**Impact of Future BOM PIM Projects on Pain Points 072825**

## **Digital Thread Foundation & Integration Hub Project**

| **Pain Point Type** | **Individual Pain Points** | **Impact** | **Explanation** |
| --- | --- | --- | --- |
| **Search & Discovery Issues** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 2 | The integration hub enables data to flow seamlessly across systems, making component information more accessible and searchable across the digital thread |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 3 | Core objective is establishing connectivity infrastructure that directly connects and synchronizes data across all systems and processes |
| **Duplication & Proliferation** | Lack of standard approach of how BOM's are created and organized | 2 | Integration standards and API protocols will drive more standardized BOM approaches across connected systems |
|  | Lack of standard approach for how part information is organized | 2 | Connectivity infrastructure requires standardized data formats and organization for effective integration |
|  | Lack of ability to manage variants and options for a product/product family | 1 | Provides connectivity foundation but doesn't directly address variant management capabilities |
| **Data Entry & Manual Processes** | Lack of automation results in extensive manual data entry for BOM's and part information | 3 | Seamless data flow eliminates need for duplicate data entry across connected systems |
|  | Manual change mgmt process for BOM's and part information across multiple systems | 3 | Automated data synchronization protocols eliminate manual change propagation across systems |
|  | Disconnected BOM management (ie: eBOM not connected to cBOM, cBOM not connected to mBOM, eBOM partially connected to mBOM, etc.) | 3 | Primary objective is connecting all BOM types through the digital thread infrastructure |
| **Data Integrity & Quality Issues** | Lack of digital BOM's available in plants resulting in potential quality issues (ie: Paper BOMs on shop floor no longer valid) | 2 | Digital connectivity ensures plants have access to current digital BOMs through the integrated systems |
|  | Incomplete/incorrect/missing part information | 2 | Data synchronization and monitoring help identify and prevent information gaps across systems |
|  | Incomplete/incorrect/missing material master information | 2 | Integration ensures material master data flows correctly between systems, reducing errors |
|  | Lack of standard approach for material master data governance | 1 | Provides connectivity but doesn't establish governance standards |
|  | Inconsistency/Duplication between systems resulting in unreliable information (ie: multiple sources of truth) | 3 | Core connectivity infrastructure and data synchronization protocols eliminate system inconsistencies |
| **System Integration Problems** | Lack of integration of digital thread between different BOM's (ie: eBOM to mBOM, cBOM to eBOM) | 3 | This is the primary objective - establishing digital thread connectivity between all BOM types |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 3 | Directly addresses this through core connectivity infrastructure and API standards |
|  | Due to Molex's dependency on documents, the ability to update/locate/refine our data is very difficult | 1 | Minimal impact on document dependency, focuses on system connectivity |
| **Process & Workflow Inefficiencies** | Lack of harmonization of an eBOM to mBOM approach (people/process) across plants creates silos and disrupts data flow between departments | 3 | Eliminates data silos by enabling uninterrupted data flow across all departments and plants |
|  | Lack of harmonization of material master creation (people/process) across plants creates silos and disrupts data flow | 2 | Connected systems drive process harmonization through shared data and workflows |
|  | Lack of business process (and possibly tools) to manage variants and options for a product/product family | 1 | Provides infrastructure but doesn't implement specific variant management processes |
| **Change Management** | Changes to EBOMs and MBOMs managed in different systems resulting in redundancy and overlap | 3 | Integrated systems with synchronized data flow eliminate redundant change management |
|  | Lack of traceability for Material Master changes (no revision control for MM's) | 2 | End-to-end traceability through digital thread improves change tracking |
|  | Disconnect and lack of traceability between changes to mBOM that might affect the eBOM | 3 | Complete digital thread provides bidirectional traceability between all BOM changes |
|  | Inefficient and non-standardized application of PCN Process resulting in customer frustration | 2 | Integrated data flow can improve PCN process efficiency through better information availability |
| **Knowledge Management Issues** | Lack of standard approach of how BOM's are created, organized and maintained | 2 | Integration standards drive more consistent approaches across connected systems |
|  | No comprehensive/organized/standardized training programs leveraged on an ongoing basis | 0 | No impact - infrastructure project doesn't address training |
| **Business Impact** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 2 | Connected systems enable better visibility and access to component information for reuse |
| **Manufacturing-Specific Issues** | Lack of effective communication regarding the production readiness | 3 | Digital thread enables real-time communication of production readiness across design and manufacturing |
|  | Lack of effective communication regarding the readiness of NPI parts | 3 | Seamless data flow ensures manufacturing has immediate visibility to NPI part status |
| **Organizational & Governance Gaps** | Lack of data governance for BOM's and part information management. Unclear ownership and lack of formal process tools to enforce governance | 1 | Establishes digital thread governance but not comprehensive data governance |
|  | Poor execution of OCM and lack of business ownership for value creation resulting in poor adoption | 1 | Technical infrastructure project with minimal direct OCM impact |

