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## Highlights

- Enable application transformation while accelerating development time and improving quality
  - Increase productivity of your development and test teams with insights that inform and align agile, cross-functional teams
  - Reduce risk and improve compliance with visual insights that reveal application inter-dependencies and the impact of code changes
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# IBM Application Discovery and Delivery Intelligence

*Accelerate your digital transformation with application insights that increase productivity and reduce risk*

Hardly any organization develops or implements applications in a “greenfield” environment. Therefore, understanding the existing landscape, complex inter-dependencies and scale of change is critical in the planning, design, execution and documentation of IT application change projects. Manual analysis of the application ecosystem, using old, poorly maintained documentation leads to slow delivery. The result is missed business opportunities, mistakes leading to waste, lengthy test-fix cycles, increased risk to uptime for your business-critical services, and an inability to meet compliance requirements. You need to be able to safely and incrementally evolve your business-critical applications to support your digital transformation, while ensuring the quality and stability that your customers demand. You shouldn’t have to risk the availability of your technology services to modernize your applications.

That’s where Application & Discovery Intelligence (ADDI) can help. It provides an application discovery and analysis platform to help you transform your application ecosystem—from initial discovery through in-depth understanding. Helping development teams accelerate their digital transformation, ADDI provides cognitive insights revealing application interdependencies, code complexity and code quality across platforms, environments and languages. And because it operates across your entire application ecosystem, you can be rest assured that the code you’re updating will respond as expected. Because of the deep, visual, application analytics it provides, you can transform applications at a lower total cost, in less time and with higher quality.



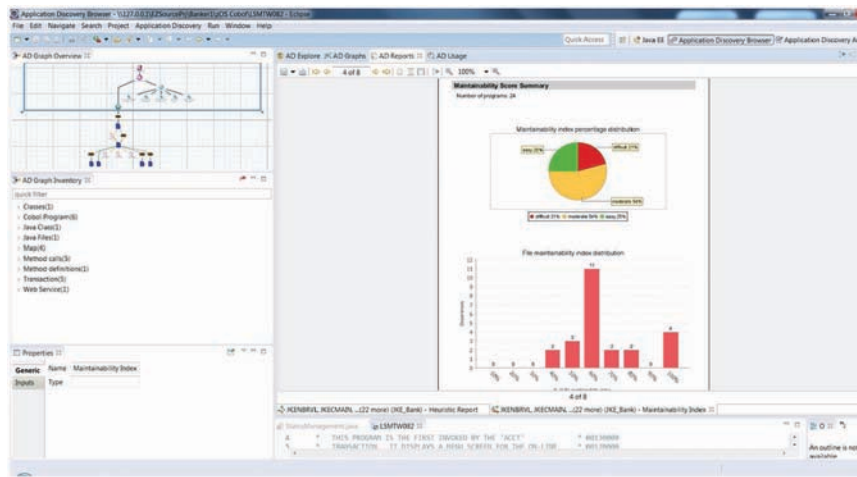


Figure 1: Flowchart level view of a portion of an application to understand its logic before making change

## Accelerates Your Digital Transformation

To stay ahead of your competition, your applications have been forced into a constant state of change. It is crucial to have optimized test cases and accurate code analysis, showing you all the relationships between applications, correlating run-time metrics with static code, determining the impact of changes (Figure 1) and accelerating application transformation for your z Systems® hybrid cloud environment. With advanced API insights, ADDI allows you to seamlessly stitch new and existing applications together with confidence. And, with the documentation you will receive in a matter of seconds, you can promote cross-functional teamwork and collaboration across the entire team - not just the mainframe team. ADDI provides that and more to help accelerate your digital transformation with consistent understanding of your entire application ecosystem.

## Improves Productivity

In today's competitive market, every penny and every man-hour counts, hence maximizing productivity is critical. A Forrester report found that application development and management time was reduced by twenty five percent with ADDI<sup>1</sup>. Developers can easily scan applications and find relevant code faster so they can more rapidly assess the impact of code changes. Optimal test plans can be built because testers can quickly identify redundant test cases and expose areas of the code that are not yet tested, which are most or least executed, and those that have performance degradations. ADDI discovers and correlates the relationships between the different application components, their IT infrastructure and the resources they consume, bridging the gap between applications and operations and improving production support and root-cause-analysis.

