

XML기반 IETM(Interactive Electronic
Technical Manual)의 개발과
VR 기술의 활용

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XML 기반 IETM 의 개발과 VR기술의 활용

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IETM

- Interactive Electronic Technical Manual
 - 컴퓨터 기술을 활용한 전자식 매뉴얼
 - 무기체계의 고장 진단 및 정비를 위해 필요한 기술 정보를 최종 사용자에게 상호대화(Interactive) 형식으로 디스플레이 하기 위해 구조 및 형식을 최적화한 것이다.
- MIL-PRF-87269
 - IETM 을 만들기 위한 IETMDB 의 요구조건을 기술한 문서
 - CDM 을 기반으로 하는 IETM 의 최적화된 구조와 형식을 SGML DTD 로 표현하여 규정하고 있음

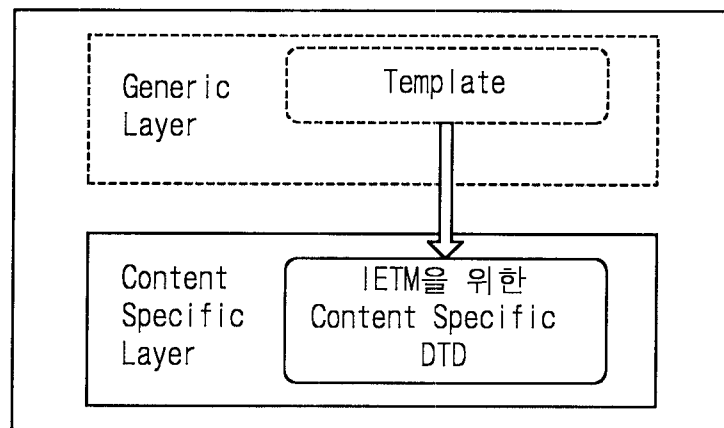
MIL-PRF-87269

- IETMDB 의 개발은 CDM(Content Data Model) 을 따라야 한다.
- General
 - Data base interchange Requirements
 - Data base structuring and data element naming requirements
- Format free technical information
 - Data portability
 - Integration support
 - Data maintainability
 - Additional content specific DTDs

Content Data Model (1/2)

- Two layered Approach
- Generic Layre
 - Semantic rules for the data characteristics
- Content Specific Layer
 - Elements for weapon system specific TI(Technical Information)

Content Data Model (2/2)



Generic Layer

- Templates
- Relational links
- Primitive elements
- Context dependent filtering

Content Specific Layer

- Control of content specific DTDs
- Development of content specific DTDs
- Content specific DTD for Organizational Level(O-Level) maintenance
 - Descriptive Information
 - Procedural Information
 - Fault isolation Information
 - Parts Inforamtion

VRML (1/3)

- Virtual Reality Modeling Language
- A file format for describing interactive 3D objects and worlds
- A universal interchange format for integrated 3D graphics and multimedia
- VRML is capable of representing static and animated dynamic 3D and multimedia objects with hyperlinks to other media

VRML (2/3)

