GLOBAL TECH TRENDS

ECOSYSTEM POWERPLAYS

AI is THE NEW USERS INTERFACE

WORKFORCE MARKETPLACE 2017

The UNCHARTED

DESIGN for HUMANS

INTERNET of THINKING

FRICIONLESS BUSINESS

GET to KNOW ME

DARQ POWER

SECURE US to SECURE ME

2019

EXTENDED REALITY

CITIZEN AI

HUMAN+ WORKER

2018

DATA VERACITY

REGIONAL IT MARKET Overview

Ukraine, Poland, Belarus and Romania together present a formidable competition to other development hot spots.

**Poland**
- $7.8 B *
- 255 K **
- 31 **

**Romania**
- $5.5 B *
- 105 K **
- 15 **

**Belarus**
- $1.8 B *
- 49 K **
- 14 **

IT SPECIALIST COST in the region

Median monthly salaries of IT specialists in the region, $

<table>
<thead>
<tr>
<th>Role</th>
<th>Ukraine</th>
<th>Poland</th>
<th>Romania</th>
<th>Belarus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Developer</td>
<td>1.9</td>
<td>2.5</td>
<td>2.2</td>
<td>1.5</td>
</tr>
<tr>
<td>Experienced Project Manager</td>
<td>4</td>
<td>3.9</td>
<td>2.7</td>
<td>2.5</td>
</tr>
</tbody>
</table>

SOURCE: “Software Development in Ukraine, Poland, Belarus and Romania in 2019” report by Aventures, Aventis Capital, Capital Times, jobs.dou.ua
UKRAINE: PREDICTABLE & STABLE EMERGING MARKET

In 2018 Ukraine demonstrated THE MOST RAPID GROWTH in the past 7 years.

GDP Growth, %
(comparing to respective period in previous year)

<table>
<thead>
<tr>
<th>Year</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>-9.8</td>
</tr>
<tr>
<td>2016</td>
<td>2.3</td>
</tr>
<tr>
<td>2017</td>
<td>2.5</td>
</tr>
<tr>
<td>2018</td>
<td>3.3</td>
</tr>
<tr>
<td>2019E</td>
<td>3.3</td>
</tr>
</tbody>
</table>

EBA Investment Attractiveness Index
(index, as at year end)

<table>
<thead>
<tr>
<th>Year</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>2.6</td>
</tr>
<tr>
<td>2016</td>
<td>2.9</td>
</tr>
<tr>
<td>2017</td>
<td>3.0</td>
</tr>
<tr>
<td>2018</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Ease of Doing Business Index by WB

<table>
<thead>
<tr>
<th>Year</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>96</td>
</tr>
<tr>
<td>2016</td>
<td>81</td>
</tr>
<tr>
<td>2017</td>
<td>80</td>
</tr>
<tr>
<td>2018</td>
<td>76</td>
</tr>
<tr>
<td>2019</td>
<td>71</td>
</tr>
<tr>
<td>2020</td>
<td>64</td>
</tr>
</tbody>
</table>

"UKRAINE IS OPEN FOR BUSINESS because of THE SUCCESS OF REFORMS"

EBRD President Suma Chakrabarti, in Davos 2019
## Ukraine in GLOBAL INNOVATION INDEXES

<table>
<thead>
<tr>
<th>Index</th>
<th>2018</th>
<th>2017</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Country Index</td>
<td>1</td>
<td>27</td>
<td>1</td>
</tr>
<tr>
<td>Category Science &amp; Technology</td>
<td></td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>European Innovation Scoreboard Ranking</td>
<td>27</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>Global Open Data Index</td>
<td>54</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>Global Innovation Index</td>
<td>50</td>
<td>47</td>
<td>47</td>
</tr>
</tbody>
</table>

- **Good Country Index**: 2018 (1), 2019 (1)
- **European Innovation Scoreboard Ranking**: 2017 (27), 2018 (27)
- **Global Open Data Index**: 2015 (54), 2018 (31)
- **Global Innovation Index**: 2017 (50), 2019 (47)
INNOVATION TECHNOLOGIES in Ukraine

The ITC industry is among the country’s FASTEST GROWING industries and A MAJOR DRIVING FORCE of Ukraine’s economy.

- the 2nd largest export service industry
- > 4,000 tech companies
- 184k+ software developers (the number is expected to rise to 250k by 2025)
- 100+ Fortune 500 companies have chosen Ukrainian IT services
- $337M total value of venture capital deals in 2018
- 18 IT service providers in the 2018 Global Outsourcing-100

Overview of the Ukraine’s IT industry

It is also diverse, from cutting edge work in AI, cyber security, natural language processing and nanotechnologies to highly commercial ventures in blockchain, FinTech, big data management, gaming, agribusiness and ecommerce.
IT SECTOR in Ukraine

IT industry has grown by nearly 40 times over the last fifteen years, from $110 million in 2003 to about $4.5 billion in 2018.

