

De la Formation conventionnelle au système électronique d'aide à la performance pour améliorer l'apprentissage organisationnel

From Conventional Training to Electronic Performance Support System to Enhance an Organizational Learning

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Résumé: Cette étude vise à souligner l'importance de l'adoption du système électronique d'aide à la performance pour améliorer l'apprentissage organisationnel. Les résultats de cette étude montrent un écart de performance dans les entreprises utilisant la formation classique pour leurs employés. Cette lacune peut être comblée en donnant la priorité et en développant la formation en passant de la formation traditionnelle à la nouvelle méthode, qui est le système électronique de soutien à la performance en tant qu'approche innovante contribuant à la réalisation de l'apprentissage organisationnel

Keywords: système électronique d'aide à la performance, Formation, Apprentissage organisationnel.

Jel Classification Codes: M15, M53, D83.

Abstract: This study aims to highlight the importance of adopting the electronic performance support system to enhance organizational learning. The results of this study show a performance gap in companies using the conventional training to their employees. That

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gap can be filled through giving priority and developing the training by shifting from traditional training to the new method, which is the electronic system to support performance as an innovative approach contributing in the achievement of organizational learning.

Keywords: EPSS: Electronic learning support system, Conventional training, Organizational learning.

Jel Classification Codes: M15, M53, D83.

1. Introduction:

Increasingly, organizations are showing an interest in electronic performance support system (**EPSS**) as a means of enhancing worker performance, either to augment (and perhaps shorten) training, or as a complete substitute for conventional “off-the-job” training. This interest is driven by a desire to promote quality performance by the most effective and efficient means possible (Gustafson, 2000).

With the rapid development of technology application, the concept of electronic performance support system (**EPSS**) was put forward for supporting learning in the early 90s. Undoubtedly, the EPSS was first used for supporting some workplaces (such as banking, consulting services), similar to an expert consultation system. With social development speeding up, new technology and knowledge update fast, people will feel their existing knowledge has almost hard to adapt to their work. It forces people to seek a kind of "learning support" way of getting solutions.

In this context, the EPSS concept in different fields had fast development, especially in some developed countries, some big companies or enterprises. Some companies were also applied the EPSS system directly for the human resource development (Akker & al, 1999).

This study allows us to put this problematic: what's the mechanism that allows enterprises to apply Electronic Performance Support System in order to Enhance an Organizational Learning?.

To answer this problematic, we chose to include twelve sections in our study, starting with a definition of the subject which is EPSS and why companies need to apply it, its goals, models,

types of EPSS, and of course its benefits, and finally we end it with a case study.

2. Definition of Electronic performance support system (EPSS):

One way to build this bridge between what an expert in one domain knows and what the learning technology needs lie in Electronic Performance Support Systems (EPSS). This term was first coined by **Gloria Gery** (1991) in her book by the same name (Gibson & al, 2007). She defined an EPSS as: An integrated electronic environment that is available to and easily accessible by each employee and is structured to provide immediate, individualized online access to the full range of information, software, guidance, advice and assistance, data, images, tools, assessment, and monitoring systems to permit job performance with minimal support and intervention by others (Keengwe, 2018).

- An **electronic performance support system (EPSS)** is a software environment that provides a context within which work is done. Everything needed to do the job – information, software, expert advice and guidance, learning experiences – is integrated and available, resulting in improved worker productivity and minimal support and intervention by others (Brown, 1996).

According to Rayfbould (1995), defined an EPSS as the electronic infrastructure that captures, stores, distributes individual and corporate knowledge assets throughout an organization, to enable individuals to achieve required levels of performance in the fastest possible time and with a minimum of support from other people (Richey & Klein, 2009).

