Maritime Bootcamp Data Collection & Analysis: Shipfitter

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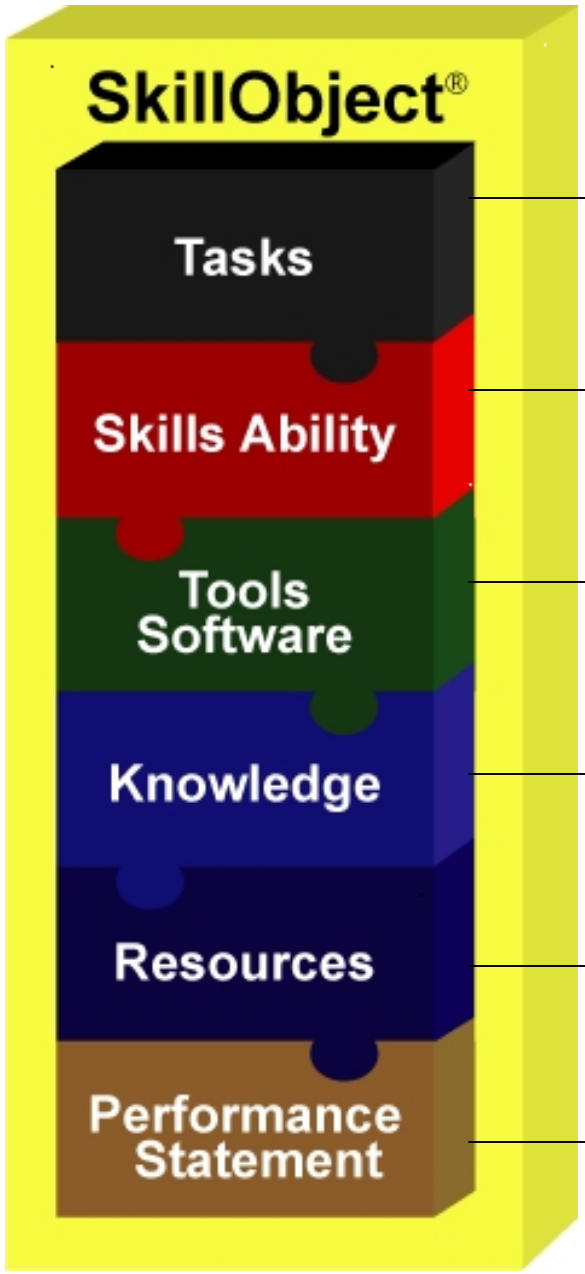
Shipfitter Project Needs

- Global Needs
  - Training Content
  - Portability Data
  - Individual Incumbent Data/Measurables
- Specific Needs
  - Job Skills Analysis Data
    - Employability Assessment
    - Structured Behavioral Interview
    - Curriculum Development
    - Training Development
  - Data Standardization for Portability
  - Gap Analyses

Solution – Shipfitter Job Task Analysis Utilizing SkillObject® Architecture

SkillObject® Architecture



Tasks: The most specific level of behavior in a job that describes the performance of a meaningful job function in terms of a specific action applied to a particular object.

Enabling Skills: Developed capacities that facilitate learning, knowledge acquisition, or performance.

Enabling Abilities: Enduring attributes of the individual that facilitates task performance.

Tools/Software: Tangible items such as tools, software, equipment, or devices that are required to demonstrate SkillObjects.

Knowledge: Enduring information, gained through experience or study, including processes, procedures, or intellectual capital.

Resources: Informational sources and other reference materials used to locate information or that house information about processes.

Performance Statements: Behavioral statements that describe exemplary performance for SkillObjects.

Approach

1) SkillObject Designer® for SkillObject® development, job skills analysis, standardization, and portability
2) Task Survey
3) SkillObject Mapper® for all job incumbents
4) Develop proficiency standards from supervisor SkillObject Mapper®
5) Skills Gap Analysis

Focus: One job across multiple shipyards

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Participation

	Atlantic	Bender	Bollinger	Northrop	Signal	VT Halter	SkillsNET
Legacy Data Review & Generation							√
Work Element Generation	√	√	√		√	√	
Work Element Editing							√
Work Element Review	√	√	√		√	√	
Work Element Finalization							√
Skill & Ability Linkages							√
Initial SkillObject Generation							√
SkillObject Review & Modification			√	√	√		
SkillObject Editing							√
Task Survey		√	√	√	√	√	
Incumbent SkillObject Mapper		√	√	√	√		
SkillObject Standards		√	√	√	√	√	
Survey Analyses							√