The Digital Thread Foundation & Integration Hub project will have the most significant impact (score of 3) on pain points related to system integration, data flow, and connectivity between different BOM types. As stated in the project description, it "enables uninterrupted business flow, provides complete product traceability, eliminates data silos, supports concurrent processes, and creates foundation for advanced capabilities". This foundational infrastructure is essential for enabling seamless data flow across design, manufacturing, quality, and validation processes, directly addressing the core integration and connectivity challenges that create many of the current pain points.

## **Unified Data Governance & Management Project**

| **Pain Point Type** | **Individual Pain Points** | **Impact Score** | **Explanation** |
| --- | --- | --- | --- |
| **Search & Discovery Issues** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 2 | The project's automated metadata management and unified data platform will improve searchability by organizing and tagging data assets, making components more discoverable |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 3 | Directly addresses this by creating a unified data platform architecture across business units with seamless integration, establishing a single source of truth |
| **Duplication & Proliferation** | Lack of standard approach of how BOM's are created and organized | 2 | Establishes data governance policies and quality standards that will standardize BOM creation approaches, though not the primary focus |
|  | Lack of standard approach for how part information is organized | 3 | The comprehensive data governance framework and automated metadata tagging will directly standardize how part information is organized across the enterprise |
|  | Lack of ability to manage variants and options for a product/product family | 1 | Minor impact through better data organization, but variant management is not a core capability of this project |
| **Data Entry & Manual Processes** | Lack of automation results in extensive manual data entry for BOM's and part information | 1 | Minimal direct impact on manual data entry, though automated metadata tagging reduces some manual classification work |
|  | Manual change mgmt process for BOM's and part information across multiple systems | 2 | Data lineage tracking and audit capabilities will improve change management visibility and traceability |
|  | Disconnected BOM management (ie: eBOM not connected to cBOM, cBOM not connected to mBOM, eBOM partially connected to mBOM, etc.) | 2 | Unified data platform creates foundation for connecting different BOM types, though actual integration requires additional projects |
| **Data Integrity & Quality Issues** | Lack of digital BOM's available in plants resulting in potential quality issues (ie: Paper BOMs on shop floor no longer valid) | 1 | Provides trusted data foundation but doesn't directly digitize BOMs for plant use |
|  | Incomplete/incorrect/missing part information | 3 | Data validation, quality standards, and continuous monitoring by Data Quality Guardian Agent will directly address data completeness and accuracy |
|  | Incomplete/incorrect/missing material master information | 3 | Comprehensive data governance and quality standards will ensure material master data integrity |
|  | Lack of standard approach for material master data governance | 3 | Directly establishes data governance framework with policies, standards, and stewardship roles for all master data including material masters |
|  | Inconsistency/Duplication between systems resulting in unreliable information (ie: multiple sources of truth) | 3 | Creates single source of truth and implements data validation to eliminate inconsistencies across systems |
| **System Integration Problems** | Lack of integration of digital thread between different BOM's (ie: eBOM to mBOM, cBOM to eBOM) | 2 | Provides foundational unified platform that enables future BOM integration, though actual integration requires additional implementation |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 3 | Core objective is creating unified data platform that connects and synchronizes data across all business units |
|  | Due to Molex's dependency on documents, the ability to update/locate/refine our data is very difficult | 2 | Metadata management and automated tagging will improve document-based data accessibility and refinement |
| **Process & Workflow Inefficiencies** | Lack of harmonization of an eBOM to mBOM approach (people/process) across plants creates silos and disrupts data flow between departments | 2 | Data governance policies will drive process harmonization, though specific BOM workflows need additional focus |
|  | Lack of harmonization of material master creation (people/process) across plants creates silos and disrupts data flow | 3 | Establishes standardized data governance and quality standards for material master creation across all locations |
|  | Lack of business process (and possibly tools) to manage variants and options for a product/product family | 1 | Minimal impact - focuses on data governance rather than specific business processes |
| **Change Management** | Changes to EBOMs and MBOMs managed in different systems resulting in redundancy and overlap | 2 | Unified platform and data lineage tracking improve change visibility across systems |
|  | Lack of traceability for Material Master changes (no revision control for MM's) | 3 | Implements data lineage tracking and audit capabilities providing full traceability for all data changes |
|  | Disconnect and lack of traceability between changes to mBOM that might affect the eBOM | 2 | Data lineage tracking enables traceability of changes across connected systems |
|  | Inefficient and non-standardized application of PCN Process resulting in customer frustration | 1 | Provides data foundation but doesn't directly address PCN process standardization |
| **Knowledge Management Issues** | Lack of standard approach of how BOM's are created, organized and maintained | 2 | Data governance framework standardizes data organization and maintenance approaches |
|  | No comprehensive/organized/standardized training programs leveraged on an ongoing basis | 1 | Minor impact through establishment of data stewardship roles, but training not a primary focus |
| **Business Impact** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 2 | Improved metadata management and unified platform enhance searchability and reuse capabilities |
| **Manufacturing-Specific Issues** | Lack of effective communication regarding the production readiness | 1 | Provides data foundation but doesn't directly address production readiness communication |
|  | Lack of effective communication regarding the readiness of NPI parts | 1 | Minimal impact on NPI communication processes |
| **Organizational & Governance Gaps** | Lack of data governance for BOM's and part information management. Unclear ownership and lack of formal process tools to enforce governance | 3 | Core objective is establishing comprehensive data governance framework with clear stewardship roles and compliance monitoring |
|  | Poor execution of OCM and lack of business ownership for value creation resulting in poor adoption | 2 | Establishes data stewardship roles and business ownership structure for data governance |