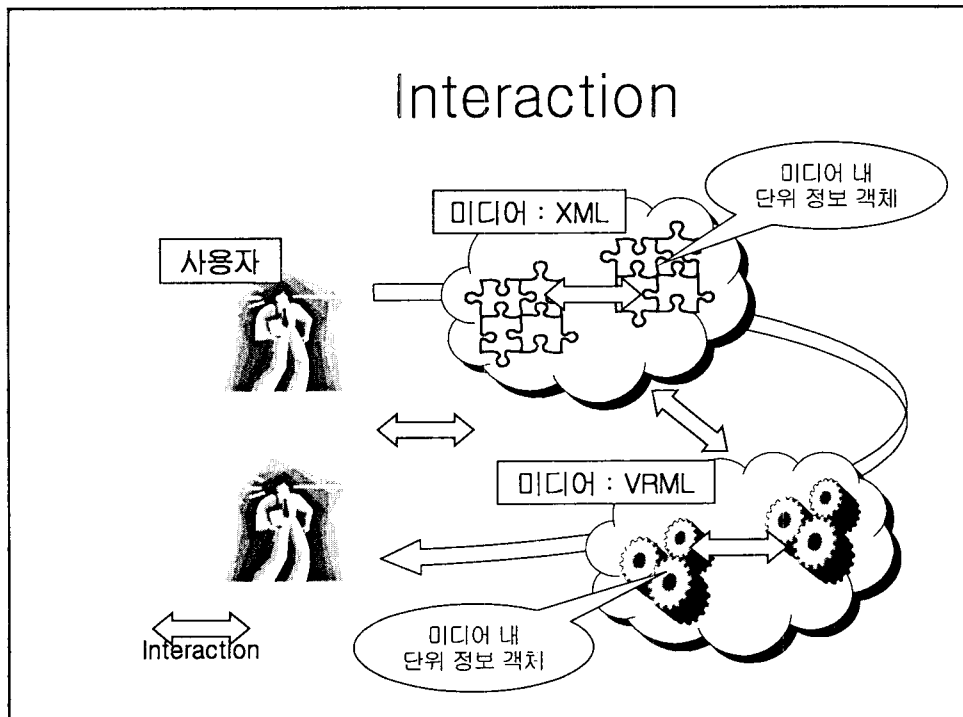
- An extensibility model
- An object model
- A consistent, predictable event model
- A more general and consistent scene authoring capability including field scripts
- Support for communicating with the web page within which a VRML world is embedded
- XML encoding (X3D) for tighter integration with the WWW

VRML (3/3)

- Accessing the functionality of the Browser Interface
- Sending events to eventIns of nodes inside the scene.
- Reading the last value sent from eventOuts of nodes inside the scene.
- Getting notified when events change values of node fields inside the scene

Interactive Information

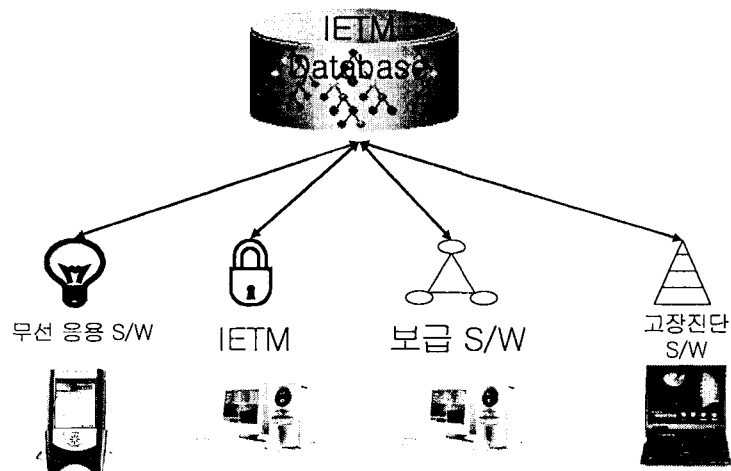
- Interaction
- Data Portability
- Integration
 - Standard Document Framework
 - Standard Generic Layer
- Data maintainability



Data Portability

- Acquire or access the data in a variety of ways(IETM, other types of logistics reports, training TI, etc.)
- Subsequently format an style the data in a variety of way for electronic display options

