THE IMPACT OF WORLDSKILLS ON THE ECONOMIC EFFICIENCY BASED ON THE EXAMPLE OF ENTERPRISES
Research design
Methods, respondents, and geography

METHODS
1. In-depth interviews with employers (10 interviews). The experts were the representatives of manufacturing companies, large corporations, IT-technologies.
2. Formalized interview with a preliminary recruit (sample size - 600 respondents).

The search and recruitment of company representatives for the survey were carried out with the assistance of WS Regional Coordination Centers in the regions of the Russian Federation, which provided lists of companies for potential participation in the survey; and by the use of the direct search method as well.

RESPONDENTS
- Representatives of organizations that promote the development of the movement within the organization and / or apply its basic principles.
- Those who have employees on staff who have confirmed the degree of their proficiency in professional skills according to the WorldSkills methodology.
- Representatives of both small, medium and large businesses. The number of unique companies is at least 591. (The share of equipment manufacturing companies was no more than 5%)

GEOGRAPHY
All federal districts of the Russian Federation.
A survey in cities with a population of over 100 thousand people.
The number of respondents for each federal district is presented below.

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFD</td>
<td>178</td>
</tr>
<tr>
<td>NWFD</td>
<td>77</td>
</tr>
<tr>
<td>SFD</td>
<td>53</td>
</tr>
<tr>
<td>NCFD</td>
<td>6</td>
</tr>
<tr>
<td>VFD</td>
<td>90</td>
</tr>
<tr>
<td>UFD</td>
<td>92</td>
</tr>
<tr>
<td>SFD</td>
<td>82</td>
</tr>
<tr>
<td>FEFD</td>
<td>23</td>
</tr>
</tbody>
</table>
Summary of the study

**GENERAL TRENDS**

- The vast majority (86%) of the company representatives in the survey are satisfied with the results of their participation in the WorldSkills movement.

- Most often, companies implement WorldSkills standards in business processes, participate as experts in demo exams or simply act as mentors; company employees take part in competitions.

- WorldSkills standards in organizations are most often applied in training and employee assessment. At the same time, these standards are inscribed in the already existing system of training and assessment and complement it.

- The respondents rate all WorldSkills projects as very significant. The most highly rated aspect is the importance of participation in the competitions.

**EFFECT**

- The main effect of the implementation of WorldSkills standards that experts and company representatives notice is an increase in the qualifications of employees, their productivity, the development of soft skills and motivation.

- Participation in competitions also has the effect of increasing the professional level of an employee, their qualifications, hard skills, and also motivation to work.

- Passing the demonstration exam gives graduates advantages over other students. According to the experts, such students are more prepared for real production, adapt faster, and, therefore, quickly reach a high level of productivity.

- Experts tend to believe that the effect of participation in the WorldSkills movement is cumulative, and it will be possible to evaluate it in the future in the next 5-10 years.

**PERFORMANCE INDICATORS**

- A significant share of the respondents noted an improvement in the company's performance indicators (71% - improved economic indicators, 71% - production indicators, and above all - 77% - indicators of human resource quality development). An even more noticeable share of the respondents expects the performance to improve in the future (83%, 85% and 87%, respectively).

- Workers who have proven their skills in accordance with WorldSkills standards differ from other employees in terms of speed of meeting production standards, producing better products, faster error correction and on-the-job training.

- Subject to the maximum implementation of WorldSkills approaches and methodology in companies, about 90% of respondents expect an increase in production indicators in the future. This will entail an increase in economic indicators. In general, one can expect an increase in the economic efficiency of enterprises by 48-68%.
## Engagement with the WorldSkills Movement

### Areas of cooperation

<table>
<thead>
<tr>
<th>Area</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training and assessment of employees according to WorldSkills standards</td>
<td>37%</td>
</tr>
<tr>
<td>Participation of company representatives in demonstration exams in educational institutions as experts</td>
<td>34%</td>
</tr>
<tr>
<td>Participation of company employees in the movement as experts, mentors</td>
<td>31%</td>
</tr>
<tr>
<td>Participation of employees in WorldSkills competitions</td>
<td>29%</td>
</tr>
<tr>
<td>Hiring students who passed the demo exam</td>
<td>29%</td>
</tr>
<tr>
<td>Other type participation of company representatives in demonstration exams in educational institutions</td>
<td>28%</td>
</tr>
<tr>
<td>Building production processes in a company according to WorldSkills standards</td>
<td>17%</td>
</tr>
<tr>
<td>Participation in WorldSkills vocational guidance programs for schoolchildren</td>
<td>15%</td>
</tr>
<tr>
<td>Participation in WorldSkills programs for the older generation</td>
<td>14%</td>
</tr>
<tr>
<td>Participation in the development of new WorldSkills competencies</td>
<td>14%</td>
</tr>
</tbody>
</table>