Job Analysis Results

1) 230 Tasks
2) 54 Tools
3) 14 Unique Knowledges
4) 7 Resources
5) 25 Generalized Work Activities
6) 36 Skills
7) 27 Abilities
8) 31 SkillObjects

SkillObjects

- Blocks and Cast Fabrication
- Boring, Cutting and Grinding Operations
- Component Installation
- Data Measurement and Identification
- Documentation Generation
- Drawing and Layout Design
- Electrical Operations
- Employee Development and Management
- Equipment and Structure Testing
- Equipment Maintenance
- General Work and Process Monitoring
- Information Review
- Managerial Responsibilities
- Material Transportation
- Metal Welding and Joining
- Mooring, Heaving, and Anchor Lines
- Non-Welding Material Fastening & Securing
- Painting Procedures
- Piping Operations
- Problem Solving
- Project Communication
- Rigging Procedures
- Safety Administration
- Shipfitter Training
- Size and Dimension Verification
- Structural and Non-Structural Fabrication
- System Maintenance
- Systems and Structural Repair
- Work Planning
- Work Preparation
- Workflow and Machine Operation

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Example SkillObject

SkillObject: Safety Administration

Task(s):

- Check Material Safety Data Sheet (MSDS) for chemical use and personal protective gear
- Climb structures such as scaffolds or small buildings safely
- Establish boundaries during radiographic operations
- Forecast problems to prevent injuries or rework
- Inspect facilities so that they are safe for workers
- Inspect manlifts and forklifts daily using a checklist to determine if in safe and working condition
- Provide job safety analysis
- Secure site with ropes and warning signs
- Set up environmental protection devices
- Set up safety lights
- Verify compliance with environmental protection procedures
- Verify regulations to make sure they are followed

Tool(s):

- Come-along
- Computer
- Crane
- Environmental protection devices
- Forklift
- Hand tools
- Hoist
- Hydraulic jacks
- Jacks
- Joggle machines
- Laser
- Manlift
- Metalworking machinery shear steel
- Personal Protective Equipment (PPE)
- Scaffold
- Test equipment

Knowledge(s):

- Basic electricity
- Inspection procedures
- Layout and assembly
- Non-Destructive Testing (NDT) techniques
- Rigging techniques
- Safety rules and procedures
- Ship repair techniques
- Structural fabrication techniques
- Tying knots and lines
- Welding techniques

Resource(s):

- Material Safety Data Sheets (MSDS)
- Safety manual & instructions
- Technical manuals
- Training manuals

O*NET Skills:

- Reading Comprehension
- Judgment and Decision Making
- Foresee Downstream Consequences
- Problem Identification
- Product Inspection
- Judgment and Decision Making
- Installation
- Monitoring

O*NET Abilities:

- Written Comprehension
- Gross Body Coordination
- Deductive Reasoning
- Inductive Reasoning
- Near Vision
- Problem Sensitivity
- Manual Dexterity

Related Work Keys Skills

SkillsNET	Work Keys
Writing	Writing
Repairing	Applied Technology
Equipment Maintenance	
Reading Comprehension	Reading for Information

Additional Attributes

(From SkillsNET Taxonomy)

Abilities

- Manual Dexterity
- Near Vision
- Oral Expression
- Problem Sensitivity
- Written Expression
- Deductive Reasoning
- Control Precision
- Written Comprehension
- Static Strength
- Finger Dexterity
- Inductive Reasoning
- Information Ordering
- Number Facility
- Multi-limb Coordination
- Originality
- Visualization
- Fluency of Ideas
- Gross Body Coordination
- Rate Control
- Oral Comprehension
- Reaction Time
- Wrist-Finger Speed
- Dynamic Flexibility
- Trunk Strength
- Category Flexibility
- Dynamic Strength
- Gross Body Equilibrium

