



organize, relate, and act upon natural language text with: languageWare™

solutions start here.

www.ibm.com/software/jstart/languageware

discover and monetize the hidden value in unstructured information for your business

get started with a jStart workshop:

LanguageWare™ (LW) is a flexible, open, and extensible natural language processing solution that:

- Provides an environment for capturing the knowledge of business domain experts into dictionaries and semantic rules for re-use.
- Allows customizable Information Extraction for logical reasoning to draw inferences from natural, unstructured communications.
- Offers Entity & Relationship Recognition to classify words or phrases into categories that can be analyzed for business meaning.
- Fits seamlessly into existing e-mail, instant messaging, business intelligence, and various other desktop or mainframe applications.

What problems are addressed?

Companies attempt to apply structure to information gathered through forms based systems –but most business information and communications remain unstructured, natural language texts:

- An insurance claims adjuster has hundreds of claims to review each day and often misses key information doing so manually.
- Clinicians notes that communicate patient diagnoses and treatment programs often contain comments that are lost in translation.
- High security organizations have unstructured documents that require expensive, manual assignment to multiple security standards for communication with outside entities.

What opportunities are presented?

- LW quickly analyzes and sorts claims by severity of risk so that claims analysts can process them more efficiently and effectively.
- By analyzing even the comments in clinicians notes, LW improves communication and patient treatment between healthcare entities.
- For security, LW automatically identifies and maps specific sensitive data within documents to the correct transmission standard.

How does LW enhance my business processes?

- Start by building custom dictionaries and rules to capture the knowledge or field expertise of your business domain experts. This knowledge evolves over time and learns from these users.
- As LW captures their knowledge, it can be integrated into your current applications to extract and analyze streams of natural text–exposing new relationships and insights relevant to your business.
- Convert these results into any repository type (relational DB, XML, etc.) for increased accessibility and transparency. Business processes can then benefit from new information and insights.

jStart has created a series of briefings and workshops to help clients understand how LW technology might address their challenges, as well as to help the jStart team to better understand the unique needs of our clients.

Participants: jStart Engagement Manager and Architect with customer team (LoB executives, IT Staff, End-Users).



Technology Briefing

This briefing includes presentations, roundtable discussions, off the shelf demonstrations and high level architectural white board sessions exploring the challenges the customer faces and how LW can address these issues.

Length: 2-3 Hours w/jStart Engagement Team

Deliverable: Briefing Materials



QuickStart Pilot

Provides an advanced LW solution for rich text-level analysis, parsing, rules development, named-entity and relationship recognition, contextual analysis, semantic analysis and disambiguation. This option is best for customers who desire natural language processing through a small pilot project.

Length: 1/2 Day Planning Session w/ jStart
1-2 Days Installation, Setup, and Testing

Deliverable: Prototype/Proof-of-Concept Implementation



Integration Workshop

Need a more comprehensive solution to satisfy your business needs? We can provide an Eclipse-based environment for customizing LanguageWare capabilities for specific domains, applications, or customers

Length: 2-4 Days Onsite Workshop w/ jStart
+ Variable Time for Implementation

Deliverable: Workshop materials, Project Objective Document, Statement of Work.

to discuss a jStart Workshop, contact:

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smarter journalism production tools through collaborative discovery

Overview

Typical new media journalism production tools (JPT) are news production processes and systems designed to supply audiences with multi-media content as quickly and efficiently as possible. But these workflow processes to create, find, share and publish world class content across local and national platforms are limited by their existing system capabilities. Due to cash limitations in a down economy, an innovative JPT solution is needed to reduce costs and boost productivity by optimizing content-oriented workflows.