### Duration

<table>
<thead>
<tr>
<th>Duration</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than half a year</td>
<td>6%</td>
</tr>
<tr>
<td>Six months – a year</td>
<td>24%</td>
</tr>
<tr>
<td>1-3 years</td>
<td>45%</td>
</tr>
<tr>
<td>3-5 years</td>
<td>16%</td>
</tr>
<tr>
<td>More than 5 years</td>
<td>7%</td>
</tr>
<tr>
<td>Not sure</td>
<td>2%</td>
</tr>
</tbody>
</table>

### BASE: all respondents (600)

86% are satisfied with the results. Another 11% gave a neutral assessment. Only 3% of respondents expressed skepticism.

---

> When the decision to participate in WorldSkills was being made, we relied on the fact that this stimulates employees to improve their professional level. And also we relied on the fact that it is possible to test in practice technologies that are just entering our lives through this tool. “

Kristina Usoltseva, manager of the corporate university of PJSC "SIBUR Holding"
The use of WorldSkills standards

When training and assessing employees - 37%

WS standards are partially used in employee training

ws standards are partially used when assessing employees

Training is fully based on WorldSkills standards

Assessment is fully based on WorldSkills standards

80% Partially applied: in some processes or in some branches and departments

Production processes are fully built on the basis of WorldSkills standards

Future plans: assessment standards

Plans: production standards

BASE: those who know but do not use standards in training and assessment (37), in production processes (34).
The share of the effects of using WorldSkills standards

- Improving the general level of qualifications of employees / their quality of work: 28%
- Increasing the level of soft skills: 18%
- Strengthening motivation to work, diligence, interest: 18%
- Improving the quality of products / services: 12%
- Improving the quality of employee selection for positions / personnel assessment: 10%
- Improving team cohesion: 7%
- Increasing process order / standardization: 7%
- Increasing production / sales volume: 7%
- Increasing the level of hard skills: 6%
- Increasing the rate of employee learning at a new workplace: 6%
- Increasing the speed of solving tasks: 5%
- Improving performance: 4%
- Other: 30%
- Not sure: 11%

Thanks to WorldSkills, we looked at the personnel training process differently - we have significantly increased the practice-orientation. Now employees have to confirm the existing one before starting training for advanced training. We didn’t have that before.”

Alexei Domnyshev, Director of the RTC “EVRAZ-SIBERIA” Head of Siberian Division of UPIRP

The mechanism and construction of the assessment according to WorldSkills standards is effective. This gives the company a transparent objective view of the level of training of a specialist in the process of performing a certain task.

Alexey Smirnov, Head of the Department for the implementation of the program “The Future of White Metallurgy” ChelPipe Group
## Participation in WorldSkills Competitions

### Competition rating
(among companies that participated in the competitions)

<table>
<thead>
<tr>
<th>Competition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intra-corporate competitions</td>
<td>42%</td>
</tr>
<tr>
<td>Regional competitions &quot;Young Professionals (WorldSkills Russia) &quot; (VET)</td>
<td>52%</td>
</tr>
<tr>
<td>Regional interuniversity competitions</td>
<td>34%</td>
</tr>
<tr>
<td>National competitions &quot;Young Professionals (WorldSkills Russia) &quot; (VET)</td>
<td>45%</td>
</tr>
<tr>
<td>National Hi-Tech competitions</td>
<td>17%</td>
</tr>
<tr>
<td>Industry competitions DigitalSkills, AgroSkills, LogisticSkills</td>
<td>13%</td>
</tr>
<tr>
<td>National interuniversity competitions</td>
<td>11%</td>
</tr>
<tr>
<td>EUROSKILLS competitions *</td>
<td>10%</td>
</tr>
<tr>
<td>WORLDSKILLS World competition *</td>
<td>7%</td>
</tr>
<tr>
<td>WorldSkills Junior</td>
<td>14%</td>
</tr>
<tr>
<td>Future skills</td>
<td>12%</td>
</tr>
<tr>
<td>Skills of the wise</td>
<td>16%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
</tr>
</tbody>
</table>

*Participants of the European and World competitions are mainly represented by companies from Moscow. These are both Russian organizations and representative offices of foreign companies. 13 companies participated in the World competitions and 17 in the European competitions.*

### Effect of the participation

- Improvement of the general level of qualifications of employees / quality of their work: 40%
- Increased level of hard skills: 23%
- Strengthened motivation to work, diligence, interest: 22%
- Improvement of team cohesion: 9%
- Increased speed of career growth of specialists: 6%
- Improving performance: 4%
- Increased level of soft skills: 3%
- Increased employees' rate of learning at a new workplace: 3%
- Improvement of the quality of products / services: 3%
- Growth of prestige of professions: 3%
- Improvement of the quality of employee selection for positions / personnel assessment: 3%
- Increased process order / standardization: 3%
- Raising the company's visibility / improvement of the company's reputation: 3%
- Other: 10%
- Not sure: 4%

