INTERACTIVE TECHNOLOGIES GROUP, INC.

Innovative Approaches in Manpower

presented for

MORS

ITG
Interactive Technologies
Group, Inc.

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
JAN 2010		**00-00-2010 to 00-00-2010**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Innovative Approaches in Manpower	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Interactive Technologies Group Inc,2034 Eisenhower Avenue, Suite 115,Alexandria,VA,22314**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES
Personnel and National Security: A Quantitative Approach (Unclass), 25-28 January 2010, Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**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

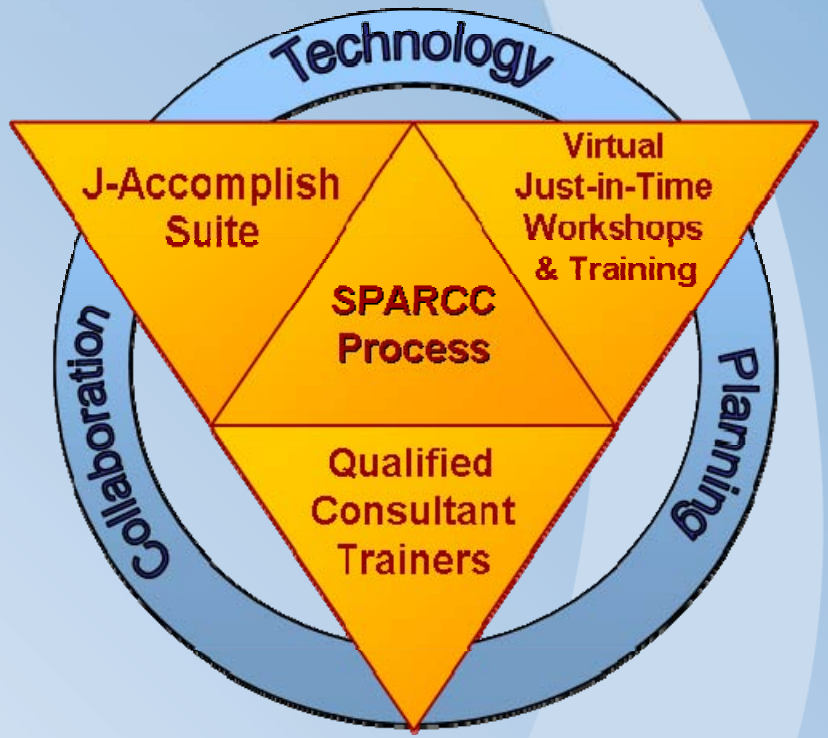
P rocess

A ssessment

R e-engineering

R edesign

C omparison



SPARRC™ Methodology

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

JAWWS™ Functionality

Basic Manpower Calculation:

Hours = Σ(Output Frequency * Cycle Time)

or

$Y = \Sigma (AF * CT)$

Fractional FTE Calculation:

