

Research on Basic and Innovative Functions of News Media Business Process Management Systems: Postprint

Authors: Huang Tingting

Date: 2023-10-08T00:00:00+00:00

Abstract

News media business processes are broadly categorized into four dimensions: collection, production, dissemination, and management. The business process management system encompasses the complete workflow of news information—including collection, editing, publishing, contribution, and feedback—as well as associated tasks such as acquisition of management information, data aggregation and statistical analysis, construction of productivity analysis models, full-domain article traceability, and reporting and visualization tools. The fundamental function of business panorama display resolves the issue where previously, numerous pieces of information from business processes were aggregated and displayed separately across disparate systems, creating information silos that hindered relational queries, in-depth analysis, and data mining. This fragmentation prevented the implementation of full lifecycle management of articles and real-time monitoring of reporting progress and publication status. Innovative features such as customized reporting, performance target quantification, and editor capability analysis provide valuable references for individual and departmental evaluation, target planning, and performance assessment. This paper addresses practical challenges in news media business process management and investigates the significance of both fundamental and innovative functions within business process management systems.

Full Text

Preamble

Research on Basic and Innovative Functions of News Media Business Process Management Systems

Abstract: News media business processes can be broadly divided into four aspects: collection, production, dissemination, and management. A business pro-

cess management system encompasses the entire workflow of news information—spanning collection, editing, distribution, supply, and feedback—along with the acquisition of corresponding management information, data aggregation and statistics, construction of productivity analysis models, full-lifecycle article traceability, and reporting and visualization tools. The basic function of presenting a comprehensive business panorama addresses the longstanding problem where numerous pieces of business process information were aggregated and displayed across different systems, creating isolated information silos that hindered relational queries, in-depth analysis, and data mining. This fragmentation prevented full-lifecycle article management and real-time monitoring of reporting progress and article placement.

Innovative functions such as customized reporting, quantified performance targets, and editor capability analysis provide references for individual and departmental evaluation, target planning, and performance assessment. This paper, grounded in solving practical problems in news media business process management, explores the significance of both basic and innovative functions in such systems.

Keywords: business process; process management; news productivity

Author: Huang Tingting

1. Content of News Media Business Process Management

The most fundamental function of a business process management system is to present a comprehensive panorama of business operations. A business process (also called an operational process) refers to a series of logically related activities executed to achieve specific business objectives, with outputs being products or services that meet market demands. Business process management involves using computers to fully or partially handle tasks that require collaboration between two or more people—encompassing production workflows, business procedures, and quality control processes—and simplifying and automating these procedures. In the news media industry, business processes can be broadly categorized into four aspects: collection, production, dissemination, and management.

Previously, the vast amount of information generated by business processes was aggregated and displayed separately across different systems, creating isolated information silos that made relational queries difficult, let alone deep analysis and data mining. This fragmentation also meant that management could not obtain data or managerial support for performance targets they established. A well-designed and robust business process management system can resolve these pain points. Specifically, such a system for news media primarily presents the business panorama from two micro-level perspectives and two macro-level perspectives. The micro-level perspectives refer to full-lifecycle article traceability

and individual work panoramas, while the macro-level perspectives encompass the operational status of all enterprise products and the comprehensive work panorama of all personnel.

Article traceability allows users to retrieve lists of articles based on keywords, titles, dates, distribution channels, and other criteria, and to track the entire lifecycle of an article from production through distribution to adoption and dissemination impact. The individual work panorama enables staff to view lists and statistical information about their own collection, editing, and distribution activities over specific time periods, with associated attribute information, adoption data, and dissemination impact metrics to facilitate review of their work outcomes. Macro-level data is generated based on these micro-level foundations. The figure below shows a portion of the macro-level statistical charts for articles, including data on the types, languages, distribution channels, and categories of all articles published by a news organization during a specific period.

[Figure 1: see original paper]

Specifically, a news media business process management system must accomplish tasks including: collection, editing, distribution, supply, and feedback of news information throughout the entire workflow; acquisition of corresponding management information; data aggregation and statistics; construction of productivity analysis models; full-lifecycle article traceability; and provision of reporting and visualization tools. The objectives are to: integrate the complete news reporting workflow from collection through editing, distribution, and supply to feedback; achieve full-lifecycle article management; establish article-related indicator systems to provide references for business analysis and decision-making; implement multi-dimensional news productivity analysis; and enable visual display of article workflow status. This allows real-time monitoring of reporting progress and article placement, providing references for individual and departmental evaluation and assessment.