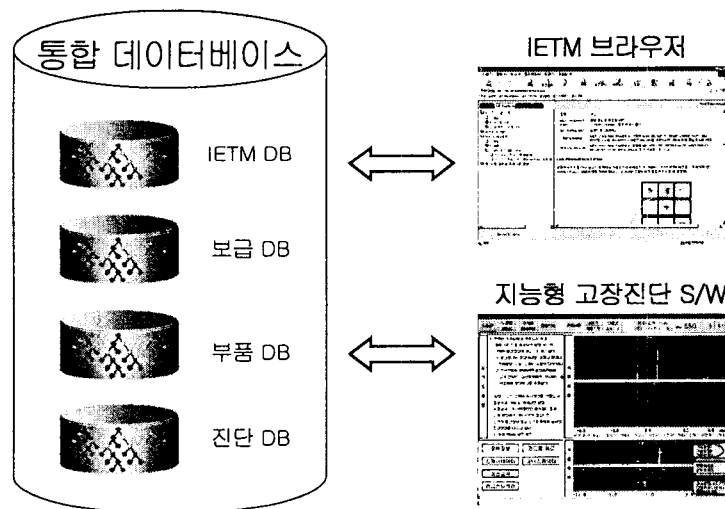
Data Portability



Integration support

- Direct, on-line data access
 - A variety of users
 - A number of automated logistic support and management information systems
- Establishment
 - Standard identifiers
 - Data entity relationships
 - Multiple path access routes to individual data elements

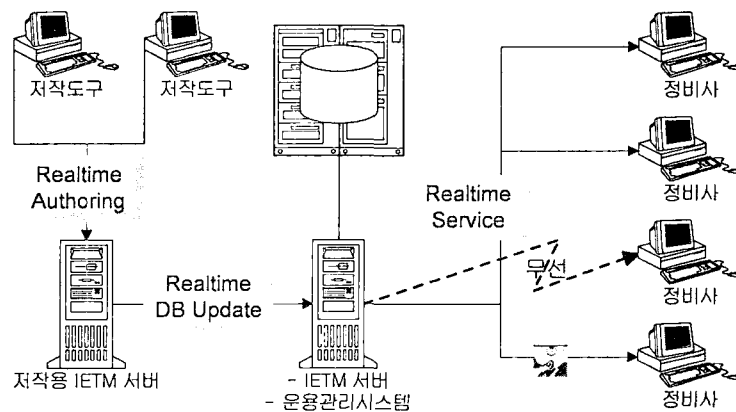
Integration



Data maintainability

- Incorporation of any change to automatically update all aspects of the data base(IETMDB) affected by that change
 - Additions to, eliminations of, or changes to individual data elements and attributes
 - Changes to relationships including establishment of new relationships or elimination of old relationships