The Unified Data Governance & Management project will have the most significant impact (score of 3) on pain points related to data quality, standardization, and governance. It provides the foundational infrastructure needed to address data inconsistencies, establish single sources of truth, and create proper governance structures. While it has moderate impact (score of 2) on many integration and process-related pain points, it serves as an essential enabler for other projects that will more directly address specific BOM management and workflow challenges.

## **Parts Management Connect to Requirements Project**

| **Pain Point Type** | **Individual Pain Points** | **Impact** | **Explanation** |
| --- | --- | --- | --- |
| **Search & Discovery Issues** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 3 | Core objective - enables requirement-based search and discovery, facilitating efficient part reuse through searchable requirement attributes |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 2 | Creates systematic linkages between parts and requirements across systems, though doesn't fully integrate all data sources |
| **Duplication & Proliferation** | Lack of standard approach of how BOM's are created and organized | 2 | Requirement linking architecture drives more standardized BOM approaches by connecting parts to their design intent |
|  | Lack of standard approach for how part information is organized | 3 | Establishes requirement attribute definition and standardization, creating consistent part information organization |
|  | Lack of ability to manage variants and options for a product/product family | 3 | Directly addresses variant management through requirement-driven variant selection and variant-requirement mapping |
| **Data Entry & Manual Processes** | Lack of automation results in extensive manual data entry for BOM's and part information | 1 | Minimal impact on data entry automation - focuses on linking rather than entry automation |
|  | Manual change mgmt process for BOM's and part information across multiple systems | 2 | Automated requirement verification reduces manual change validation efforts |
|  | Disconnected BOM management (ie: eBOM not connected to cBOM, cBOM not connected to mBOM, eBOM partially connected to mBOM, etc.) | 2 | Requirement traceability provides common thread connecting different BOM types through shared requirements |
| **Data Integrity & Quality Issues** | Lack of digital BOM's available in plants resulting in potential quality issues (ie: Paper BOMs on shop floor no longer valid) | 1 | Minimal direct impact on BOM digitization |
|  | Incomplete/incorrect/missing part information | 3 | Validates part information completeness against requirements, ensuring all parts have complete and accurate specifications |
|  | Incomplete/incorrect/missing material master information | 2 | Requirement links help identify missing material master data needed to fulfill specifications |
|  | Lack of standard approach for material master data governance | 1 | Provides requirement context but doesn't establish material master governance |
|  | Inconsistency/Duplication between systems resulting in unreliable information (ie: multiple sources of truth) | 2 | Requirement links provide consistent reference point across systems |
| **System Integration Problems** | Lack of integration of digital thread between different BOM's (ie: eBOM to mBOM, cBOM to eBOM) | 2 | Requirement traceability creates logical thread connecting BOMs through common requirements |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 2 | Links parts to requirements across PLM and requirements management systems |
|  | Due to Molex's dependency on documents, the ability to update/locate/refine our data is very difficult | 1 | Minimal impact on document dependency |
| **Process & Workflow Inefficiencies** | Lack of harmonization of an eBOM to mBOM approach (people/process) across plants creates silos and disrupts data flow between departments | 2 | Common requirement understanding improves cross-department collaboration |
|  | Lack of harmonization of material master creation (people/process) across plants creates silos and disrupts data flow | 1 | Indirect impact through requirement standardization |
|  | Lack of business process (and possibly tools) to manage variants and options for a product/product family | 3 | Enables requirement-driven variant selection and connects variant options to specific requirement variations |
| **Change Management** | Changes to EBOMs and MBOMs managed in different systems resulting in redundancy and overlap | 2 | Requirement traceability helps identify impacts across different BOM types |
|  | Lack of traceability for Material Master changes (no revision control for MM's) | 1 | Provides requirement context but not MM revision control |
|  | Disconnect and lack of traceability between changes to mBOM that might affect the eBOM | 3 | Bidirectional requirement traceability enables tracking of impacts between BOM changes |
|  | Inefficient and non-standardized application of PCN Process resulting in customer frustration | 3 | Direct link to customer requirements ensures PCN process addresses actual customer specifications |
| **Knowledge Management Issues** | Lack of standard approach of how BOM's are created, organized and maintained | 2 | Requirement-based organization provides standard framework for BOM management |
|  | No comprehensive/organized/standardized training programs leveraged on an ongoing basis | 0 | Training program development explicitly out of scope |
| **Business Impact** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 3 | Primary benefit - requirement-based discovery increases part reuse and reduces design time |
| **Manufacturing-Specific Issues** | Lack of effective communication regarding the production readiness | 2 | Requirement visibility helps manufacturing understand design intent and readiness criteria |
|  | Lack of effective communication regarding the readiness of NPI parts | 2 | Requirement traceability improves understanding of NPI part specifications and readiness |
| **Organizational & Governance Gaps** | Lack of data governance for BOM's and part information management. Unclear ownership and lack of formal process tools to enforce governance | 1 | Focuses on requirement linking rather than governance structure |
|  | Poor execution of OCM and lack of business ownership for value creation resulting in poor adoption | 1 | User adoption identified as risk but limited OCM planning |

