

Job-aid for Scoring Performance-Centered EPSS

Attribute or Behavior	Low Representation 1	Intermediate Representation 3	High Representation 5
Creates a "big picture". Provides an overall context for the process, work or activity.	Provides little or no visual, graphic, animated or narrative representation of the overall process, deliverables or outcomes. Performer must maintain understanding of context, process and their point in process.	Provides access to extrinsic information about overall process, but maintains little or no context within the interface itself. No context sensitive information about point in process (e.g. "you are here") or summary of prior choices. Performer must maintain process orientation in their head. May employ visual process maps, diagrams, maps, graphs, flowcharts, etc., but no as the primary workspace. Performer must <i>reference</i> these resources as opposed to <i>work</i> in these processes.	Includes explicit and complete representation of the context (e.g. process, equipment, facility) and what will be necessary to complete it within or immediately accessible from primary displays. Rich representation of the work context or process, possibly including multi-media representations. Summarizes previous choices. Includes significant advance organization of expectations, steps, deliverables. In 3-D or virtual representations of the task, equipment, or workspace, performers work <i>within</i> the context.
Establish and maintain a work context.	Not task oriented. Presents itself as "software". Employs technical rather than work language. No task orientation, cueing or structuring. Requires performer to make mental connections between the software and the work context, task or deliverables.	Employs some task language or representative metaphors to establish work context. Low to moderate fidelity to actual work context. May employ some multimedia in metaphors and objects.	Task centered. Employs task language and metaphors to establish a psychological work context. Results in perception or feeling of "doing work" rather than being in "software.
Aid goal establishment.	Performer must generate goals prior to interacting with software; must know options and the relationship between options and goals and where and when to execute them.	Presents either some specific or general goals to stimulate performer interaction from within the interface. May provide detailed information about goals within extrinsic support resources such as manuals, instruction, Help. Goal states may be presented in multimedia objects or models to serve as points of comparison for the performer.	Presents explicit goal options from within primary displays. Employs dialogs (e.g. "What do you want to do...") and presents initial and progressive options for selection Both overall and context specific goal establishment are supported. May provides intrinsic or extrinsic resource to help performer compare and contrast goal options and/or consequences. In rich 3-D or virtual environments, goals and models of desired outcomes might be represented.

<p>Structure work process</p>	<p>Provides little or no overall summary of recommended or possible work process. Any work process information resides in extrinsic or external resource. Performer must initiate all process orientation.</p>	<p>Provides overall and detailed process information in extrinsic or external resources. May summarize <i>results to date</i> in visual or text summary form. May employ some multimedia</p>	<p>Establishes and maintains overall process definition within or immediately accessible from interface. May employ process maps as primary task orientation using button bars, process maps, etc. Cues performer to position in and/or completion of process steps or milestones via differentiating factors such as color. In rich 3-D or virtual environments, performers may be led to the space and images that represent the conditions, problems, requirements, models or examples or demonstrations of best practice.</p>
<p>Structure progression through tasks and logic</p>	<p>Depends on performer to generate and structure task requirements and progression through proper task sequence. No system initiated task sequencing or presentation of relevant data or tools. Rules and relationships reside in performer memory or must be accessed from extrinsic or external resource before and during task progression.</p>	<p>Provides some task structuring -- most often in the form of information contained in extrinsic resources (e.g. procedures, demonstrations, process maps). Employs menu structures for task structuring, but performer must generate sequence. Irrelevant options may be dimmed on menus, lists, etc. May actively present guidance or suggestions. May employ some multimedia.</p>	<p>Following goal establishment the system structures task requirements in proper or best known task or process sequence from within the interface. Guides performer through appropriate options, choices, inputs. Filters irrelevant steps or options out. Via edits, models and examples observation and advice, does not permit wasted activities or inappropriate sequencing that will result in cycle repetition or dead ends. Presents relevant data and powerful representations of data, conditions, equipment, etc. at appropriate times during task sequence. Performer led to successful task completion or deliverable creation. All aspects of work are supported including job task, system interaction, cognitive and verbal tasks are supported. Provides on-demand access to overall process or sequence information within extrinsic resources (e.g. procedures, process maps, coaches or demos) In rich 3-D or virtual environments, performers are presented with more robust representations of the data, conditions, examples, or external knowledge resources.</p>