Without these advanced analytics, developers would need to manually check thousands or even millions of lines of code hoping to find the ones that need to be changed. With this information, you can build up knowledge of the application ecosystem and improve knowledge transfer within your organization. Simply put, ADDI radically improves the productivity of your development teams, as evident by numerous customer testimonials.

**Reduces Risk & Compliance Concerns**

No one gets away with writing code that brings down their services. ADDI analyzes, correlates, and visualizes the relationships between different application components to facilitate application understanding across the application lifecycle so you can fully understand the impact of an impending application change—before you make it. It also provides application complexity and maintainability (Figure 2) metrics for software quality and portfolio management so you can keep your code running optimally. With insights into development, you can enforce coding standards and govern the delivery of solutions, whether that is delivered in-house, with a systems integrator or some other external development firm. As your application ecosystem grows in complexity, ADDI will help by providing real-time access to accurate technical documentation. Many organizations need to comply with regulations which require them to account for all changes both to financial records and to the underlying systems and applications that support them. ADDI can help you- account for changes to these critical applications. With ADDI you can automatically document the state of these applications before and after each change, and you can add annotation explaining the change. Quality code is key to ensure service availability. As a result, ADDI delivers the analytics to build, maintain and update your code confidently.

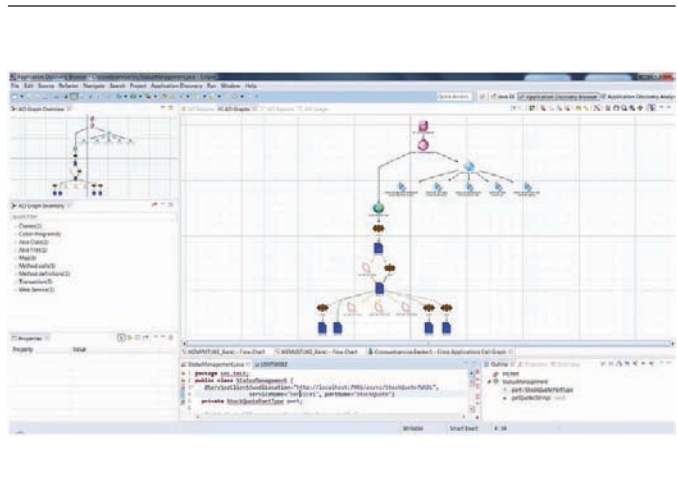


Figure 2: Cross-application call graph showing the relationships between components of a banking application

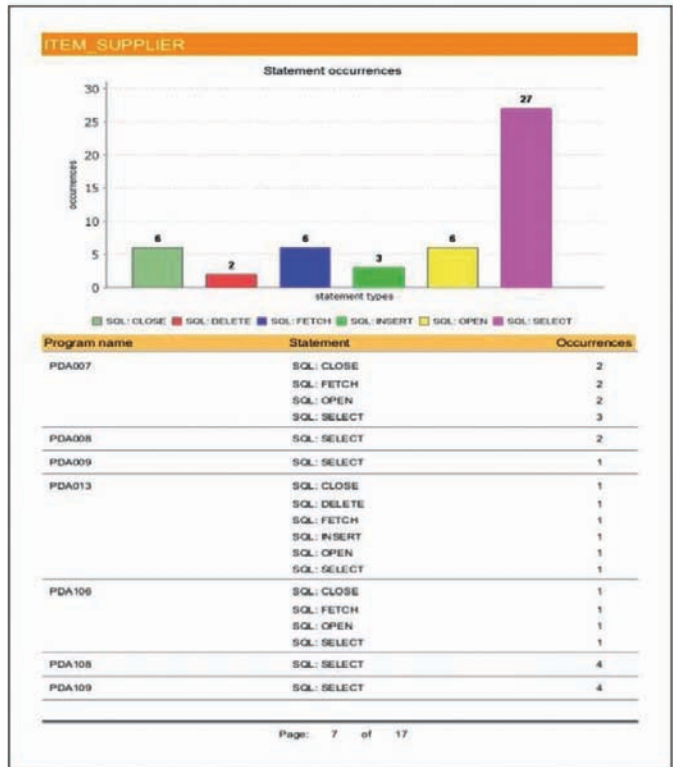


Figure 3: Where Used Report to identify where resources are used before making changes

## Key Features & Benefits

ADDI takes away the guesswork and delivers information for the most efficient development process. It helps customers quickly and safely unlock the value of their existing assets for digital transformation with numerous advanced features.