FTEs = Hours / Manpower Availability Factor

Or

FTE = Y / 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

$$Yc = \{a1 + b1x1\} + \{a2 + b2x1 + c2x12\} + \{x2/(a3 + b3x2)\}$$

Output1	Output2	Output3
Linear	Parabolic	Ratio Curve

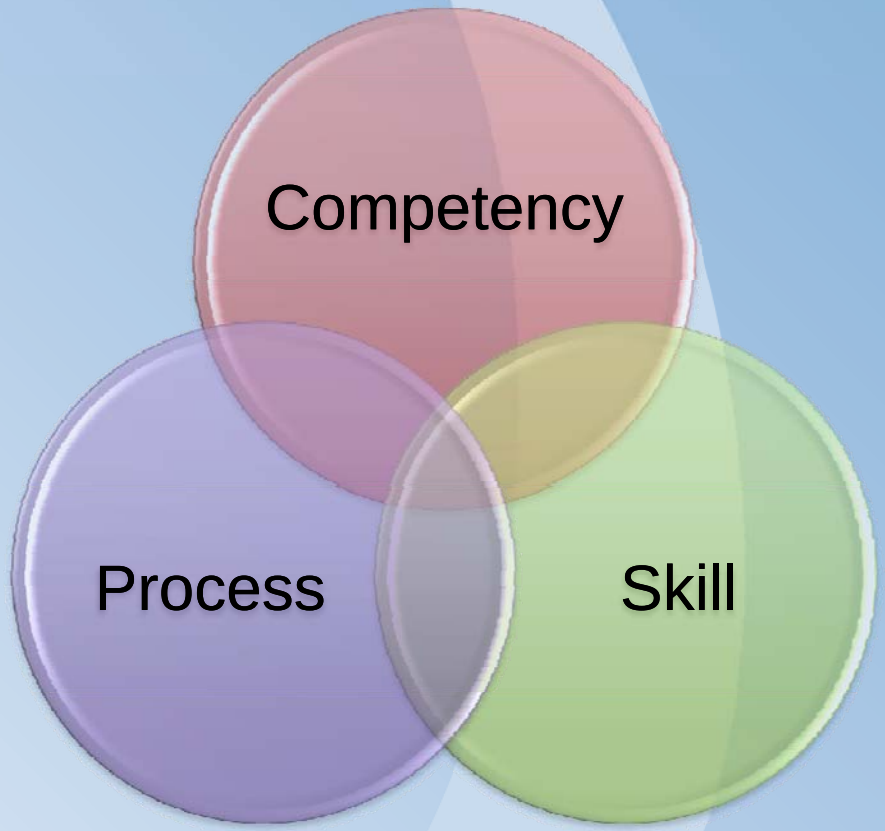
  - Segmentation Benefits
    - Provides higher granularity
