 less than 13% of the start-ups surveyed did not show any revenues and 64% did not go beyond PLN 100,000. Nevertheless, the percentage of start-ups which do exceed that threshold is consistently on the rise. In 2014 their numbers equalled 27% and reached 36% in 2015. According to estimations made by the start-ups themselves, in 2016 the number will reach 59%. One out of every three start-ups surveyed in the last three years reported an annual average increase of more than 20%. The main sources of financing of start-ups’ operations in Poland are personal funds and money from current operations. The survey also showed a high percentage of start-ups supported by venture capital funds. As many as 58% of start-ups made an attempt to obtain an external investor for their undertaking. Its average share equals 34.4% (the above only refers to entities with external investors among owners).

A vast majority of start-ups (64%) do not employ more than four people (FTE). In almost 80% of the entities the entire staff is employed in Poland, with 56% of companies reporting permanent growth of employment in the last three years. In 2/3 of them, the said growth exceeded on average 20% per year.

Source: Deloitte’s own study
Stage 3
Based on our obtained image of the start-up ecosystem, the impact of the ecosystem on the Polish economy in a several-year perspective was estimated. The model of inter-sectoral flows was used to show the sector's potential to contribute to economic growth, should its maturity ultimately grow. Operations of start-ups wield a complex influence on the economic and social life. The major channels of interaction, which were subjected to the survey, are shown on the diagram below.

The unique character of start-ups means that very few will become mature enterprises with material impact on the economy. Yet, the ones that manage to reach maturity become significant economic entities. By 2023, start-ups which achieve the gazelle status (market presence for up to 5 years, employ more than 10 people, more than 20% growth yearly) will generate over PLN 2.2 billion of added value in overall, i.e. in a direct, indirect and induced manner. This is almost PLN 500 million more than the overall Polish State Budget’s expenses on education and upbringing planned for 2016.

Household revenue generated by start-ups in 2023 will reach more than PLN 757 million. As estimated by Deloitte, in the said year more than 50.3 thousand of jobs will be created owing to start-ups, which is more than the number of graduates of full-time studies at public universities, in faculties related to technology, industry and civil engineering in the academic year 2013/2014 in Poland. These workplaces would reduce the number of unemployed younger than 35 by 8%.

### Added value generated by start-ups in 2023 (in PLN million)

- **Direct impact**: 680
- **Induced impact**: 453
- **Indirect impact**: 1,111
- **Overall impact**: 2,244

Source: Deloitte’s own study
The analyses conducted showed a number of areas with significant impact on the start-up ecosystem, which require improvements or material changes. The table below presents the most important recommendations on how to approach the best, model ecosystem in the world.

### Household revenue generated by start-ups in 2023 (in PLN million)
- 461 indirect impact
- 757 overall effect
- 154 induced impact

### Employment generated by start-ups in 2023 (number of employees)
- 141 direct impact
- 34 329 overall effect
- 5 246 induced impact
- 10 677 direct impact
- 50 252 overall effect

Source: Deloitte’s own study

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**Recommendations**

**START-UP ESTABLISHMENT**
- Simplification of procedures and reduction of costs of running business activity in the first years following the company’s establishment.

**INDIVIDUAL SAVINGS**
- Consolidation of the Poles’ interest in savings.
- Increased possibilities of investing individual savings, also in innovative undertakings.

**SOCIAL AND HUMAN CAPITAL**
- Reforms of the educational system.
- Reforms of the higher education system.

**REGIONAL INNOVATION HUB**
- Simplification of rules of business activity.
- Support to incoming talents.
- Personal promotion in Poland - offer.
- Promotion of the chances of development in Poland.

**FUNDS AND BUSINESS ANGELS**
- Appropriate targeting of public aid.
- Tax incentives for investments and acquisitions.

**BUSINESS ENVIRONMENT**
- Steering technological parks and scientific and technological parks towards start-up support.

**ACADEMIC SECTOR**
- Revision of subsidies for R&D projects of universities.
- Change in the system of score-award to academics.
- Doctoral studies in the form of business activity.

**PUBLIC PROCUREMENTS**
- Enabling risk-taking by employers.
- Targeting procurements at innovation.
Summary
Intensification of system efforts targeted at the improvement of the position of the start-up ecosystem is currently being observed in Poland. Therefore, the achievement of significant impact on the Polish economy is a realistic target which requires improved maturity of the ecosystem. In the years to come it will be necessary to continuously monitor the start-up environment, in order to control the direction of changes. When catching up with the best in the world, we should monitor the influence of start-ups on the economy, so that we can make sure that the pace of the development is appropriate.

01. Maturity
Average position of Poland on the scale of maturity of the start-up ecosystem.

02. Impact
Achievement of significant influence on the Polish economy is possible (PLN 2.2 billion of added value in 2023).

03. Elimination of the gap
Improvement of the position of the ecosystem can be relatively slow without taking the necessary actions.

04. Recommendations
Implementation of the most important recommendations will favour more dynamic development of the ecosystem.

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