Data maintainability



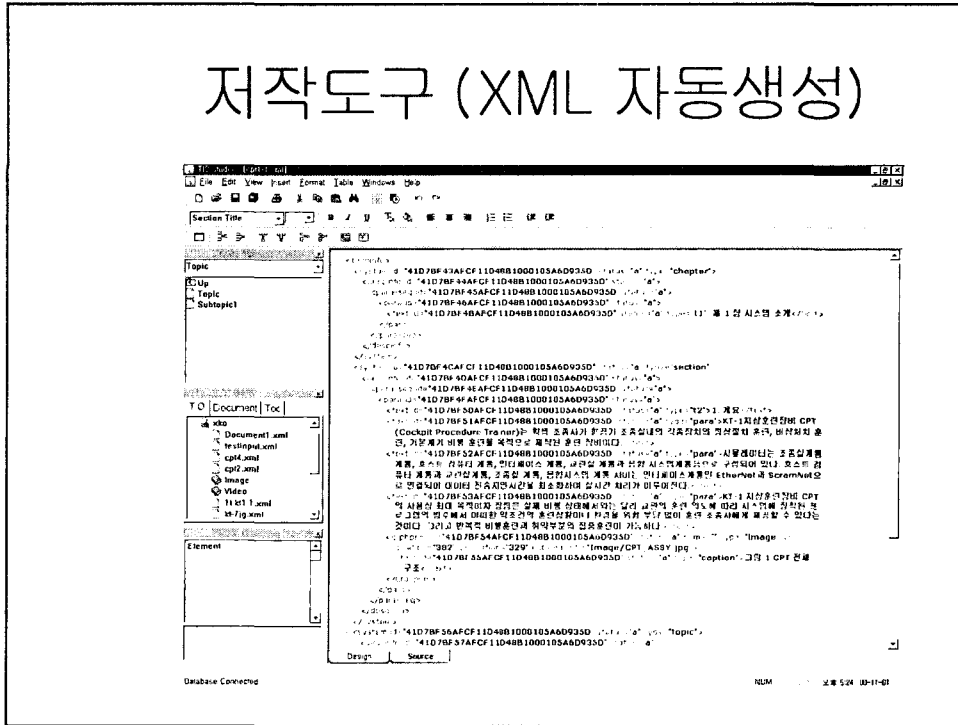
저작도구

- XML 문서 생성 및 DB 화
- 손쉬운 문서 저작을 위한 지능적인 XML 문서 자동 생성 모듈
- 저작, DB 구축, 서비스 등의 전체 Process 개선
 - 단일 Process 로 생산성 개선
 - Realtime Authoring
 - Realtime DB Update
 - Realtime Service
- 미디어 통합

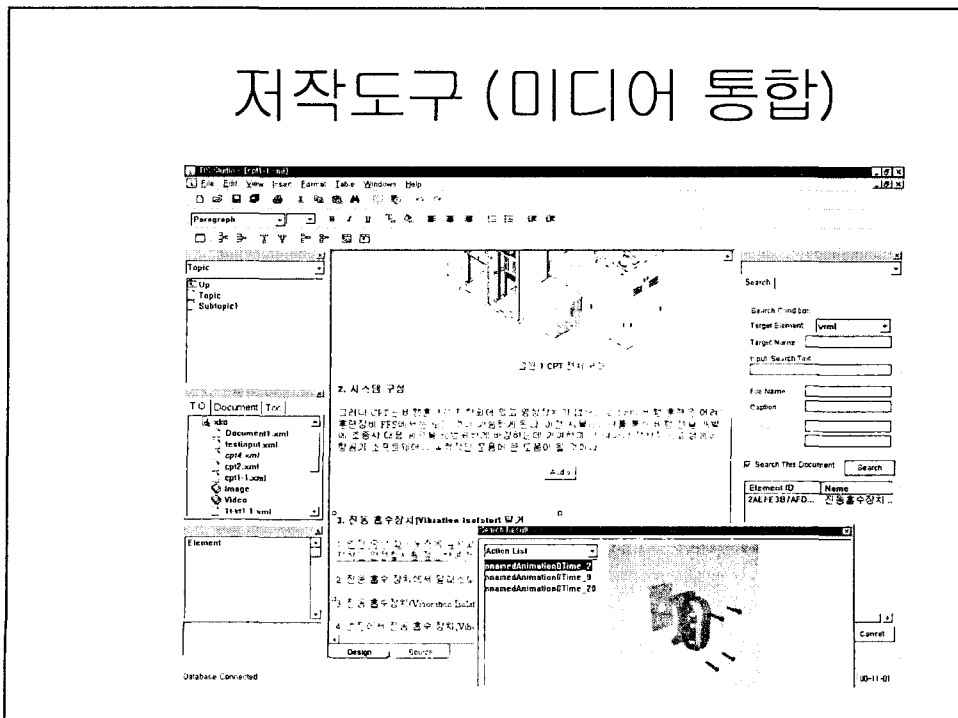
저작도구 (손쉬운 저작)