The Parts Management Connect to Requirements project will have the most significant impact (score of 3) on pain points related to search and discovery, variant management, part information completeness, and requirement traceability. By creating systematic linkages between parts and their requirements, it enables teams to find and reuse parts based on specific requirements, manage variants effectively, and ensure all parts meet customer specifications. This addresses fundamental disconnects that currently result in quality issues, duplicated efforts, and customer dissatisfaction.

## **Intelligent Knowledge Management & Insight Platform (IKMP) Project**

| **Pain Point Type** | **Individual Pain Points** | **Impact Score** | **Explanation** |
| --- | --- | --- | --- |
| **Search & Discovery Issues** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 3 | IKMP provides AI-powered recommendations that proactively surface knowledge based on context, enabling 70% reduction in information search time and better discovery of reusable components |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 3 | Creates unified knowledge platform integrating all project repositories with comprehensive knowledge graph linking all information types |
| **Duplication & Proliferation** | Lack of standard approach of how BOM's are created and organized | 2 | Knowledge capture of best practices and expert patterns helps standardize approaches through shared institutional knowledge |
|  | Lack of standard approach for how part information is organized | 2 | Systematic capture of expert knowledge and decision patterns creates de facto standards through knowledge sharing |
|  | Lack of ability to manage variants and options for a product/product family | 1 | Provides knowledge context but doesn't directly manage variants |
| **Data Entry & Manual Processes** | Lack of automation results in extensive manual data entry for BOM's and part information | 1 | Focuses on knowledge management rather than data entry automation |
|  | Manual change mgmt process for BOM's and part information across multiple systems | 1 | Minimal impact on change management processes |
|  | Disconnected BOM management (ie: eBOM not connected to cBOM, cBOM not connected to mBOM, eBOM partially connected to mBOM, etc.) | 1 | Provides knowledge about BOMs but doesn't connect them |
| **Data Integrity & Quality Issues** | Lack of digital BOM's available in plants resulting in potential quality issues (ie: Paper BOMs on shop floor no longer valid) | 1 | Knowledge platform doesn't digitize BOMs |
|  | Incomplete/incorrect/missing part information | 2 | Knowledge validation workflows help identify and correct information gaps through expert review |
|  | Incomplete/incorrect/missing material master information | 2 | Captured expert knowledge helps identify what information should be present |
|  | Lack of standard approach for material master data governance | 1 | Provides knowledge repository but not governance structure |
|  | Inconsistency/Duplication between systems resulting in unreliable information (ie: multiple sources of truth) | 2 | Knowledge graph helps identify inconsistencies across sources |
| **System Integration Problems** | Lack of integration of digital thread between different BOM's (ie: eBOM to mBOM, cBOM to eBOM) | 1 | Knowledge platform doesn't create system integration |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 3 | AI-powered knowledge extraction from all project repositories creates unified access point |
|  | Due to Molex's dependency on documents, the ability to update/locate/refine our data is very difficult | 3 | Automated knowledge extraction from project documents and communications makes document-based information easily accessible |
| **Process & Workflow Inefficiencies** | Lack of harmonization of an eBOM to mBOM approach (people/process) across plants creates silos and disrupts data flow between departments | 3 | Breaks down knowledge silos by enabling cross-pollination of ideas and best practices across projects and teams |
|  | Lack of harmonization of material master creation (people/process) across plants creates silos and disrupts data flow | 2 | Shared knowledge of best practices drives process harmonization |
|  | Lack of business process (and possibly tools) to manage variants and options for a product/product family | 1 | Limited impact on variant management processes |
| **Change Management** | Changes to EBOMs and MBOMs managed in different systems resulting in redundancy and overlap | 1 | Provides knowledge context but doesn't manage changes |
|  | Lack of traceability for Material Master changes (no revision control for MM's) | 1 | Knowledge capture doesn't provide revision control |
|  | Disconnect and lack of traceability between changes to mBOM that might affect the eBOM | 2 | Captured lessons learned help teams understand change impacts |
|  | Inefficient and non-standardized application of PCN Process resulting in customer frustration | 2 | Knowledge repository of successful PCN processes improves standardization |
| **Knowledge Management Issues** | Lack of standard approach of how BOM's are created, organized and maintained | 3 | Systematic capture of expert knowledge and best practices creates institutional standards |
|  | No comprehensive/organized/standardized training programs leveraged on an ongoing basis | 3 | Self-directed learning resources with expert guidance enable 2x faster new employee productivity |
| **Business Impact** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 3 | 50% reduction in design research time and improved reuse through knowledge-based discovery |
| **Manufacturing-Specific Issues** | Lack of effective communication regarding the production readiness | 2 | Knowledge sharing improves understanding of readiness criteria and past issues |
|  | Lack of effective communication regarding the readiness of NPI parts | 2 | Lessons learned repository helps teams understand NPI challenges |
| **Organizational & Governance Gaps** | Lack of data governance for BOM's and part information management. Unclear ownership and lack of formal process tools to enforce governance | 1 | Focuses on knowledge management, not data governance |
|  | Poor execution of OCM and lack of business ownership for value creation resulting in poor adoption | 2 | Change management included but user adoption identified as key risk requiring mitigation |

