Best practices and standards for estimation and measuring of software size within the Atos Global Delivery Platform
About Atos
Atos has about 100,000 specialists worldwide
5,000 specialists in Poland

Atos globally

10,000
UK & Ireland
United Kingdom, Ireland

6,200
Iberia
Andorra, Portugal, Spain

16,400
France

8,300
North American Operations

3,300
South America
Argentina, Brazil, Chile, Colombia, Uruguay

10,800
Benelux & The Nordics
Belgium, Denmark, Estonia, Finland, Luxembourg, Sweden, The Netherlands, Poland, Russia

7,500
Central & Eastern Europe
Austria, Bulgaria, Croatia, Cyprus, Czech Republic, Greece, Hungary, Italy, Lithuania, Romania, Serbia, Slovakia, Switzerland, Turkey

9,800
Germany

5,600
Asia Pacific
Australia, China, Hong Kong, Indonesia, Japan, Malaysia, New Zealand, Philippines, Singapore, Taiwan, Thailand

15,100
India, Middle East & Africa

Headcount as of September 2015

© ATOS Poland
IT leader in Poland

**COMPUTERWORLD TOP 200**

**#1** The largest supplier of Web applications and portals in 2015

**#2** The largest supplier of Customer Relationship Management (CRM) in 2015

**#3** The largest IT services providers in 2015

**#3** The largest supplier of tailor-made software in 2015

**#3** The largest supplier of IT solutions and services for the telecommunications sector in 2015

**ITWIZ BEST 100**

**#1** IT company with the highest sales of CRM software in Poland (2015)

**#1** IT company with the highest sales of web applications and web portals (2015)

**#2** The biggest exporters of IT in Poland (2015)
Atos usage of Functional Points
Atos has used FP for many years

<table>
<thead>
<tr>
<th>Sizing methods</th>
<th>Sizing objects</th>
<th>Sizing metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFPUG, COSMIC, NESMA, UoW, User Story Points</td>
<td>constantly expanded Estimation Service Catalogues</td>
<td>IT Service metrics depend on FP collected since 2008</td>
</tr>
</tbody>
</table>

More than 1500 measurements from over 200 projects

Statistics for key technologies

<table>
<thead>
<tr>
<th>3GL</th>
<th>4GL</th>
<th>Cobol</th>
<th>EAI</th>
<th>Tibco</th>
<th>Java</th>
<th>Microsoft .Net</th>
<th>Oracle</th>
<th>....</th>
</tr>
</thead>
</table>

Statistics for project types

<table>
<thead>
<tr>
<th>New development</th>
<th>Enhancement</th>
<th>Migration</th>
<th>....</th>
</tr>
</thead>
</table>
3 Functional Points support from Atos Global Delivery Platform
Software estimation process is part of the Atos global quality management system called Global Delivery Platform [GDP].

GDP is a set of processes, standards and control tools in conjunction with a process supporting the software manufacturing.

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**Atos Global Delivery Platform**

**General Description**

Software estimation process is part of the Atos global quality management system called Global Delivery Platform [GDP].

GDP is a set of processes, standards and control tools in conjunction with a process supporting the software manufacturing.
Atos Global Delivery Platform E0-E4 engineering processes enable Atos Integrated Software Development Process encompassing L1-L11 phases, which form a complete software manufacturing cycle.
The amount of functional points, relevant to the considered functional area of application, is calculated through activities of GDP L2 Requirements Development phase.
Productivity is the measure of an effort invested vs. output.
Productivity is obtained by measuring the number of hours needed to execute one FP by a certain team.
The GDP methodology allows the estimation of the total workload of the global software manufacturing process (including the final transition into production) on the base of the ratio of workload regarding L1-L11 phases to the workload regarding L4-L8 phases.

To estimate the effort needed for a 700 FP software to be developed

\[ \text{Effort} = 5040 \text{ hrs} = 700 \text{ FP} \times 7.2 \text{ Hrs/FP} \]

<table>
<thead>
<tr>
<th>M1</th>
<th>Contract initiation</th>
<th>% of total lifecycle</th>
<th>% of Main Build</th>
<th>Total Lifecycle (hrs)</th>
<th>Main Build (hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>Business architecture</td>
<td>3%</td>
<td>5%</td>
<td>249</td>
<td></td>
</tr>
<tr>
<td>L2</td>
<td>Requirements development</td>
<td>6%</td>
<td>10%</td>
<td>499</td>
<td></td>
</tr>
<tr>
<td>L3</td>
<td>Software architecture &amp; detailed functional design</td>
<td>15%</td>
<td>25%</td>
<td>1247</td>
<td>1159</td>
</tr>
<tr>
<td>L4</td>
<td>Requirements intake &amp; technical design</td>
<td>14%</td>
<td>23%</td>
<td>1164</td>
<td>1159</td>
</tr>
<tr>
<td>L5</td>
<td>Build &amp; Unit test</td>
<td>31%</td>
<td>51%</td>
<td>2578</td>
<td>2570</td>
</tr>
<tr>
<td>L6</td>
<td>Integration</td>
<td>16%</td>
<td>26%</td>
<td>1331</td>
<td>1310</td>
</tr>
<tr>
<td>L7</td>
<td>System test</td>
<td>6%</td>
<td>10%</td>
<td>499</td>
<td></td>
</tr>
<tr>
<td>L8</td>
<td>Document preparation¹</td>
<td>6%</td>
<td>10%</td>
<td>499</td>
<td></td>
</tr>
<tr>
<td>L9</td>
<td>User acceptance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L10</td>
<td>Prepare production &amp; deployment</td>
<td>3%</td>
<td>5%</td>
<td>249</td>
<td></td>
</tr>
<tr>
<td>L11</td>
<td>Production support (warranty support)</td>
<td>100%</td>
<td>165%</td>
<td>8316</td>
<td>5040</td>
</tr>
<tr>
<td>M5</td>
<td>Contract closure</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Agile/DevOps measurements
Three types of work:
1. Change (Adaptive)
2. Run (Corrective)
3. Improve (Preventive)

