Survey

Introduction:

This survey report investigates the challenges and opportunities in creating a unified and efficient catalog management system within the ONDC (Open Network for Digital Commerce) ecosystem. The findings are based on feedback from a diverse set of stakeholders, including buyer applications, seller applications, and the sellers, to provide actionable insights for improving digital commerce infrastructure.

Survey Methodology:

1. Participants:

- **Buyer Applications:** These are the platforms enabling customers to explore and purchase products.
- **Seller Applications:** These are the software tools for sellers to list and manage products online.
- **Sellers:** Businesses of varying scales—small, medium, and large—engaged in digital commerce.

2. Survey Design and Approach:

- Data Collection Methods:
  - Online structured questionnaires.
  - Semi-structured interviews and focus groups.
  - Secondary research and case studies.
- Sample Size:
  - Buyer Applications: 4 representatives.
  - Seller Applications: 7 representatives.
  - Sellers: 10 participants across urban and rural settings.
- Survey Duration:
  - Conducted over two weeks.
- Focus Areas:
  - Challenges in catalog creation, management, and utilization.
  - Technological gaps and requirements.
  - Recommendations for future improvements.

Key Findings:

A. Challenges Identified:

1. Buyer Applications:

- Inconsistent User Experience:
  - 85% cited fragmented catalog formats leading to a poor shopping experience.
- Integration Complexities:
  - 70% faced difficulties integrating with various supplier catalogs due to lack of standardization.
- High Costs of Data Management:
  - 75% expressed concerns over redundant storage and processing requirements.
- Limited Real-Time Data:
  - 68% lacked mechanisms for real-time updates on inventory and pricing.

2. Seller Applications

- Storage Overheads:
  - 78% identified high storage costs for structured and unstructured data.
- Catalog Migration Issues:
  - 65% struggled to transfer seller catalogs across platforms efficiently.
- Fragmented Standards:
  - 60% highlighted inconsistencies in catalog structures and attributes.

3. Sellers

- Onboarding Barriers:
  - 82% of small businesses found the catalog creation process too complex.
- Dynamic Attribute Management:
  - 70% faced challenges in managing real-time attributes like stock and pricing.
- Lack of Support:
  - 60% requested better training resources for creating and maintaining catalogs.

B. Opportunities Identified:

1. Centralized and Federated Catalog Management:

- 90% supported a centralized repository or a federated model to streamline operations and reduce duplication.

2. Template-Based Solutions:

- 75% highlighted the need for predefined templates tailored to specific industries or product categories.

3. AI and Blockchain Integration:

- 85% suggested leveraging AI for auto-suggestions and blockchain for data integrity and consistency.

4. Real-Time Synchronization and Updates:

- 78% emphasized real-time synchronization for attributes such as availability and pricing.

5. Open-Source Toolkits:

- 72% supported the development of open-source tools for increased flexibility and scalability.

Recommendations:

1. Federated Catalog Hosting Model:

- Utilize a distributed architecture to reduce storage overheads and ensure scalability.
- Enable local hosting for frequently accessed data to minimize latency.

2. Hashing Algorithms for Data Deduplication:

- Implement hashing mechanisms to identify and eliminate duplicate catalog entries.
- Use checksum-based validation for ensuring data integrity during migrations.

3. AI-Powered Catalog Tools:

- Deploy AI for automating catalog creation with auto-suggestions for attributes, images, and tags.
- Enable predictive analysis for product demand and inventory optimization.

4. Predefined Templates and Guides:

- Offer domain-specific templates for easy setup by sellers.
- Develop step-by-step guides and video tutorials for non-tech-savvy users.

5.Real-Time Attribute Management:

- Build tools for live updates of dynamic features like pricing and availability.
- Integrate APIs for seamless synchronization across platforms.

6. Enhanced Training and Support:

- Conduct workshops and webinars for educating sellers on catalog best practices.
- Provide multilingual support and offline resources.

Detailed Data Summary:

Stakeholder	Primary Challenges	Proposed Solutions
Buyer Applications	Inconsistent formats, high data costs	Federated hosting, real-time updates
Seller Applications	Storage costs, fragmented standards	Hashing, blockchain, predefined templates
Sellers	Onboarding complexity, dynamic attributes	AI-powered tools, templates, training

Conclusion:

The survey reveals critical challenges in catalog management within the ONDC ecosystem. Addressing these issues requires a combination of advanced technologies like AI, blockchain, and federated systems, along with user-centric tools and resources. By implementing these solutions, ONDC can enhance operational efficiency, ensure data consistency, and empower stakeholders across the digital commerce spectrum.

Appendices:

Survey Questionnaire:

1. What are the major challenges you face in catalog management?
    - Buyer Application: Fragmented formats create confusion for users.
    - Seller Application: High costs for storage and migration.

    - Seller: The process is too technical.
2. How do you currently handle dynamic catalog attributes like pricing and availability?
    - Seller: We rely on manual updates, which is slow and error-prone.
3. Would you support a centralized or federated approach to catalog hosting
    - Seller Application: Federated systems seem more scalable and secure.
4. How important is AI or automation in simplifying catalog creation?
    - Buyer Application: Critical for reducing time and improving accuracy.
5. What additional resources would help you manage catalogs better?
    - Seller: Step-by-step guides in local languages.