    - Improves standards reusability

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

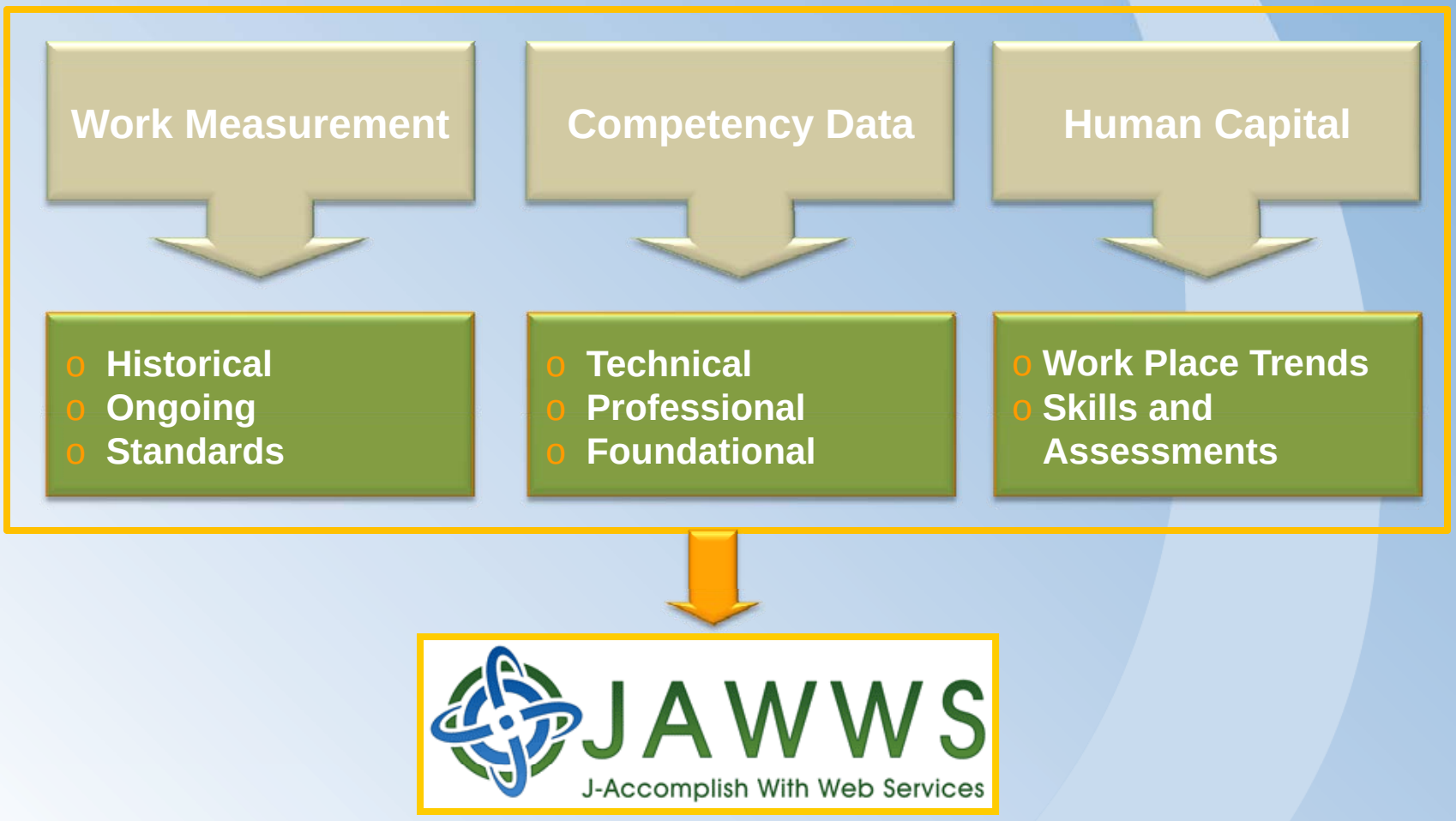
- Participation by over 300 SMEs
- 12 separate functional areas
- Functional Models Developed: 7
  - CONUS-Troop: 2
  - CONUS-Industrial: 1
  - CONUS-School: 1
  - CONUS-HQ: 1
  - OCONUS-Europe: 1
  - OCONUS-Pacific: 1