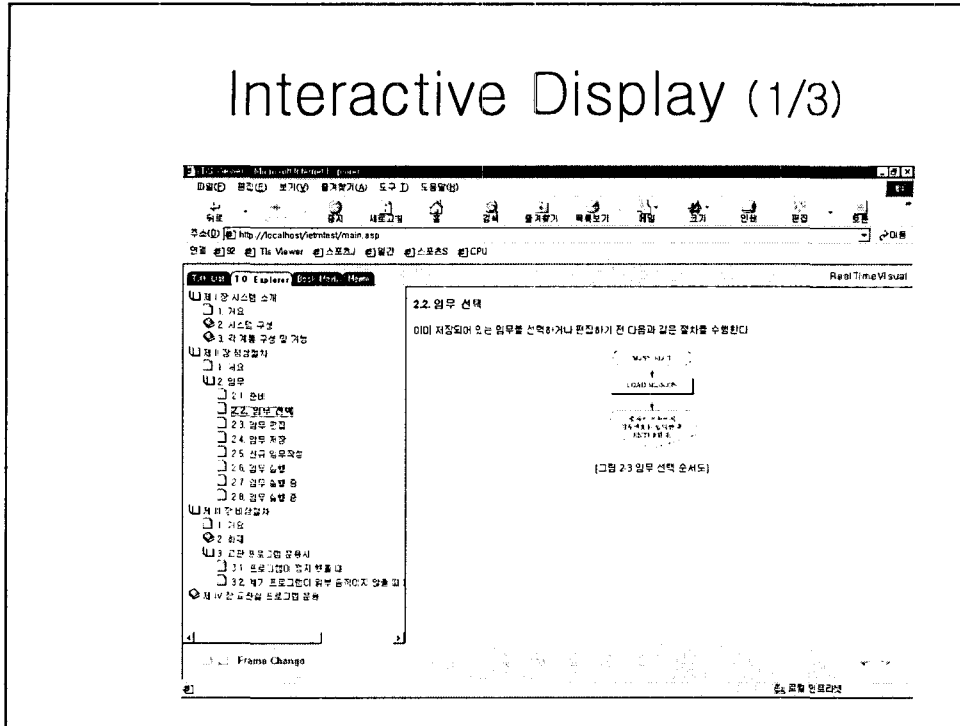
저작도구 (XML 자동생성)



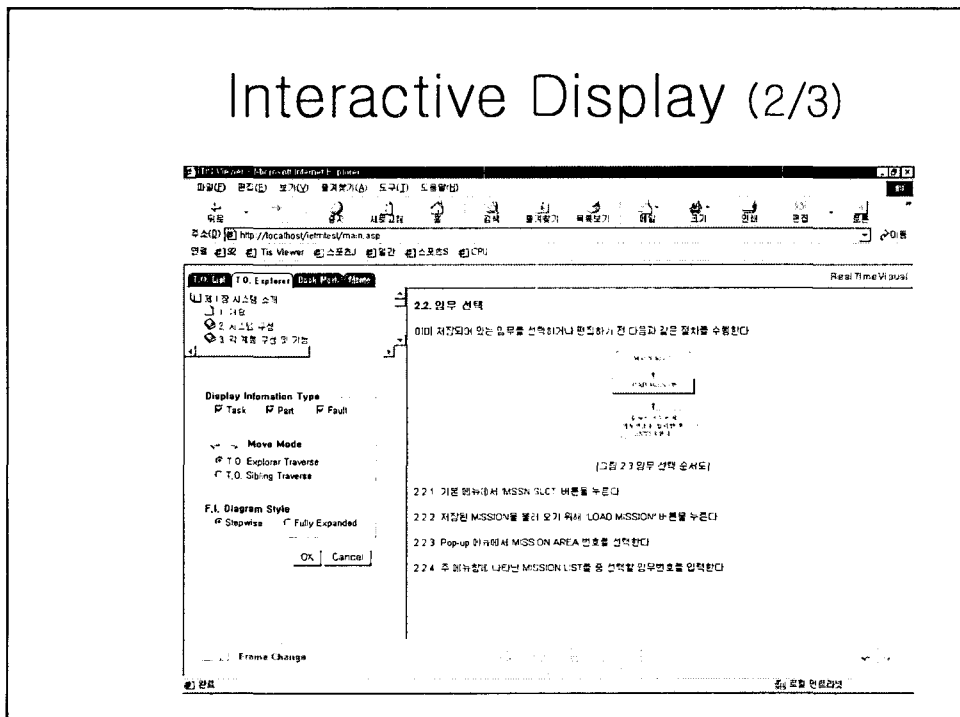
저작도구 (미디어 통합)