Problems and Issues to be addressed:

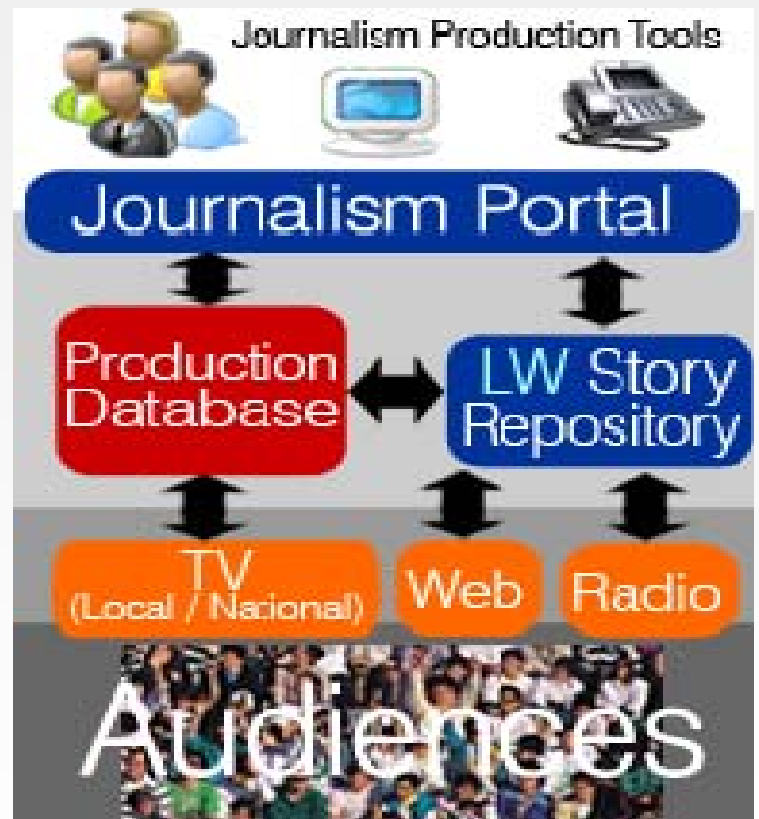
- Need a cost-efficient substitute for inefficient story development and content workflow production processes.
- Should immediately integrate stories, assets, facts, events, and contacts into legacy production formats.
- Must evolve ubiquitous story angles, multiple contact roles, resources, and assignments for fast discovery.

Value provided by LanguageWare:

- Story Repository provides a cost-efficient infrastructure component that integrates and relates content across all existing JPT and media production systems.
- Produces descriptive metadata that links 'umbrella' themes, stories, angles, and relevant assets so that journalist productivity and work quality is enhanced.
- Journalism Portal visualizes relatedness across multiple resources to enable collaborative discovery. Exposed semantic relationships preclude tedious manual search by automating related content identification.

High level solution components:

- **Journalism Portal:** fully featured, immersive view of the journalism production tools integrating user messaging, chat, events, running orders, news feeds, contacts, intranet, search, and assignments.
- **Production Database:** centralized production systems that manages and outputs related assets across multiple BBC channels, sites, and programs.
- **Story Development Repository:** collaborative warehouse that leverages LW to embed related stories, events, scripts, contacts, and facts along with the appropriate production database resources.



Other IBM products used for this type of LanguageWare implementation:

Information Management Enterprise Content Management of diverse, unstructured data formats and locations.

WebSphere Portal to visualize and provide access to the enriched JPT in a unified way.

Lotus Connections & Sametime to leverage collective knowledge and stimulate collaborate story discovery.

Tivoli Integration Server to enable application integration and process automation for production systems



smarter risk assessment and claims processing productivity

Overview

Insurance claims analysts typically need 7-10 years of experience to gain expert domain knowledge. Effectively gauging risk or identifying fraud is mission critical to company operations. Doing so in a timely manner can make all the difference in client satisfaction. But as client bases grow relative to the number of experienced analysts available, financial exposure to high risk claims increases. A solution is needed that would automate claims processing utilizing the knowledge of expert claims analysts in order to lower operating costs and effectively reduce risk.

Problems and Issues to be addressed:

- Need an affordable solution to extend and automate risk and fraud analysis processes of claims systems.
- Require precise, sector-specific natural language understanding (NLP) that spans all business operations.
- Must evolve continually improving knowledge feedback loops so that accurate analytics data is sustained and operating costs are kept under control.

