

SkillsNET[®]

“Standardizing the Language of Work”[™]

Dr. Darrel Sandall, Chief Scientist
President, SkillsNET Innovations



Who is SkillsNET?

- **SkillsNET** is a business whose driving force is workforce development through the application of proven science.
- Our web-based tools allow us to reach around the world 24x7 to serve our clients. **Global Reach • Local Touch**
- We have been doing this for over 20 years for **Fortune 1000 companies** as well as the **U.S. Navy**, the **European Union**, and **seven U.S. State government agencies**.
- We have utilized **forty years of combined research** in the field of cognitive science to formulate our award winning, **legally defensible** methodology for capturing accurate, company specific job profiles.
- Our management team has a long history of applying science to our **business-focused applications** to solve real world issues for our clients.
- Our process is anchored to the United States Department of Labor's O*NET directory of occupational descriptions giving our clients a **standards framework** for capturing their job definitions.



What is the Value of SkillsNET to Your Organization?

The ability to ...

- **Hire, recruit, promote, and train** based on your best people's perception of what it takes to do the job well
- **Lower your costs** by utilizing our browser based applications to customize job profiles based on our extensive, industry specific occupational database
- **Reuse the data** in multiple systems ranging from HR and learning software to recruiting engines
- **Leverage your tax dollars** by utilizing the United States Department of Labor's O*NET taxonomy for occupational descriptions.
- Easily and affordably capture in a reusable format the **real foundation** of what it takes to be competent at **your jobs!**



National Skills Standards Board Linkage

- Driving force behind creation of NSSB
- Partnered/Participated to help develop standards for several Industry Sectors
 - Manufacturing Sector (MSSC)
 - Hospitality Sector
 - Business/Financial Occupations
 - Business/Management Occupations
 - Administrative Support Occupations
 - Heating, Air Conditioning, & Refrigeration Technician
- Created Global Skills XChange to continue work of NSSB at request of NSSB leadership



SkillObject Scientific Principles

Rich Interdisciplinary Basis of Occupational Science

Psychology
Management
Cognitive Science
Mathematics
Computer Science
Economics
Education and Training
Law
Sociology/Anthropology

**Scientific Principles Embedded
in the SkillObject™ Approach**



**An Interdisciplinary Approach
to Workforce Analysis**



Advantages of Linking to O*NET

O*NET is a highly-researched, common-language taxonomy for identifying and organizing occupational information developed by the U.S. Dept. of Labor.

SkillsNET Linkages to the O*NET Taxonomy

- ◆ Generalized Work Activities
 - ◆ Allows for cross-job comparisons and for SME queuing
- ◆ O*NET-SOC Titles and Codes
 - ◆ Links with other major coding systems (SOC, NAICS, CIP)
- ◆ Enabling Skills & Abilities
 - ◆ Makes it easy to examine transferability across jobs, to create job clusters, and to explore career paths across clusters



Advantages of Linking to O*NET

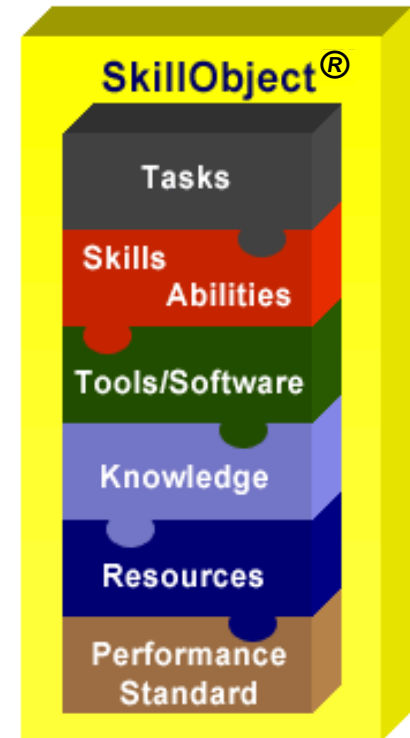
Enabling Skill Categories	Enabling Ability Categories
<p>Content Skills</p> <p>Process Skills</p> <p>Social Skills</p> <p>Complex Problem Solving Skills</p> <p>Technical Skills</p> <p>Systems Skills</p> <p>Resource Management Skills</p>	<p>Verbal Abilities</p> <p>Idea Generation and Reasoning Abilities</p> <p>Quantitative Abilities</p> <p>Memory Abilities</p> <p>Perceptual Abilities</p> <p>Spatial Abilities</p> <p>Attentiveness Abilities</p> <p>Fine Manipulative Abilities</p> <p>Control Movement Abilities</p> <p>Reaction Time Abilities</p> <p>Physical Strength Abilities</p> <p>Endurance Abilities</p> <p>Flexibility, Balance, and Coordination Abilities</p> <p>Visual Abilities</p> <p>Auditory and Speech Abilities</p>