**BASE:** companies that participated in the competitions (173).
Participation in WorldSkills demo exams

Demo exams experience

- Participation in demo exams as experts: 34%
- Hiring students who passed the demo exam: 29%
- Other type of participation, for example, supplying material and technical means, admitting students to internships, etc.: 28%

Assessing the Skills Passport role in hiring

- Very important and rather important: 64%
- Neutral: 23%
- Rather unimportant and not important at all: 13%

Those who passed the demo exam have appropriate preparation for the real production. In relation to other graduates and their peers, they look “head and shoulders above”. They have a basic foundation not only in the form of theoretical knowledge, but also in the form of sustainable skills.”

Alexei Domnyshev,
Director of the RTC "EVRAZ-SIBERIA"
Head of Siberian Division of UPIRP

BASE: companies that worked during demo exams (371)
**Significance of WorldSkills projects for the company**

<table>
<thead>
<tr>
<th>Project</th>
<th>Degree of significance from 1 to 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proof of mastery at competitions</td>
<td>83%</td>
</tr>
<tr>
<td>Proof of proficiency at demo exams</td>
<td>68%</td>
</tr>
<tr>
<td>Future Skills Project</td>
<td>61%</td>
</tr>
<tr>
<td>Ticket to the Future Project</td>
<td>65%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>83%</strong></td>
</tr>
</tbody>
</table>

**Degree of significance from 1 to 5**

- **High significance**
  - Proof of mastery at competitions: 83%
  - Proof of proficiency at demo exams: 68%
  - Future Skills Project: 61%
  - Ticket to the Future Project: 65%

- **Uncertain estimates**
  - Proof of mastery at competitions: 14%
  - Proof of proficiency at demo exams: 24%
  - Future Skills Project: 35%
  - Ticket to the Future Project: 27%

- **Low significance**
  - Proof of mastery at competitions: 3%
  - Proof of proficiency at demo exams: 8%
  - Future Skills Project: 4%
  - Ticket to the Future Project: 8%

**BASE:** companies having participated in competitions (173), in demo exams (371); companies that appreciated the value of the "Ticket to the Future" project (92), Future Skills (173).
Evaluation of cooperation with WorldSkills

1. The overwhelming majority of experts and representatives of organizations interviewed in the course of the study are very positive about the experience of cooperation with the WorldSkills movement.

2. The significance of both the WorldSkills standards themselves and their application at competitions and in the framework of demonstration exams in educational institutions is almost equally highlighted.

3. Standards are clear to business, close to practice, and transparent to measure.

4. An increase in the duration of participation in the movement, as a rule, leads to a more active implementation of standards in business processes, a growing share of employees involved in it.

5. The common result for all areas of WorldSkills is the improvement of the qualifications of employees, the quality of their work and motivation to work. At the same time, hard skills are more often "pumped up" at competitions, and soft skills are taught and evaluated using the WorldSkills methodology.

Employees with experience in participating in competitions have better developed skills in professional work with equipment. Such employees come to the enterprise more prepared, with an understanding of technologies and their own tasks. It is important that such specialists have well-formed teamwork skills, they are able to effectively distribute work—

Andrey Shpitov,
Head of Festo Didactic Eurasia

The standards brought by the WorldSkills movement are very meaningful, understandable, clear and fit business requirements well. Students must be trained in accordance with these standards, and businesses have to actively participate in this.

Maria Pravdina,
Deputy Director for WorldSkills at 1C
### Key performance indicators

**Indicators named by the experts during interviews**

<table>
<thead>
<tr>
<th>Development of the quality of human resources (qualitative indicators)</th>
<th>Professional growth of employees, deepening of specialization, increase in the complexity of completed projects</th>
<th>Increasing motivation to work, developing an interest in learning</th>
<th>Development of soft skills</th>
<th>Development of hard skills</th>
<th>Improving the quality of personnel selection, improving the quality of student education</th>
<th>Building a network of experts</th>
<th>Advanced skills development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of the quality of human resources (quantitative indicators)</td>
<td>Increasing the number of rationalization proposals from employees</td>
<td>Reducing the adaptation period of an employee in production</td>
<td>Growth in the number of industry experts</td>
<td>Increase in the number of students passing the demonstration exam</td>
<td>Reduction in the time an employee reaches the level of developing production standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production indicators (qualitative)</td>
<td>Equipping enterprises with technically complex equipment, increasing opportunities for its &quot;development&quot;</td>
<td>Development of the material and technical base</td>
<td>The emergence of new technologies in production</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production indicators (quantitative)</td>
<td>Improvement of product quality</td>
<td>Acceleration of delivery times</td>
<td>Increasing labor productivity</td>
<td>Reduction in accidents, increasing labor safety at work</td>
<td>Reduction in product rejects</td>
<td>Reduction in downtime</td>
<td>Increase in the rate of elimination of employee’s errors in their work</td>
</tr>
<tr>
<td>Economic indicators (quantitative)</td>
<td>Sales growth</td>
<td>Increase in the rate of return, decrease in production costs</td>
<td>Reduction in the cost of hiring and training employees</td>
<td>Profit growth</td>
<td>Reduction in equipment repair costs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BASE:** experts who took part in in-depth interviews
**Performance indicators rating**

