INTERACTIVE TECHNOLOGIES GROUP, INC.

Innovative Approaches in Manpower

presented for
**Innovative Approaches in Manpower**

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**Security Classification of:**
- a. Report: unclassified
- b. Abstract: unclassified
- c. This Page: unclassified

**Limitation of Abstract:**
Same as Report (SAR)

**Number of Pages:**
26
The Challenge

- Client: A Global Defense Command
  - CONUS and OCONUS Units
  - Disparate Installation Configurations
  - Disparate Staffing and Procedures
  - Disparate Regulatory Authorities

- Objective: Dynamic Functional Models
  - Data Driven
  - Scientifically Based
  - Holistic in Scope
The Challenge

- Constraints
  - 67 Global Locations
  - No Travel Budget
  - Minimal Historical Data
  - Consensus

- Data Segmentation
  - 12 functional units
  - 6 installation configurations
Four Key Questions

- What do we produce?
- How do we produce it?
- How much do we produce?
- Who is producing it?
SPARRC™ Methodology

S ystem
P rocess
A ssessment
R e-engineering
R edesign
C omparison
Six Phases of SPARRC™

1. Study Planning
2. Organizational Analysis
3. Functional Analysis
4. Work Measurement
5. Analysis
6. Reporting
ITG’s Technical Approach

- SPARRC™ Methodology
- Data Collection Virtual Workshops
  - Leverage J-Accomplish™ Technology
  - Maximize SME Participation
  - Immediate Results Validation
  - Minimize Workflow Interruption
  - Elimination of Travel Expense
ITG’s Technical Approach

- Verified and Validated existing WBS
- Conducted Primary Measurement
  - 9 CONUS / 5 OCONUS units
  - (3) One-week sessions
- Developed Preliminary Analysis
- Conducted Secondary Measurement
  - 36 CONUS / 17 OCONUS units
  - (5) One-week sessions
- Performed C&R Workload Analysis
Enabling Technology

Web-based suite of analytical tools
- Speeds deployment and implementation
- Enhances collaboration
- Broader data collection reach

Combines qualitative and quantitative
- Real-time analysis
- Historical, current and future views

Fact-based decision making
JAWWS™ Functionality

- Patent-Pending Technical Innovations
  - WARPfactors™
  - JAWWS™ Optimizer
  - Process-Skills Competency Bridge
- Integrated analytics
- Scenario-based models
Basic Manpower Calculation:
Hours = \( \Sigma (\text{Output Frequency} \times \text{Cycle Time}) \)

or

\( Y = \Sigma (\text{AF} \times \text{CT}) \)

Fractional FTE Calculation:
FTEs = \( \frac{\text{Hours}}{\text{Manpower Availability Factor}} \)

Or

\( \text{FTE} = \frac{Y}{\text{MAF}} \)
JAWWS™ Functionality

- WARPfactors™
  - Workload Accelerated Requirements Processing
  - Correlation and Regression Analysis
    - Support for multiple locations
  - Higher Granularity
    - Workload segmented by Work Outputs
- Scenario Modeling
  - Generates required manpower
  - Estimates projected Work Output production
  - Leverages Skills Percentages
JAWWS™ Functionality

- **WARPfactors™**
  - Programmable Staffing Standards
    - Segmented by Work Output
    - Compound models

\[ Y_c = \{a_1 + b_1x_1\} + \{a_2 + b_2x_1 + c_2x_1^2\} + \{x_2/(a_3 + b_3x_2)\} \]

<table>
<thead>
<tr>
<th>Output1</th>
<th>Output2</th>
<th>Output3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
<td>Parabolic</td>
<td>Ratio Curve</td>
</tr>
</tbody>
</table>

- Segmentation Benefits
  - Provides higher granularity
  - Improves standards reusability
JAWWS™ Functionality

- JAWWS™ Optimizer
  - Central Concepts
    - Process Differentiation
    - Least Cost Skills
    - MIP Minimization
  - Objective equation formulation
    - Coefficients based on hourly rates
    - Integer/Non-integer based on contractibility
  - Constraints
    - Unique/Blended Skill-Process Relationship
    - Unskilled Processes
JAWWS™ Functionality

- **Competency Bridge**
  - Competencies act as a bridge between Processes and Skills
  - Informs the baseline Skills analysis
  - Informs the JAWWS™ Optimizer
The Results

- Participation by over 300 SMEs
- 12 separate functional areas
- Functional Models Developed: 7
  - CONUS-Troop: 2
  - CONUS-Industrial: 1
  - CONUS-School: 1
  - CONUS-HQ: 1
  - OCONUS-Europe: 1
  - OCONUS-Pacific: 1
The Results

- Net Change: 178 additional FTE’s
  - CONUS-Troop: -7
  - CONUS-Industrial: +109
  - CONUS-School: -28
  - CONUS-HQ: +4
  - OCONUS-Europe: +75
  - OCONUS-Pacific: +25
- Models currently being implemented
JAWWS™ Data Inputs

- Work Measurement
  - Historical
  - Ongoing
  - Standards

- Competency Data
  - Technical
  - Professional
  - Foundational

- Human Capital
  - Work Place Trends
  - Skills and Assessments

J-Accomplish With Web Services
Enabling Technology
JAWWS™ Functionality

- **WARPfactors™**
  - Regression Types
    - Linear
    - Parabola
    - Power Curve
    - Ratio Curve

![Graph showing workload hours vs. workload factor counts with regression types data]