SkillObject Definitions

Components/Parts of the SkillObject

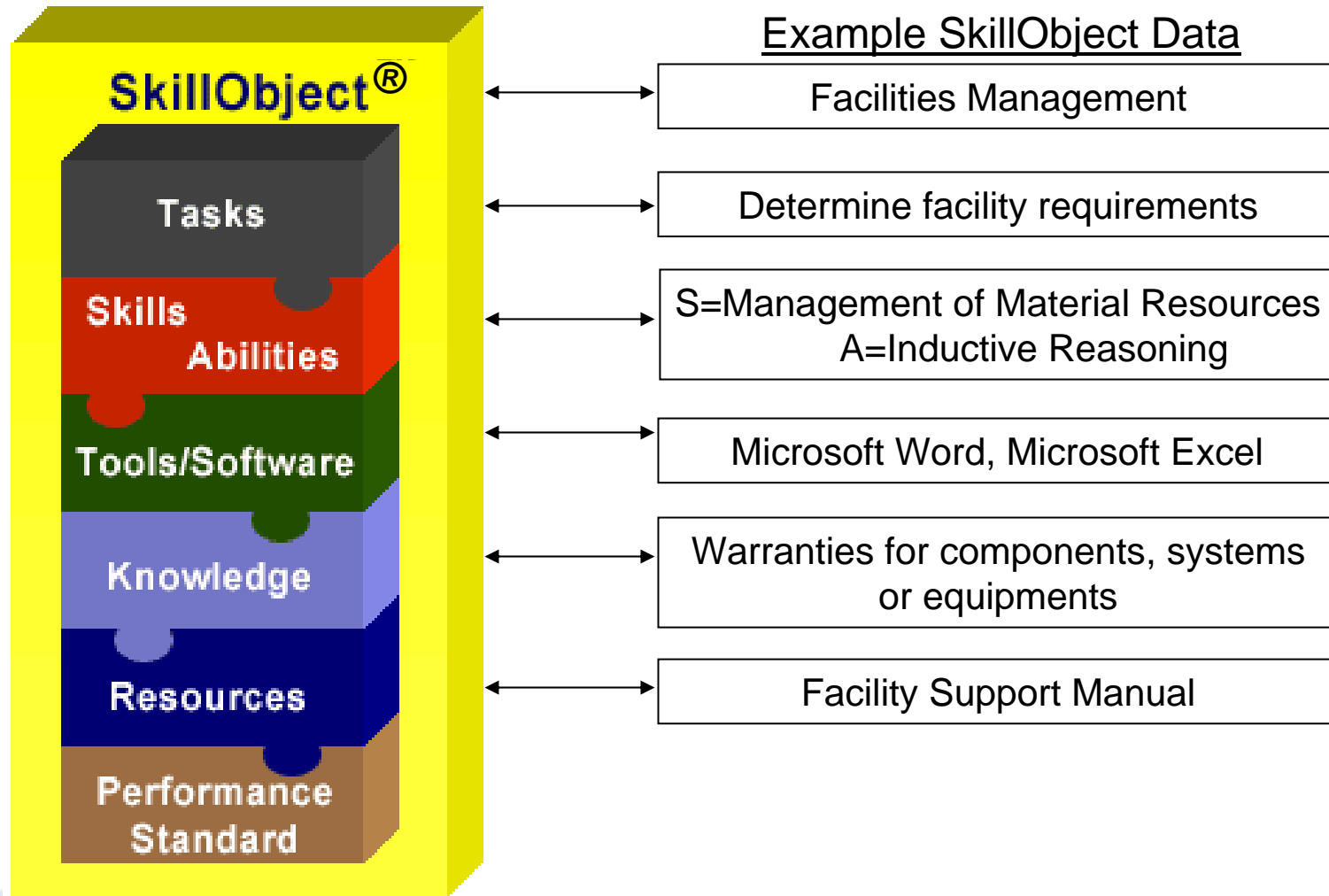
- A label or name
- Tasks
- Enabling Skills/Abilities
- Tools/software/equipment/devices
- Unique Knowledge
- Resources
- Performance Standards



SkillObject's are legally defensible, precise work descriptors that meet specific business needs