How best to evaluate the effect of cooperation with WorldSkills on the companies.

1. In the course of interviews, the respondents noted the presence of a **cumulative effect from the activities of the WorldSkills movement**: this is an improvement in the quality of student training, the development of the current personnel of companies, and a groundwork for mastering professions for the future.

2. The proof of mastery according to the WS methodology for many respondents is synonymous with staff development. Therefore, the indicator of the number (share) of workers who confirmed their skills according to WS standards holds the first place in the rating of the indicators which are best used to assess the effect of participation in the movement. It is also the easiest one to measure.

*WorldSkills is a development tool, it has no direct effect. That is, it may be a “shot” from WorldSkills, or perhaps it was some management measures that influenced the improvement of the indicators. But, of course, when you see a tendency that your indicators always increase within a stable system of professional skills competitions, then it is obvious that there is a correlation. But to say that this effect is caused by them only is, of course, impossible, this is a complex story. “*

Kristina Usoltseva, manager of the corporate university of PJSC "SIBUR Holding"
Share of employees who confirmed their proficiency in accordance with WorldSkills standards

At the time of the study, the share of employees who confirmed their skills according to WS standards varies greatly from company to company:

- In almost a third of the surveyed organizations (28%) the share of such employees is less than 3%.
- The same amount (28%) is accounted for by companies with a share of employees of 3-10%.
- Companies with a share of employees from 10% to 50% of the personnel account for the same 28%.
- The remaining 8% of companies have more than half of such employees.

The results give a general idea of the array of respondents' answers, among whom were representatives of large corporations, but the basis was made by small and medium-sized businesses.

The longer the duration of the company's participation in the movement, the bigger the share of employees who have confirmed mastery according to the WS methodology:

<table>
<thead>
<tr>
<th>Share of employees (in %)</th>
<th>Participation for less than 1 year</th>
<th>Participation for 1-3 years</th>
<th>Participation for more than 3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>These are isolated cases</td>
<td>11%</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>Less than 1%</td>
<td>8%</td>
<td>5%</td>
<td>8%</td>
</tr>
<tr>
<td>1-3%</td>
<td>13%</td>
<td>7%</td>
<td>5%</td>
</tr>
<tr>
<td>3-5%</td>
<td>25%</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>5-10%</td>
<td>18%</td>
<td>13%</td>
<td>8%</td>
</tr>
<tr>
<td>10-25%</td>
<td>11%</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>25-50%</td>
<td>6%</td>
<td>19%</td>
<td>15%</td>
</tr>
<tr>
<td>More than 50%</td>
<td>3%</td>
<td>2%</td>
<td>20%</td>
</tr>
<tr>
<td>All employees</td>
<td>1%</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>Not sure</td>
<td>5%</td>
<td>9%</td>
<td>16%</td>
</tr>
</tbody>
</table>

BASE: all respondents (600)
Effect assessment

How KPIs have changed / will change in companies as a result of participation in the WorldSkills movement.

71% and more noted improvement in performance indicators at the moment

<table>
<thead>
<tr>
<th></th>
<th>Currently</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Have</td>
<td>Have not</td>
</tr>
<tr>
<td>Quality indicators of human</td>
<td>decreased</td>
<td>changed</td>
</tr>
<tr>
<td>resources</td>
<td>1%</td>
<td>22%</td>
</tr>
<tr>
<td>Production indicators</td>
<td>1%</td>
<td>27%</td>
</tr>
<tr>
<td>Economic indicators</td>
<td>1%</td>
<td>28%</td>
</tr>
</tbody>
</table>

83% and more expect improvement of the indicators in the future

<table>
<thead>
<tr>
<th></th>
<th>In the future</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Will decrease</td>
<td>Will not change</td>
</tr>
<tr>
<td>Quality indicators of human</td>
<td>1%</td>
<td>12%</td>
</tr>
<tr>
<td>resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production indicators</td>
<td>1%</td>
<td>14%</td>
</tr>
<tr>
<td>Economic indicators</td>
<td>1%</td>
<td>16%</td>
</tr>
</tbody>
</table>

BASE: all respondents (600)
Evaluation of the effect of participation in WorldSkills

1. Experts see the greatest effect in the development of personnel quality: this is the development of soft skills (purposefulness, stress resistance, etc.), and the possibility of better selection of personnel, and decreasing costs of retraining, a noticeable increase in employee motivation to work and, in general, to development.