Size of work:
- user stories/story points
- number of incidents/problems
- hours of improvement

Three priorities:
1. High
2. Medium
3. Low
FPA method in Agile Projects: measures the size of a software product in order to:

- Determine the **functional size** of Sprints and Releases
- Define the number of Sprints in one Release
- Determine the **Sprint Productivity** (hours/function point in a Sprint) and **Product Productivity** (hours/function point of the “final” Product) through the historical project database and based on final Product backlog.

As the Sprint productivity is not useful because the **Agile teams are normally more interested in using Story points (SP) rather than FP**, the calculation of Sprint productivity is not recommended.

For **productivity measurement** and **benchmarking purposes**, the **Story points method is not used** as it is not a standard metric; however, SP will not be replaced as the **standard method of estimation in sprints**.
DevOps monitor: category details

Data collected for the ATOS knowledge base on Agile projects are:
- **Size (FP)** based on Final Product released
- **Effort** (person hours) for L4–L8
- **Duration** (days)
- **Avg. Cost Profile** (GCM 1 – GCM 8)
- **Number of defects**
- **Number of sprints**
## Improvements metrics Waterfall => Agile

<table>
<thead>
<tr>
<th>Work</th>
<th>Type</th>
<th>Old Absolute</th>
<th>Old Relative</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change/Run ratio (1)</td>
<td>Change and Run</td>
<td>Effort</td>
<td>75-25%</td>
<td>85-15%</td>
</tr>
<tr>
<td>Rework (2)</td>
<td>Change</td>
<td>Effort</td>
<td>35%</td>
<td>15%</td>
</tr>
<tr>
<td>Wasteful and unnecessary features (2)</td>
<td>Change</td>
<td>Effort</td>
<td>25%</td>
<td>5%</td>
</tr>
<tr>
<td>Mean Time to Repair (1)</td>
<td>Run</td>
<td>Effort</td>
<td>24 hours</td>
<td>1 hour</td>
</tr>
<tr>
<td>Security issues (1)</td>
<td>Run</td>
<td>#Issues</td>
<td>50% less</td>
<td></td>
</tr>
<tr>
<td>Quality improvement (3)</td>
<td>Change</td>
<td>#Defects</td>
<td>50% less</td>
<td></td>
</tr>
<tr>
<td>Net Present Value of change</td>
<td>Change</td>
<td>Business value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCO (Source Gartner)</td>
<td>Change, Run &amp; Improve</td>
<td>Costs</td>
<td>10-15%</td>
<td></td>
</tr>
<tr>
<td>Team velocity improvement of 10 months (4)</td>
<td>Change</td>
<td>Hours / Function point</td>
<td>10</td>
<td>8 (20% better)</td>
</tr>
</tbody>
</table>

### State of DevOps

- The responses show what it means to become a high performer.
- High performers deploy **200 times more frequently** than low performers, with 2,555 times faster lead times, and 24 times faster recovery times.
- High performers have better employee loyalty, and are **2.2 times more likely** to recommend their organization to a friend as a great place to work.
- High-performing organizations spend **22 percent less time** on unplanned work and rework, and **29 percent more time** on new work, such as new features or code.
- High performers spend **50 percent less time** remediating security issues than low performers.
- They can afford to take an **experimental approach** to product development to improve IT and organizational performance.
## EXPERIENCES & CONCLUSIONS
Key benefits of using FP in contracts

<table>
<thead>
<tr>
<th>Customer</th>
<th>Common</th>
<th>Atos</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Simplification of procurement process</td>
<td>&gt; Focus on business needs</td>
<td>&gt; Lower presales effort</td>
</tr>
<tr>
<td>&gt; Focus on contracting principles</td>
<td>&gt; Limited non business related waste activities</td>
<td>&gt; Governance simplification</td>
</tr>
<tr>
<td>&gt; Requirements qualification</td>
<td>&gt; Common understanding of scope complexity</td>
<td>&gt; Resource allocation prediction</td>
</tr>
<tr>
<td>&gt; Budget prediction</td>
<td>&gt; Agile change and risk management</td>
<td>&gt; Quantitative and qualitative resource evaluation</td>
</tr>
<tr>
<td>&gt; Scope2Value analysis</td>
<td>&gt; Continuous improvement based on KPIs (quality and quantity) based on knowledge and experience reuse</td>
<td>&gt; Maintenance effort prediction</td>
</tr>
<tr>
<td>&gt; Progress control based on standard metrics</td>
<td></td>
<td>&gt; Overall cost reduction</td>
</tr>
<tr>
<td>&gt; Time to market reduction</td>
<td></td>
<td>&gt; Customer Satisfaction improvement</td>
</tr>
</tbody>
</table>

- ~30% time to market reduction
- ~20% defects reduction
- ~25% efficiency improvement
- ~35% Customer Satisfaction improvement
Trusted partner for your Digital Journey