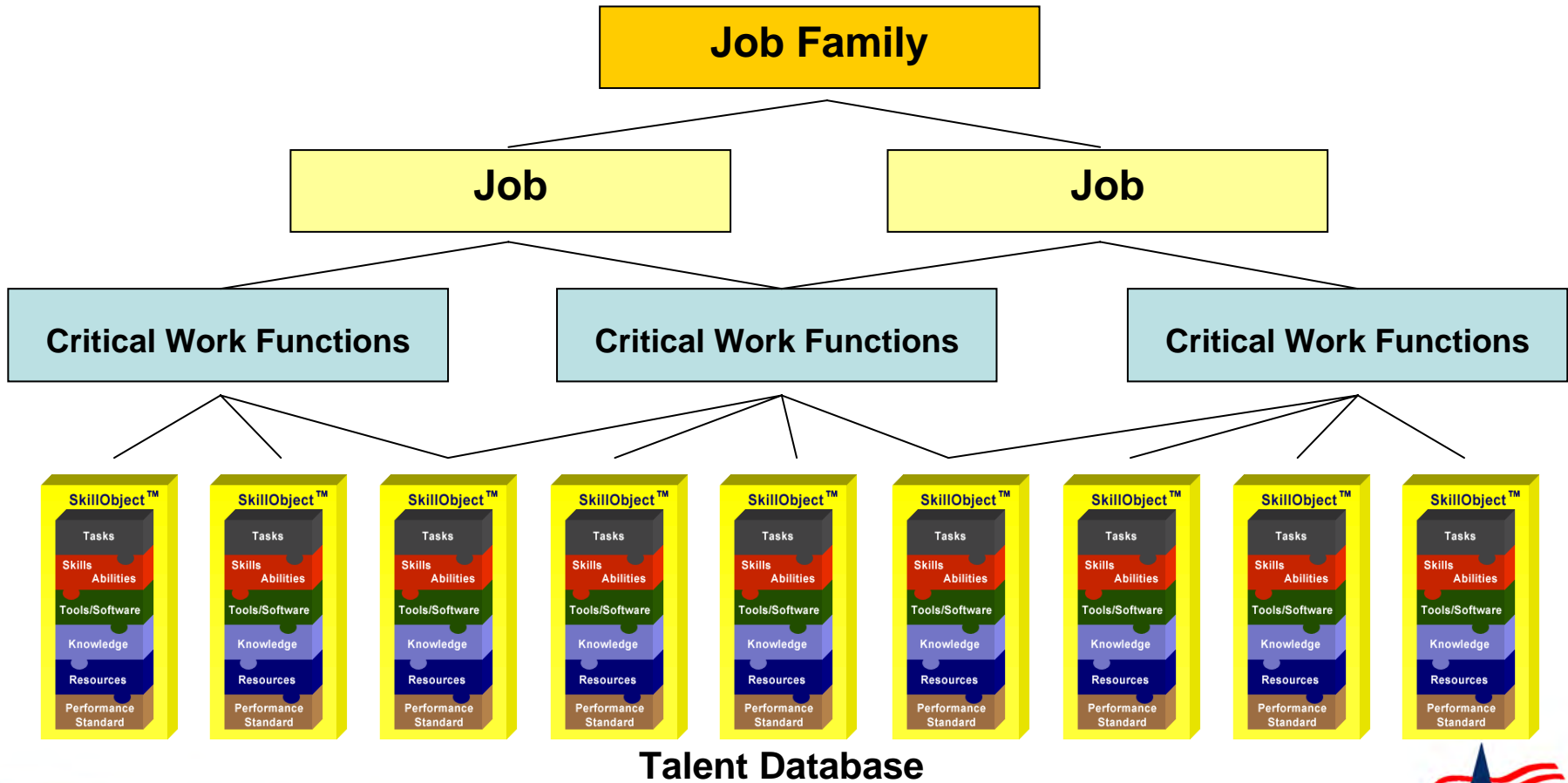
SkillObject Example