### Enable application transformation with accelerated development time and improved quality

| Feature   | Benefits  |
|---|---|
| <b>Reuse Existing Assets for the API Economy</b>                              | <ul style="list-style-type: none"> <li>• Locate logic to expose as APIs/services by tracing back data flow through variables across programs using Impact Analysis Reports</li> <li>• Identify API candidates by finding programs directly or indirectly accessing certain databases/data sets</li> </ul>   |
| <b>Support Hybrid Cloud Architectures</b>                                     | <ul style="list-style-type: none"> <li>• Understand how enterprise applications interact with other applications in a hybrid cloud architecture by tracing systems-of-engagement consumers to systems-of-record core functionality</li> <li>• Manage application portfolio based on metrics and using dependency information</li> </ul>   |
| <b>Increase Agility by Simplifying and Standardizing Work Item Estimation</b> | <ul style="list-style-type: none"> <li>• Use standardized metrics (such as Maintainability Index or Halstead Complexity) to make more realistic estimations</li> <li>• Factor in inter-dependencies between applications in estimations</li> </ul>  |
| <b>Accelerate Refactoring and Incremental Modernization</b>                   | <ul style="list-style-type: none"> <li>• Complexity reports allow locating complex programs which could be candidates for refactoring</li> <li>• Call-graphs, usage reports and other reports help planning application modernization and make application portfolio decisions</li> <li>• Dead-code reports give indications about possible dead-code to remove</li> </ul>  |
| <b>Promote Cross-Functional Teams and Increase Transparency</b>               | <ul style="list-style-type: none"> <li>• Developers have more insights into operations data and link it back to the artifacts quality</li> <li>• Operations can see the progress of applications over time and quality exposure to understand deployment readiness</li> <li>• Testers can understand which code is executed the most and deserve more testing</li> <li>• Provides a comprehensive dashboard with vital application metrics to keep the extended team fully aware of emerging issues in real-time</li> </ul> |

### Increase productivity of your development and test teams with insights into your application ecosystem

| Feature   | Benefits   |
|---|--|
| <b>Build up Knowledge and Increase Knowledge Transfer</b> | <ul style="list-style-type: none"> <li>• Use graphs and reports to discuss internal application</li> <li>• Document knowledge using annotations</li> <li>• Tag programs using keywords to correlate programs and business use cases</li> </ul>   |
| <b>Decrease Training Effort for New Talent</b>            | <ul style="list-style-type: none"> <li>• Use annotations to document knowledge about Applications</li> <li>• Allow new developers to explore applications on their own in their own pace</li> <li>• Empower non-mainframe developers to gain insights into mainframe applications</li> </ul> |

**IBM Systems**  
Data Sheet

| <b>Feature</b>   | <b>Benefits</b>   |
|--|---|
| <b>Accelerate New Developments</b>   | <ul style="list-style-type: none"> <li>• Reduce guesswork about side-effects while changing applications</li> <li>• Navigate the code more effectively and understand unknown code faster</li> <li>• Adopt a more structured approach to changes using ADDI as a guidance</li> </ul>  |
| <b>Find Relevant Code Faster and Assess Impacts of Changes</b>   | <ul style="list-style-type: none"> <li>• Custom queries against the repository allow for very powerful search against a logical model of the source code</li> <li>• Identify business critical programs and drill down to understand code complexity and maintainability, by correlating operational data with code quality data</li> <li>• Alerts developers when PL/I or IMS/DB sections of code are impacted by a potential change, allowing them to check and see if updates are needed</li> </ul>  |
| <b>Perform Root-Cause Analysis and Optimize Test Case Execution by navigate Easily inside Large and Complex programs</b> | <ul style="list-style-type: none"> <li>• Detect which regression tests cases maps to changed code to reduce test efforts in early iterations by a magnitude or more</li> <li>• Optimize test case execution by identifying which test cases may be redundant, so low value tests can be reduced</li> <li>• Close test gaps before exiting test phase by showing code coverage of changed and unchanged code</li> <li>• Find the root cause of the performance issues faster by displaying the transaction call-graph of the artifacts that are related to the problem only, associating with info on what get changed recently and which has higher risk</li> </ul> |