2. A significant effect is the formation of expert communities.

3. According to the respondents surveyed in the course of the formalized interviews, it is most correct to assess the effect of participation in WS by the share of employees who confirmed their skills according to WS standards. For the entire sample, the average share of such employees in companies was 17% (including small and medium-sized businesses).

4. Production and economic indicators, according to the experts, are best evaluated in the longer term.

5. However, the majority of company representatives surveyed in the framework of the formalized interviews say that they already see an increase in production and economic indicators in their organization (72% and 71%, respectively). Even more respondents (83% and 85% in terms of economic and production indicators, respectively) are positive in assessing future changes.

Thanks to the Worldskills movement, a better trained workforce came in, and eventually parts production improved. Now enterprises understand that either they suffer for 5-7 years until the employee reaches the required level, or they receive ready-made specialists directly from college, saving the same 5-7 years of time and resources of the enterprise. After that the economic effect is obvious to the enterprise. ”

Ilya Tonkikh, Head of the DMG MORI Russia Academy, international expert of WorldSkills Russia and chief expert of the WorldSkills Shanghai 2021 in “CNC Turning"

The biggest outcome is the formation and work of expert communities. When the employees who work directly with the equipment do not just perform their standard functionality, but they are also given the opportunity to participate in the development of the processes of the entire company, and sometimes the industry. “

Kristina Usoltseva, manager of the corporate university of PJSC "SIBUR Holding"
## Efficiency assessment: indicators of the quality of human resources

### Quality indicators of human resources

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Percentage</th>
<th>Indicators with which to best measure the effect</th>
<th>The indicator has improved</th>
<th>The degree of improvement of the indicator from 0 to 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation to work in the profession in general</td>
<td>47%</td>
<td>90%</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>General skill level of employees</td>
<td>37%</td>
<td>89%</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>Motivation to work in a particular company</td>
<td>34%</td>
<td>89%</td>
<td><strong>3.1</strong></td>
<td></td>
</tr>
<tr>
<td>The quality of the selection of employees for positions</td>
<td>29%</td>
<td>86%</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>Workplace learning rate</td>
<td>27%</td>
<td>83%</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>The speed of solving the tasks</td>
<td>25%</td>
<td>86%</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>Shortening the period of initial adaptation</td>
<td>24%</td>
<td>84%</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Career growth rate among specialists</td>
<td>24%</td>
<td>90%</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>Hard skills level</td>
<td>21%</td>
<td>83%</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>Staff's technical literacy</td>
<td>19%</td>
<td>90%</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>Soft skills level</td>
<td>18%</td>
<td>90%</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>Deepening of employee's specialization</td>
<td>11%</td>
<td>81%</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Speed of error elimination by specialists</td>
<td>11%</td>
<td>81%</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Number of additional tasks that an employee is ready to solve</td>
<td>10%</td>
<td>86%</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>Number of improvement proposals from employees</td>
<td>6%</td>
<td>71%</td>
<td><strong>2.0</strong></td>
<td></td>
</tr>
<tr>
<td>The time an employee reaches the level of full norms</td>
<td>5%</td>
<td>74%</td>
<td><strong>1.9</strong></td>
<td></td>
</tr>
<tr>
<td>Other indicators of the quality of human resources</td>
<td>3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No effect / Effect cannot be assessed</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BASE: all respondents (600)
Efficiency assessment: production indicators

**Production efficiency indicators**
- The speed of mastering new production equipment / programs / tools: 40%
- Product / service quality: 39%
- Manufacturability of production / service provision: 39%
- Labor productivity (output per unit of time): 36%
- Delivery time for products / services: 22%
- The volume of product defects / customer claims for the services provided: 21%
- Industrial accidents, labor safety level: 20%
- Fulfillment (overfulfillment) of the production plan / sales plan: 19%
- Downtime: 10%
- Other production efficiency indicators: 9%
- No effect / Effect cannot be assessed: 6%

**Indicators with which to best measure the effect**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Base: respondents (600)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The speed of mastering new production equipment / programs / tools</td>
<td>89%</td>
</tr>
<tr>
<td>Product / service quality</td>
<td>88%</td>
</tr>
<tr>
<td>Manufacturability of production / service provision</td>
<td>84%</td>
</tr>
<tr>
<td>Labor productivity (output per unit of time)</td>
<td>83%</td>
</tr>
<tr>
<td>Delivery time for products / services</td>
<td>84%</td>
</tr>
<tr>
<td>The volume of product defects / customer claims for the services provided</td>
<td>78%</td>
</tr>
<tr>
<td>Industrial accidents, labor safety level</td>
<td>84%</td>
</tr>
<tr>
<td>Fulfillment (overfulfillment) of the production plan / sales plan</td>
<td>77%</td>
</tr>
<tr>
<td>Downtime</td>
<td>83%</td>
</tr>
<tr>
<td>Other production efficiency indicators</td>
<td></td>
</tr>
<tr>
<td>No effect / Effect cannot be assessed</td>
<td></td>
</tr>
</tbody>
</table>