- **EPSS** as an organized collection of knowledge and skills that can be used to improve the on-the-job performance of an individual, group or organization within some given task domain (Barker, 2005).
- According to Deanie French (1999), An EPSS is a computer-based system that receives, stores, and disseminates organizational knowledge and information on demand (French, 1999).
- **EPSS** is the electronic infrastructure that captures, stores, and distributes individuals to achieve acquired levels of performance in the fastest time with minimum support (Phillips, 1999).
- According to Dickelman (2003), EPSS mean the rapid construction, deployment, and maintenance of the right processes and content to enable the largest possible competitive advantage with the smallest possible expense.
- According to Ruyle (2004), EPSS are computer-based job aids that provide just in time, just what-is-needed assistance to performers on the job (Pershing, 2006).
- According to Kursat Cagiltayan EPSS is a computer-based system that (KursatCagiltay, 2006):
 - ❖ Is comprised of a collection of integrated software components;
 - ❖ Is a part of an organization's knowledge management system;
 - ❖ Is user-controlled and easy to use;
 - ❖ Provides support at the **right time**;
 - ❖ Presents relevant (**right type**) and context-focused (**right amount**) information that a task performer needs, in a real work environment (**right place**).

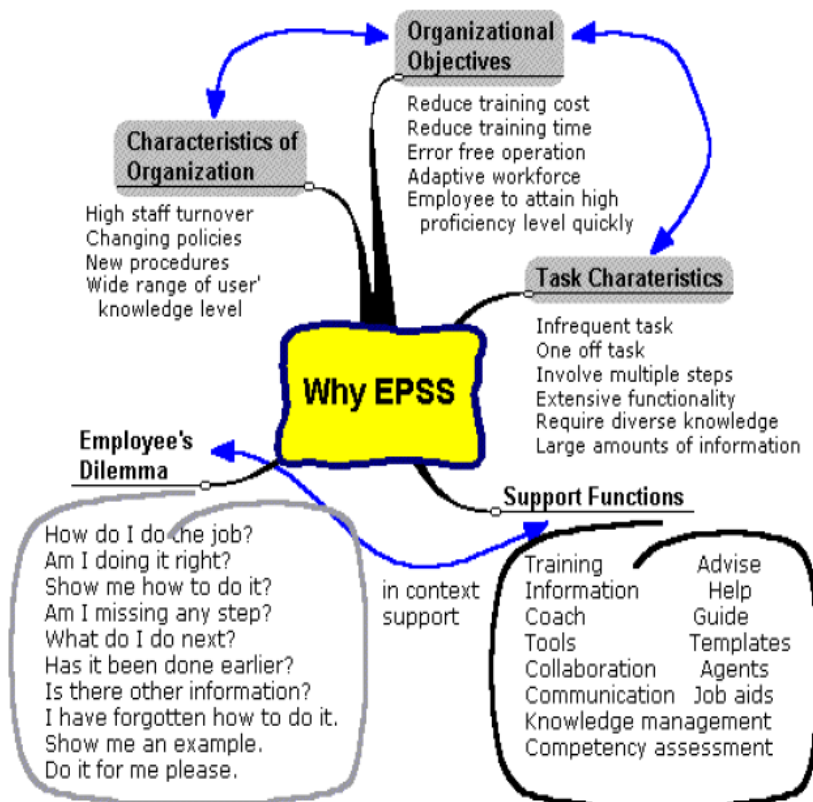
❖ An EPSS regularly consists of four components (Seel & al, 2017):

- An advisory component,
- An information component,
- A training component,
- A user interface.

3. Drivers for electronic performance support systems:

Figure 1 describes the context and drivers for incorporating electronic performance support interventions.

Figure N° 1. Model: Context and drivers for EPSS



Source: Patricia Rogers et al, Encyclopedia of Distance Learning, 2nd Edition, Information Science reference, Hershey, 2009, P 864.

4. Goals of EPSS:

Purpose of EPSS is to provide learners practical knowledge and problem-solving skills just in time format (Driscoll, Web-Based Training: Creating e-Learning Experiences, 2002). And General agreement exists on the major goals of an EPSS:

- Generate performance and learning at the moment of need,
- Enable “day-one performance”,
- Support higher levels of performance for work being done on time (Bayram, 2004),
- Empower stakeholders to accomplish their work tasks accurately, namely adapted to their individual perception of work (NunoJardimNunes & C, 2003).