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

Backup

JAWWS™ Data Inputs

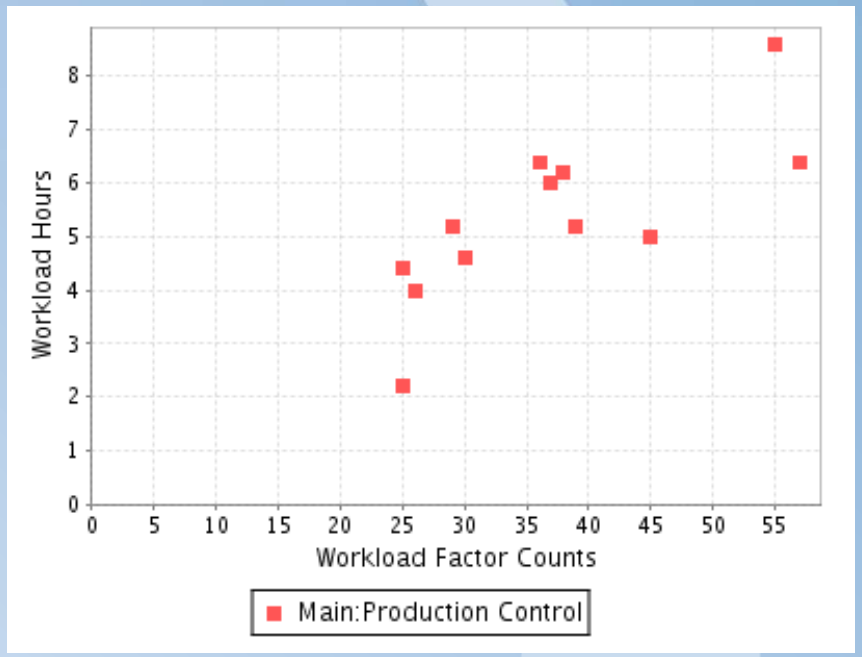


JAWWS™ Information Consumers

Enabling Technology

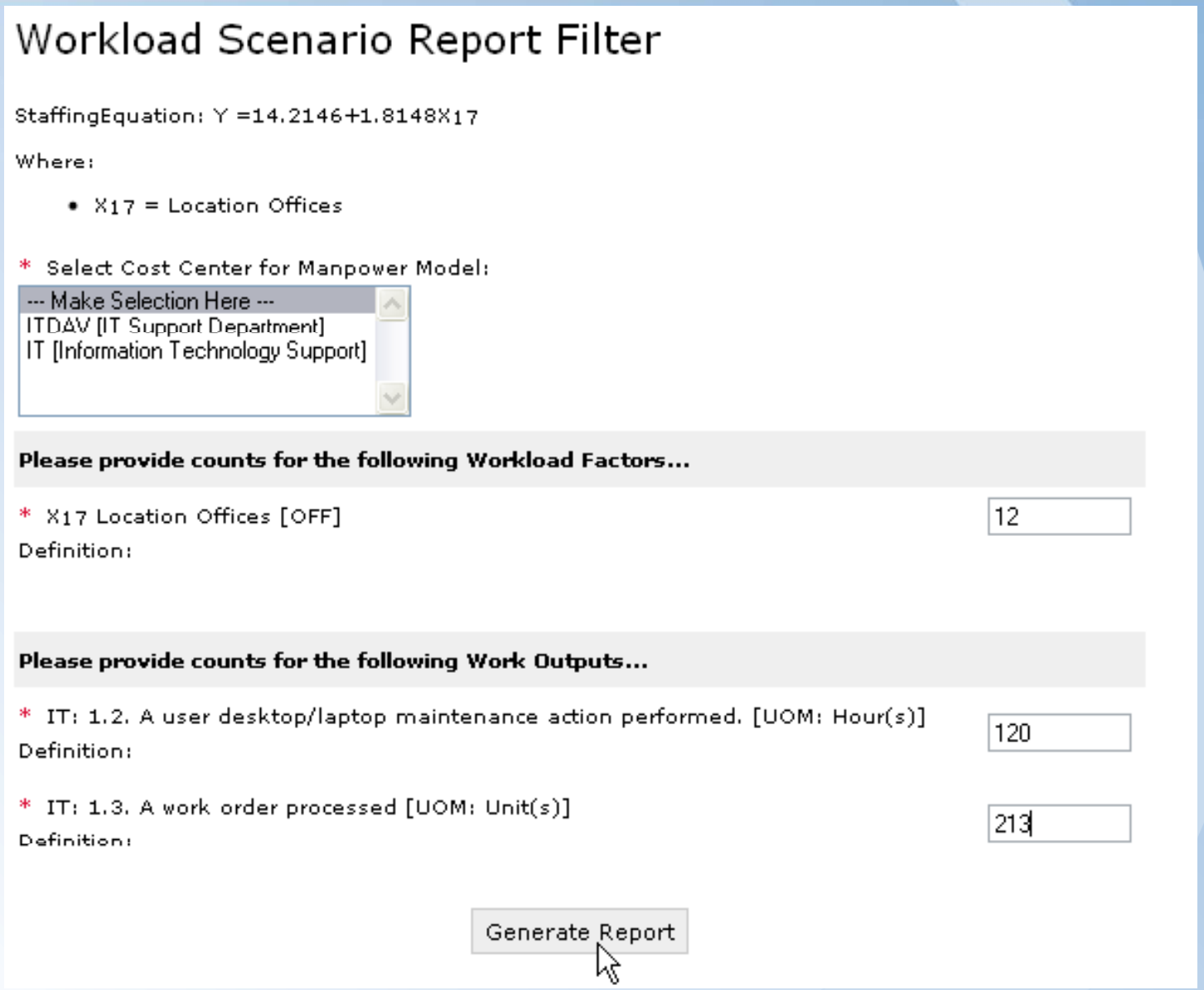
JAWWS™ Functionality

- WARPfactors™
  - Regression Types
    - Linear
    - Parabolic
    - Power Curve
    - Ratio Curve



Type	a	b	c	Syx	COD	COC	COV	FTest	TTest	Correlate
Linear	0.0077	0.0233		0.2979	0.9603	0.9800	0.0677	822.6660		◉
Parabola	--	--	--	--	--	--	--	--	--	
Ratio	49.7410	-0.0357		0.4422	0.9125	0.9553	0.1005	354.7786		○
PowerCurve	0.0165	1.0659		0.3219	0.9536	0.9765	0.0732	699.4913		○