The Intelligent Knowledge Management & Insight Platform will have the most significant impact (score of 3) on pain points related to knowledge management, information discovery, and breaking down organizational silos. As stated in the project summary, it "transforms organizational knowledge from a passive archive into an active partner in the design process" by providing AI-powered knowledge extraction, expert intelligence capture, and contextual insight delivery. The platform addresses critical issues like loss of institutional knowledge, inefficient information search, repeated mistakes, and slow onboarding, delivering 50% reduction in design research time and 30% improvement in first-time design success.

## **Enhanced Semantic Search & Intelligence Assistant Project**

| **Pain Point Type** | **Individual Pain Points** | **Impact** | **Explanation** |
| --- | --- | --- | --- |
| **Search & Discovery Issues** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 3 | Directly addresses this with AI-powered semantic search enabling natural language queries like "show me all connector designs for automotive applications with high vibration resistance" - 80% reduction in search time |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 3 | Implements federated search across all repositories with unified results ranking and presentation, providing consistent search experience regardless of data source |
| **Duplication & Proliferation** | Lack of standard approach of how BOM's are created and organized | 1 | Search capabilities help find existing BOMs but don't standardize creation |
|  | Lack of standard approach for how part information is organized | 1 | Improves discovery but doesn't organize information |
|  | Lack of ability to manage variants and options for a product/product family | 2 | Enhanced search helps find variants and understand relationships through semantic understanding |
| **Data Entry & Manual Processes** | Lack of automation results in extensive manual data entry for BOM's and part information | 0 | No impact on data entry automation |
|  | Manual change mgmt process for BOM's and part information across multiple systems | 0 | Doesn't automate change management |
|  | Disconnected BOM management (ie: eBOM not connected to cBOM, cBOM not connected to mBOM, eBOM partially connected to mBOM, etc.) | 1 | Helps find related BOMs but doesn't connect them |
| **Data Integrity & Quality Issues** | Lack of digital BOM's available in plants resulting in potential quality issues (ie: Paper BOMs on shop floor no longer valid) | 0 | Doesn't digitize BOMs |
|  | Incomplete/incorrect/missing part information | 2 | Better discovery helps identify gaps; data quality scoring helps users assess reliability |
|  | Incomplete/incorrect/missing material master information | 2 | Semantic search surfaces related information that may fill gaps |
|  | Lack of standard approach for material master data governance | 0 | Search doesn't provide governance |
|  | Inconsistency/Duplication between systems resulting in unreliable information (ie: multiple sources of truth) | 2 | Federated search shows all sources, helping identify inconsistencies |
| **System Integration Problems** | Lack of integration of digital thread between different BOM's (ie: eBOM to mBOM, cBOM to eBOM) | 1 | Helps find related BOMs across systems but doesn't integrate them |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 3 | Federated search across PLM, ERP, document management creates unified search experience |