5. When to use EPSS (Sanders & SivasailamThiagarajan, 2001):

All of the following should be true before you decide to use an EPSS application:

- There is a performance problem caused by knowledge or skills deficiency
- Tasks related to the performance problem are relatively difficult to perform
- The tasks are performed infrequently
- The tasks do not have to be performed in emergency situations
- There are serious implications if the tasks are performed inadequately
- The performance environment accommodates the EPSS hardware

EPSS applications are especially useful when the performance is cognitive rather than psychomotor. Also when the supported tasks involve software, EPSS applications are a natural fit.

6. EPSS Types

Gery (1995) defined a wide range of technologies all included in the original term EPSS. She did so by classifying EPSSs according to the level of their integration with the supported (work) system. This yielded the following three clusters of support technologies (Gal & Nachmias, 2011):

6.1 External support: The EPSS stores content used to support task performance in an external database. This content is not integrated within a user's work interface. This group of systems includes search engines, help files, A&Q, and knowledge portals also known as "knowledge management systems.

6.2 Extrinsic support: The EPSS is integrated with the work system but is not part of the primary workspace. The content is sensitive to the user's work interface but is displayed elsewhere.

6.3 Intrinsic support: The EPSS provides users with task support that is incorporated directly within their work interface.

With this distinction between external, extrinsic and intrinsic EPSS, Gery (1995) provided designers with a guideline to implement 80% of their support systems as intrinsic, 10% extrinsic, and the remaining 10% external. She argued that this guideline optimized designer and performer time, decreased performance development overhead, and still accomplished the desired impact: user performance (Nguyen & al, 2005).

7. Characteristics of EPSS:

An electronic performance support system (EPSS) displays some or all of the following characteristics (Singhal & Prasanna, 2002):

- **Computer-based:** EPSS are computer-based, which is what the "electronic" in their name indicates.

- **Access during task:** EPSS provide access to the discrete, specific information needed to perform a task at the time the task is to be performed. This is a two-part characteristic: 1) Access to the specific information needed to perform a task, and 2) Access to the information at the time the task is to be performed.
- **Used on the job:** An EPSS provides information to people at their workstation at the job, or in simulations or other practice of the job.
- **Controlled by the staff:** The staff decides when and what information is needed. There is no need for a teacher, as the staff is guided by the needs of the task.
- **Reduce the need for prior training:** The easy availability of the information needed to perform a task reduces the need for much (but probably not all) prior training in order to accomplish the task.
- **Easily updated:** The very nature of an EPSS, that it provides the information needed to perform a task, requires that it be easily updatable, in order to keep the information that it provides current. The computerized nature of an EPSS makes updating faster and easier in some ways than in other media, such as print, video, or audio.
- **Fast access to information:** The user must be able to access the needed information quickly when it is needed on the job and avoid irrelevant information.
- **Remote delivery of training:** Removes/reduces the costs associated with attending courses including instructor costs, accommodation and food costs.
- **Allow different levels of knowledge for users:** In order to speed up information access and understanding, an EPSS can

provide minimal information for those who do not want details; yet, through the hypertext links in the databases and through optional tutorials provide detail for those who do want more.

- **Allow different learning styles:** Through multimedia, an EPSS can accommodate users with varied learning styles, thus providing more optimal learning. The same information can be presented in visual, textual, and audio formats, with the user selecting the format.
- **Integrate information, advice, and learning experiences:** An EPSS can integrate information, advice, and learning experiences for the user.

8. Benefits of EPSS:

The benefits of using an EPSS are for both the user and the organization. For **the user**, EPSS can match the learning context to the operational context, integrate with the work process so learners get up to speed faster and work more efficiently, Manages complexity and workflow, Structures the activities necessary to complete tasks, represents knowledge with graphics, sound, or animation, provides data related to the task, and provides built-in tools such as calculating fields for carrying out tasks.

For **the organization**, EPSS offers many **benefits** to the organization:

- Decreased call volume to technical support hotlines.
- Minimal downtime and disruption from work tasks.
- Immediate desktop access to the most up-to-date information available.
- Increased managerial control over the dissemination and maintenance of information.

- Decreased employee errors and mistakes (Combs & Falletta, 2000).
- It reduces the cost of staff training while increases productivity and performance (Wang, 2000).
- Standardization of performance across employee groups (Tiem & al, 2012).
- Capture and improve the organization's knowledge to stay competitive.
- Improve customer service dramatically.
- Help organizations become more flexible with employee assignments (development, 2001).