<p>Reinforce and link activity to business strategy</p>	<p>No implicit or explicit content, functionality, advice or process reinforces or links to organizational strategy. Any relationship between behavior and strategy must be constructed by the performer.</p>	<p>Loose or indirect reference to strategy is based in optional activities or is referred to in extrinsic support system content. Business rules into system logic relate primarily to data manipulation, transformation and representation -- not business practice or standard operating policy. When business strategy is incorporated into system logic it remains stable between major system releases.</p>	<p>Business or organizational strategy and goals are reinforced through advice, options, or underlying logic which incorporates business rules expected to produce strategic results. Responsible parties alter system logic to reflect new strategy or business goals as it is changed. Strategic information is available within extrinsic resources.</p>
<p>Institutionalize current best approach.</p>	<p>Interaction and process are data driven. If tasks are supported from within the display or described in extrinsic resource, the approach is frozen in time as of the construction date. No changes are made other than during major release changes or revisions. Content may be very discrepant with current known information or process.</p>	<p>Business task, content, data, process or rule changes are distributed to performers in analog or electronic announcements, meetings, and informally. Changes are not institutionalized within the applications, except via major system version changes. Time lags exist between surfacing of change needs and performers incorporating those changes into their behavior. Individual performance changes are a function of the performer receiving and incorporating the changes into their behavior without structure or guidance from the application.</p>	<p>Support for task progression or cognitive processing reflects most current and best known approach or content. Task sequence, content, data, rules and tools are continuously updated and dynamic. Individual learning systematically feeds the system to translate current experience and learnings into organizational practice. Responsible parties alter system logic to reflect new knowledge. Performers have ongoing interaction with experts via Groupware, forums, or bulletin boards. Computer supported collaborative work is actively employed and encouraged or required via context sensitive links and communications to appropriate people when limited resource or content is available to support processing, creative or knowledge development. In rich multimedia, 3-D or virtual environments progression is through more realistic space with powerful models and examples, etc.</p>
<p>Reflect natural work situations.</p>	<p>Interface language, metaphors, behaviors or options bear little or no relationship to the real work, world or performer expectations or experience. Performers must adjust the way they think, interact and behave to system requirements. How to approach work requirements is not immediately obvious from within the interface.</p>	<p>Partial match between interface and natural work situations. Gaps exist in language, appropriateness of the metaphors to situation or task, sequence or other elements. May employ some multimedia.</p>	<p>Language, metaphors, behaviors, options, process, sequences and deliverables conform to the way people communicate, interact, observe and behave. Reality is modeled with multimedia, 3-D or virtual representations of space, equipment, conditions and data. Communication and interaction is concrete, colloquial, obvious and natural. The match between work and the system is very close and approach and options are obvious.</p>

<p>Use metaphors and direct manipulation of variables to capitalize on prior learning and physical reality.</p>	<p>Displays and content are data driven and use little or no visual representation or metaphors. Performers must transform requirements into system terms employing abstractions, codes or commands.</p>	<p>Some use of metaphors, visualization or direct manipulation. Metaphorical or visual content more likely to be resident in extrinsic resources rather than in primary displays. May employ some multimedia.</p>	<p>Extensive use of metaphors and visual representation to construct familiar realities and capitalize on prior learning. Direct manipulation of objects employed to where physical movement of data, visual structures, etc. match real-world tasks. Performers feel they are working in "real" vs. abstracted space. The most advanced environments employ multimedia, 3-D or virtual metaphorical space, objects and permit direct and powerful manipulation of situational variables.</p>
<p>Provide alternative views of the application interface</p>	<p><i>One size fits all</i> interface. No options for more or less structure, alternative mode, interaction type, or navigation. Performer diversity results in some feeling inadequate and others feeling patronized or spoon fed (i.e. little or too much structure).</p>	<p>Alternative interface possible for some or all tasks or for limited differences in amount of structure (e.g. some use of Wizards or Helpers vs. command or menu-based interaction; or primary use of Wizard structure with some key stroke bypass options. May employ animations or sound.</p>	<p>Two or more alternative interfaces presenting broad range of structure and freedom. Alternatives may be based on different interaction modes (e.g. blank page vs. templates vs. wizards/assistants), customization options or expanded or collapsed view of the interface controlled by performer. Alternate interfaces may include alternative media representations (e.g. visual, 3-D or virtual versions of the workspace, objects, data, etc.</p>
<p>Provide alternative views of the support resources</p>	<p>Support resources represented primarily in text mode with limited or no use of other media, content organization or knowledge representation.</p>	<p>Some use of alternative knowledge representation within extrinsic support resources or in primary displays. May employ some media beyond text and simple visual objects or animations.</p>	<p>Rich and varied views of content and knowledge. Use of multiple knowledge representation (e.g. textual procedure <i>and</i> demonstration <i>and</i> voice-narrated demonstration). Advanced applications employ multimedia, 3-D and/or virtual knowledge representation within the interface to represent conditions, options, etc. -- or within the extrinsic or external support resources.</p>
<p>Observe performer actions and data.</p>	<p>Observation of performer actions limited to edits of entered data.</p>	<p>Systems sense some performer, data, physical, environmental, equipment or system states and provides context-sensitive information. The more "sensitive" the system, the more powerful the support.</p>	<p>Observes and notes performer context, prior decisions, physical interaction with system (e.g. mouse position, time delays, previous choices). Observes relationships between performer, context, task, data and goals. May employ visual, 3-D or virtual representations of resources tightly linked to state, data or user conditions or preferences.</p>