**The indicator has improved**

| Indicator                                                                 | Improvement
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The speed of mastering new production equipment / programs / tools</td>
<td>2,7</td>
</tr>
<tr>
<td>Product / service quality</td>
<td>2,6</td>
</tr>
<tr>
<td>Manufacturability of production / service provision</td>
<td>2,5</td>
</tr>
<tr>
<td>Labor productivity (output per unit of time)</td>
<td>2,5</td>
</tr>
<tr>
<td>Delivery time for products / services</td>
<td>2,6</td>
</tr>
<tr>
<td>The volume of product defects / customer claims for the services provided</td>
<td>2,3</td>
</tr>
<tr>
<td>Industrial accidents, labor safety level</td>
<td>2,6</td>
</tr>
<tr>
<td>Fulfillment (overfulfillment) of the production plan / sales plan</td>
<td>2,0</td>
</tr>
<tr>
<td>Downtime</td>
<td>3,0</td>
</tr>
</tbody>
</table>

**The degree of improvement of the indicator from 0 to 5**

Each indicator was evaluated in comparison with what it was before the company’s participation in WorldSkills. If there are no changes, the score is 0 points.
Each indicator was evaluated in comparison with what it was before the company’s participation in WorldSkills. If there are no changes, the score is 0 points.

<table>
<thead>
<tr>
<th>Production efficiency indicators</th>
<th>Indicators with which to best measure the effect</th>
<th>The indicator has improved</th>
<th>The degree of improvement of the indicator from 0 to 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit</td>
<td>37%</td>
<td>79%</td>
<td>2.4</td>
</tr>
<tr>
<td>Search and recruitment costs</td>
<td>37%</td>
<td>81%</td>
<td>2.5</td>
</tr>
<tr>
<td>On-the-job training costs</td>
<td>37%</td>
<td>84%</td>
<td>2.4</td>
</tr>
<tr>
<td>Volume of revenue</td>
<td>30%</td>
<td>79%</td>
<td>2.4</td>
</tr>
<tr>
<td>Volume of sales</td>
<td>29%</td>
<td>85%</td>
<td>2.8</td>
</tr>
<tr>
<td>Cost per man-hour</td>
<td>24%</td>
<td>84%</td>
<td>2.3</td>
</tr>
<tr>
<td>Rate of return</td>
<td>18%</td>
<td>81%</td>
<td>2.4</td>
</tr>
<tr>
<td>Indirect costs of product sales</td>
<td>16%</td>
<td>76%</td>
<td>2.1</td>
</tr>
<tr>
<td>Cost price of manufactured products</td>
<td>14%</td>
<td>74%</td>
<td>2.2</td>
</tr>
<tr>
<td>Equipment repair costs</td>
<td>14%</td>
<td>72%</td>
<td>2.1</td>
</tr>
<tr>
<td>Other economic indicators</td>
<td>12%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No effect / Effect cannot be assessed</td>
<td>6%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BASE: all respondents (600)
## Employee efficiency

Impact of WorldSkills on changing employees’ performance.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Does not impact efficiency</th>
<th>Uncertain estimate</th>
<th>Impacts efficiency</th>
<th>Degree of impact from 1 to 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in competitions</td>
<td>3%</td>
<td>15%</td>
<td>82%</td>
<td>4,1 out of 5,0</td>
</tr>
<tr>
<td>Taking a Demo Exam</td>
<td>4%</td>
<td>22%</td>
<td>74%</td>
<td>3,8 out of 5,0</td>
</tr>
</tbody>
</table>

*BASE: companies having participated in competitions (173), companies that worked during demo exams (371).*
### Difference between employees

#### HARD SKILLS

<table>
<thead>
<tr>
<th>Indicators</th>
<th>There is a difference</th>
<th>Neither yes nor no</th>
<th>There is no difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fulfillment of norms on time</td>
<td>72%</td>
<td>18%</td>
<td>10%</td>
</tr>
<tr>
<td>Improving product quality</td>
<td>68%</td>
<td>22%</td>
<td>10%</td>
</tr>
<tr>
<td>Improving labor safety</td>
<td>67%</td>
<td>22%</td>
<td>11%</td>
</tr>
<tr>
<td>Increase in productivity</td>
<td>66%</td>
<td>21%</td>
<td>13%</td>
</tr>
<tr>
<td>Improving the speed of elimination of errors</td>
<td>64%</td>
<td>19%</td>
<td>17%</td>
</tr>
<tr>
<td>Reducing the number of rejects</td>
<td>64%</td>
<td>22%</td>
<td>14%</td>
</tr>
<tr>
<td>Reduced downtime</td>
<td>64%</td>
<td>24%</td>
<td>12%</td>
</tr>
</tbody>
</table>