Skills

- Operation and Control
- Installation
- Product Inspection
- Testing
- Information Gathering
- Instructing
- Equipment Selection
- Operations Monitoring
- Management of Personnel Resources
- Speaking
- Implementation Planning
- Judgment and Decision Making
- Critical Thinking
- Monitoring
- Problem Identification
- Idea Generation
- Learning Strategies
- Management of Material Resources
- Visioning
- Foresee Downstream Consequences
- Management of Financial Resources
- Mathematics
- Operations Analysis
- Programming
- Service Orientation
- Solution Appraisal
- Technology Design
- Troubleshooting
- Active Listening
- Information Organization
- Systems Perception
- Time Management

Unique Knowledge

- Basic electricity
- Employee management and motivation techniques
- Inspection procedures
- Layout and assembly
- Math
- Non-Destructive Testing (NDT) techniques
- Reading drawings, blueprints, plans
- Rigging techniques
- Safety rules and procedures
- Ship repair techniques
- Structural fabrication techniques
- Training design techniques
- Tying knots and lines
- Welding techniques

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Survey Descriptives

Survey Participant Descriptives	
Personnel Status	**# Responses**
3rd Class Shipfitter	6
2nd Class Shipfitter	0
1st Class Shipfitter	5
Leaderman	5
Foreman	4
Superintendent	2
Time on Job	**# Responses**
0-3 months	1
4-6 months	1
7-11 months	1
1-2 years	4
3-5 years	1
Over 5 years	13

SkillObject Mapper Participant Descriptives	
Personnel Status	**# Responses**
3rd Class Shipfitter	5
2nd Class Shipfitter	0
1st Class Shipfitter	5
Leaderman	5
Foreman	7
Superintendent	2

Survey Scales

- ***Criticality***: How critical is proper performance of this task to the successful performance of this job?
  - 1 - Not Critical
  - 2 - Somewhat Critical
  - 3 - Critical
  - 4 - Very Critical
  - 5 - Extremely Critical
- ***Frequency***: How frequently do you perform this task?
  - 1 - Once per year or less
  - 2 - More than once per month, less than once per week
  - 3 - More than once per week, less than once a day
  - 4 - Once a day
  - 5 - Several times per day
- ***When Needed***: When is the ability to perform this task required in this job?
  - 1 - Job Entry
  - 2 - 1 to 3 months
  - 3 - 4 to 6 months
  - 4 - 7 to 12 months
  - 5 - More than one year

Skills Gap Analyses

- Created Skill-based proficiency standards across shipyards from SkillObject Mapper
  - Aggregated supervisory responses to generate standards and proficiency requirements
- Gap analysis between job incumbents and standards
- Identified systemic training areas in conjunction with results of survey data