<p>Provide contextual feedback.</p>	<p>Feedback is either generic, vague or non-existent; not linked to context, performer actions, system behavior or data.</p>	<p>Feedback may be linked to one or more elements (e.g. data, point in process.)</p>	<p>Rich, varied, explicit and continuous feedback related to performer actions, data, task requirements, performer attributes. Anticipates performer requirements and communicates actively about states, conditions, results, requirements or options. May appear "intelligent". Feedback may employ rich visual, auditory, 3-D or virtual feedback about conditions, data, alternatives, etc.</p>
<p>Advise.</p>	<p>Provides no task or conditional advice in either primary displays or extrinsic resource.</p>	<p>May provide advice through extrinsic support resource or through Advisor components invoked by the performer. Advisors may employ media beyond text.</p>	<p>Ongoing, dynamic, rich and explicit system or performer-initiated advice. Observes and monitors data, time, options or performer behavior and provides conditional, rule-based or "learned" advice. Advice may be information or directive. Advice may include multimedia representations, examples, guidance, demonstrations, practice exercises, etc.</p>
<p>Shows evidence of work progression</p>	<p>Performer must maintain conscious understanding of what has been done, choices made and consequences and relationships.</p>	<p>System presents some evidence on all task progression or conditions or limited/in-depth evidence (e.g. images, time bars, narrative descriptions) of accumulated choices and system-generated outcomes. Some multimedia may be employed.</p>	<p>System presents rich, continuous and in-depth evidence on all task progression or conditions or limited/in-depth evidence (e.g. images, time bars, narrative descriptions) of accumulated choices and system-generated outcomes. Task progression may be represented with multimedia, 3-D or virtual representations to provide clear understanding of rules, relationships, conditions, outcomes, deliverables, etc.</p>

<p>Provide support resources without breaking the task context.</p>	<p>Support resources are external to the system and require a complete context change (e.g. signing off system and accessing on-line resource – or suspending interaction with the system to access manuals, training or peer resource. Accessing support resource requires significant effort and/or time away from task. Often, the effort required is greater than the payoff due to gaps between resource content and performer needs.</p>	<p>Support resources within HELP or Searchable Reference, but may not be context-sensitive in any or all cases. Performers are clearly in <i>another space</i> when working with support resources (e.g. they are "in a training module). Accessing resource often breaks the task or thought context. Knowledge may be represented in limited ways that are not faithful to the task of physical workspace or equipment. Consequently, performers must reconceptualize, transform or cognitively manipulate the content due to low fidelity content representation, thereby breaking their task context.</p>	<p>Context-sensitive access to support resources. Support is organized in granular structures or is written and displayed to conform to other system display conventions. Sufficient support is embedded within or immediately accessible from primary displays. Resources overlay the application or can be sized or minimized. While momentary shifts between task performance and use of extrinsic resources, context breaks are minor. Rich multimedia, multi-sensory, 3-D or virtual representations of knowledge are available as primary or alternative resources. Representation permit maintenance of task context because of high fidelity knowledge representation.</p>
<p>Contain embedded knowledge in the interface</p>	<p>Any available knowledge resides in extrinsic resources.</p>	<p>Some directions, explanations or visualizations are in primary displays. Rich and complete knowledge is included in extrinsic resources. Some multimedia may be employed.</p>	<p>Extensive and rich knowledge is contained in primary displays. Next steps are expressed or demonstrated. Content may be displayed in multiple forms (e.g. words and images). Examples, instructions and guidance may be represented with multimedia, 3-D or virtual reality.</p>
<p>Business knowledge available in support resources and system logic.</p>	<p>Business knowledge is entirely external to the system and/or must be known by the performer prior to interacting with the software.</p>	<p>Business knowledge resides primarily in extrinsic resources. May or may not be rich knowledge representation. Business knowledge typically must be learned by the performer in advance (possibly <i>just in time</i>) and then applied to the task at hand. Some multimedia may be employed.</p>	<p>Business knowledge and rules incorporated into embedded knowledge in displays or underlying system or programming logic. Rules and relationships between data, tasks, goals, rules, concepts, requirements, etc. are tightly coupled and explicit. Learning about the work or process is tightly coupled with doing and is often a consequence rather than a pre-condition of performance. Rules and relationships and data may employ multimedia, 3-D or virtual representations.</p>