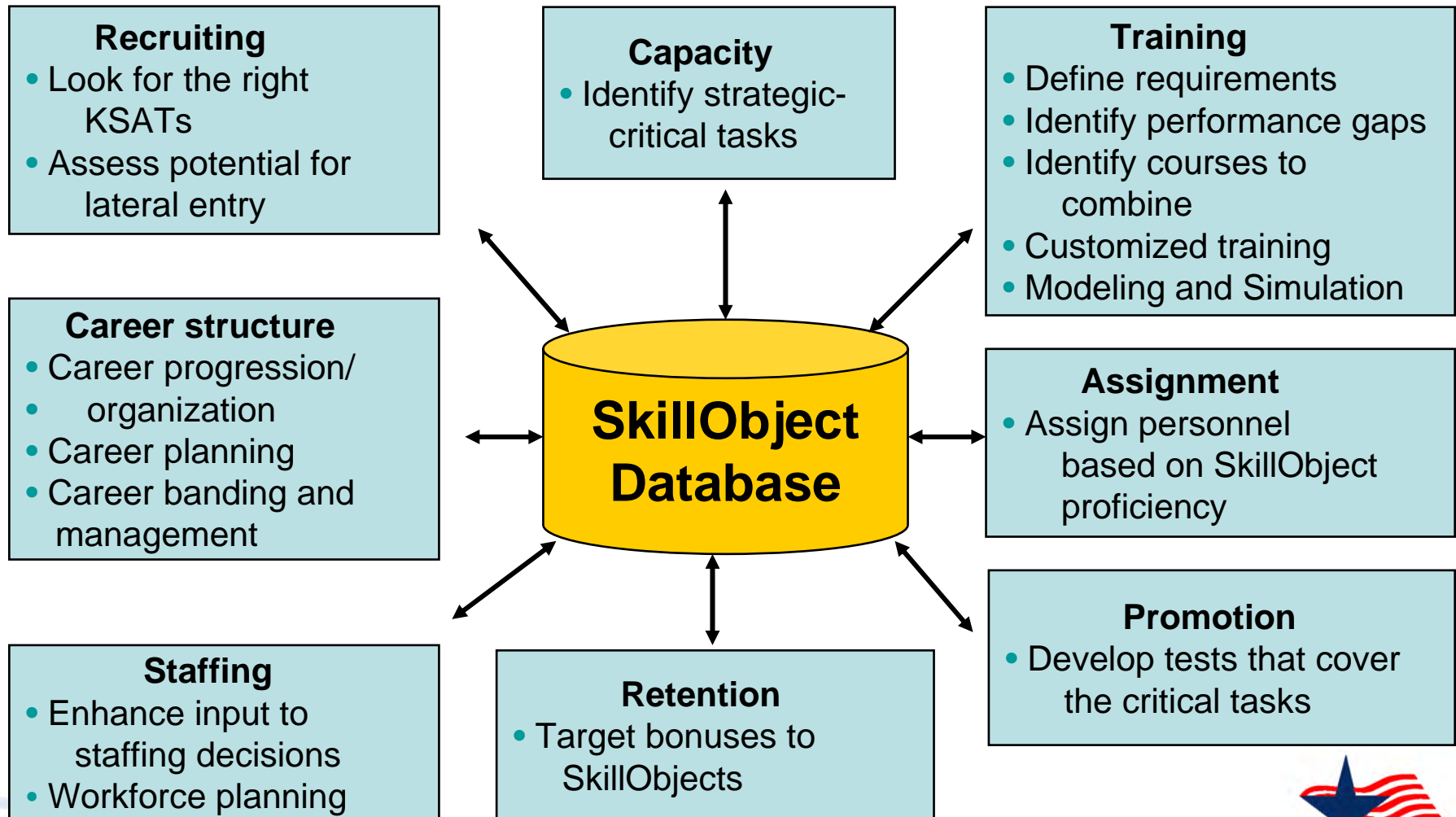
-- Also includes normative survey data (not shown)