**BASE: all respondents (600)**
## Difference between employees

### SOFT SKILLS

<table>
<thead>
<tr>
<th>Indicators</th>
<th>There is a difference</th>
<th>Neither yes nor no</th>
<th>There is no difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning rate</td>
<td>77%</td>
<td>15%</td>
<td>8%</td>
</tr>
<tr>
<td>Motivation to work</td>
<td>76%</td>
<td>15%</td>
<td>9%</td>
</tr>
<tr>
<td>Purposefulness</td>
<td>75%</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>Teamwork skills</td>
<td>70%</td>
<td>18%</td>
<td>12%</td>
</tr>
<tr>
<td>Self-study</td>
<td>69%</td>
<td>20%</td>
<td>11%</td>
</tr>
<tr>
<td>Proactivity</td>
<td>65%</td>
<td>22%</td>
<td>13%</td>
</tr>
<tr>
<td>Stress resistance</td>
<td>64%</td>
<td>23%</td>
<td>13%</td>
</tr>
</tbody>
</table>

**BASE:** all respondents (600)
Difference between employees

1. All experts and participants in the formalized survey agree that employees who have proven their skills according to WorldSkills standards (having passed an assessment in an organization, passing a demonstration exam or participating in competitions) are different from other employees.

2. They are more motivated, goal-oriented, cope with non-standard tasks faster, learn and adapt to the production process faster.

3. Differences in soft skills between employees were noted a little more often than differences in hard skills.

4. Besides, there are limiting points that do not make it possible to fully feel the differences between employees, especially in hard skills: this is the discrepancy between the real equipment used in everyday work and the equipment at the competitions, as well as the dependence of the performance of a particular employee on the results of other sections of an enterprise.

Those who successfully passed the demo exam grasp almost everything on the fly. For example, they came to me as turners, and now many of them are additionally working on milling machines. And the guys grasp this in a week, in two, compared to those specialists who would have been, let’s say, without the experience of participating in Worldskills. ”

Ilya Tonkikh,
Head of the DMG MORI Russia Academy,
international expert of WorldSkills Russia and chief expert of the WorldSkills Shanghai 2021 in “CNC Turning”

Of course, there is a difference between the employees. The process of preparing for the competition is an increase in qualifications, improvement of skills. The employee immerses themselves in the process more deeply, learns something new for themselves. They find themselves in a different environment, and this, of course, gives them an increase in professional competencies. ”

Alexey Smirnov,
Head of the Department for the implementation of the program “The Future of White Metallurgy” ChelPipe Group
### Efficiency forecast

**Situation of a possible future**

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Share of Respondents (%)</th>
<th>Impact (0-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% of employees assessed according to WorldSkills standards</td>
<td>89%</td>
<td>3,0</td>
</tr>
<tr>
<td>10-15% of employees prove their skills at competitions</td>
<td>89%</td>
<td>3,0</td>
</tr>
<tr>
<td>100% of students take the demo exam (effect for the company)</td>
<td>91%</td>
<td>2,8</td>
</tr>
<tr>
<td>100% of students take the demo exam (effect for the industry)</td>
<td>95%</td>
<td>3,1</td>
</tr>
</tbody>
</table>

The degree of impact of WS on the growth of the company’s production indicators **from 0 to 5**

- Share of respondents predicting an improvement in production performance **will improve**
- Each indicator was evaluated in comparison with what it was before the company’s participation in WorldSkills. If there are no changes, the score is 0 points.

**Forecast of the integral indicator of the economic efficiency growth of companies as a result of participation in WorldSkills**

48-68%

The method for calculating the integral indicator is given in the appendix.
Efficiency forecast

1. All experts believe that the greatest effect from the interaction of organizations with the WorldSkills movement will be noticeable in the future.

2. To the greatest extent, it will affect the quality of training of young personnel, equipping educational institutions and enterprises, which together will give a perceptible effect both for specific enterprises and for the industry as a whole.

3. Herewith, the impact on the industry as a whole is most likely, since the WorldSkills Standards are transparent, universal and support standardisation and systematic changes.

4. At the same time, the overwhelming majority (90%) of company representatives while completing a formalized survey noted that with the maximum involvement of companies and employees in the WorldSkills movement, production indicators would grow by an average of 60%.