JAWWS™ Functionality



JAWWS™ Functionality

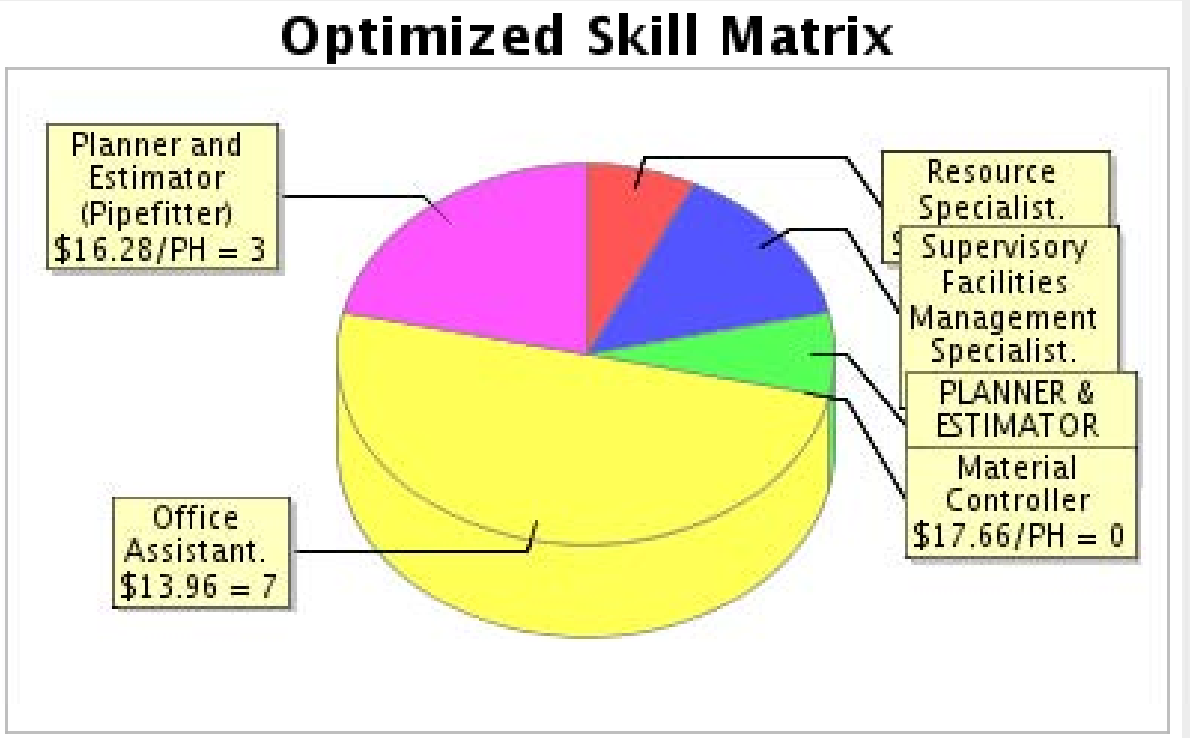
WorkOutput:IT: 1.1. A server maintenance action performed			
Process	**CycleTime**	**Frequency**	
IT: 1.1.1.0.0. Perform server maintenance	1.0000	35.9922	
Skill	**Hours**	**Skill%**	**CalcFTE**
Database Support Analyst I [DSA-01]	35.9922	100.00	0.2482
WorkOutput:IT: 1.2. A user desktop/laptop maintenance action performed.			
Process	**CycleTime**	**Frequency**	
IT: 1.2.1.0.0. Peform user desktop maintenance	1.0000	120.0000	
Skill	**Hours**	**Skill%**	**CalcFTE**
Database Support Analsyst II [DSA-02]	60.0000	50.00	0.4138
Database Support Analyst I [DSA-01]	60.0000	50.00	0.4138
WorkOutput:IT: 1.3. A work order processed			
Process	**CycleTime**	**Frequency**	
IT: 1.3.1.0.0. Process a work order	10.0833	213.0000	
Skill	**Hours**	**Skill%**	**CalcFTE**
Database Support Analsyst II [DSA-02]	1073.8715	50.00	7.4060
Database Support Analyst I [DSA-01]	1073.8715	50.00	7.4060

Skill	**Hours**	**CalcFTE**	**WholeFTE**	**WholeCost**
Database Support Analyst I [DSA-01]	1169.8637	8.0680	9	36605.25
Database Support Analsyst II [DSA-02]	1133.8715	7.8198	8	34916.00
Total:	**2303.7352**	**15.8878**	**17**	**71521.25**

JAWWS™ Functionality

Optimization Results

Skill	Required Strength
Resource Specialist. $20.98/ph	1.00
Supervisory Facilities Management Specialist. $25.99	2.00
PLANNER & ESTIMATOR $16.28/PH	1.00
Material Controller $17.66/PH	0.00
Office Assistant. $13.96	7.00
Planner and Estimator (Pipefitter) $16.28/PH	3.00



Contact Us

David Juza	James Tillman	Peter Marsh
Principal MEG/HCMG (703)200-5784 djuza@itgco.com	Corporate VP MEG (563) 391-0230 jtillman@itgco.com	Principal IPG (901) 849 8288 pmarsh@itgco.com