**Reduced risk and improve compliance with visual insights that reveal application inter-dependencies and the impact of code changes**

| <b>Feature</b>  | <b>Benefits</b>   |
|---|---|
| <b>Analyze Dependencies to Ensure Changes Are Implemented Accurately and Completely</b> | <ul style="list-style-type: none"> <li>• Program call-graphs show how programs, transactions, databases and files are connected in complex environments</li> <li>• Usage reports show where certain Resources or Variables are accessed. For example, “Where Used Report” in Figure 3 can be used to identify where resources are used before making changes</li> <li>• Impact analysis reports show multi-level impacts of changes to variables and databases across programs</li> <li>• Enhances the ability of enterprise development teams to understand application interdependencies with impact analysis for COBOL, PL/I and IMS/DB</li> </ul> |
| <b>Ensure the integrity of batch jobs through code and impact analysis</b>              | <ul style="list-style-type: none"> <li>• Correlate and visualize batch jobs and scheduler information to programs, databases and data sets</li> <li>• Drill down allows discovering programs called and resources used directly and indirectly by jobs</li> <li>• Correlates static code analysis with operational data from IBM® OMEGAMON® for CICS® and code coverage data from IBM Application Delivery Foundation for z Systems to help eliminate redundant tests and find defects earlier</li> </ul>   |
| <b>Enforce Code Quality, Coding Standards and Increase Compliance</b>                   | <ul style="list-style-type: none"> <li>• Complexity reports allow insights into program complexity</li> <li>• Customizable coding rules allow verification or enforcement of coding standards/best practices across projects and technologies</li> <li>• Provides easy access to technical documentation to show databases/tables/datasets/includes used by programs and datasets/programs used by jobs</li> </ul>  |

| Feature   | Benefits   |
|---|--|
| <b>Govern Maintainability and Delivery—</b> inhouse, SIs, or other external outsourcing parties | <ul style="list-style-type: none"> <li>• Monitor project-level application inventory and quality trends and promote continuous simplification of the code base</li> <li>• Ensure accountability of outsourced project and in-house projects alike against quantifiable objectives</li> <li>• Elimination of certain code constructs and enforcement of best practices using customizable coding rules</li> </ul>   |
| <b>Detect Problems Earlier</b>  | <ul style="list-style-type: none"> <li>• Visualize if the code changes drive up response times, by viewing transaction performance info with transaction composition map</li> <li>• Allows developers to use the Transaction Composition Map of the transaction that performs poorly, identify program artifacts (Figure 4) that call in to the same data source(s) and have changed recently to take corrective action to resolve the problem</li> <li>• Helps developers identify response time spikes of a specific transaction in a graph and then visually compare it to DB2® and File I/O wait time peaks to determine whether the three metrics coincide to identify a problem (Figures 5 &amp; 6).</li> <li>• Alerts of potential performance problems before they escape into production by monitoring test environments' operational data</li> <li>• Identifies and reduces quality risks, using machine learning algorithms to filter very large amounts of artifact data based on user defined thresholds</li> </ul> |



Figure 4: Transaction Composition Map showing only relevant artifacts

Figure 5: Detailed transaction view

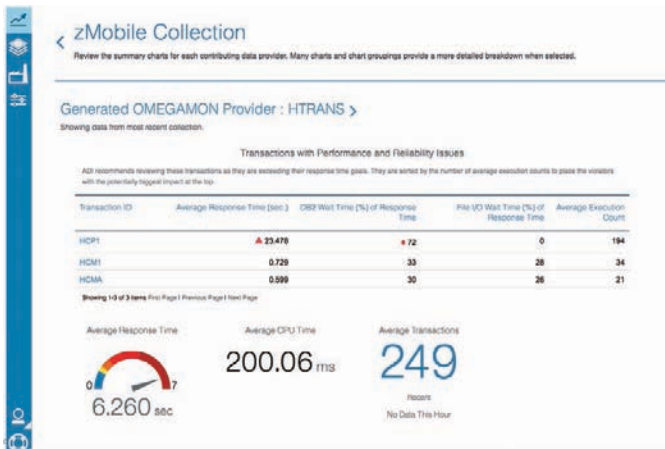


Figure 6: Transactions with performance issues

In summary, ADDI enables API economy with the depth and breadth (Figure 7) of IBM's Cognitive DevOps.

### Financial & Operational Savings

Significant cost savings and improved profitability are possible with ADDI<sup>1</sup>.