<table>
<thead>
<tr>
<th>Type</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>Syx</th>
<th>COD</th>
<th>COC</th>
<th>COV</th>
<th>FTest</th>
<th>TTest</th>
<th>Correlate</th>
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<tbody>
<tr>
<td>Linear</td>
<td>0.0077</td>
<td>0.0233</td>
<td>0.2979</td>
<td>0.9603</td>
<td>0.9800</td>
<td>0.0677</td>
<td>822.6660</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parabola</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
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<td>Ratio</td>
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<td>0.0732</td>
<td>699.4913</td>
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<td></td>
</tr>
</tbody>
</table>
JAWWS™ Functionality

Workload Scenario Report Filter

Staffing Equation: \[ Y = 14.2146 + 1.8148X_{17} \]

Where:
- \( X_{17} \) = Location Offices

* Select Cost Center for Manpower Model:

--- Make Selection Here ---
- ITN&V [IT Support Department]
- IT [Information Technology Support]

Please provide counts for the following Workload Factors...

* \( X_{17} \) Location Offices [OFF]
  Definition:

12

Please provide counts for the following Work Outputs...

* IT: 1.2. A user desktop/laptop maintenance action performed. [UOM: Hour(s)]
  Definition:

120

* IT: 1.3. A work order processed [UOM: Unit(s)]
  Definition:

213

Generate Report
### JAWWS™ Functionality

**WorkOutput:** IT: 1.1. A server maintenance action performed

<table>
<thead>
<tr>
<th>Process</th>
<th>CycleTime</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT: 1.1.1.0.0. Perform server maintenance</td>
<td>1.0000</td>
<td>35.9922</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill</th>
<th>Hours</th>
<th>Skill%</th>
<th>CalcFTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Support Analyst I [DSA-01]</td>
<td>35.9922</td>
<td>100.00</td>
<td>0.2482</td>
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</tbody>
</table>

**WorkOutput:** IT: 1.2. A user desktop/laptop maintenance action performed.

<table>
<thead>
<tr>
<th>Process</th>
<th>CycleTime</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT: 1.2.1.0.0. Perform user desktop maintenance</td>
<td>1.0000</td>
<td>120.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill</th>
<th>Hours</th>
<th>Skill%</th>
<th>CalcFTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Support Analyst II [DSA-02]</td>
<td>60.0000</td>
<td>50.00</td>
<td>0.4138</td>
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<tr>
<td>Database Support Analyst I [DSA-01]</td>
<td>60.0000</td>
<td>50.00</td>
<td>0.4138</td>
</tr>
</tbody>
</table>

**WorkOutput:** IT: 1.3. A work order processed

<table>
<thead>
<tr>
<th>Process</th>
<th>CycleTime</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT: 1.3.1.0.0. Process a work order</td>
<td>10.0833</td>
<td>213.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill</th>
<th>Hours</th>
<th>Skill%</th>
<th>CalcFTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Support Analyst II [DSA-02]</td>
<td>1073.8715</td>
<td>50.00</td>
<td>7.4060</td>
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<tr>
<td>Database Support Analyst I [DSA-01]</td>
<td>1073.8715</td>
<td>50.00</td>
<td>7.4060</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill</th>
<th>Hours</th>
<th>CalcFTE</th>
<th>WholeFTE</th>
<th>WholeCost</th>
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</thead>
<tbody>
<tr>
<td>Database Support Analyst I [DSA-01]</td>
<td>1169.8637</td>
<td>8.0680</td>
<td>9</td>
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<tr>
<td>Database Support Analyst II [DSA-02]</td>
<td>1133.8715</td>
<td>7.8198</td>
<td>8</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>2303.7352</strong></td>
<td><strong>15.8878</strong></td>
<td><strong>17</strong></td>
<td><strong>71521.25</strong></td>
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</table>
JAWWS™ Functionality

Optimization Results

<table>
<thead>
<tr>
<th>Skill</th>
<th>Required Strength</th>
</tr>
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<tbody>
<tr>
<td>Resource Specialist. $20.98/ph</td>
<td>1.00</td>
</tr>
<tr>
<td>Supervisory Facilities Management Specialist. $25.99</td>
<td>2.00</td>
</tr>
<tr>
<td>PLANNER &amp; ESTIMATOR $16.28/PH</td>
<td>1.00</td>
</tr>
<tr>
<td>Material Controller $17.66/PH</td>
<td>0.00</td>
</tr>
<tr>
<td>Office Assistant. $13.96</td>
<td>7.00</td>
</tr>
<tr>
<td>Planner and Estimator (Pipefitter) $16.28/PH</td>
<td>3.00</td>
</tr>
</tbody>
</table>

Optimized Skill Matrix

- Planner and Estimator (Pipefitter) $16.28/PH = 3
- Resource Specialist.
- Supervisory Facilities Management Specialist.
- PLANNER & ESTIMATOR
- Material Controller $17.66/PH = 0
- Office Assistant. $13.96 = 7
# Contact Us

<table>
<thead>
<tr>
<th>David Juza</th>
<th>James Tillman</th>
<th>Peter Marsh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal</td>
<td>Corporate VP</td>
<td>Principal</td>
</tr>
<tr>
<td>MEG/HCMG</td>
<td>MEG</td>
<td>IPG</td>
</tr>
<tr>
<td>(703)200-5784</td>
<td>(563) 391-0230</td>
<td>(901) 849 8288</td>
</tr>
<tr>
<td><a href="mailto:djuza@itgco.com">djuza@itgco.com</a></td>
<td><a href="mailto:jtillman@itgco.com">jtillman@itgco.com</a></td>
<td><a href="mailto:pmarsh@itgco.com">pmarsh@itgco.com</a></td>
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</tbody>
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