

<b>Example 10: How Software Risk Master (SRM) Evaluates 3 Years of Maintenance and Enhancements</b>					
<b>Java Language for all 4 Cases</b>					
<b>100, 1000, 10,000, 100,000 function point samples</b>					
<b>\$7,500 per month for all 4 Cases (maintenance costs lower than development)</b>					
<b>Iterative development for all 4 Cases</b>					
<b>132 effective work hours per month for all 4 Cases</b>					
<b>Maintenance is more complex than development</b>					
<b>2017 is the 30th anniversary of IFPUG function point metrics</b>					
	<b>100</b>	<b>1000</b>	<b>10,000</b>	<b>100,000</b>	
	<b>Function Points</b>	<b>Function Points</b>	<b>Function Points</b>	<b>Function Points</b>	
	<b>Personal app</b>	<b>Internal app</b>	<b>Commercial app</b>	<b>Commercial app</b>	
<b>Maintenance locations</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>Large companies have multiple maintenance sites</b>
<b>Customer initial installation sites</b>	<b>1</b>	<b>3</b>	<b>50</b>	<b>10,000</b>	<b>Commercial apps have thousands of client sites</b>
<b>Number of initial application users</b>	<b>10</b>	<b>250</b>	<b>25,000</b>	<b>1,000,000</b>	<b>Support costs driven by users</b>

Year of first release	2018	2018	2018	2018	
Year 1 (2018)					
<b>Bug reports (valid)</b>	<b>15</b>	<b>180</b>	<b>2,520</b>	<b>40,320</b>	
<b>Bug reports (invalid)</b>	<b>5</b>	<b>65</b>	<b>845</b>	<b>10,985</b>	<b>Invalid bugs are often user errors or hardware problems</b>
<b>Bug reports (TOTAL)</b>	<b>20</b>	<b>245</b>	<b>3,365</b>	<b>51,305</b>	
Help requests	25	275	3,025	33,275	
Incident reports	20	210	2,205	23,153	<b>Incidents are reports of issues that need examination</b>
Installation sites	1	3	50	10,000	
Users	10	250	25,000	1,000,000	
<b>Maintenance Cost (bug repairs)</b>	<b>\$13,000</b>	<b>\$165,375</b>	<b>\$2,439,625</b>	<b>\$37,196,125</b>	
<b>Customer support Cost</b>	<b>\$3,545</b>	<b>\$87,985</b>	<b>\$6,255,230</b>	<b>\$200,056,428</b>	<b>Support costs go up with clients</b>
<b>Enhancement Cost</b>	<b>\$6,000</b>	<b>\$68,000</b>	<b>\$720,000</b>	<b>\$11,200,000</b>	
<b>Total Cost for 2018</b>	<b>\$22,545</b>	<b>\$321,360</b>	<b>\$9,414,855</b>	<b>\$248,452,553</b>	
Year 2 (2019)					
<b>Bug reports (valid)</b>	<b>11</b>	<b>132</b>	<b>1,848</b>	<b>29,568</b>	

					<b>Invalid bugs need analysis too</b>
<b>Bug reports (invalid)</b>	<b>4</b>	<b>52</b>	<b>676</b>	<b>8,788</b>	
<b>Bug reports (TOTAL)</b>	<b>15</b>	<b>184</b>	<b>2,524</b>	<b>38,356</b>	
					<b>Help requests drive up support costs</b>
Help requests	20	220	2,420	26,620	
Incident reports	25	263	2,756	28,941	
Installation sites	1	3	55	13,000	
Users	15	300	27,000	1,035,000.00	
<b>Maintenance Cost (bug repairs)</b>	<b>\$9,750</b>	<b>\$119,600</b>	<b>\$1,640,600</b>	<b>\$24,931,400</b>	
					<b>Support costs go up with users</b>
<b>Customer support Cost</b>	<b>\$5,295</b>	<b>\$105,483</b>	<b>\$9,455,176</b>	<b>\$362,305,561</b>	
<b>Enhancement Cost</b>	<b>\$6,600</b>	<b>\$74,800</b>	<b>\$792,000</b>	<b>\$12,320,000</b>	
<b>Total Cost for 2019</b>	<b>\$21,645</b>	<b>\$299,883</b>	<b>\$11,887,776</b>	<b>\$399,556,961</b>	
Year 3 (2020)					
<b>Bug reports (valid)</b>	<b>6</b>	<b>72</b>	<b>864</b>	<b>10,368</b>	
<b>Bug reports (invalid)</b>	<b>3</b>	<b>39</b>	<b>507</b>	<b>6,591</b>	
<b>Bug reports (TOTAL)</b>	<b>9</b>	<b>111</b>	<b>1,371</b>	<b>16,959</b>	
Help requests	25	275	3,025	33,275	
Incident reports	30	315	3,308	34,729	
<b>Installation sites</b>	<b>1</b>	<b>3</b>	<b>60</b>	<b>14,000</b>	
<b>Users</b>	<b>20</b>	<b>350</b>	<b>28,000</b>	<b>1,071,225.00</b>	
<b>Maintenance Cost (bug repairs)</b>	<b>\$5,850</b>	<b>\$72,150</b>	<b>\$891,150</b>	<b>\$11,023,350</b>	