Value provided by LanguageWare:

- Implicit, expert knowledge becomes widely actionable through auto-discovery –reducing overall financial risk.
- Documents become treasure troves of insight once NLP is applied to missing information, misspellings, abbreviations, ambiguities, and specialist terminologies.
- Facts and relationships extracted from claims data allow for accurate predictive analytics of risk and cost. Millions of historical claims can be analyzed along with current claims to help surface fraud patterns.

Claims Workbench Application Spectrum

- **Document Use:** As LW analyzes and identifies meaningful claims, relationship patterns are extracted as metadata. This metadata then becomes the engine for models that predict risk and cost.
- **Business Focus:** By matching “verbal threshold” claims to associated words in business policies, claims processing is automated. The system can then effectively assess individual potential liability.
- **Analyst Use:** Financial risk is lowered from analysis at content creation, integration with similar claims at storage, finding relevant expert domain knowledge, and collective claims understanding.



Other IBM products used for this type of LanguageWare implementation:

- Information Management** Cognos to leverage LW data for business intelligence, budgeting, and forecasting
- Information Management** OmniFind™ to provide scalable and secure enterprise search for fraud detection
- Information Management** DB2 for flexible claims history storage and retrieval along with LW metadata
- WebSphere** Portal to visualize organizational claims processes and manage workflow at one location

smarter evidence-based medicine with more pervasive information

Industry Environment & Overview :

- Treatments for diseases like cancer may be effective for general populations, but may not be appropriate for certain individuals. Thus, personalized healthcare offers a higher efficacy alternative to generalized healthcare.
- Evidence-based medicine practices have grown increasingly towards genetic indicators. All health and testing information from individual or family records dramatically improves medical prescription accuracy.
- Both patients and payers expect therapies prescribed to be cost-efficient and supported by abundant evidence.
- Government healthcare reform requires that all health records be digitized, standardized, and accessible.

In response to these factors, hospitals and clinics are insisting upon solutions that lower their operating costs while allowing for unique evidenced-based healthcare delivery.

Problems areas addressed:

Most clinicians notes are split into two categories with varying levels of cost, productivity, and accuracy:

- Structured, forms-based notes with limited report detail are used to summarize key health evidence.
- Unstructured notes are recorded as audio files and then transcribed to report all evidence in it's original context. This slow, costly process is not always accurate and is not well integrated with other notes.

Value provided by LanguageWare:

- Transcribed notes are now automatically structured, searchable, and cross-referenced that same day.
- Cost-efficient, personalized healthcare can be delivered through more informed, evidenced therapies.
- Health record compliance is achieved as organizational and departmental communication improves.

A LW Clinicians Note Example

- Paper-based note is converted via OCR for automated analysis.
- Annotates for persons, addresses, dates, diseases, and procedures.
- LW data is integrated with patient records to enrich evidence for prescribing the best treatments.
- Time and money has been saved for the patient, the clinicians at work, and the payers involved.

Re: Michael Pill, Phoenix Park, Dublin 13 Transcribed: 13.05.03

Dear Dr. John Smith,

Thank you for referring Michael who has a long history of dyspepsia and complains of heartburn quite often. His alcohol consumption is excessive and may be causing his symptoms, but I think we should rule out organic cause by performing gastroscopy and colonoscopy. To be safe, I would also like to see an ESR and liver function tests.

Sincerely,

Dr. Paul Smith, M.D., M.Sc.D, Sc., F.R.C.P.I., F.A.C.G.
Consultant Physician and Gastroenterologist

**LanguageWare
Clinicians Note
Annotations**

Other IBM products used for this type of LanguageWare implementation:

Information Management DB2 for flexible storage and retrieval of medical records along with LW metadata.

Information Management Enterprise Content Management converts paper-based records to digital with OCR.

WebSphere Process Server provides an integration framework that simplifies existing hospital IT systems.

WebSphere Portal to quickly visualize relevant evidence and access to full medical records in one location.