5. The economic efficiency of organizations, according to a special calculation method, will grow by 48-68%.

If all, or at least 50% of the students passed the demo exam, this would have a very positive impact on the economics of the industries. Concerning information technology companies, I can say for sure that they will be able to significantly reduce their costs for the search, engagement and initial training of young specialists. “

Maria Pravdina, Deputy Director for WorldSkills at 1C

It can be a tool to prepare staff for new tasks in advance. When the tasks are formed in such a way that today the participants already try to work with the functionality in their profession that they will have tomorrow. “

Kristina Usoltseva, manager of the corporate university of PJSC “SIBUR Holding”
Appendices
Respondent profile

- Representatives of employers who contribute to the development of the WorldSkills movement within the organization or apply its basic principles and have employees on their staff who have confirmed the degree of their proficiency in professional skills according to the WorldSkills methodology.

- In the course of in-depth interviews, experts from such companies as RTC "EVRAZ-SIBERIA", PJSC "SIBUR Holding", Academy "Rostec", DMG MORI Russia, Festo Didactic Eurasia, ChelPipe group, 1C, etc. took part.

- In the course of a formalized survey, representatives of both small, medium and large businesses took part.

* The service sector category includes, for example, organizations with professions such as cook, hairdresser, etc., these are some of the most popular competencies in the demonstration exam.

**Company's industry**

- Service sector (including catering, personal services, etc.) 34%
- Manufacturing and engineering technology 21%
- Construction and building technologies 15%
- Transport and logistics 9%
- Information and communication technologies 8%
- Creativity and design 6%
- Science and education 2%
- Other 4%

**BASE: all respondents (600)**

**Respondent's job position**

- Head of a subdivision, division, direction, department 43%
- Deputy Head 21%
- Director, commercial, executive director 12%
- HR Specialist, Head of HR Department 10%
- Head / Leading Specialist of Training Department, Corporate Academy 7%
- Individual entrepreneur 7%

**Respondent functional in connection with WorldSkills**

- Communication with WorldSkills representatives 59%
- Organization of employee participation in WorldSkills events 41%
- Training and assessment of employees according to WorldSkills standards 33%
- Participation as a WorldSkills Expert 28%
- Supervising employees who have proven their skills according to WorldSkills standards 28%
- Cooperation with educational institutions 26%
- Other 8%
Efficiency forecast: calculation method

Methodology for calculating the forecast indicator:

Step 1. Building a scale with answers. Based on the opinions of experts obtained during the expert interviews, it can be concluded that:
1. Speaking of a moderate increase in production indicators, experts mean an increase of up to 20%.
2. Speaking of average growth, they mean growth of 30-40%.
3. Speaking of high growth, they mean a growth of 50% or more.
4. The growth of indicators by 2 times or more is estimated as a significant increase.

As a result, the following rating scale was formed:

<table>
<thead>
<tr>
<th>Evaluation option in the questionnaire</th>
<th>Will not change</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Will improve significantly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale for calculations</td>
<td>0%</td>
<td>20%</td>
<td>40%</td>
<td>60%</td>
<td>80%</td>
<td>100%</td>
</tr>
<tr>
<td>Scale decoding</td>
<td>Lack of growth</td>
<td>Moderate growth</td>
<td>Average growth</td>
<td>High growth</td>
<td>High proc</td>
<td>Very high growth</td>
</tr>
</tbody>
</table>

Step 2. Calculation of the average increase in the particular indicators of the forecast. Taking the scale as a basis, the average projected increase in the production indicators of companies in the situations above is calculated (if 100% of employees will be assessed using the WS methodology, or 100% of students will take a demo exam, or if the share of competition participants in the company is at least 10-15%) according to the weighted average formula.

Step 3. Calculation of the integral indicator. The average value of the growth of production indicators is calculated as a weighted average of 4 particular indicators.

Step 4. Calculation of the adjustment coefficient 1, showing the difference in the projected growth of economic indicators in relation to production ones (based on the indicators described on slide 14) and the calculation of the projected growth of economic indicators of companies taking the coefficient into account.

Step 5. Calculation of the adjustment coefficient 2, showing the error of the calculation method (it is equal to 20%, since the scale step was 20%) and the calculation of the final forecast indicator of the growth of economic indicators taking the coefficient into account.

1-3. Production growth forecast:

... if 100% of the company’s employees are assessed according to WorldSkills standards

... if 10-15% of employees in the company prove their skills at competitions

... if 100% of students take the demo exam (effect for the company)

... if 100% of students take the demo exam (effect for the industry)

4. Forecast of growth of economic indicators of companies as a result of participation in WorldSkills, given the adjustment coefficient 1 (0.9785):

5. Forecast of growth of economic indicators of companies as a result of participation in WorldSkills, given the adjustment coefficient 2 (assessment step - 20%)

60%
Thank you

Romir Team