9. EPSS and ELSS

ELSS (Electronic learning support system): The instructional technologies and systems to support learning and instruction.

Even though both ELSS and EPSS are instructional tools and technologies to support and improve learning and performance, the functions and utility of each method are slightly different. Table 1 summarizes the major differences between ELSS and EPSS (Wang V. C., 2009).

Table N°1. Differences between ELSS and EPSS

Foci of ELSS	Foci of EPSS
ELSS addresses performance issues more through learning. The goal is to use technologies to facilitate learning in the process of mastering targeted learning objectives.	EPSS heavily depends on technology tools and systems to address performance issues. Errors, retrieval of information, and selection of choices or decisions are criteria for successful performance.
ELSS is appropriate for performance solutions	EPSS provides immediate performance solutions. The goal

requiring a longer time period to solve.	is to make novice or less experienced users resolve performance problems with/without helps from the experts
ELSS provides knowledge acquisition at the broader level so clients can apply general learning to specific problem situations.	EPSS provides direct performance support tools to deal with daily jobs and tasks.

Source: Wang, Victor C. X, Handbook of Research on E-Learning Applications for Career & technical education: Technologies for vocational training, IGI Global, Hershey, USA, 2009, P 93.

10. Conventional training & EPSS:

An EPSS has certain advantages over traditional face-to-face training. Perhaps the biggest advantage is that an EPSS provides “just in time” training whereas a traditional training approach takes coordination of schedules between trainers and learners, an appropriate room for training sessions, and procurement of any necessary equipment. An EPSS does not have these limitations because training can occur whenever individuals need it (they just have to activate the system) and there is no need to schedule training sessions because learners can start and stop the training at any point or time given that there is no human providing the training. Moreover, learners can just focus on the specific information they need rather than having to sit through a training session waiting for their specific need to be addressed. Learners can also receive immediate feedback (Platt, 2008). Table 2

summarizes the major differences between conventional training and EPSS.

Table N°2. Comparing training and EPSS

Factors for comparison	Conventional training	EPSS
When does it occur	Usually does not coincide with when the performers actually perform the work. Often occurs before or after performers really needed the information	Coincides with job task performance. Happens just as performers fulfill a task.
How is it connected to the workplace	Usually it is isolated from the performer's workplace.	It is totally integrated into the performer's workplace.
Does it adapt to performer differences	Often does not adapt to differences.	Adapt to differences.
Does it accommodate different learning styles	Sometimes cannot recognize differences in learning styles.	Recognizes differences in learning styles.
Is it flexible or static	Training is static.	Performance support is flexible.
Is it ongoing	It Is not ongoing.	It is ongoing.

Source: Lesley A. Brown, Designing and developing electronic performance support systems, Digital Press, USA, 1996, P P 2-3.

11. EPSS and Organizational Learning:

EPSS is an electronic, computer-mediated infrastructure that empowers the user as performer and learner, enhances organizational learning, and enables knowledge management. It uses software to integrate performance-based content, knowledge, learning, and structure into a user-friendly performance and learning support system (Tiem & al, Fundamentals of performance improvement: optimizing results through people, and organizations, 2012).

Among the merits of an EPSS include improvements in performance learning process efficiency, and reduced cost of transferring the knowledge and skills to the actual task performance (Yih-RueyJuang & al, 2005).

EPSS gets closer to the Knowledge Management and learning tools. To develop an EPSS, cognitive principles are now becoming useful. How do people learn? The focus moves from individual performance to knowledge management and organizational learning: EPSSs now aims to create a stimulating learning environment in order to achieve performance at the level of the organization (Ceroni, 2000).

The potential advantages of learning with EPSS are considered to be a more active learning process, more concrete forms of learning, an increase in the transfer of what has been learned to the workplace, a reduction in learning time (Bastiaens, 1999).

An **EPSS** can also be a very valuable tool in building a learning organization because it provides the necessary info-structure needed to help organizations learn more effectively. Here are some reasons EPSS enhances a company's chances of coming to a learning organization (Marquardt & Kearsley, 1999):

11.1 Performance-centered design: EPSS is designed to enable an individual to reach the required level of performance in

the fastest possible time and with the least personnel support. The system's design includes such things as embedded knowledge, the ability to structure the flow of work, and adaptability to individual performers.