|  | Due to Molex's dependency on documents, the ability to update/locate/refine our data is very difficult | 3 | Natural language processing and semantic understanding make document-based information easily searchable and discoverable |
| **Process & Workflow Inefficiencies** | Lack of harmonization of an eBOM to mBOM approach (people/process) across plants creates silos and disrupts data flow between departments | 2 | Democratized access to information helps break down silos by making all information discoverable |
|  | Lack of harmonization of material master creation (people/process) across plants creates silos and disrupts data flow | 1 | Better information discovery but doesn't harmonize processes |
|  | Lack of business process (and possibly tools) to manage variants and options for a product/product family | 1 | Helps find variants but doesn't manage them |
| **Change Management** | Changes to EBOMs and MBOMs managed in different systems resulting in redundancy and overlap | 1 | Helps find all versions but doesn't manage changes |
|  | Lack of traceability for Material Master changes (no revision control for MM's) | 1 | Can find historical versions if stored but doesn't provide revision control |
|  | Disconnect and lack of traceability between changes to mBOM that might affect the eBOM | 2 | Semantic understanding helps identify relationships and potential impacts |
|  | Inefficient and non-standardized application of PCN Process resulting in customer frustration | 1 | Better search for PCN information but doesn't standardize process |
| **Knowledge Management Issues** | Lack of standard approach of how BOM's are created, organized and maintained | 1 | Helps find information but doesn't standardize approaches |
|  | No comprehensive/organized/standardized training programs leveraged on an ongoing basis | 2 | Makes training materials easily discoverable through natural language search |
| **Business Impact** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 3 | Core capability - 50% increase in design reuse through better discovery, 60% improvement in relevant result discovery |
| **Manufacturing-Specific Issues** | Lack of effective communication regarding the production readiness | 2 | Helps teams find production readiness information across systems |
|  | Lack of effective communication regarding the readiness of NPI parts | 2 | Enables quick discovery of NPI-related information and status |
| **Organizational & Governance Gaps** | Lack of data governance for BOM's and part information management. Unclear ownership and lack of formal process tools to enforce governance | 0 | Search doesn't provide governance structure |
|  | Poor execution of OCM and lack of business ownership for value creation resulting in poor adoption | 1 | User adoption identified as risk but intuitive interface and clear value demonstration planned |

The Enhanced Semantic Search & Intelligence Assistant will have the most significant impact (score of 3) on pain points related to information discovery and search across scattered systems. As stated in the project summary, it "revolutionizes how Molex teams discover and access information by implementing AI-powered semantic search capabilities" that understand "context, intent, and relationships." The platform addresses the critical challenge where "engineers and teams waste significant time searching through multiple systems with limited search functionality," delivering an 80% reduction in search time and 60% improvement in relevant result discovery. The conversational AI assistant and natural language processing capabilities transform how teams interact with information, making it accessible regardless of technical terminology or location.