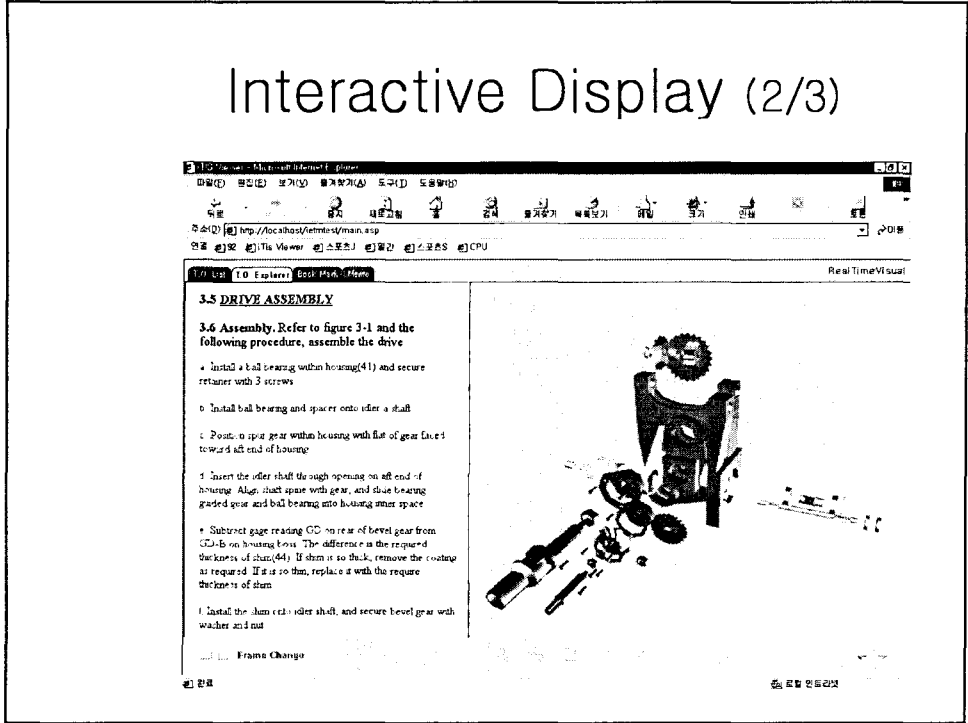
Interactive Display (1/3)



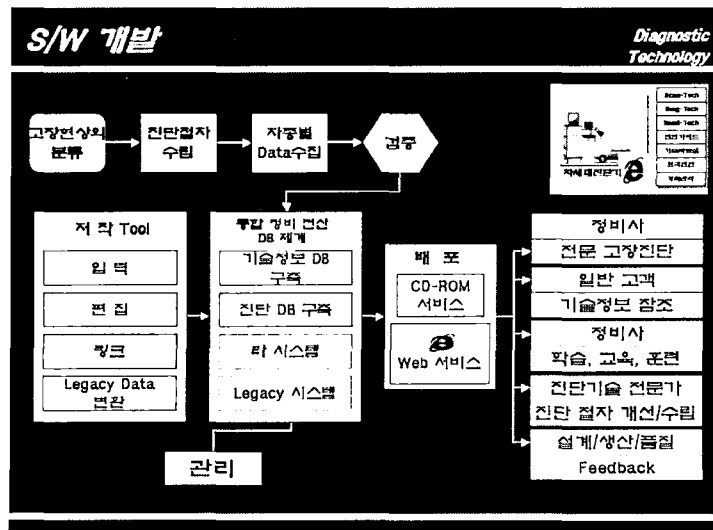
Interactive Display (2/3)