SkillObjects make up the *DNA* of your organization



Strategic Applications of the Data

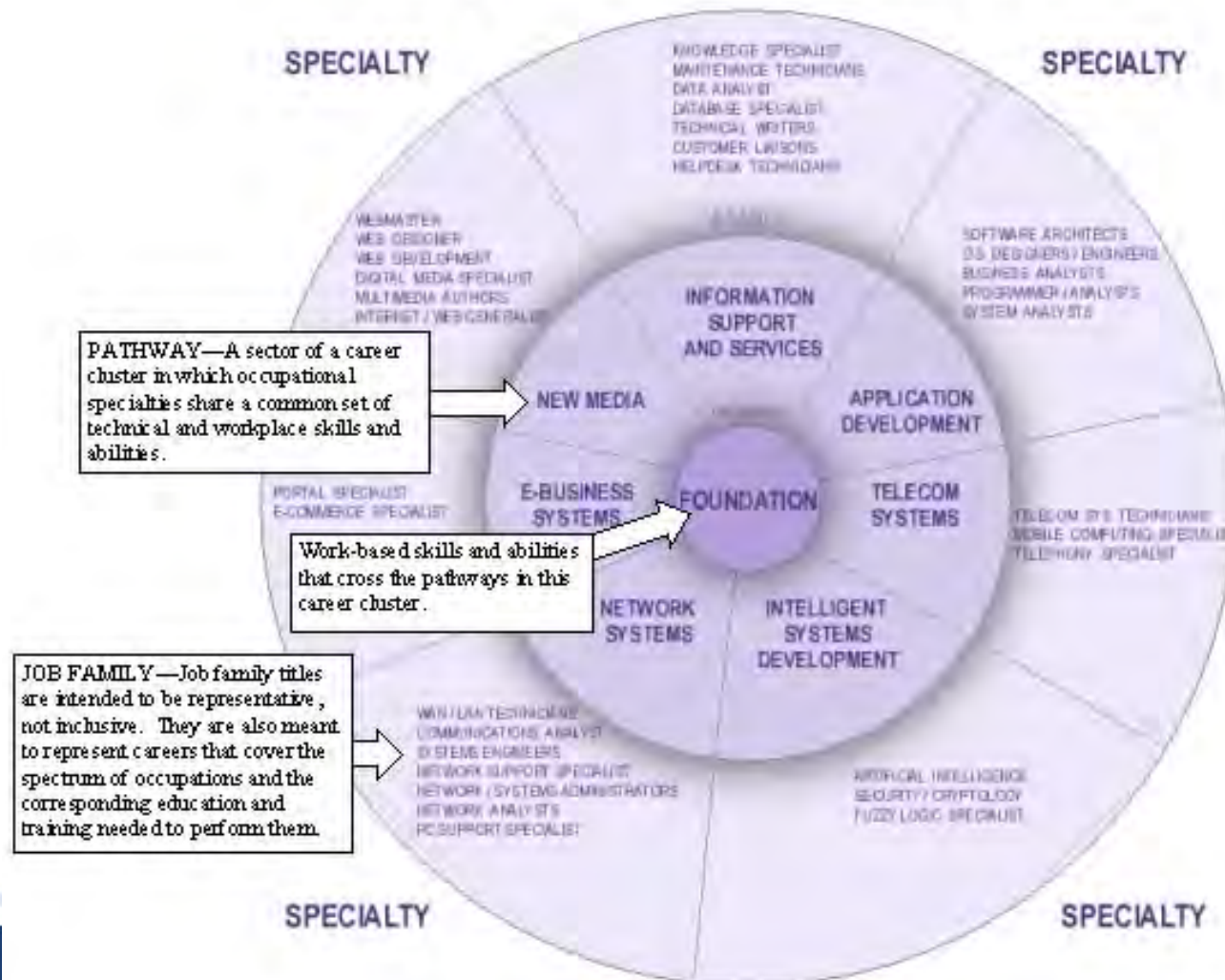


- **Competency based pay,**
- **Employee empowered development through IDPs**



Strategic Applications of the Data

Primary Elements of the Career Cluster Framework



What is SkillObject Designer[®]?

Automated, defensible online job/task analysis system which identifies the work being performed, and the necessary tools, unique knowledge, resources, skills and abilities all with normative data required to meet performance demands. Detailed data groupings and interrelationships add fidelity and magnify the strategic value of the work, worker, and workplace descriptors.



Means and Methods

SkillObject Designer

**Define
Work for
Job**

*Tasks
Knowledge
Tools
Resources*

STARs

**Normative
Survey**

*Frequency,
Criticality,
Difficulty to
Learn,
Duration, etc.*

**Job
Incumbents**

**Generate
SkillObjects**

*Critical Work
Function
metadata linkage
Define Required
Skills and
Abilities*

STARs

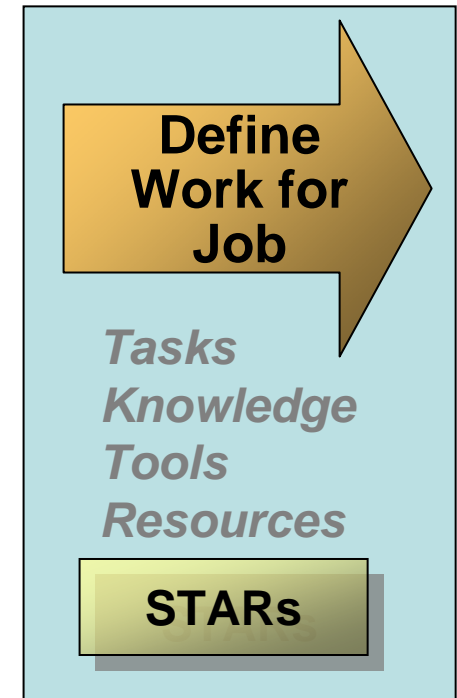


Means and Methods-continued

Process stages of SkillObjectSM Development

There are several stages in SkillObject Development:

- Work Element Generation (WEG)
- Work Element Editor (WEE)
- Work Element Review (WER)
- Work Element Finalization (WEF)
- On-Line Task Survey
- Task-to-Skill and Ability Linkage
- SkillObject Generator (SOG)
- SkillObject Editor (SOE)
- Critical Work Function Entry
- SkillObject to Critical Work Function Linkage
- On-Line Tool/Unique Knowledge/Resource Survey
- On-Line Skill and Ability Survey



Means and Methods-continued

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**Normative
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**Job
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Means and Methods-continued

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**Generate
SkillObjects**

*Critical Work
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metadata linkage
Define Required
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STARs