## **Real-Time BOM Analytics & Cost Intelligence Project**

| **Pain Point Type** | **Individual Pain Points** | **Impact** | **Explanation** |
| --- | --- | --- | --- |
| **Search & Discovery Issues** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 1 | Provides cost visibility but doesn't enhance part search capabilities |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 2 | Integrates cost data from multiple systems but focuses on cost rather than general part information |
| **Duplication & Proliferation** | Lack of standard approach of how BOM's are created and organized | 2 | Analytics provide visibility into BOM structures that can drive standardization |
|  | Lack of standard approach for how part information is organized | 1 | Focuses on cost analytics rather than part organization |
|  | Lack of ability to manage variants and options for a product/product family | 3 | Enables comparison of costs across variants and options with what-if analysis capabilities |
| **Data Entry & Manual Processes** | Lack of automation results in extensive manual data entry for BOM's and part information | 2 | Automates cost rollup processes that were previously manual and error-prone |
|  | Manual change mgmt process for BOM's and part information across multiple systems | 1 | Provides visibility but doesn't automate change management |
|  | Disconnected BOM management (ie: eBOM not connected to cBOM, cBOM not connected to mBOM, eBOM partially connected to mBOM, etc.) | 3 | Provides instant cost visibility across all BOM types with multi-level rollups |
| **Data Integrity & Quality Issues** | Lack of digital BOM's available in plants resulting in potential quality issues (ie: Paper BOMs on shop floor no longer valid) | 1 | Provides digital cost visibility but doesn't digitize BOMs themselves |
|  | Incomplete/incorrect/missing part information | 2 | AI-driven cost anomaly detection helps identify data quality issues |
|  | Incomplete/incorrect/missing material master information | 2 | Cost intelligence alerts on missing or anomalous cost data |
|  | Lack of standard approach for material master data governance | 1 | Provides analytics but not governance structure |
|  | Inconsistency/Duplication between systems resulting in unreliable information (ie: multiple sources of truth) | 2 | Real-time integration helps identify cost inconsistencies across systems |
| **System Integration Problems** | Lack of integration of digital thread between different BOM's (ie: eBOM to mBOM, cBOM to eBOM) | 2 | Integrates cost data across BOM types but doesn't create full digital thread |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 3 | Integration with ERP, PLM, and procurement systems provides unified cost view |
|  | Due to Molex's dependency on documents, the ability to update/locate/refine our data is very difficult | 1 | Focuses on structured cost data rather than document management |
| **Process & Workflow Inefficiencies** | Lack of harmonization of an eBOM to mBOM approach (people/process) across plants creates silos and disrupts data flow between departments | 2 | Unified cost visibility helps break down silos between departments |
|  | Lack of harmonization of material master creation (people/process) across plants creates silos and disrupts data flow | 2 | Standardized cost analytics drive process harmonization |
|  | Lack of business process (and possibly tools) to manage variants and options for a product/product family | 3 | What-if scenario modeling tools enable effective variant cost management |
| **Change Management** | Changes to EBOMs and MBOMs managed in different systems resulting in redundancy and overlap | 2 | Real-time cost impact analysis of changes across all BOM types |
|  | Lack of traceability for Material Master changes (no revision control for MM's) | 2 | Historical cost tracking and trending provides some traceability |
|  | Disconnect and lack of traceability between changes to mBOM that might affect the eBOM | 3 | Instant visibility into cost implications of BOM changes across types |
|  | Inefficient and non-standardized application of PCN Process resulting in customer frustration | 2 | Cost impact analysis supports better PCN decisions |
| **Knowledge Management Issues** | Lack of standard approach of how BOM's are created, organized and maintained | 1 | Analytics provide insights but don't standardize creation processes |
|  | No comprehensive/organized/standardized training programs leveraged on an ongoing basis | 0 | No impact on training programs |
| **Business Impact** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 1 | Cost visibility may encourage reuse but doesn't enhance search |
| **Manufacturing-Specific Issues** | Lack of effective communication regarding the production readiness | 2 | Real-time cost data improves production planning communication |
|  | Lack of effective communication regarding the readiness of NPI parts | 2 | Cost analytics support NPI decision-making |
| **Organizational & Governance Gaps** | Lack of data governance for BOM's and part information management. Unclear ownership and lack of formal process tools to enforce governance | 1 | Provides analytics but not governance framework |
|  | Poor execution of OCM and lack of business ownership for value creation resulting in poor adoption | 2 | User adoption risk identified with mitigation through superior UX and clear value demonstration |

The Real-Time BOM Analytics & Cost Intelligence project will have the most significant impact (score of 3) on pain points related to cost visibility, variant management, and cross-BOM cost analysis. As stated in the project summary, it "provides instant visibility into BOM structures, costs, and analytics across the entire product lifecycle" and addresses "the critical gap where teams lack real-time access to costed BOM information." The platform delivers real-time costed BOM functionality with advanced analytics, enabling "immediate cost impact analysis" and "what-if analysis on BOM changes." This results in 20% reduction in product costs, 40% faster quote-to-order cycles, and 50% reduction in time spent on cost analysis.