11.2 Performance: the EPSS leverages the worker's inherent intellectual and social skills by presenting information, knowledge, advice, and support at the moment of need.

11.3 Individual learning: as the worker uses the EPSS, he or she can learn in three ways:

- The worker may change his or her behavior after receiving negative or corrective feedback from the system
- The worker may review EPSS modules on the job just before using them;
- The worker may review EPSS modules off the job when mistakes would not be dangerous and costly.

11.4 Generation of new knowledge: the worker will develop new techniques, methods, and procedures on the job that were not part of the original knowledge base. In this way, the person creates new knowledge.

11.5 Knowledge capture: as individuals or teams gain new knowledge, the EPSS capture it through some formal process (through mail messages, shared databases, interview, with expert workers, etc.).

12. Case study:

The EPSS is a form of software that can be used to share relevant knowledge across an organization. Some organizations have used their intranets in order to share important knowledge amongst their global locations. Buckman Laboratories, a well-known Knowledge Management practitioner, employs its

intranet to share knowledge in the form of EPSS software amongst its worldwide locations. Expanding globalization and reliance on distributed knowledge means that the EPSS delivered via networks should have a high priority. Several companies have reported positive results from using the components of an EPSS system, as depicted in Table 3(McManus & Snyder, 2003).

Table N°3. Company Case Study

Company Name	Company Case Study
Shell Oil	Shell Oil used an EPSS to teach new customer service employees about statistical process control. Estimates of the normal cost were approximately \$3 million; however, by using computer-based training involving interactive video, they reduced the cost of 60 percent to \$100,000.
Storage Technology, Inc.	This company used EPSS to replace the traditional method of using lecture/lab training. The company saved \$2,000,000 over 3 years.
Price Waterhouse Coopers	Price Waterhouse Coopers replaced their traditional training method with computer-based training, according to some, a component of EPSS, and they achieved the same learning levels in 50 percent less time. With computer-based training. Price Waterhouse Coopers reduced the amount of money spent on training classes from \$760 per employee to \$106 per employee.
PaylessShoes	Payless ShoeSource, Inc. is the largest retailer of family footwear in North America, with about 4,500 stores. Payless developed a Retail Performance Support System (RPSS), an EPSS

	designed to improve training and help employees internalize firm values. The system includes applications, job aids, references, and computer-based training components. Reported benefits include a reduction in training time of about 30 percent, increased profits from sales of three percent annually. The firm expects to recover costs of the EPSS in less than a year.
Buckman Laboratories	Buckman is a specialty chemical company with operations all over the world. Buckman built an application employing the expertise of its top human resources talent. The application was used to have every employee build their own job descriptions. For the first time, all job descriptions were aligned with the firm's strategy.
First Union Mortgage Corporation	First Union is one of the top 20 mortgage lenders. The firm developed an EPSS to reduce the number of resources needed and time wasted during sales contacts. An expandable help system was made available online and was perceived as very helpful. The system allowed employees to find needed information without customers noting any delay.

Source: Denise Johnson McManus, Charles A. Snyder, Knowledge Management: The Role of EPSS, Journal of International Information Management, Vol 12, No 2, 2003, PP 17-28.

13. Conclusion:

- The electronic performance support system is a modern direction in human resources development by shifting from traditional to electronic method to improve human performance.
- The electronic performance support system is a technique that provides training in time of need by providing information, advice and software to develop the knowledge and skills of human resources to promote individual learning and organizational learning.
- Organizations can use their intranets in order to share important knowledge amongst their global locations with EPSS and that could be delivered via networks, which making it so easy to get the company's information provided by it, anywhere and anytime for their employees, and that can save companies time and money.
- Develop applications used to Train and operate and also help employees internalize firm values.
- EPSS reduce the number of resources needed and time wasted during sales contacts for companies which their activity based on sales, also The system allowed employees to find needed information without customers noting any delay, and that make companies made a big profit and gain customers trust, which allow it to gain a big market share in the business.
- EPSS allow companies save time and money and guaranty profits and name in the market for the highest performance could be in enterprise.

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