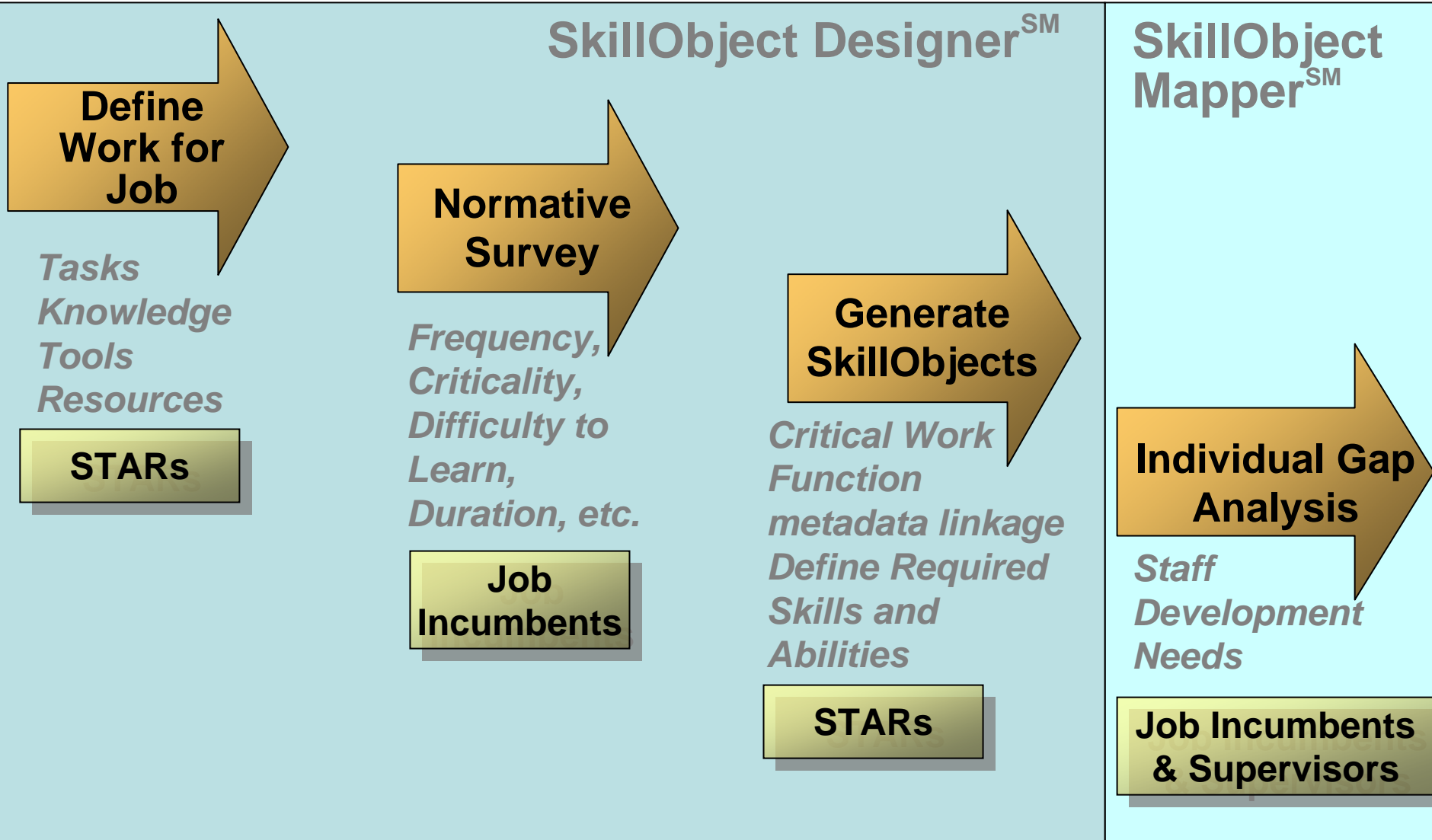


What is SkillObject Mapper™?

Online tool that enables workers to build and manage their personal performance improvement plan. The workers utilize the high-fidelity SkillObject™ descriptors to benchmark their strengths and weaknesses against detailed behavioral anchors, identify training needs and experience levels and language proficiencies. Skill and knowledge gaps dynamically become performance improvement learning targets.



Means and Methods



SkillObject Mapper

Individual Report

Final SkillObject Mapper Supervisor Review Report

AGDemo8 Survey

Data Date: 4/14/2003 2:01:43 PM

Review Completion Date: 4/14/2003 3:36:08 PM

Observed Work Elements

Work Element	User Rating	Supervisor Rating	Final Rating	User Requested Training	Supervisor Approved Training
SKILLOBJECT™					
AMPHIBIOUS WARFARE SUPPORT	2	2	2	Yes	No
ANTI-SUBMARINE WARFARE SUPPORT	3	3	3	No	Yes
DIRECT METOC OPERATIONS	2	3	3	Yes	No
FLEET LIAISON SERVICES	5	3	3	No	Yes
TOOL					
3M SOFTWARE	2	2	2	No	No
ANEROID BAROMETER	1	1	1	No	No
ARCVIEW, ARC EXPLORER	2	3	3	No	No
UNIQUE KNOWLEDGE					
3M PROGRAM	1	3	3	No	Yes
AIRCRAFT CAPABILITIES	2	4	4	No	Yes