- Up to one twenty five percent ROI using ADDI
- Payback periods possible in less than seven months
- Application development and management time reduced up to twenty five percent
- Improved application profitability up to twenty percent

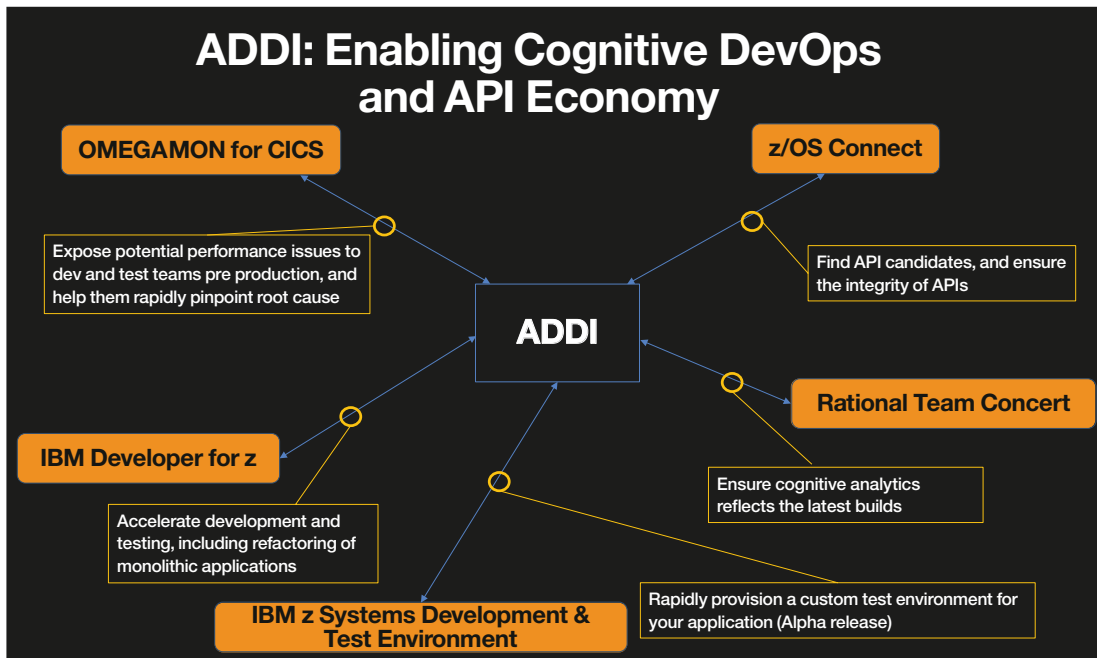


Figure 7: ADDI: Enabling Cognitive DevOps and API Economy





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<sup>1</sup> Source: [https://www-01.ibm.com/marketing/iwm/dre/signup?source=urx-13826&S\\_PKG=ov57589](https://www-01.ibm.com/marketing/iwm/dre/signup?source=urx-13826&S_PKG=ov57589)



Please Recycle

| ALM Phase               | Typical saving | Basis   |
|-------------------------|----------------|---|
| Assessment              | 70 - 85%       | Improved accuracy, enhanced change impact analysis, and improved footprint understanding based on current systems |
| Requirements            | 20 - 35%       | Automated documentation   |
| Planning                | 30 - 50%       | Both detailed execution planning and task-based resource / cost estimations                                       |
| Development             | 30 - 50%       | Reduced rework, higher resource productivity  |
| Documentation           | 60 - 90%       | Both on-demand and automated  |
| Testing                 | 30 - 50%       | Improved error reduction  |
| Support and maintenance | 30 - 40%       | Improved asset efficiency, higher resource productivity   |
| Overall                 | 30 - 50%       | Conservatively for a business case  |

Note: The percentages shown in this table are based on client surveys conducted from 2013-2015, guidance from industry analysts and industry reference frameworks.

## Why IBM?

IBM® is a proven leader in DevOps solutions to optimize the return on your IT investment while reducing risk. IBM helps organizations accelerate software delivery; balance speed, cost, quality and risk; and reduce time-to-customer feedback with the solutions in our DevOps portfolio. Our solutions offer an open-standards-based platform and are designed to integrate into existing multi-platform lifecycle environments to deliver value more quickly. With its advanced functionality to efficiently enable digital transformation in a DevOps environment, ADDI delivers tremendous operational and financial savings across every phase of application lifecycle management.

## For more information

To learn more about the IBM ADDI, please contact your IBM representative or IBM Business Partner, or visit the following websites:

- [ibm.com/systems/z/solutions/enterprise-devops/](http://ibm.com/systems/z/solutions/enterprise-devops/)
- [ibm.com/us-en/marketplace/app-discovery-and-delivery-intelligence](http://ibm.com/us-en/marketplace/app-discovery-and-delivery-intelligence)

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