*Ukraine, Belarus, Poland and Romania

IT COMPANIES in Ukraine

Ukrainian IT companies get majority of revenues from software/hi-tech vertical

<table>
<thead>
<tr>
<th>Service Sector</th>
<th>Revenue Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software / high tech</td>
<td>73%</td>
</tr>
<tr>
<td>Financial services / fintech</td>
<td>31%</td>
</tr>
<tr>
<td>Healthcare &amp; life sciences</td>
<td>23%</td>
</tr>
<tr>
<td>Media &amp; entertainment</td>
<td>17%</td>
</tr>
<tr>
<td>Retail</td>
<td>12%</td>
</tr>
<tr>
<td>Telecom</td>
<td>11%</td>
</tr>
<tr>
<td>Insurance</td>
<td>4%</td>
</tr>
<tr>
<td>Security</td>
<td>2%</td>
</tr>
<tr>
<td>Financial services / fintech</td>
<td>2%</td>
</tr>
<tr>
<td>Healthcare &amp; life sciences</td>
<td>1%</td>
</tr>
<tr>
<td>Media &amp; entertainment</td>
<td>1%</td>
</tr>
<tr>
<td>Retail</td>
<td>1%</td>
</tr>
<tr>
<td>Telecom</td>
<td>1%</td>
</tr>
<tr>
<td>Insurance</td>
<td>1%</td>
</tr>
<tr>
<td>Security</td>
<td>1%</td>
</tr>
</tbody>
</table>

SOURCE: "Software Development in Ukraine, Poland, Belarus and Romania in 2019" report by Aventures, Aventis Capital, Capital Times
IT TALENT POOL

Over 130k & 16k annually
engineering graduates
IT graduates

Ukrainians are historically strong in cybernetics

180k +

Ukrainian tech specialists work for startups and IT service companies worldwide

European countries by number of engineering graduates (thousand people)

SOURCE: World Economic Forum, Forbes

Romania: 39
Italy: 48
Spain: 56
Poland: 66
UK: 71
Turkey: 75
Germany: 93
France: 105
Ukraine: 130
Overview of the Ukraine’s IT industry

**Kyiv**
- National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”
  - 4,314 tech graduates
- Taras Shevchenko National University of Kyiv
  - 1,324 tech graduates
- National Aviation University
  - 1,692 tech graduates

**Lviv**
- Lviv Polytechnic University
  - 2,675 tech graduates

**Odesa**
- Odesa National Polytechnic University
  - 1,366 tech graduates

**Kharkiv**
- National Technical University “Kharkiv Polytechnic Institute”
  - 2,105 tech graduates
- Kharkiv National University of Radioelectronics
  - 2,698 tech graduates

**Dnipro**
- National Technical University Dnipro Polytechnic
  - 1,014 tech graduates
**COST-EFFICIENT IT PLATFORM**

Average Annual Software Engineering Salary, February 2019, $ thousand

<table>
<thead>
<tr>
<th>Country</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>108</td>
</tr>
<tr>
<td>Norway</td>
<td>72</td>
</tr>
<tr>
<td>Denmark</td>
<td>70</td>
</tr>
<tr>
<td>Israel</td>
<td>64</td>
</tr>
<tr>
<td>Germany</td>
<td>54</td>
</tr>
<tr>
<td>Australia</td>
<td>49</td>
</tr>
<tr>
<td>Canada</td>
<td>48</td>
</tr>
<tr>
<td>France</td>
<td>41</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>40</td>
</tr>
<tr>
<td>Ukraine</td>
<td>25 x 4</td>
</tr>
</tbody>
</table>

Median Net Salaries of IT Specialists, 2018, $ thousand

<table>
<thead>
<tr>
<th>Role</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>QA ENGINEER</td>
<td>1.5</td>
</tr>
<tr>
<td>PROJECT MANAGER</td>
<td>2</td>
</tr>
<tr>
<td>TEAM LEADER</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Source: “Software Development in Ukraine, Poland, Belarus and Romania in 2019” report by Aventures, Aventis Capital, Capital Times

According to Gartner, a global research and advisory firm, Ukraine’s IT specialists rank first in Eastern Europe in terms of price/quality ratio.
IT CLUSTERS in Ukraine

- Kyiv: 300+ IT companies, 40 K+ IT specialists
- Kharkiv: 400+ IT companies, 25 K+ IT specialists
- Odesa: 150+ IT companies, 8 K+ IT specialists
- Dnipro: 170+ IT companies, 9 K+ IT specialists

IT clusters: From more concentrated to less
STARTUPS in Ukraine

- 2k startups
- 146k patents and utility models since 2007
- 1k+ Events for IT specialists, startups and investors

SOURCE: Tech Ecosystem Guide to Ukraine 2019 by Unit City

Startup investment in Ukraine, $ million

- 2011: 24
- 2012: 59
- 2013: 89
- 2014: 39
- 2015: 132
- 2016: 88
- 2017: 259
- 2018: 337
STARTUPS in Ukraine

Most prominent Ukrainian startups

- GitLab: cloud service for programmers, each valued at >$1 billion
- BITFURY: full-service blockchain technology, $110 m
- grammarly: cloud service for programmers, $130 m
- Petcube: synthetic data platform for deep learning applications, $70 m
- MacPaw: platform for sales based on artificial intelligence, $37 m
- Viewdle: full-service blockchain technology, $110 m
- Preply: synthetic data platform for deep learning applications, $70 m
- people.ai: platform for sales based on artificial intelligence, $37 m
- LookSERY: full-service blockchain technology, $110 m
- jooble: synthetic data platform for deep learning applications, $70 m
- depositphotos: platform for sales based on artificial intelligence, $37 m

LARGEST INVESTMENT in Ukrainian startups 2017-2018
GLOBAL R&D In Ukraine

100+ global players have located R&D facilities in Ukraine, further driving the high-tech sector.

Ukraine emerges as a global R&D hub

Ring Success story

In 2018, Ring, which has a 900-employee R&D office in Ukraine, was acquired for $1B by Amazon.
UkraineInvest is the Government’s Investment promotion office reporting to the Prime Minister created to attract and support investments in Ukraine.

**WE PROVIDE:**

- Introductions
- Navigation & Guidance
- Advocacy
- Regional Support
- Information & Insight
- Key Sector Expertise
Your investment matters

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