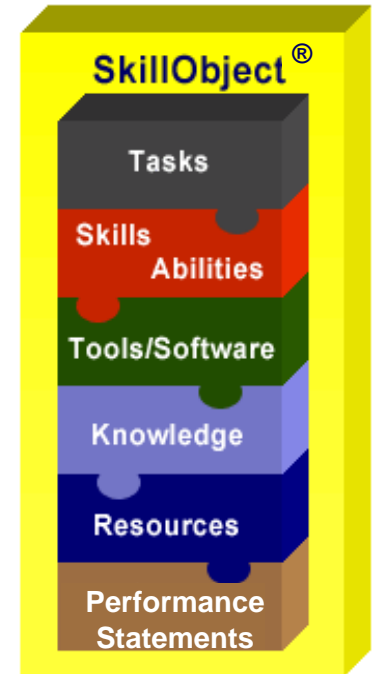
SkillObject Mapper Summary

- List of SkillObjects, tools, knowledge and languages with proficiency and experience levels
- Identified training needs linked to empirical criticality measures
- Provides supervisors' observed ratings by individual employee
- Allows consolidation of training needs across departments, divisions or enterprise-wide
- Can be linked to existing training curriculum and learning objects

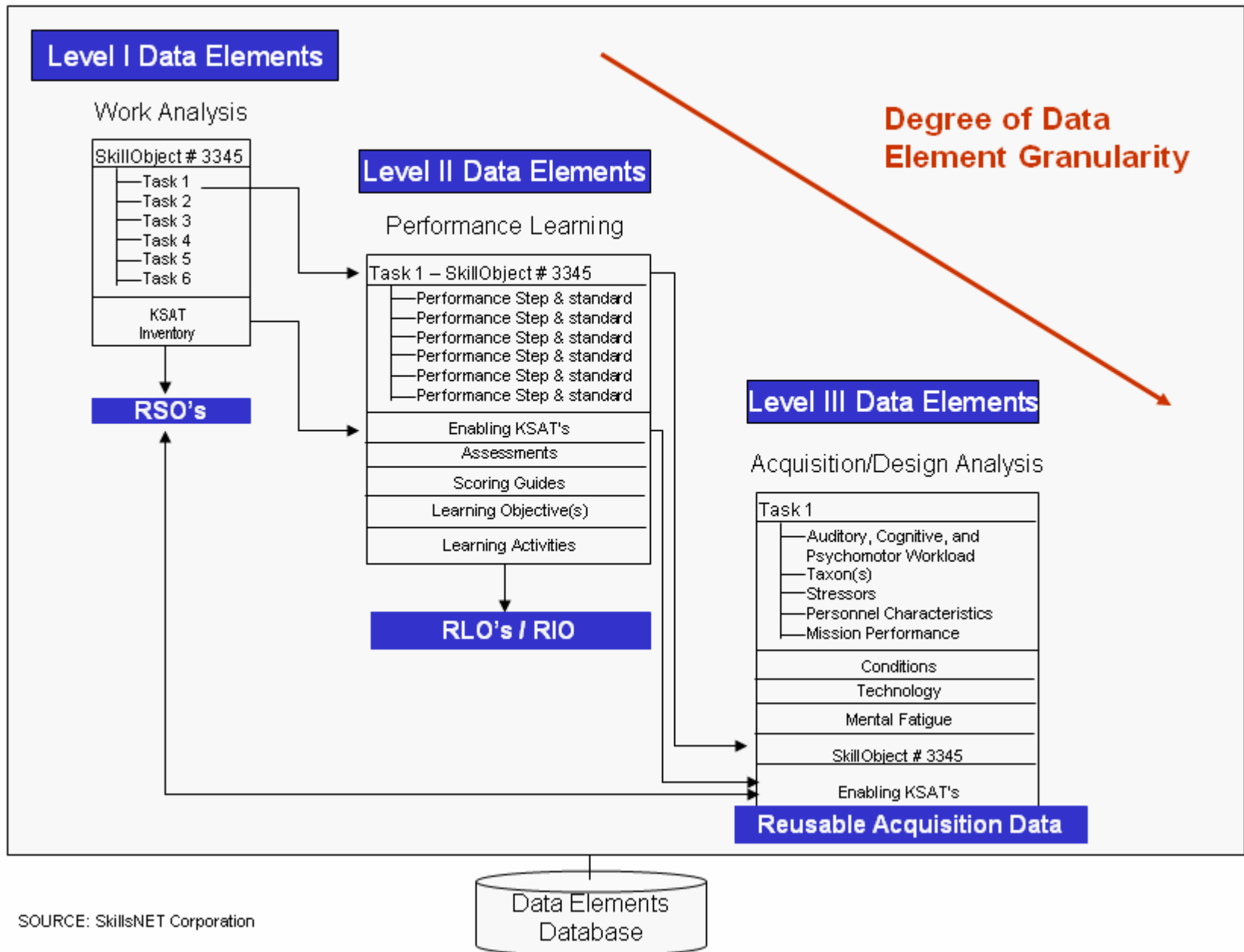


SkillObject Designer Demonstration

SkillObject Mapper Demonstration




1st/2nd Generation Navy Integrated Data Assurance Process (iDAP)