## **Design Cost Optimizer Project**

| **Pain Point Type** | **Individual Pain Points** | **Impact Score** | **Explanation** |
| --- | --- | --- | --- |
| **Search & Discovery Issues** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 2 | AI-powered alternative component recommendations help engineers find cost-effective existing components, encouraging reuse |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 2 | Integrates cost data from multiple sources (ERP, PLM, supplier feeds) into unified platform |
| **Duplication & Proliferation** | Lack of standard approach of how BOM's are created and organized | 2 | Design-for-cost methodology drives standardization in BOM creation with cost considerations |
|  | Lack of standard approach for how part information is organized | 1 | Focuses on cost optimization rather than part organization |
|  | Lack of ability to manage variants and options for a product/product family | 3 | What-if scenario analysis enables cost optimization across product variants and options |
| **Data Entry & Manual Processes** | Lack of automation results in extensive manual data entry for BOM's and part information | 1 | Automates cost calculations but doesn't address BOM data entry |
|  | Manual change mgmt process for BOM's and part information across multiple systems | 1 | Provides cost impact visibility but doesn't automate change management |
|  | Disconnected BOM management (ie: eBOM not connected to cBOM, cBOM not connected to mBOM, eBOM partially connected to mBOM, etc.) | 2 | Real-time cost visibility helps connect design decisions (eBOM) with manufacturing costs (mBOM) |
| **Data Integrity & Quality Issues** | Lack of digital BOM's available in plants resulting in potential quality issues (ie: Paper BOMs on shop floor no longer valid) | 0 | No impact on BOM digitization in plants |
|  | Incomplete/incorrect/missing part information | 2 | Cost data validation and multiple data sources help identify missing information |
|  | Incomplete/incorrect/missing material master information | 2 | Integration with supplier cost feeds improves material cost data completeness |
|  | Lack of standard approach for material master data governance | 1 | Improves cost data quality but doesn't provide governance framework |
|  | Inconsistency/Duplication between systems resulting in unreliable information (ie: multiple sources of truth) | 2 | Regular data validation and multiple source integration help identify inconsistencies |
| **System Integration Problems** | Lack of integration of digital thread between different BOM's (ie: eBOM to mBOM, cBOM to eBOM) | 2 | Connects design decisions to manufacturing costs, partially bridging eBOM to mBOM |
|  | Part information scattered across multiple systems/data sources and not connected/synchronized | 3 | Integration with CAD, PLM, ERP, and supplier systems creates unified cost view |
|  | Due to Molex's dependency on documents, the ability to update/locate/refine our data is very difficult | 1 | Focuses on structured cost data rather than document management |
| **Process & Workflow Inefficiencies** | Lack of harmonization of an eBOM to mBOM approach (people/process) across plants creates silos and disrupts data flow between departments | 2 | Design-for-cost methodology promotes collaboration between design and manufacturing |
|  | Lack of harmonization of material master creation (people/process) across plants creates silos and disrupts data flow | 1 | Focuses on cost optimization rather than material master creation |
|  | Lack of business process (and possibly tools) to manage variants and options for a product/product family | 3 | What-if scenario tools enable systematic cost management of variants |
| **Change Management** | Changes to EBOMs and MBOMs managed in different systems resulting in redundancy and overlap | 2 | Real-time cost impact analysis of design changes |
|  | Lack of traceability for Material Master changes (no revision control for MM's) | 1 | Historical cost trend analysis provides some traceability |
|  | Disconnect and lack of traceability between changes to mBOM that might affect the eBOM | 2 | Cost implications create visibility between design and manufacturing changes |
|  | Inefficient and non-standardized application of PCN Process resulting in customer frustration | 2 | Cost impact analysis supports better PCN decisions |
| **Knowledge Management Issues** | Lack of standard approach of how BOM's are created, organized and maintained | 2 | Design-for-cost methodology standardizes cost considerations in BOM creation |
|  | No comprehensive/organized/standardized training programs leveraged on an ongoing basis | 1 | Includes training materials but doesn't address broader training programs |
| **Business Impact** | Limited ability to easily/quickly search for and reuse Molex designed features and components | 3 | AI-powered recommendations actively suggest reusable components based on cost and specifications |
| **Manufacturing-Specific Issues** | Lack of effective communication regarding the production readiness | 2 | Manufacturing cost estimation improves production planning communication |
|  | Lack of effective communication regarding the readiness of NPI parts | 2 | Early cost optimization reduces NPI delays due to cost issues |
| **Organizational & Governance Gaps** | Lack of data governance for BOM's and part information management. Unclear ownership and lack of formal process tools to enforce governance | 1 | Improves cost data quality but doesn't establish governance framework |
|  | Poor execution of OCM and lack of business ownership for value creation resulting in poor adoption | 2 | User resistance identified as risk with mitigation through intuitive interface and value demonstration |

The Design Cost Optimizer project will have the most significant impact (score of 3) on pain points related to component reuse, variant management, and system integration for cost data. As stated in the project summary, it "analyzes design decisions in real-time to optimize product costs while maintaining quality and performance requirements" and addresses "the critical challenge where design engineers make decisions without visibility to cost implications." The platform provides "real-time cost analysis, alternative component suggestions, and design-for-cost recommendations," resulting in 15-25% reduction in product costs, 50% reduction in cost-related redesigns, and 30% faster time-to-market. The AI-powered recommendations actively promote reuse of existing components by suggesting cost-effective alternatives that meet specifications.