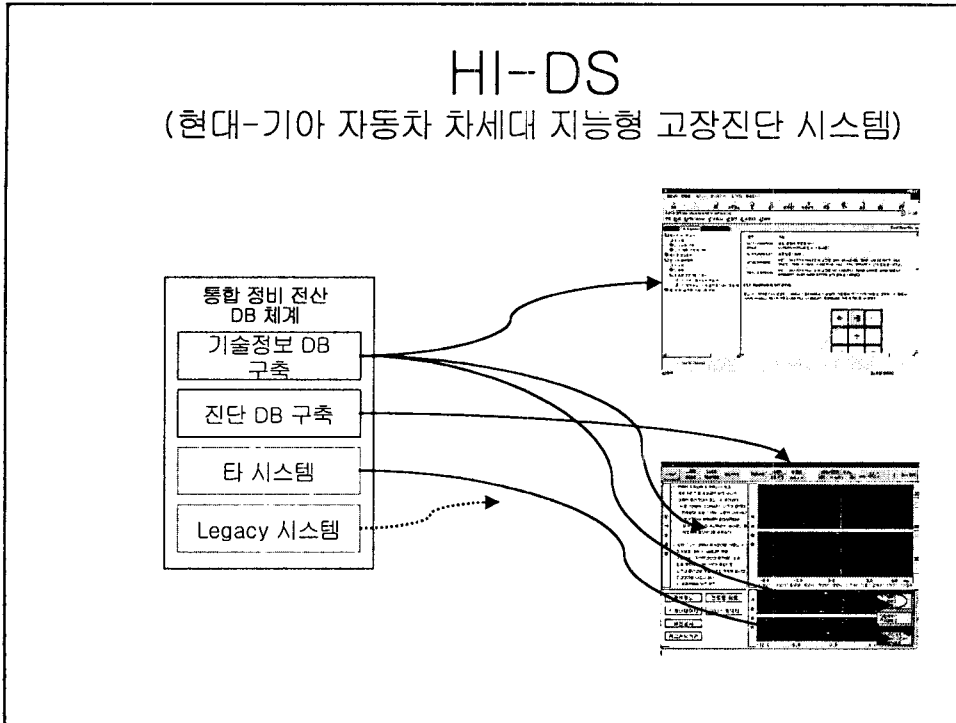


Interactive Display (2/3)



HI-DS (현대-기아 자동차 차세대 지능형 고장진단 시스템)





- ### KMS
- (Knowledge Management System)
- KMS
 - 정형, 비정형 지식자원의 통합관리
 - 기존의 KMS
 - Group Ware, EDMS, Workflow 등의 유기적 통합과 Information Container
 - 현재 수준은 단순한 Data Container

진보된 KMS

- 진보된 KMS
 - Interactive Information
 - 설계, 생산
 - PDM(Product Data Management) System
 - 지원
 - IETM System
 - 교육, 훈련
 - CBT(Computer Based Training), CAI(Computer Aided Instruction System)
 - 설계, 생산, 지원, 교육, 훈련 분야의 Technical Information 을 통합하고 유기적으로 상호작용 시킬 수 있는 KMS

Future Works (1/2)

- Interactive Information
- Contents Oriented
 - Interactive Information 및 KMS 를 위한 Framework 은 WEB 과 XML 기술을 통해 이미 진일보
 - 이제는 정보/지식 객체의 가장 기본 요소인 각종 미디어의 진보가 요구됨
 - Interactivity, Portability, Integration Support
 - 더욱 중요한 것은 Contents 측면에서 Domain Specific 한 정보/지식 객체의 체계적 분류/구조화 기법과 Generalization 기법의 발전이 요구됨

Future Works (2/2)

- XML & Database 기술 개발
- 기술 정보/지식을 처리하는 진보된 KMS 개발