<b>Customer support Cost</b>	<b>\$7,055</b>	<b>\$123,090</b>	<b>\$9,806,333</b>	<b>\$374,996,754</b>	
<b>Enhancement Cost</b>	<b>\$6,930</b>	<b>\$78,540</b>	<b>\$831,600</b>	<b>\$12,936,000</b>	
<b>Total Cost for 2020</b>	<b>\$19,835</b>	<b>\$273,780</b>	<b>\$11,529,083</b>	<b>\$398,956,104</b>	
Three Year Totals					
<b>Bug reports (valid)</b>	<b>32</b>	<b>384</b>	<b>5,232</b>	<b>80,256</b>	
<b>Bug reports (invalid)</b>	<b>12</b>	<b>156</b>	<b>2,028</b>	<b>26,364</b>	
<b>Bug reports (TOTAL)</b>	<b>44</b>	<b>540</b>	<b>7,260</b>	<b>106,620</b>	
Help requests	<b>70</b>	<b>770</b>	<b>8,470</b>	<b>93,170</b>	
Incident reports	<b>75</b>	<b>788</b>	<b>8,269</b>	<b>86,822</b>	
<b>3-year bug reports per function point</b>	<b>0.44</b>	<b>0.54</b>	<b>0.73</b>	<b>1.07</b>	<b>Bugs increase with application size</b>
Installation sites	1	3	60	14,000	
Users	20	350	28,000	1,071,225.00	
<b>Maintenance Cost (bug repairs)</b>	<b>\$28,600</b>	<b>\$357,125</b>	<b>\$4,971,375</b>	<b>\$73,150,875</b>	
<b>Customer support Cost</b>	<b>\$15,895</b>	<b>\$316,558</b>	<b>\$25,516,739</b>	<b>\$937,358,742</b>	<b>&gt; 1,000,000 users have high support costs</b>
<b>Enhancement Cost</b>	<b>\$19,530</b>	<b>\$221,340</b>	<b>\$2,343,600</b>	<b>\$36,456,000</b>	
<b>Total Cost for 3 years</b>	<b>\$64,025</b>	<b>\$895,023</b>	<b>\$32,831,714</b>	<b>\$1,046,965,617</b>	
<b>3-year Maintenance cost per function point</b>	<b>\$286.00</b>	<b>\$357.13</b>	<b>\$497.14</b>	<b>\$731.51</b>	

<b>3-year customer support cost per function point</b>	<b>\$158.95</b>	<b>\$316.56</b>	<b>\$2,551.67</b>	<b>\$9,373.59</b>	<b>&gt; 1,000,000 users have high support costs</b>
<b>3-year enhancement cost per function point</b>	<b>\$195.30</b>	<b>\$221.34</b>	<b>\$234.36</b>	<b>\$364.56</b>	
<b>3-year Total cost per function point</b>	<b>\$640.25</b>	<b>\$895.02</b>	<b>\$3,283.17</b>	<b>\$10,469.66</b>	
<b>3-year total cost per user</b>	<b>\$3,201.25</b>	<b>\$2,557.21</b>	<b>\$1,172.56</b>	<b>\$977.35</b>	<b>&gt; 1,000,000 users have economies of scale</b>
		<b>END OF EXAMPLE</b>			