[Figure 2: see original paper]

2.1 Presenting a Comprehensive Business Panorama

Similarly, personnel macro-level statistics represent the news productivity data and rankings for all organizational units within a news media organization during a specific period. Through the statistical display of both micro-level and macro-level data, the complete panorama of news media production and operations becomes visible, enabling arbitrary relational queries and combined searches that eliminate “blind spots” in business process management.

Indicator systems include statistical dimensions and metrics, and should satisfy the principles of comprehensiveness, scientific rigor, conciseness, operability, and dynamism.

2.2 Building Knowledge Assets

Knowledge assets refer to knowledge that is owned or controlled by an enterprise, lacks independent physical form, plays a long-term role in production and services, and can generate economic benefits. In the news media industry, news and photo archives are traditional knowledge assets that are generally properly preserved and managed in databases, with their value having been explored to some extent to generate economic benefits for news organizations. However, statistical information on individual articles, special coverage, and all articles across various dimensions has long been overlooked as another type of knowledge asset. In the era where information generates value, collecting, statistically processing, and conducting deep processing such as correlation analysis and data mining on multi-dimensional article information is no less significant than the articles themselves. The lifecycle management of articles by business process management systems—covering information acquisition and aggregation from collection, editing, and distribution through supply and feedback—builds an important component of news media knowledge assets.

3. Innovative Functions of Business Process Management Systems

Based on the acquisition and aggregation of full-process information and corresponding management data for news media business processes, multiple innovative functions become possible.

3.1 Customized Reporting

Most users of business process management systems work with reports daily, making report browsing and generation convenience an innovative feature. The reporting module supports customization, automatic generation, and preview of reports. Data content and presentation methods can be flexibly configured and changed at any time according to different user needs. For instance, audio/video departments and text departments care about different data: the former wants to see playback volumes while the latter focuses on article adoption rates. Accordingly, audio/video departments can customize daily/weekly/monthly business overview reports in the system to display distributed audio 稿件及其播放量 (data from specialized article placement monitoring systems), with associated editing and distribution workflow information that can be sent to designated email addresses. Similarly, text departments can customize business overview reports that display collection, editing, and distribution workflow information alongside adoption data, with charts generated across multiple article attribute dimensions.

3.2.1 Indicator System

Establishing an indicator system serves to decompose, refine, and quantify management's performance targets, helping employees better understand these goals and guiding their efforts toward specific objectives. By thoroughly comprehending and scientifically designing metrics to decompose performance targets, and by determining metric weights through a top-down approach, the system provides references for individual and departmental evaluation and assessment.

3.2.2 Data Model

A data model is built upon data structures, data operations, and data constraints. In a business process management system, data structure refers to the dimension and metric structure within the indicator system, data operation refers to metric calculation methods, and data constraint refers to the hierarchical dependency relationships between dimensions and metrics, and among different metrics—where such dependencies vary across business scenarios.

Through the established indicator system and data model, the system can calculate individual and departmental news productivity indices and dissemination indices, rank these indices across time periods and article categories, display results through rich visualization methods (charts, maps, etc.), enable drill-down according to index hierarchies and flexible data queries, compare statistics and calculations against set standards, issue timely warnings for potential problems, and provide transparent data references for individual and departmental evaluation and assessment.

4. Editor Capability Analysis

Each editor possesses specific professional strengths. Visually displaying these talents to help managers identify potential and assign tasks represents another innovative feature of business process management systems.

Specifically, the system can analyze editors' work from two perspectives—capability circles and work efficiency—and present the results graphically. Capability circles categorize articles by attributes such as type, category, language, and genre, then calculate the ratio of articles an editor has worked on in each category relative to their total edited articles. A higher ratio indicates relative advantage in editing that category. The work efficiency chart displays the number of articles edited and distributed by an editor within a 7×24 hour period. Human work and life follow regular patterns that are typically difficult to break; by continuously observing these efficiency charts, department managers can understand their editors' work patterns. This makes it clear which types of articles each editor excels at editing and during which time periods they are most productive.

[Figure 3: see original paper]

[Figure 4: see original paper]

Note: Figure translations are in progress. See original paper for figures.

Source: ChinaXiv — Machine translation. Verify with original.