System information contained in support resources	Help or other extrinsic resource is either limited in content or of inadequate quality.	Information about procedures, system structure and mental models, requirements, options, etc. contained in support resources. Typically organized in hierarchical structure. Not context sensitive. Must be invoked by performer (who must know that they need help, how to phrase their request, and how to execute their request). Some multimedia may be employed.	Information on the system, procedures, etc. tightly coupled to task context and available for context-sensitive access. Knowledge representation is rich and complete and may employ multimedia, 3-D or virtual representations.
Provide alternative knowledge search and navigation mechanisms.	One size fits all navigation (e.g. index or table of contents access; keyword search access).	More than one search and navigation mechanism provided. May include context sensitive access to some resources.	Numerous search and navigation options available including hypertext, indexing, keyword search, context sensitive links, "sounds like" queries, browsing, VRML etc. Users may "browse", be guided, or directed through the content, data, space or objects. May employ agents for searching, coaching, assessing, etc.
Layered.	Single view of interface, content or information. <i>What you see is what you get...</i>	May provide layering via hypertext or hypermedia links within extrinsic resources.	Multiple levels of content, forms, interaction methods, feedback, advice, etc. provided to accommodate performer diversity in prior knowledge, goals, motivation, available time, and style.
Provide access to underlying logic.	The system presents its advice or executes tasks in response to tasks.	May provide explanations of logic, rules or representation of decision tree structure when requested by the performer. Content most probably static and in extrinsic resources. Some multimedia may be employed.	Rich, dynamic and context sensitive access to system and/or business logic and rationale. May be presented by the system (e.g. Here is the thinking behind my recommendation...) or invoked. The "thinking" may be presented via multimedia agents, including video and sound images presenting content, advice or experience of high level performers. May provide direct interaction with expert resource via videoconferencing, audio conferencing, chat lines, Groupware, etc.
Automates tasks.	Most tasks must be structured by the performer. Proper sequence must be established and implemented. Some tasks must be performed externally to the software (e.g. data access, calculations, data manipulation, etc.)	Some tasks are automated or the performer can automate them via macros. Most task automation relates to data access, transformation and representation, rather than supporting workflow, thinking and/or human interaction.	High task automation including data, cognitive and judgment tasks. Processing may be rule or case-based. Performer needs are anticipated and automatically presented for acceptance or dismissal or are executed.

<p>Allow customization</p>	<p><i>One size fits all</i> displays, interaction modes, task sequence progression established by system designers. Little or no performer control.</p>	<p>Some customization options, primarily around display settings, keyboard, menu labels or lower level interaction behavior (e.g. "confirm changes" before executing).</p>	<p>Significant customization options around displays, task sequences, language and system behavior. Alternative settings are available from multiple contexts (e.g. options displays, check boxes within dialog boxes, layered buttons on displays). Performers can change options for the task or document or establish as new defaults. Settings and options summaries can be accessed for evaluation and change. Explanations, illustrations or demonstrations of consequences of alternative summaries are presented as options are explored. Performers may select among media representations, if available.</p>
<p>Provide obvious options, next steps, and resources.</p>	<p>Performers must know options, steps and resources in advance or access them from extrinsic resources prior to task performance.</p>	<p>Some options, next steps or resources are displayed in obvious ways within the interface or via buttons with clear labels. Some multimedia may be employed.</p>	<p>What to do next or available resources are always prominently displayed and are clear (e.g. <i>Show me</i> or <i>Tell me about</i> or <i>Do it...</i> buttons)</p>
<p>Employ consistent use of visual conventions, language, visual positioning, navigation and other system behavior.</p>	<p>Labels, display attributes, positioning or navigation conventions are inconsistent and possibly in conflict. Expectations cannot be established based on prior displays/system behavior.</p>	<p>Gaps may exist in language, positioning or behavior. System displays conform largely to platform standards.</p>	<p>Once established, language, navigation, displays, interaction methods and system behavior are consistent. Performers experience in one context establishes expectations that are always met in other displays, tasks or contexts</p>