SOURCE: SkillsNET Corporation



SkillsNET Can Provide the Solutions You Need

	SkillsNET Products					
Requirements	Job Profiler	SkillObject Designer	Behavioral Based Interview	Performance Appraisal	Precision Learning Assessment	SkillObject Mapper
Defining Tasks and Skills by Position	▲	▲				
Job Descriptions	▲	▲				
Interview Guides			▲			
Assessment Questions/Appraisals				▲		
Skill Gap Analysis to Recommend Training by Position				▲	▲	▲



Additional Products and Services

- Populate SkillObject data to learning management systems such as Thing and K2Share
- Learning Object mapping
- Employability Assessment
- Skills Yellow Pages
- Work-based Assessments
- Climate Assessments



Questions?



Backup Slides



Scientific Principles Embedded in the SkillObject Approach

An Interdisciplinary Approach to Workforce Analysis

Psychology

- Built firmly on the accepted principles of Industrial/Organizational Psychology to collect reliable and valid data
- Utilizes principles of human behavior to understand and categorize job behaviors
- Utilizes taxonomies to identify and quantify Knowledge, Skills, and Abilities (KSAs) required for work performance
- Utilizes science of survey population sampling, survey design, and survey delivery

Management

- Investigates the nature of individuals working within groups and the interactions of groups within the organization
- Utilizes a systems approach to study occupations and organizations to optimize return on investment of resources
- Incorporates principles of Change Management to include various constituents within the organization during data collection to facilitate organizational “buy-in”
- Incorporates extensive automated communications procedures and principles to ensure awareness of assignments and requirements



Scientific Principles Embedded in the SkillObject Approach

An Interdisciplinary Approach to Workforce Analysis

Cognitive Science

- Utilizes principles of memory and recall to facilitate accurate and expeditious data collection and validation
- Utilizes intelligent filtering techniques to reduce cognitive overload and improve efficiency of data reduction

Mathematics

- Utilizes accepted statistical procedures to examine relationships between and within occupational data
- Utilizes mathematical modeling to ensure proper representation, randomness, bias reduction, and acceptable homogeneity

Computer Science

- Built on tenets of database design to maintain advantageous relational nature of data
- Utilizes principles of screen design and data collection procedures
- Utilizes advanced network principles and data security algorithms to ensure robustness of network and integrity and security of data

Economics

- Labor Market Information collected in manner consistent with principles of the field of economics.
- Utilizes practices of modeling to optimize work organization and job/job family organization
- Utilizes economic principles such as diminishing returns to optimize data output based on amounts of input



Scientific Principles Embedded in the SkillObject Approach

An Interdisciplinary Approach to Workforce Analysis

Education and Training

- Utilizes principle of queuing to assist in recall of behaviors performed on the job
- Supports recognized Adult Learning Principles through use of Individualized Development Plans built from Skill Gap Analysis
- Utilizes principles of data organization and dynamic data saving to reduce fatigue of Subject Matter Experts resulting in superior, high-quality data

Law

- Facilitates a process that adheres to legal requirements regarding employment discrimination and legally defensible occupational data collection

Sociology/Anthropology

- Uses anthropological principles of unbiased observation to develop SkillObjects™, tasks, and required unique knowledge, skills, and abilities from Subject Matter Experts (STARs)
- Utilizes sociological principles to understand the role of jobs within the larger organizational and societal contexts



SkillObject Definitions

Components/Parts of SkillObject

- **Label/Name** – A title that succinctly defines the SkillObject.
- **Task** – 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. The behavior must be observable, have a definite beginning and end, and result in a completed work action or a measurable work product (either the performance can be observed or the results of the performance can be seen and measured). Includes tasks that tend to be performed together on the job, learned together, or evaluated in a similar fashion.
- **Skill** – Developed capacities that facilitate learning or the more rapid acquisition of knowledge or that facilitate performance of activities.
- **Ability** – Enduring attributes of the individual that influence performance and enable the performance of tasks.



SkillObject Definitions-continued

Components/Parts of SkillObject, continued

- **Tools** – The items such as tools, software, equipment, or devices that people use in the course of performing the SkillObjects for their work. Tools usually require experience or training to master.
- **Unique Knowledge** – The enduring information including processes, procedures, or intellectual capital that are not transitory or temporary and are required to perform the SkillObject.
- **Resources** – Informational sources or reference materials used to locate information or that house information about processes. Resources include items such as manuals, publications, guides, handbooks, instructions, tutorials, documents, reports, forms, blueprints, plans, specifications, codes (e.g. National Electrical Code, regulations, etc.). Other examples are case law books, Ships Manning Documents, Engineering Operating Sequencing System.
- **Performance Standards** – The measurable levels of demonstrated behavior required to complete the SkillObject.