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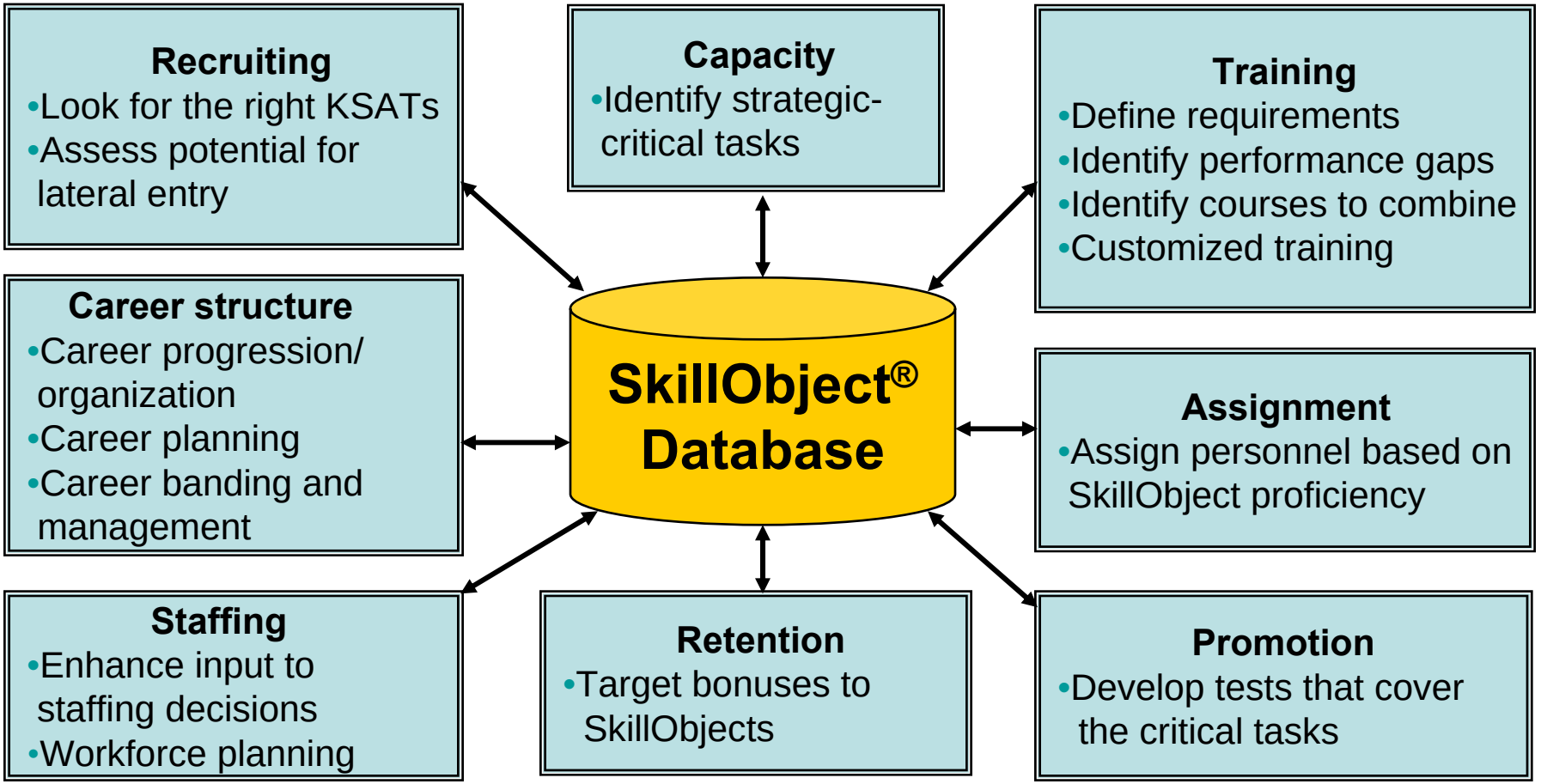
Strategic Applications of SkillObject Data



Improvement Opportunities

- Champion from each shipyard
- Top-down support and communication
- Internet access
- SME availability

Next Steps

- Determine shipyard-centric approach to position
  - Customize data for specific shipyard use
  - Standardize data across shipyards for industry use
  - Identify common elements across shipyards

- Data refinement and incumbent measurables
  - Increase survey and SkillObject Mapper populations
  - Refine Shipfitter standards
  - Gap Analyses on all job incumbents

Next Steps

continued

- Training & employee selection
  - Generate learning objectives, performance statements, and training curriculum
  - Select and implement screening processes
    - Implement a Behaviorally Based Interview tool
    - Employability Assessment
    - Work Keys
- Continuing efforts
  - Expand effort to additional shipyards
  - Increase the number of positions

Backup Slides

Home | SkillObjects | Unique Knowledge | Tools | Resources | Languages | My Mapper | Help Desk | Feedback | Logout

SkillObjects from your current job appear on this screen. Please follow the instructions below to provide ratings for each SkillObject. Click the SkillObject name to view the associated tasks.

What to do:

1. Rate your proficiency in performing each SkillObject with little or no assistance.
2. Indicate whether or not you perform each SkillObject in your current job.
3. Indicate your amount of experience with each SkillObject in your current job. If you have not performed the SkillObject, select "No Experience".
4. Indicate whether or not you would like to receive additional job support or training to increase your proficiency in performing each SkillObject.
5. Click **"Next Page"** to continue entering your ratings.
6. When **"Save Ratings"** appears you have reached the end of this section. Please click **"Save Ratings"** to save your work before exiting this section.

MEDICAL ASSISTANT - TRAINING SAMPLE DATA

SkillObject	Proficiency	Do you perform this SkillObject?	Experience	Request Additional Job Support or Training	Date Rated
Basic Patient Care		Yes ○ No ○		Yes ○ No ◉	
Coworker Correspondence		Yes ○ No ○		Yes ○ No ◉	
Examination Room Preparation		Yes ○ No ○		Yes ○ No ◉	
Laboratory test evaluation		Yes ○ No ○		Yes ○ No ◉	
Laboratory testing		Yes ○ No ○		Yes ○ No ◉	

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